Appendix I

Transportation Impact Analysis

KITTELSON & ASSOCIATES

BRANN RANCH TRANSPORTATION IMPACT ANALYSIS

RIO VISTA, CA

September 20, 2024



Brann Ranch Transportation Impact Analysis

Rio Vista, CA

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Summary

The transportation impact analysis (TIA) for the proposed Brann Ranch project in the City of Rio Vista, CA describes the expected transportation-related effects of the project. The TIA includes two components:

- The California Environmental Quality Act (CEQA) requires that the transportation analysis evaluate impacts using vehicle miles traveled (VMT) pursuant to Senate Bill 743 and State CEQA Guidelines Section 15064.3(a). In addition, for CEQA, this TIA addresses the project's potential to increase hazards due to project design features, consistency with circulation system plans and policies, impacts to bike/pedestrian/transit facilities, and impacts to emergency access.
- The Local Transportation Analysis (LTA) has been prepared for the City of Rio Vista for planning purposes, such as consistency with traffic operational policies of the City Rio Vista General Plan. The LTA portion of this report evaluates other transportation issues such as intersection capacity and operations, which are not part of the environmental evaluation under CEQA, to support City's decision making around transportation facilities.

PROJECT DESCRIPTION

The 322-acre proposed Brann Ranch master planned community project would be located on the north side of State Route 12 (SR 12) in the City of Rio Vista, Solano County, CA. The project site is bounded by SR 12 on the south, McCormack Road on the north, Province Path on the east, and bisected by Canright Road. The proposed project includes a maximum of 1,073 single-family detached residential homes on lots 45-feet by 90-feet and 50-feet by 95-feet in size, a maximum of 59 high density multi-family units, approximately 80 acres of open space which includes four neighborhood parks and wetlands along Watson Hollow, a 9-acre mixed use area, and an approximately 8.7-acre school site located on the southeast portion of the site. The mixed-use area is assumed to be able to support approximately up to 25,000 square feet of retail or service uses. The project includes the creation of Bill Brann Road that would provide access to SR 12.

TRIP GENERATION

The trip generation for the total Brann Ranch Master Plan project would be 12,677 daily vehicle trips (1,060 AM peak hour and 1,208 PM peak hour vehicle trips.

CEQA TRANSPORTATION ANALYSIS

The Brann Ranch project would have less than significant environmental impacts in three of the four categories in the CEQA checklist for transportation impacts (conflicts with policies, hazards, emergency access).

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

would have a less than significant impact. The project retail uses would decrease total regional VMT. This would have a less than significant impact for retail uses.

The following measures are included as part of the proposed project:

- Addition of a bus stop/shelter at the project site,
- Bicycle facilities and trails through the project site,
- Well-developed street network, i.e., network of streets through the project site including trails through open space and across Watson Hollow Creek, and
- Roundabout at Bill Brann Road and Canright Road.

Additional recommended mitigation measures include implementing a transportation demand management (TDM) program for residential land use such as school pool programs, subsidized transit program, and voluntary travel behavior change program, mitigation measures such as voluntary commute trip reduction program, providing end-of-trip bicycle facilities for employee use including bike parking, bike lockers, and implementation of expanded transit service in the city.

The measures included in the project would reduce the VMT by 0.51% for both residential and employment land uses. Employing the TDM program would reduce the VMT per capita by up to 15 percent. By employing these measures, the proposed Project would result in a VMT per capita and VMT per employee that would be 98.4 percent and 53.4 percent above the applicable thresholds.

The feasibility and effectiveness of the VMT mitigation measures is either insufficient or unknown at this time. The project cannot demonstrate definitively that implementation of these policies would achieve VMT reductions to meet the VMT per capita or VMT per employee thresholds. With implementation of the project and the recommended mitigation measures, this impact would remain significant and unavoidable under project and cumulative conditions.

LOCAL TRANSPORTATION ANALYSIS

The local transportation analysis identifies the effects of the project on traffic operations in terms of vehicle delay and level of service (LOS), queuing issues and signal warrants. Where adverse intersection operations are found because of the project, improvements are recommended to the intersections to reduce the effect of the project on the local transportation system.

Study Area

The City of Rio Vista confirmed nine study intersections for traffic operations analysis.

Traffic Operations Analysis Scenarios

The local transportation analysis considered four scenarios:

- Existing Conditions
- Existing Plus Project
- Cumulative No Project (2040)
- Cumulative Plus Project (2040)

Existing Traffic Operations

- With existing traffic counts and controls, traffic turning left from the stop signs at the two two-way stop-controlled intersections at SR 12 and Azevedo Road and SR 12/N Front Street and SR 84 is estimated to operate at deficient LOS F conditions during the PM peak hour.
- With existing plus project traffic volumes and controls, the roundabout at SR 12 and SR 113, intersections at SR 12 and Azevedo Road and SR 12 and Summerset Road are estimated to operate at deficient LOS F conditions during both the AM and PM peak hours. Three other intersections at Canright Road and Province Path, SR 12 and Hillside Terrace, and SR 12/N Front Street and SR 84 are estimated to operate at deficient LOS F conditions in the PM peak hour.
- The recommended roadway improvements, noted in table below, would provide acceptable LOS operations (LOS D or better) at three out of five intersections that are projected to have deficient operations with the Brann Ranch project. These improvements can be accommodated within the existing roadway area.

Cumulative Traffic Operations

- With cumulative traffic volumes and controls, the roundabout at SR 12 and SR 113 and intersection at SR 12 and Azevedo Road are estimated to operate at deficient LOS E/F conditions during both AM and PM peak hours. Three other intersections at Canright Road and Azevedo Road, Canright Road and Province Path, and SR 12/N Front Street and SR 84 are estimated to operate at deficient LOS F conditions in the PM peak hour. One intersection at SR 12 and Hillside Terrace is estimated to operate at LOS E conditions in the AM peak hour.
- With cumulative plus project traffic volumes, the roundabout at SR 12 and SR 113, intersections at SR 12 and Azevedo Road, SR 12 and Summerset Road, and SR 12 and Hillside Terrace are estimated to operate at deficient LOS F conditions during both AM and PM peak hours. Three other intersections at Canright Road and Azevedo Road, Canright Road and Province Path, and SR 12/N Front Street and SR 84 are estimated to operate at deficient LOS F conditions in the PM peak hour.
- The recommended roadway improvements, noted in table below, would provide acceptable LOS operations (LOS D or better) at three out of six intersections that are projected to have deficient operations with Brann Ranch project. These improvements can be accommodated within the existing roadway area.
  - Canright Rd and Azevedo Rd
  - SR 12 and Summerset Rd
  - Canright Rd and Province Path
- For two intersections, no feasible roadway improvements were identified within available right-of-way.
  - SR 12 and SR 113
  - SR 12 and Hillside Terrace
- For SR 12/N Front Street and SR 84, the recommended improvements would reduce the delay from 471 seconds to 123 seconds per vehicle, still maintaining the LOS F in the PM peak hour. No feasible additional roadway improvements were identified within the available right-of-way.

- Any roadway improvements involving SR 12 and SR 84 would require Caltrans' approval.

Signal Warrant Analysis

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

- Of the six study intersections that are currently unsignalized, three intersections would meet one or more signal warrants with existing plus project conditions.
- Of the six study intersections that are currently unsignalized, four intersections would meet one or more signal warrants with cumulative plus project conditions.

Recommendations

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

RECOMMENDATIONS FOR EXISTING PLUS PROJECT CONDITIONS

ID	Intersection	Lane Changes	Intersection Control Change
1	SR 12 & SR 113	No feasible improvement measures identified within available right-of-way	
2	SR 12 & Azevedo Rd	No planned improvements identified since only two vehicles turning left from the minor street would experience significant delays, thereby causing LOS F	
6	SR 12 & Summerset Rd	-Change SB right turn only to shared left-right turn lane; -Change WB right turn only to shared through-right turn lane; -Restripe WB gore area to a 700ft WB exit pocket lane; -Restripe EB gore area to a 500 ft EB exit pocket lane	No change
7	Canright Rd & Province Path	No change	Meets signal warrant, replace All-way stop with signal
8	SR 12 & Hillside Terrace	No feasible improvement measures identified within available right-of-way	
9	SR12/N Front Street & SR 84	No change	Meets signal warrant, replace Two-way stop with signal

Source: Kittelson & Associates, Inc. (2024)

RECOMMENDATIONS FOR CUMULATIVE PLUS PROJECT CONDITIONS

ID	Intersection	Lane Changes	Intersection Control Change
1	SR 12 & SR 113	No feasible improvement measures identified within available right-of-way	
2	SR 12 & Azevedo Rd	No planned improvements identified since three vehicles turning left from the minor street would experience significant delays, thereby causing LOS F	
3	Canright Rd & Azevedo Rd	No change	Make Canright Rd stop-controlled and Azevedo Rd uncontrolled
6	SR 12 & Summerset Rd	-Add dual left-turn lanes EB; Change SB right turn only to shared left-right turn lane; -Change WB right turn only to shared through-right turn lane; -Restripe WB gore area to a 700ft WB exit pocket lane; -Restripe EB gore area to a 500 ft EB exit pocket lane	No change
7	Canright Rd & Province Path	No change	Meets signal warrant, replace All-way stop with signal
8	SR 12 & Hillside Terrace	No feasible improvement measures identified within available right-of-way	
9	SR12/N Front Street & SR 84	No change	Meets signal warrant, replace Two-way stop with signal

Source: Kittelson & Associates, (2024)

Site Access

The project would create an entrance/exit to the project site via SR 12. State Route 12 has a posted limit of 50 MPH. The California Highway Design Manual specifies that deceleration and acceleration lanes should be provided for safe operation of intersections on state highway facilities. Deceleration lane length at intersections is determined by the roadway's design speed. Ideally, deceleration should occur entirely off the through traffic lanes. According to the Highway Design Manual, a roadway with a design speed of 50 MPH should have a deceleration lane length of 435 feet. The site plan for the Project aligns with this guidance, featuring a separate deceleration lane on Highway 12 that enters the site and meets the desired length.

Introduction

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

The contents of the transportation impact analysis are consistent with policies provided in the City of Rio Vista General Plan (2001). The transportation impact analysis includes two major components:

- The California Environmental Quality Act (CEQA) requires that the transportation analysis evaluate impacts using vehicle miles traveled (VMT) pursuant to Senate Bill 743 and State CEQA Guidelines Section 15064.3(a). In addition, for CEQA, this TIA addresses the project's potential to increase hazards due to project design features, consistency with circulation system plans and policies, impacts to bike/pedestrian/transit facilities, and impacts to emergency access.
- The Local Transportation Analysis (LTA) has been prepared for the City of Rio Vista for planning purposes. The LTA portion of this report evaluates other transportation issues such as intersection capacity and operations, which are not part of the environmental evaluation under CEQA, to support City's decision making around transportation facilities.

This introduction includes descriptions of the Brann Ranch master planned community, transportation study area and analysis methodologies.

PROJECT DESCRIPTION

The Brann Ranch Project (project) is a master planned community development project, shown in Figure 1.

Project Location

The proposed project area is bounded by State Route (SR) 12 on the south, McCormack Road on the north, Province Path on the east, and bisected by Canright Road.

Project Land Uses

The master plan area is approximately 322 acres and proposes the construction of up to 1,073 single-family detached residential homes, up to 59 high density multi-family units, approximately 80 acres of open space, a 9-acre mixed use area, and an approximately 8.7-acre potential school site located on the southeast portion of the Project site. The mixed-use area is assumed to be able to support approximately up to 25,000 square feet of retail or service uses.

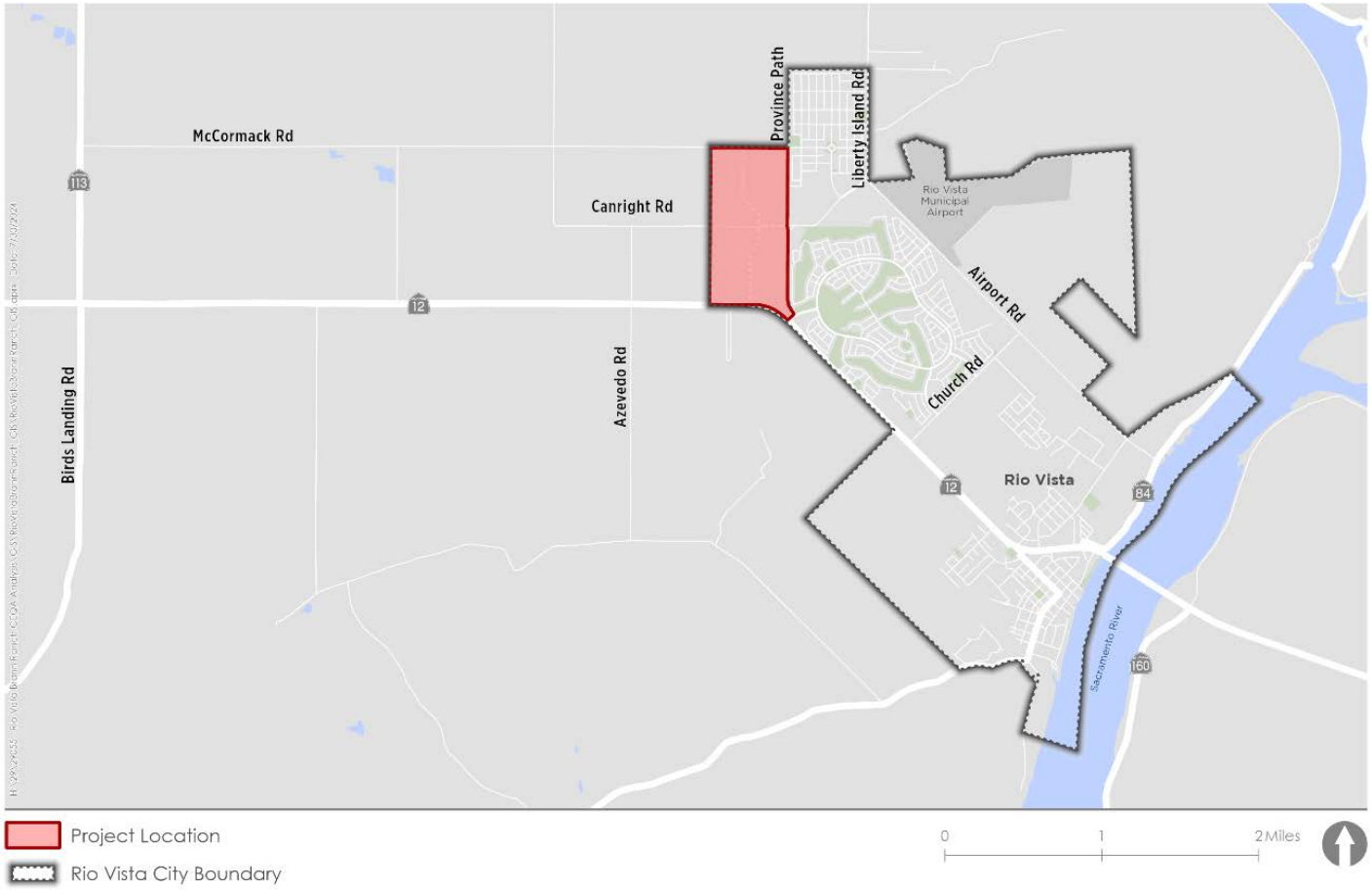
Project Access

Vehicular access to the northern portion of the project site would be provided via the north driveway on McCormack Road, east driveway on Province Path, and south access on Canright Road. Vehicular access to the southern portion of the Project site would be provided via the north driveway on Canright Road, east driveway on Liberty Island Road, and south right-turn-

only access on SR 12. The master planned community also includes local roadways throughout the Project site.

The project would create an entrance/exit to the project site via SR 12 (Bill Branch Road). State Route 12 has a posted limit of 50 MPH. The California Highway Design Manual specifies that deceleration and acceleration lanes should be provided for safe operation of intersections on state highway facilities. Deceleration lane length at intersections is determined by the roadway's design speed. Ideally, deceleration should occur entirely off the through traffic lanes. According to the Highway Design Manual, a roadway with a design speed of 50 MPH should have a deceleration lane length of 435 feet. The site plan for the Project aligns with this guidance, featuring a separate deceleration lane on Highway 12 that enters the site and meets the desired length.

Figure 1: Brann Ranch Project Location



KITTELSON & ASSOCIATES

SOURCE: KITTELSON & ASSOCIATES, INC (2024)

STUDY AREA

The study area for the Brann Ranch includes transportation facilities that would be expected to be affected by the development of the project. The study area includes:

- Pedestrian, bicycle and transit facilities in the vicinity of the proposed Brann Ranch development
- All intersections of major streets that would provide direct access to the project, including project access driveways on State Route 12
- Internal site circulation system

Study Intersections

The Brann Ranch local transportation analysis (LTA) evaluates peak hour traffic operations at nine study intersection locations (Figure 2). Some of the study intersections do not exist at present and will only exist when planned development and associated road improvements are implemented, i.e., part of the cumulative scenarios. The study intersections include:

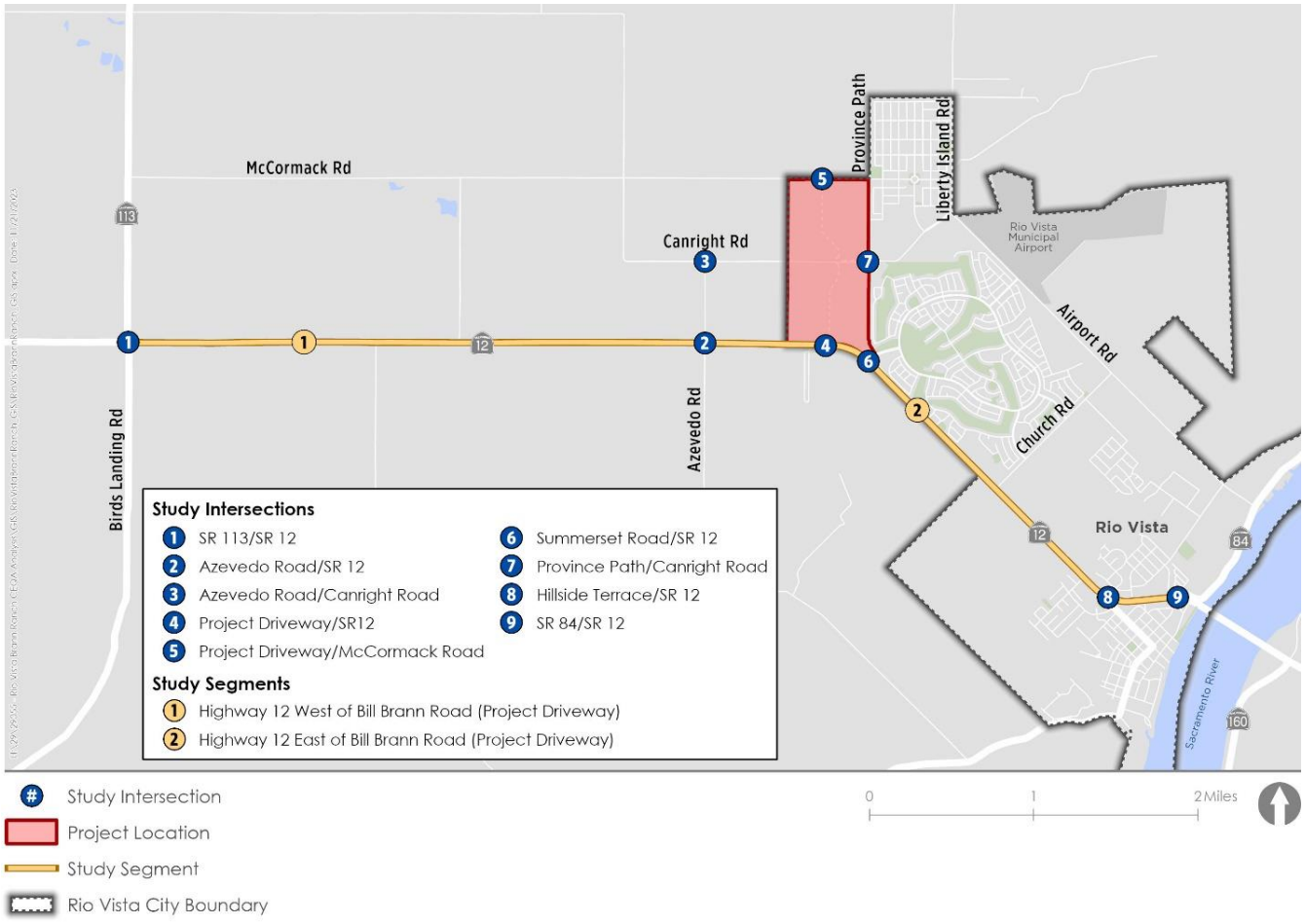
1. SR 113/SR 12
2. Azevedo Road/SR 12
3. Azevedo Road/Canright Road
4. Project Driveway/SR 12 (future)
5. Project Driveway/McCormack Road (Future)
6. Summerset Road/SR 12
7. Province Path/Canright Road
8. Hillside Terrace/SR 12
9. SR 84/SR 12/N Front Street

Study Road Segments

The scoping memorandum proposed the following roadway segments for evaluation:

1. Highway 12 West of Bill Brann Road (Project Driveway)
2. Highway 12 East of Bill Brann Road (Project Driveway)

Figure 2: Study Area



SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Existing Conditions

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

ROADWAY NETWORK

The existing roadway network in the project study area is composed of state highways and local streets.

State Routes

Several state routes provide regional access to the project study area.

State Route 12 (SR 12) is a state highway in California that travels in an east–west direction from SR 116 in Sebastopol in Sonoma County to SR 49 just north of San Andreas in Calaveras County. The route connects the Sonoma and Napa valleys with the Sacramento–San Joaquin River Delta and the Sierra Foothills. It is a two-lane roadway in the Project vicinity and has a center turn lane and left turn lanes as it approaches downtown Rio Vista. The speed limit is 50 miles per hour.

State Route 84 (SR 84) is a state highway in California that consists of two unconnected segments, one in the San Francisco Bay Area and the other primarily in the Sacramento–San Joaquin River Delta area. The section in the River Delta area is a north-south arterial roadway that begins at SR 12 in Rio Vista, passes through Ryer Island (where it connects to SR 220), and ends in West Sacramento. The segment near SR 12 is a two-lane roadway with a speed limit of 35 miles per hour. State Route 84 closely follows the west bank of the Sacramento River.

State Route 113 is a north–south state highway in California that runs from the Sacramento Valley west of Rio Vista at SR 12 to SR 99 in Tudor. It serves as one of two important connecting routes between Interstate 80 and Interstate 5, bypassing Sacramento to the east; the other being Interstate 505 to the west. It is a two-lane roadway with a speed limit of 55 miles per hour towards the City of Dixon.

Local Streets

In addition to state routes, several local streets directly provide access to or serve the project site in the study area. These include McCormack Road to the north, Province Path/Liberty Island Road to the east, Azevedo Road to the west, Canright Road, which bisects the project site, and Summerset Road, which links Liberty Island Road with SR 12.

McCormack Road is a two-lane undivided east-west roadway with a speed limit of 25 miles per hour. It begins in a residential neighborhood to the east and ends at SR 113 to the west. The section east of Canright Road is paved and features bike lanes on both sides, while the portion west of Canright Road is currently unpaved.

Canright Road is a two-lane undivided roadway, starting from Province Path/Liberty Island Road, initially traveling in an east-west direction and later transitioning into a north-south direction west of the project site. The roadway ends at Flannery Road to the north. There are no pedestrian and/or bike facilities on the road and the segment between McCormack Road and Flannery Road is currently unpaved.

Azevedo Road is a two-lane undivided north-south roadway with a posted speed limit of 35 miles per hour. The roadway connects to Canright Road on the north and Emigh Road on the south. There are no pedestrian and/or bike facilities on the road.

Province Path is a two-lane undivided north-south roadway with a posted speed limit of 35 miles per hour. Starting at McCormack Road to the north, it extends to Canright Road on the south, where it transitions to Liberty Island Road. There is a sidewalk on the west side along this segment, and no bike facilities are present.

Liberty Island Road is a two-lane roadway with a posted speed limit of 35 miles per hour in the vicinity of the project site. It starts at Summerset Road on the south and extends north to an agricultural area, running in a north-south direction. The segment between Park Place and Airport Road is a divided roadway with sidewalks on both sides and the segment between Airport Road and Hearth Lane has a sidewalk only on the west side of the road.

Summerset Road is a two-lane divided roadway that loops around a residential neighborhood and connects the residential neighborhood on the north to SR 12. The posted speed limit is 35 miles per hour. A sidewalk is present on one side of the roadway in the residential neighborhood and no bike facilities are present.

Hillside Terrace is a two-lane undivided roadway, originating in a residential neighborhood on the north and connecting to Main Street on the south. There is no posted speed limit. Sidewalks are present on both sides of the roadway while no bike facilities are present.

Truck Facilities

SR 12, SR 84 and SR 113 serve as truck routes according to California Truck Network Maps[1]. Both SR 12 and SR 84 fall under the Terminal Access (STAA) classification, permitting both "Green" STAA trucks and "Black" California legal trucks. Additionally, SR 84, particularly near SR 12, is classified as a 65' California Legal Route, allowing trucks with an overall length of up to 65 feet.

TRANSIT FACILITIES

The following section describes existing transit services near the study area.

Public Transit

The Rio Vista Delta Breeze is a transit service operated by the City of Rio Vista. The operations and maintenance are managed by Transportation Concepts, based in Irvine, California. This service provides deviated fixed-route bus services within the City of Rio Vista and extends its routes to connect Isleton, Rio Vista, Fairfield, Suisun City, the Pittsburg/Bay Point BART Station, and Antioch, with additional connections to Lodi. Rio Vista Delta Breeze buses are equipped with bike racks, which hold two bikes. All buses are also equipped with passenger lifts for mobility devices and meet the ADA requirements.

Two transit routes passing through the project vicinity on SR 12 are Route 50 and Route 52. Route 50 and 52 passengers may call at least 30 minutes in advance, the same day, up to 7 days in

[1] CA Truck Network Maps https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/trucks/truckmaps-d01-d12-a11y.pdf

advance to have the bus come to them within Rio Vista, Isleton, Antioch, Fairfield and Suisun City on a first come, first served, space available basis.

ROUTE 50

Route 50 provides service between Front Street and Main Street in Downtown Rio Vista, Fairfield Transportation Center, Homecoming Park, Trilogy Vista, Clubhouse, Solano Town Center, Solano County Government Center, and Suisun City Train Depot. The westbound trips to Fairfield depart Downtown Rio Vista at 7:30 AM, and 12:00 PM, with two trips between Suisun City and Fairfield at 9:55 AM and 5:35 PM. Three eastbound return trips to Downtown Rio Vista departing the Fairfield Transportation Center at 10:20 AM, 1:20 PM and 5:50 PM, with one eastbound trip operating between Fairfield and Suisun City Train Depot at 9:15 AM. Route 50 offers route deviation anywhere within the city limits of Rio Vista on request for an additional charge.

ROUTE 52

Route 52 to Pittsburg/Bay Point BART Station connects to Central Contra Costa Transit Authority (The County Connection) and Eastern Contra Costa Transit Authority (Tri Delta Transit) in both Antioch and at the Pittsburg/Bay Point BART Station. Route 52 operates Monday through Friday, with one southbound AM trip and one northbound PM trip. The southbound AM trip departs the Trilogy at Rio Vista Clubhouse, a retirement community, at 5:15 AM, and arrives at Pittsburg/Bay Point BART Station at 6:25 AM for transfer to BART. The evening return trip departs from the BART station at 6:00 PM and returns to Rio Vista at 7:15 PM. The route begins at the Trilogy at Rio Vista Clubhouse and travels a similar path as Route 50 through Rio Vista. Route 52 then travels west and south on SR 160 to Antioch with stops at the Antioch Park-and-Ride Lot. The route terminates at the Pittsburg/Bay Point BART Station. Route 52 deviates anywhere within Rio Vista city limits, and within one mile of the route alignment through Pittsburg.

BICYCLE AND PEDESTRIAN FACILITIES

The active transportation network consists of both pedestrian and bicycle infrastructure that work together to provide mobility options for all those that live, work, study, or play in Rio Vista. Bicycle and pedestrian facilities are important components of the transportation network in the study area. They not only offer non-vehicular opportunities for both commute and recreational trips but also provide connections to the region's transit network.

Existing Bicycle Facilities

Bicycle facilities are defined by the following four classes[2]:

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

As shown in Figure 3, an existing Class I Multi-Use Path is on Airport Road, extending from Liberty Island Road to Church Road. McCormack Road between Airport Road and Canright Road has a Class II bike lane on both sides of the roadway.

Planned Bicycle Facilities

As outlined in the Solano County Active Transportation Plan (Figure 4), numerous bicycle facilities are proposed for implementation within the City of Rio Vista. Among these proposed facilities is a Class I Multi-Use Path on Province Path and Liberty Island Road (between Province Path and Airport Road). Additionally, a feasibility study is proposed for assessing the potential for a bike facility along SR 12, extending from the city boundary to Summerset Road. Furthermore, it is proposed to install a Class I Multi-Use Path along the SR 12 segment from 2500 feet west of Church Road to approximately Main Street, and another segment featuring a Class IV Separated Bikeway from Main Street to SR 84.

[2] As detailed in Chapter 1000 of the Highway Design Manual (Caltrans, 2015).

Figure 3: Existing Bicycle Network (Source: Solano County Active Transportation Plan – Rio Vista[3])



[3] Source: https://sta.ca.gov/wp-content/uploads/2020/06/Rio-Vista.pdf

Figure 4: Proposed Bicycle Network (Source: Solano County Active Transportation Plan - Rio Vista)



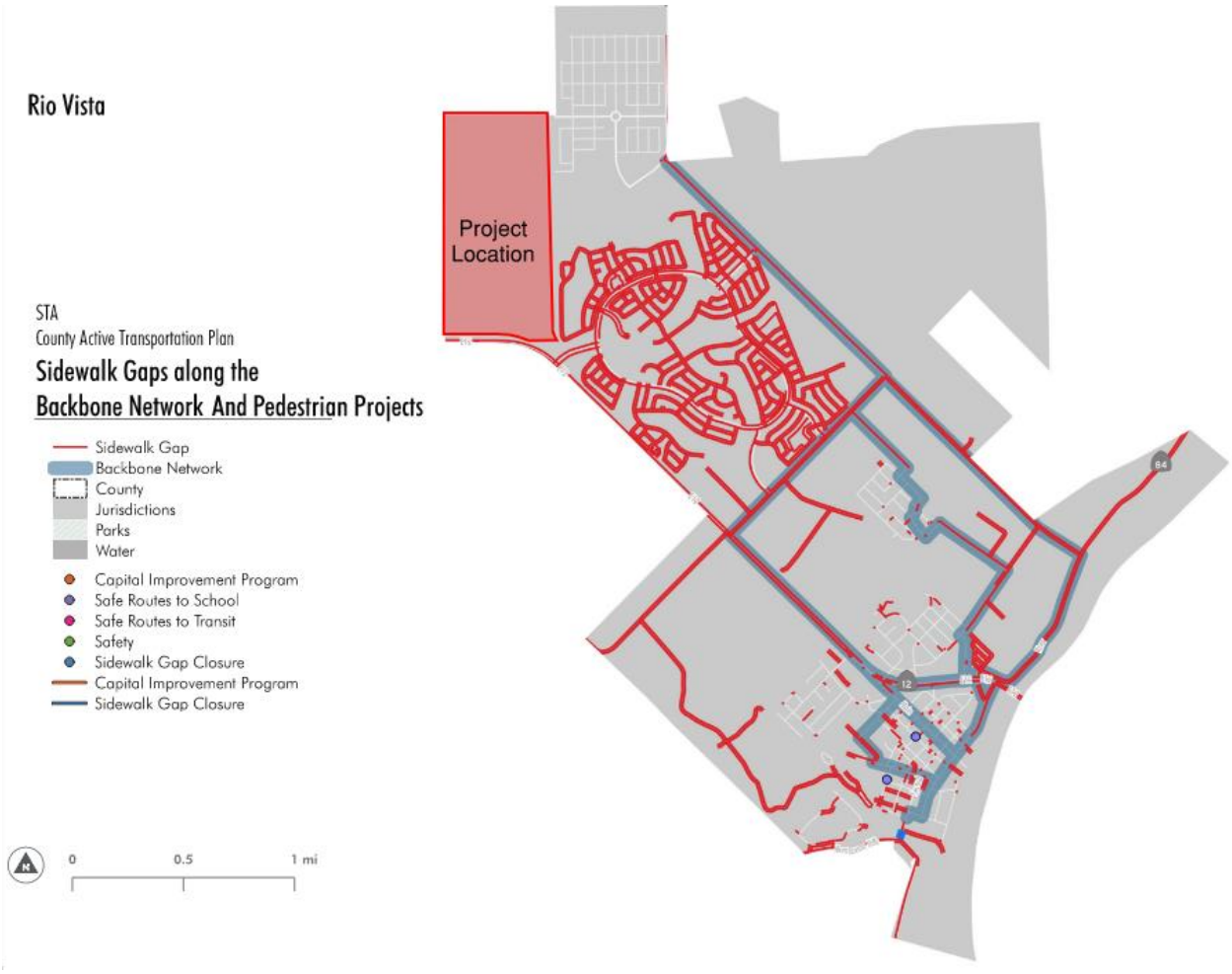
Existing Pedestrian Facilities

The pedestrian network within Rio Vista consists largely of sidewalk infrastructure supported by crossing treatments, multi-use paved trails and unpaved recreational trails. Sidewalks are present on McCormack Road in certain sections of the roadway where there is residential development. Sidewalks are also present partially on Liberty Island Road, on the east side of Province Path between McCormack Road and on Liberty Island Road. Canright Road, Azevedo Road, and SR 12, in the project vicinity currently do not have pedestrian facilities.

Planned Pedestrian Facilities

As shown in Figure 5, there are no proposed pedestrian projects near the project site in the Active Transportation Plan, other than the proposed Class I Multi-Use Path on Province Path and Liberty Island Road (between Province Path and Airport Road), that was described in the previous Bicycle section. The proposed Class I Multi-Use Path would enhance both pedestrian and bicyclist infrastructure in the area.

Figure 5: Proposed Pedestrian Network and Projects (Source: Solano County Active Transportation Plan - Rio Vista)

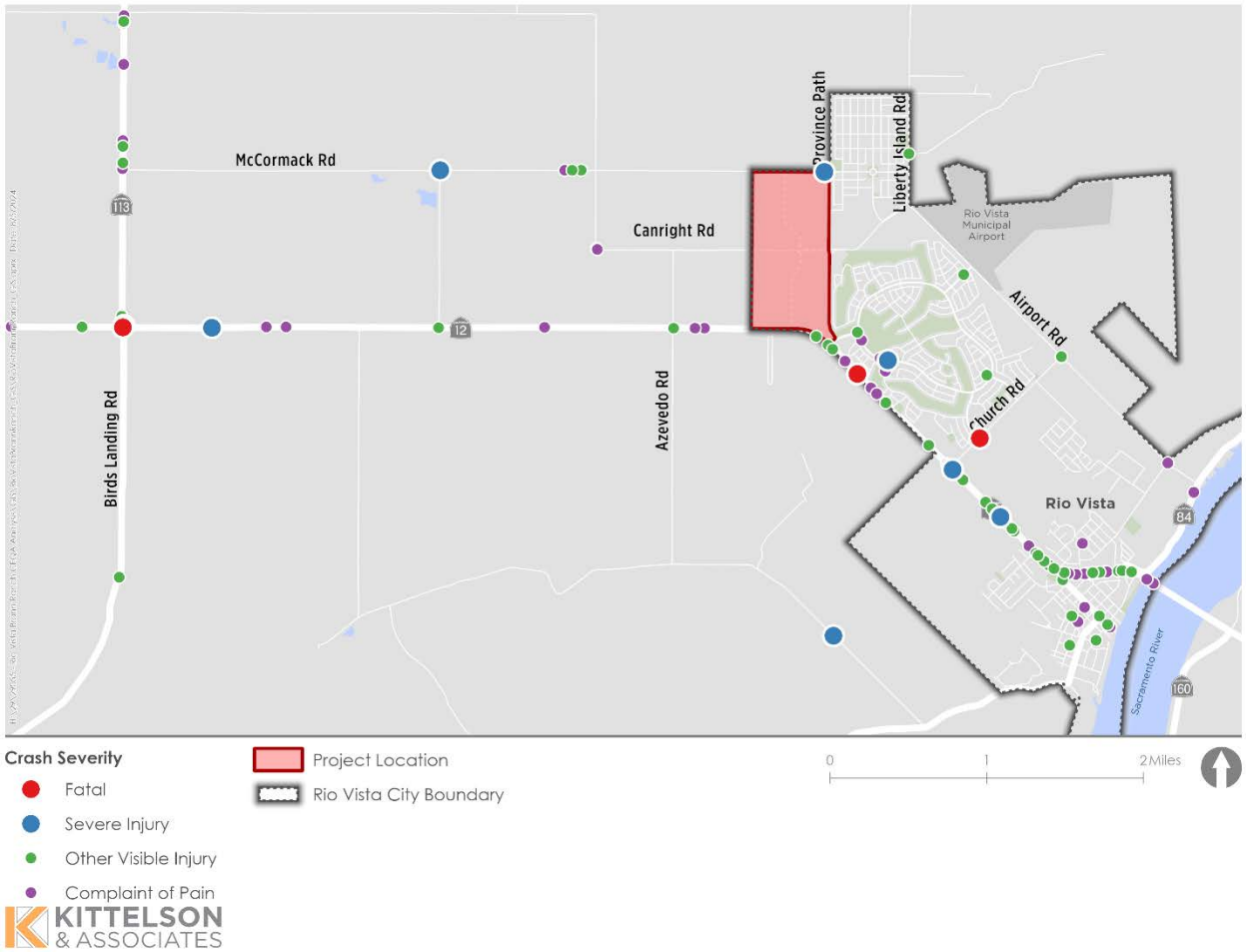


SAFETY ANALYSIS

Crashes were analyzed based on the most recent five years of data available for reported fatal and injury crashes in Solano County. The crash data spans from January 1, 2019, through December 31, 2023. The Transportation Injury Mapping System (TIMS), which is maintained by SafeTREC at the University of California, Berkeley was utilized to obtain the crash data and perform a crash analysis of the study area. TIMS does not report any non-injury crashes ("property damage only").

Crashes in the vicinity of the study area are shown in Figure 6. An analysis of crash severity and crash types is described below for the study intersections and study segments.

Figure 6: Crash Data Mapping in the Study Area



Intersection Crash Analysis

An intersection crash is defined as a crash that occurs within 250 feet of the intersection. These crashes were summarized in ArcGIS to show the total number of crashes by severity. Where intersections were less than 500 feet from each other, crashes were assigned to the nearest of the two intersections. Crashes occurring more than 250 feet from any intersection were separated to be used in the roadway segment crash analysis discussed below.

The intersection crash analysis reports 27 total crashes occurring at nine study intersections.

SR 113/SR 12 had a total of 11 reported crashes. One crash was reported as a fatal crash, one crash was reported as a severe injury crash, six were reported as a visible injury crash, and three were reported as complaint of pain. The fatal and severe injury crashes were reported to have occurred with a fixed object.

Azevedo Road/SR 12 had one visible injury crash reported at the intersection. This crash occurred with another motor vehicle.

Azevedo Road/Canright Road is reported to have no crashes during this five-year period.

Summerset Road/SR 12 had a total of three reported crashes. Two crashes were reported as visible injury crashes and one crash was reported as a complaint of pain. Each of the three crashes were reported to occur with another motor vehicle.

Province Path/Canright Road is reported to have no crashes during this five-year period.

Hillside Terrace/SR 12 had a total of four visible injury reported crashes, each occurring with another motor vehicle.

SR 84/SR 12 had a total of eight reported crashes. Four crashes were reported as visible injury crashes and four were reported as a complaint of pain. Seven of the eight crashes occurred with another motor vehicle, while one crash was reported to be a pedestrian-related crash.

Roadway Segment Crash Analysis

Crashes reported to have occurred more than 250 feet from the nearest intersection were classified as segment crashes. The segment crash analysis reports 52 crashes occurring along the study road segments during the five year reporting period.

Highway 12 West of Bill Brann Road (Project Driveway) had a total of seven reported crashes. One crash was reported as a severe injury crash which occurred with a fixed object. One crash was reported as a visible injury crash which occurred with another motor vehicle. The remaining five crashes were reported as complaint of pain.

Highway 12 East of Bill Brann Road (Project Driveway) had a total of 45 reported crashes. One was reported as a fatal crash occurring with another motor vehicle. Two were reported as severe injury crashes, one of which occurred with another motor vehicle and the other reported as an overturned vehicle. 18 were reported as visible injury crashes and 24 were reported as complaint of pain.

CEQA Evaluation

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

State CEQA Guidelines Appendix G, XVII. Transportation, identifies the following factors that were evaluated:

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

The following sections include regulations and policies which apply to the CEQA evaluation, and an assessment of each of the factors identified above.

REGULATORY SETTING

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

Federal

This section summarizes federal agencies and laws pertinent to the proposed plans.

FEDERAL HIGHWAY ADMINISTRATION

The Federal Highway Administration (FHWA) is the agency of the United States Department of Transportation (DOT) responsible for the federally funded roadway system, including the interstate highway network and portions of the primary state highway network.

FEDERAL TRANSIT ADMINISTRATION

The Federal Transit Administration (FTA) is an authority that provides financial and technical assistance to local public transit systems, including buses, subways, light rail, commuter rail, trolleys, and ferries. The FTA is funded by Title 49 of the United States Code, which states the FTA's interest in fostering the development and revitalization of public transportation systems.

State

SENATE BILL 743

Senate Bill 743 (SB 743) was signed into law in September 2013 and took full effect in July 2020. Senate Bill 743 (Steinberg, 2013) required changes to the California Environmental Quality Act (CEQA) Guidelines regarding the analysis of transportation impacts. The purpose of SB 743 is to promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.

Prior to implementation of SB 743, CEQA transportation analyses of individual projects typically determined impacts on the circulation system in terms of roadway delay and/or capacity usage at specific locations, such as street intersections or freeway segments. SB 743 changes include the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts.

Under SB 743, a project's effect on automobile delay shall not constitute a significant environmental impact. Therefore, level of service (LOS) and other similar vehicle delay or capacity metrics can no longer serve as transportation impact metrics for CEQA analysis. The California Office of Planning and Research (OPR) updated the CEQA Guidelines and provided a final technical advisory in December 2018[4] (OPR Technical Advisory), which recommends vehicle miles traveled (VMT) as the most appropriate measure of transportation impacts under CEQA. The California Natural Resources Agency certified and adopted the CEQA Guidelines including the Guidelines section implementing SB 743. The changes have been approved by the Office of Administrative Law and are now in effect.

Revisions to CEQA transportation analysis requirements do not preclude the application of local general plan policies, municipal and zoning codes, conditions of approval, or any other planning requirements through a city's planning approval process. These requirements aim to ensure adequate operation of the transportation system in terms of transportation congestion measures related to vehicular delay and roadway capacity.

Other key guidance includes:

- VMT is the most appropriate metric to evaluate a project's transportation impact.
- OPR recommends tour- and trip-based travel models to estimate VMT, but ultimately defers to local agencies to determine the appropriate tools.
- OPR recommends measuring VMT for residential and office projects on a "per rate" basis. Specifically, OPR recommends VMT per capita for residential projects and VMT per employee for office projects.
- OPR recommends that a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold (page 10). In other words, an office project that generates VMT per employee that is more than 85 percent of the regional VMT per employee could result in a significant impact. OPR notes that this threshold is supported by evidence that connects this level of reduction to the State's emissions goals (pages 10-11).

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

- For retail projects, OPR recommends measuring the net decrease or increase in VMT in the planning area with and without the project. The recommended impact threshold is any increase in total VMT.
- Lead agencies ultimately have the discretion to set or apply their own significance thresholds, provided they are based on significant evidence.
- Cities and counties still have the ability to use measures of delay such as LOS for other plans, studies, or network monitoring. However, according to CEQA section 15064.3, Determining the Significance of Transportation Impacts, "effect on automobile delay shall not constitute a significant environmental impact."

CALIFORNIA DEPARTMENT OF TRANSPORTATION

The California Department of Transportation (Caltrans) is the primary State agency responsible for transportation issues. As owner/operator of the State Highway System, Caltrans may review projects and plans as a commenting agency or responsible agency under the California Environmental Quality Act (CEQA). In relation to this role, Caltrans published the Vehicle Miles Traveled-Focused Transportation Impact Study Guide" in May, 2020. This replaced the "Guide for the Preparation of Traffic Impact Studies" (December 2002), which established Measures of Effectiveness based on level of service targets.

Caltrans recommends following the guidance on methods of VMT assessment found in OPR's Technical Advisory. Caltrans comments on a CEQA document may note methodological deviations from those methods and may recommend that significance determinations and mitigation be aligned with state greenhouse gas reduction goals as articulated in OPR's guidance, the California Air Resources Board's Scoping Plan, and related documentation.

Caltrans facilities within the study area include SR 12, SR 84, and SR 113.

For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may be undertaken.

Regional

SOLANO COUNTY ACTIVE TRANSPORTATION PLAN (2020)

The Solano County Active Transportation Plan serves as a framework for the Solano Transportation Authority (STA) to enhance active transportation conditions across the County. Consolidating previous efforts, it integrates various plans into a unified strategy, outlining priorities, project lists, and program guidance. This comprehensive plan aims to create a comfortable walking and bicycling environment for people of all ages and abilities. The Plan recommends 312 bikeway projects and 148 pedestrian projects. The pedestrian projects concentrate on closing sidewalk gaps and implementing crossing treatments to enhance safety and accessibility to vital destinations. The bicycle projects aim to connect people to key destinations, enhance inter-jurisdictional connections, and prioritize the development of comfortable biking facilities. The Plan includes the following goals and objectives related to transportation and circulation applicable to the Project:

Goal 1 – Access: People of all ages and abilities should be able to walk and bicycle throughout Solano using a comfortable, connected, and well-maintained network to access transit and key destinations.

- Objective 1.A: Continue to work with member agencies to build upon the existing Class I paths and other low-stress networks to complete a Countywide Low-Stress Active Transportation Network.
- Objective 1.B: Maintain existing bicycle and pedestrian facilities and provide funding for maintenance of future facilities.

Goal 2 – Equity: All Solano residents should have equitable access to convenient and safe, low-cost transportation options.

- Objective 2.A: Work to balance the needs of all transportation users and promote investments in underserved Solano communities.
- Objective 2.B: Provide equitable resources to all local jurisdictions in Solano.

Goal 3: Our transportation system should be designed to increase our community's health and safety by providing opportunities for increased active transportation, increasing roadway safety, and reducing vehicle emissions.

- Objective 3.A: Recommend safety improvements based on monitoring and data.
- Objective 3.B: Encourage new development and construction zones to include safety precautions for bicyclists and pedestrians.
- Objective 3.C: Promote health benefits of active transportation and ensure safety benefits reach all users.

Goal 4: Solano communities should be vibrant, active, and promote a good quality of life for all residents.

- Objective 4.A: Link active transportation facilities to existing and planned trails and recreational amenities.
- Objective 4.B: Work with the Cities and County to develop Countywide Standard Wayfinding Signage System consistent with state and local standards to connect all residents and key destinations.
- Objective 4.C: Promote active transportation encouragement and education campaigns, through STA's Safe Routes to School Program, Solano Mobility, STA Bicycle Advisory Committee (BAC) and Pedestrian Advisory Committee (PAC), and Active Transportation Committee, along with participating member agencies.

Goal 5: Our transportation system should minimize environmental impacts including air pollution, roadway runoff, vehicle miles traveled, and greenhouse gas emissions.

- Objective 5.A: Adopt Complete Streets principles in Solano County.
- Objective 5.C: Continue to integrate Active Transportation facility improvements when planning for transit facility improvements to increase transit ridership.

Goal 6: Solano should work collaboratively with local and regional partners to realize shared active transportation values.

- Objective 6.A: Maintain Active Transportation Plans.
- Objective 6.B: Continue to participate in and support regional public active transportation committees, such as Caltrans and MTC.

Goal 7: Solano takes pride in investing in active transportation as an aspect of our community by finding mobility options for residents in their everyday lives.

- Objective 7.A: Continue to work with member agencies to develop selection criteria for active transportation projects and funding based on Solano's values.
- Objective 7.B: Encourage consistency with local jurisdictions to facilitate project implementation and grant-readiness.
- Objective 7.C: Maximize Funding for Active Transportation.

SOLANO COUNTYWIDE BICYCLE PLAN (2012)

The Solano Countywide Bicycle Plan is a guide for creating a connected bike network in Solano County, improving the local transportation and air quality standards in the local communities. The Plan focuses on building a unified system, including bike routes, signs, and amenities like bike lockers. It aims to connect destinations within Solano County and neighboring areas. The Plan is a component of the Solano comprehensive Transportation Plan, which has a long-range planning horizon to the year 2035. The Plan includes the following goals that help guide future development of the regional bikeway system:

- Plan and maintain a current Countywide Bikeway Network.
- Build the bicycle transportation network by planning, designing, constructing, and managing transportation facilities that will meet the needs of the biking public.
- Improve bicyclist safety in Solano County.
- Increase the use of bicycles as a viable alternative to the automobile.
- Develop an integrated and coordinated transportation system that connects bicycling with other modes of transportation, which includes, but is not limited to, driving, walking, and taking public transportation.
- Provide safe access for bicyclists to all points in Solano County.
- Develop a bicycle network that connects to northern California's alternative modes system.
- Develop the Countywide Bicycle Plan to serve as a bicycle master plan or a foundation for local agencies to use in the development of a local bicycle plan.
- Develop a standard countywide wayfinding signage system to regionally direct bicyclists that can be adopted by local agencies.

SOLANO COUNTY COMPREHENSIVE TRANSPORTATION PLAN 2040 (2020)

The Comprehensive Transportation Plan (CTP) is designed to assist STA in fulfilling its mission by envisioning a secure, multi-modal transportation system that caters to Solano's diverse mobility needs and sustainable development objectives. It outlines expected funding, prioritized investments, and aligns with STA's Sustainable Communities plan, emphasizing enduring and improving communities that balance economic health, environmental impact, and social equity. CTP evaluates Solano's current transportation system, establishes goals, identifies strategies, and implements action plans to bridge the gap between ideal and existing conditions. Land use plans, policies, and programs that support the infrastructure and transportation investments in the CTP include the identification of Priority Development Areas (PDAs). There are 13 PDAs identified and are characterized by being within walking distance of high frequency transit. Each city in Solano has designated PDAs for future focused growth. STA's expanded land use coordination role is instrumental in attracting regional and state funding, particularly for affordable housing production in PDAs with integrated transit opportunities.

SOLANO COUNTY CONGESTION MANAGEMENT PROGRAM (2021)

The Congestion Management Program (CMP) serves as a monitoring and planning tool for California counties with an urbanized area population of 200,000 or higher, focusing on mobility. The primary objectives of the Solano County Congestion Management Program (CMP) are to uphold efficient mobility on the county's streets and highways, ensuring seamless integration with the broader Bay Area and northern California transportation systems. The program is designed to comply with and support the implementation of the Metropolitan Transportation Commission's (MTC) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), specifically Plan Bay Area 2050. Additionally, the CMP aims to align with the federal transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21). The CMP establishes a foundation for STA to assess and offer feedback on land use proposals that have the potential to impact the roadways and intersections identified in the program.

SOLANO TRANSPORTATION AUTHORITY SAFE ROUTES TO SCHOOL (2013)

The Solano County Safe Routes to School (SR2S) program is a comprehensive initiative aimed at boosting the participation of students in walking, biking, ridesharing, or utilizing public transit to and from school. The Plan aims to establish a well-rounded approach to Safe Routes to School, incorporating all five key elements: Engineering, Enforcement, Encouragement, Education, and Evaluation. Additionally, a sixth element, Engagement, is introduced to enhance program goals and influence Solano County student families. These six elements will shape the goals, strategies, and tactics of the STA SR2S program in the coming years, aiming to bring about desired changes in the travel habits of students, parents, and other commuters in school zones. The following goals and objectives have been identified in the Plan related to transportation and circulation applicable to the Project:

Goal 1: Improve the health of Solano County children by focusing attention on and increasing active travel to school.

- Objective 1A: Increase the rate of students walking, biking, and taking other active forms of travel to school.

Goal 2: Facilitate school travel routes that are accommodating, safe, convenient, and **'complete' for all modes.**

- Objective 2A: Limit traffic speeds and volumes along key routes to school.
- Objective 2B: Reduce the frequency and severity of collisions near schools.
- Objective 2F: Eliminate or reduce the impact of physical barriers and gaps that impede convenient and safe walking and bicycling to existing and new (planned) schools.

Goal 3: Support sustainable communities by reducing school-related traffic congestion, air pollution, and vehicle miles traveled (VMT).

- Objective 3A: Convert drive alone and chauffeured trips to other modes, including carpooling and transit.

Goal 4: Develop and sustain a SR2S program for the long term.

- Objective 4C: Broaden the range of SR2S events offered for schools that regularly participate in SR2S programming; expand program eligibility to new schools, including private schools.

COUNTY OF SOLANO CLIMATE ACTION PLAN (2011)

The County of Solano developed the Plan to address climate change and reduce the community's greenhouse gas emissions (GHG). The Plan recommends 31 measures and 94 implementing actions for the community to adopt, aiming to decrease both emissions and overall contributions to global climate change. In 2005, transportation-related activities contributed approximately 51% of the communitywide annual GHG emissions. The 2020 projections estimated that transportation-related activities contribute to 48% of emissions. The Plan committed to the County goal of reducing communitywide GHG emissions by 20% below 2005 baseline emissions levels by 2020. County programs related to transportation that have helped the community preserve its environment include commuter incentives, Safe Routes to School Program, and County fleet fuel efficiencies. GHG reduction measures and actions related to transportation and land use are guided by the objective and measures:

Objective: Support a transportation system and land use pattern that promotes carpooling, walking, biking, and using public transit.

- TC-1: Solano County will work with STA to enhance countywide rideshare infrastructure and services.
- TC-2: Work with STA to increase public transit ridership by expanding express bus service and improving transit stop amenities and transit connections.
- TC-3: Work with cities and STA to improve bicycle and pedestrian connectivity in the County.
- TC-4: Educate residents and businesses about options to reduce motor vehicle emissions.
- TC-M1: Replace County vehicles with fuel efficient, electric, or alternative fuel vehicle models as the existing fleet is retired.
- LU-1: Update the zoning ordinance to allow live-work uses in residential zones as long as such uses are compatible with existing community character.

SMART AND SOLANO EXPRESS STATION FEASIBILITY STUDY (2021)

This study explores potential locations for rail stations in Solano County capable of accommodating Capitol Corridor Intercity Trains, SMART Trains, and Express Buses. Optimal station sites can host multiple modes, integrate supportive land uses, establish effective local transit connections, and offer potential park-and-ride options. Aligned with the State Rail Plan, which envisions a "Solano County Hub," connecting Capitol Corridor trains with bus and rail services to Marin, Napa, and Contra Costa Counties, this study proposes the recommended location for this hub. The Solano County Hub location will enable the local governments to consider the station's potential for substantial adjacent land use density. This includes the development of housing and job opportunities in downtown Priority Development Areas (PDAs). Station Area Guiding Principles for this hub include:

- Integration and connection with the community.
- Accessibility and safety for all users.
- Customer comfort and accommodation.
- Incorporation of Solano's values of environmental, social responsibility and sustainable development.
- Total life cycle objectives.

SOLANO COORDINATED SHORT RANGE TRANSIT PLAN (2016)

This Plan covers the period FY 2015-2016 through FY 2024-2025 and updates the 2013 plan. The Plan provides an individual Short Range Transit Plan for the five transit operators in the county, including SolTrans, FAST, Dixon Readi-Ride, Rio Vista Delta Breeze, and Vacaville City Coach. The plans focus on specific transit-related goals, objectives, and projects to improve and enhance public transportation services in the near term. The plans often includes details on service expansions, improvements, fleet enhancements, infrastructure developments, and financial considerations to meet the evolving needs of the community.

SOLANO RAIL FACILITIES PLAN UPDATE

The purpose of the Plan is to assess the demand for freight rail, evaluate the adequacy of existing facilities to meet that demand, and identify the necessary enhancements or expansions required to meet the freight rail capacity needs in Solano County. The Plan update looks ten years ahead (2025). In general, the current freight train capacity in Solano County is sufficient when not considering other traffic. However, to facilitate expanded passenger service, enhance the reliability of passenger trains, or reduce passenger train travel times, infrastructure improvements become essential. The determination of precise improvements and the ensuing benefits is a collaborative process involving negotiation between passenger operators (such as CCJPA and Amtrak) and the host freight railroad, in this instance, Union Pacific.

Local

CITY OF RIO VISTA GENERAL PLAN (2001)

The City of Rio Vista General Plan was adopted in 2001 and is currently under update. The document was established to develop a vision of future development in the city. The plan is designed to be long-range, comprehensive, and community based. Rio Vista's General Plan utilizes a combination of specific standards and general guidelines.

The Circulation and Mobility Element identifies the general locations and extent of existing and proposed roadways, highways, railroads, and transit routes. Additionally, it outlines policies and programs designed to alleviate traffic congestion, encourage alternative transportation, and ensure safe travel through the City. The General Plan includes the following goals and policies related to transportation and circulation applicable to the Project:

Goal 8.1: To provide a mix of land uses close to each other and at sufficient intensities to support walking, bicycling, and other alternative modes of transportation.

- Policy 8.1.A: The City shall designate land uses in a manner that minimizes use of the automobile within the city limits.
- Policy 8.1.B: The City shall not require a single design standard; multiple standards shall be allowed as needed to achieve the desired expansion of vehicular, pedestrian, and bicycle capacity over time.
- Policy 8.1.C: The City shall ensure that highway expansion is implemented in a manner that preserves as much as possible of the rolling hillsides and views, even if design speeds will be lower than similar state highways.
- Policy 8.1.D: The City shall consider the "typical" Caltrans expressway design inappropriate within the city limits.

- Policy 8.1.E: The City shall require sidewalks on public streets in all new developments.
- Policy 8.1.F: The City shall ensure that signals, turn lanes, roundabouts, and other intersection improvements are used appropriately, to reduce the restrictions of intersections on lane capacity.
- Policy 8.1.I: The City shall ensure that pedestrians, bicyclists, and vehicles are not required to travel a circuitous route to access adjacent services or nearby shopping.
- Policy 8.1.J: The City shall avoid placement of travel lanes immediately next to sidewalks in the plans for street widening.

Goal 8.2: To build and maintain a safe and efficient local street and highway system.

- Policy 8.2.A: The City shall improve traffic controls and pedestrian access on Highway 12.
- Policy 8.2.B: The City shall ensure that future development and roadway capacities are in balance.
- Policy 8.2.C: The City shall ensure that new and upgraded arterial streets and their intersections are designed and built to function at least at level of service (LOS) "D," (acceptable delay) during peak traffic periods.
- Policy 8.2.D: The City shall maintain a level of service (LOS) "D" as the target LOS for all major street intersections not specified as LOS "E" by Policies 8.2.F and 8.2.G.
- Policy 8.2.E: The City shall maintain a level of service (LOS) "E" for the downtown, neighborhood commercial areas, and other areas where vitality, pedestrian activity, and transit accessibility are or will be primary considerations as the community grows.
- Policy 8.2.F: The City shall maintain a level of service (LOS) "E" for Main and Front Streets between Main Street and Highway 12.
- Policy 8.2.I: The City shall ensure that new development is responsible for funding and construction of necessary improvements that are directly attributable to the impacts generated by that project.
- Policy 8.2.J: The City shall require that new development projects mitigate their share of offsite traffic impacts (outside the boundaries of the specific development properties) in order to maintain the level of service standards of Policies 8.2.D, 8.2.E, 8.2.F, and 8.2.G.
- Policy 8.2.L: Where feasible, the City shall improve safety and traffic flow for both cars and pedestrians on existing streets and congested intersections.
- Policy 8.2.P: The City shall require new development to provide signals or other improvements at appropriate intersections in a timely manner, to prevent the deterioration of service levels.
- Policy 8.2.Q: The City shall ensure that the first priority of improvements is at intersections, followed by segment (lane) expansion.
- Policy 8.2.R: The City shall ensure that intersection improvements, including signals, are provided prior to meeting any necessary Caltrans warrants, to prevent deterioration of service levels.
- Policy 8.2.S: The City shall construct intersection and traffic signals as needed to avoid deterioration of service levels while waiting for an adjacent property owner to develop.

Goal 8.3: To develop a comprehensive pedestrian and bicycle system over time that is **coordinated with the City's roadway system.**

- Policy 8.3.A: The City shall provide a continuous system of sidewalks along streets.
- Policy 8.3.B: The City shall complete the comprehensive pedestrian and bicycle systems, including off-street multipurpose paths and trails linking major new development areas with the waterfront.

- Policy 8.3.C: The City shall develop pedestrian and bicycle paths in the trail corridor and along the waterfront.
- Policy 8.3.D: The City shall maintain the bicycle pathway system in a condition that provides a safe means of bicycle travel and connects to all parts of the City.
- Policy 8.3.E: The City shall separate bikeways from streets wherever possible. Where offroad bicycle paths are not possible, the City shall designate on-street bicycle lanes.
- Policy 8.3.G: The City shall require nonresidential developments to build clearly identified internal walkways that are distinct from roadways and directly connect building entrances to public sidewalks and transit stops.
- Policy 8.3.H: The City shall ensure that developments are designed carefully to prevent parking lots, loading and delivery areas, and sound walls and buffers from becoming barriers to pedestrians and bicyclists. The City shall ensure that adjacent land uses do not prevent access between buildings, walkways, and parking areas.
- Policy 8.3.I: As bikeways are constructed, the City shall ensure that they provide direct routes to major employment centers from residential areas.
- Policy 8.3.J: The City shall incorporate bicycle facilities into the design of arterial streets, intersections, and other street improvement projects.
- Policy 8.3.K: The City shall provide for safe walkways, and pedestrian and bicycle crossings for arterial streets, Highway 12, creeks, and other physical barriers.
- Policy 8.3.L: The City shall construct sidewalks on new or reconstructed streets with a separation from the curb by including a landscaped parkway or greenbelt wide enough to allow for planting of shade trees.
- Policy 8.3.N: The City shall actively promote bicycling and bicycle safety.
- Policy 8.3.O: The City shall plan for a multi-modal transfer site that incorporates automobile parking areas, bike parking, transit, pedestrian paths, and park-and-ride pick-up points.

Goal 8.4: To prevent future residential neighborhoods from excessive traffic through careful design that emphasizes multiple connections and choices of route.

- Policy 8.4.A: The City shall ensure that development patterns avoid an excessive concentration of traffic on streets that funnel traffic to existing residential streets or to Highway 12.
- Policy 8.4.B: The City shall encourage the dispersal of traffic to discourage the overuse of any single neighborhood collector or local street, by using traffic-calming measures, increasing route choices, and related actions.
- Policy 8.4.C: The City shall require new development to provide multiple connections through a grid or grid-like system of local streets with multiple connection opportunities, both internally and to potential future developments.
- Policy 8.4.D: The City shall discourage development of discrete "pods" or "villages" with limited interlinks.
- Policy 8.4.E: The City shall maximize the number of connections to existing neighborhoods to reduce traffic concentration.
- Policy 8.4.F: The City shall require neighborhood traffic management design to be incorporated into all new developments in order to avoid future through-traffic problems.
- Policy 8.4.G: As part of traffic mitigation, the City shall require retrofitting of potential problem streets in existing neighborhoods.

Goal 8.5: To protect existing residential neighborhoods from excessive through-traffic, where feasible.

- Policy 8.5.A: The City shall emphasize deterrents to through-traffic; physical obstacles shall be installed only as a last resort.

Goal 8.6: To provide fast, convenient, comprehensive, and dependable transit and paratransit service as Rio Vista grows.

- Policy 8.6.A: The City shall ensure that a mix of uses and intensities are programmed for areas within ¼- to ½- mile radii of logical future transit routes and commercial activity centers. Park and Ride lots will be located where convenient and accessible; most likely adjacent to Highway 12 within the Neighborhood Core District.
- Policy 8.6.B: The City shall ensure that the physical design of new development projects facilitates transit use.
- Policy 8.6.C: As population growth and circumstances warrant, the City shall provide reliable bus service to Rio Vista residents. The City shall continue to provide the current service to destinations within and outside Rio Vista.
- Policy 8.6.D: The City shall support improved access to public transportation by people with impaired mobility.
- Policy 8.6.E: Where needed, the City shall supplement the future public transit system with continued availability of paratransit services.
- Policy 8.6.F: The City shall encourage private taxi service in Rio Vista.
- Policy 8.6.G: The City shall encourage innovative methods of running shuttle services within Rio Vista as needed.
- Policy 8.6.H: The City shall actively support the plans of transit service providers to increase service frequency and hours of service. The Solano Transportation authority's Comprehensive Transportation Plan, Transit Element, is incorporated by reference into the Rio Vista circulation and Mobility Element.

Goal 8.7: To support the development and maintenance of transportation facilities that are aesthetically pleasing with minimal adverse environmental effects.

- Policy 8.7.B: The City shall reduce the negative effects caused by roadways on visual quality, air quality, and noise.

Goal 8.8.: To reestablish Rio Vista's waterfront as a regional destination for both recreational and commercial water transportation activities.

- Policy 8.8.A: The City shall provide for additional private boat berths, public access, and support facilities on the waterfront in order to allow residents of the City and region to enjoy water-oriented recreation, public transportation, and commercial opportunities on the Sacramento River.

Goal 8.9: To provide ease of circulation and access for all Rio Vistans, including the mobility-impaired.

- Policy 8.9.A: The City shall continue to implement requirements for handicapped parking and building access in public and private developments.

Goal 8.11: To identify the preferred alternative route for a Highway 12 bypass and new bridge.

- Policy 8.11.A: The City shall work with the STA and Metropolitan Transportation Commission (MTC) to begin the process of establishing the new bridge.

- Policy 8.11.B: The City shall conduct a new bridge study that focuses on a bypass and new bridge aligned with the present Airport Road as a supplement to the Caltrans (1992) study and the Highway 12 Major Investment Study and Project Study Report Evaluation (Korve Engineering, 2001). The City shall incorporate operational and institutional measures to improve efficiency of the existing bridge.

Goal 8.12: **To successfully link the two "halves" of Rio Vista bisected by Highway 12 in a manner** that is safe and accessible to alternative modes of transportation.

- Policy 8.12.A: The City shall ensure that rights-of-way, performance standards, and design characteristics for Highway 12 are varied as appropriate; a "one design fits all" approach is not appropriate.
- Policy 8.12.B: As Highway 12 is expanded, the City shall ensure that lower design speeds are used where necessary to preserve the rolling hillside character of the corridor. The City shall ensure that there is minimal encroachment by roadway expansion on sensitive areas adjacent to the highway.
- Policy 8.12.E: The City shall initiate a corridor design process that includes all stakeholders (private landowners and developers, Caltrans, the Highway 12 Association, local residents, and business owners) to create an appropriate standard for future expansion throughout the corridor and more immediate improvements between Drouin Drive and the Rio Vista Bridge.

Various other elements in the General Plan have goals and policies related to transportation and circulation applicable to the Project including Chapter 5 Community Character and Design, Chapter 9 Open Space and Recreation, Chapter 10 Air Quality:

Goal 5.9: To create safe, attractive streets that serve the entire community.

- Policy 5.9.A: The City shall create street patterns that provide pedestrian opportunities, variety, and visual interest.
- Policy 5.9.B: The City shall interconnect the neighborhood street pattern at numerous points in a traditional village system in order to avoid a concentration on major streets of vehicles and pedestrians associated with internal neighborhood trips.
- Policy 5.9.C: The City shall discourage long, unbroken blocks; interruptions of pathways to logical destinations; or other design elements that discourage pedestrian circulation in favor of the automobile for internal trips.

Goal 5.10: To include pedestrians and bicycles as a central element in the street system design.

- Policy 5.10.A: The City shall ensure that subdivision design facilitates walking and bicycling and discourages short auto trips.
- Policy 5.10.B: The City shall design neighborhood and local street widths such that they slow traffic and create a safer pedestrian and bicycle environment.
- Policy 5.10.C: The City shall require multiple linkages and grid patterns as part of a comprehensive street system.
- Policy 5.10.D: The City shall provide direct pedestrian access from neighborhoods to nonresidential uses where residential neighborhoods abut planned commercial centers, or quasi-public or office uses.
- Policy 5.10.E: The City shall locate pedestrian access routes along the streets or so that they are easily visible from streets.

Goal 5.15: To develop attractive nonresidential districts that encourage pedestrian activity and provide multi-modal access from nearby neighborhoods and business centers.

- Policy 5.15.I: The City shall require that nonresidential development that abuts a residential neighborhood street provides both pedestrian and vehicular access to and from that street.

Goal 5.16: To develop an attractive commercial core within existing city districts that encourages pedestrian activity and provides multi-modal access from nearby neighborhoods and business centers.

- Policy 5.16.F: Where commercial centers or office complexes abut each other, the City shall require both vehicular and pedestrian connections between parking areas and buildings in order to minimize vehicle turn movements onto major streets.

Goal 5.17: To provide attractive highway commercial development that allows for safe and convenient access.

- Policy 5.17.B: The City shall require that pedestrian and vehicular linkages to adjacent neighborhoods are provided in highway commercial developments.

Goal 5.18: To create a multi-modal environment in the vicinity of the business park and airport.

- Policy 5.18.A: The City shall ensure that office, business park, airport commercial, industrial, and employment uses are developed in a manner that achieves pedestrian orientation and are sited for ease of access.

Goal 9.1: To provide public access and view opportunities on the Sacramento River to the maximum extent possible feasible.

- Policy 9.1.A: As development and redevelopment occur, the City shall require public access to the Sacramento River from the nearest public street and walkways.
- Policy 9.1.E: The City shall pursue a pedestrian connection between the former Army Reserve Base site and Sandy Beach Regional Park.

Goal 9.3: To develop a comprehensive and unified trails and pathways system that addresses the recreation and transportation aspects of bicycle and pedestrian travel.

- Policy 9.3.H: Trails or trail/open space corridors shall be located adjacent to streets and/or areas that facilitate pedestrian access wherever feasible.

Goal 10.6: To recognize improved air quality as a health benefit and to preserve air quality as a natural resource.

- Policy 10.6.B: The City shall ensure that development projects facilitate non-motorized travel through the use of connecting streets, alleys, and connecting pathways.
- Policy 10.6.C: The City shall ensure that street design within new developments provides multiple access points within neighborhoods as much as possible, in order to avoid long, circuitous routes for motor vehicles.
- Policy 10.6.E: The City shall ensure that new development pays its fair share of the cost to provide alternative transportation systems, including bikeways, pedestrian paths, and public transit facilities.
- Policy 10.6.F: The City shall encourage the use of nonmotorized transportation wherever possible in the community.

- Policy 10.6.G: The City shall encourage the use of public transportation as an alternative to the automobile.
- Policy 10.6.I: The City shall work to improve the public's understanding of the land use, transportation, and air quality link.
- Policy 10.6.J: All City submittals of transportation improvement projects to be included in regional transportation plans shall be consistent with the air quality goals and policies of the General Plan.

CITY OF RIO VISTA 2023-2031 HOUSING ELEMENT (2023)

The Housing Element covers an eight-year time frame. The previous Housing Element was adopted in 2015 and covered the period from 2015 to 2023. The Housing Element encompasses community goals, quantified objectives, and policies focused on maintaining, preserving, improving, and developing housing. Solano County, Solano Transportation Authority, and the seven cities in Solano County formed the Solano County Regional Early Action Planning (REAP) Housing Element Collaborative to provide a regional approach to the Housing Element. Housing programs that are related to transportation and circulation applicable to the Project include Fair Housing Practices that invest in active transportation infrastructure to promote healthy environments for new housing. Transit mobility is reviewed in the Housing Element. Assessment of Fair Housing (AFH) identified issues regarding limited public transportation options servicing services and employment opportunities outside of the city that contribute to fair housing issues.

SOLANO COUNTY ACTIVE TRANSPORTATION PLAN – CITY OF RIO VISTA (2020)

The Rio Vista Active Transportation Plan provides a summary of existing conditions related to active transportation in the city. Residents and stakeholders from Rio Vista were included in the stages of Plan development to provide insights on where improvements to walking, biking, and access to transit could be improved. The Project Development Team developed the Rio Vista Active Transportation Backbone Network, which is a network of pedestrian and bicycle facilities suitable for people of all ages and abilities. The Active Transportation Plan proposes adding 21 new miles of bikeways to Rio Vista's existing bikeway network. One of these proposed facilities is a Class I Multi-Use Path along Province Path and Liberty Island Road (between Province Path and Airport Road). Additionally, there is a plan to conduct a feasibility study to evaluate the potential for a bike facility along SR 12, covering the distance from the city boundary to Summerset Road. Moreover, there is a Class I Multi-Use Path along the SR 12 segment extending from 2500 feet west of Church Road to approximately Main Street. Another segment is planned, featuring a Class IV Separated Bikeway from Main Street to SR 84. The Plan also identified 10.5 miles of sidewalk gaps in the City along the local backbone network and costs associated with filling those gaps.

RIO VISTA DELTA BREEZE SHORT RANGE TRANSIT PLAN (2012)

In 2012, the City of Rio Vista published a full Short Range Transit Plan (SRTP) with guidelines set forth by the Metropolitan Transportation Commission. The current SRTP provides new information on the City's transit system, including a system performance evaluation. Future ridership in Rio Vista is expected to increase with population growth. Delta Breeze provides scheduled service to local destinations and as well as destinations in neighboring cities including Fairfield, Suisun City, Antioch, and Isleton. Various goals, objectives, and performance measures and standards are provided in the plan for Rio Vista Delta Breeze. Goals for Rio Vista Delta Breeze include:

- Provide safe, reliable, and high-quality transportation.
- Evaluate, monitor, and improve transit services on an on-going basis.
- Increase ridership.
- Serve the transportation needs of the community.
- Undertake effective marketing, outreach, and public participation.
- Operate an effective system that maximizes service and minimizes cost impacts.
- Coordinate transit system development with community planning and development efforts and land-use policy.
- Coordinate local and intercity transit services.

RIO VISTA COMMUNITY BASED TRANSPORTATION PLAN (IN-PROGRESS)

The City of Rio Vista, in collaboration with the Solano County Transportation Authority (STA), is undertaking a Community-Based Transportation Plan (CBTP) aimed at examining and addressing the transportation issues encountered by the residents. Public input during the CBTP helps identify ways to enhance the accessibility and efficiency of mobility services for various demographics, including older adults, youth, low-income individuals, those with disabilities, veterans, commuters, and all residents within the community. The kickoff meeting for this Plan occurred in September 2023.

PARKS MASTER PLAN (2013)

The Parks Master Plan serves as a comprehensive, long-term guide directing the development, operation, and maintenance of the City's park and open space system. The Rio Vista Park system comprises various types of parks and recreational facilities, each serving a unique purpose. Categories of parks include community parks, neighborhoods parks, village greens, special facilities, trails, open space areas, and sports complexes. The General Plan establishes the following requirements for open space and recreation in the City:

- 3 acres of neighborhood parks per 1000 population.
- 2 acres of community parks per 1000 population.
- 1 mile of trail or 3 acres of trail corridor (at 25 feet wide) per 1000 population, whichever is greater.

The Action Plan chapter provides recommendations to guide the improvement and development of the City's park system. One of the goals established state to develop a City-wide trail system to link the park system. Action plan recommendations for trails include:

- Obtain funding for trails and bicycle routes to remedy the existing deficiency. Such funding must be separate from funding used to serve new development.
- Work with Caltrans to ensure SR 12 improvements include Class I bicycle lanes.
- A Bicycle and Pedestrian Master Plan should be prepared to provide detailed recommendations, costs, and funding sources for implementation for the City-wide trail system.
- Trail crossing(s) of SR 12 should run at grade signalized intersections only.

RIO VISTA SAFE ROUTES TO SCHOOL CASE STUDY (2020)

The Gardiner Way crossing at SR 12 in Rio Vista is a crucial pedestrian route for west-side students attending D. H. White Elementary on the east side of SR 12. Initially, the crosswalk had in-

pavement flashing lights, but the project identified the need for crosswalk repainting and the addition of an overhead flashing pedestrian warning light for drivers.

In June 2020, the City of Rio Vista, funded by Senate Bill 1 and the Yolo-Solano Air Quality Management District, completed an all-weather path along Montezuma Hills Road. This new path, replacing the original decomposed granite pathway prone to washing away in winter rains, aims to enhance accessibility for students and residents. The multi-use path links the Vineyard Bluffs subdivision and Riverview Middle School, contributing to the reduction of vehicle traffic along this corridor.

The upgraded crosswalk enhances safety by improving visibility for approaching vehicles, benefiting the regional community, including bicyclists, pedestrians, and visitors to Rio Vista exploring the SR 12 corridor, Downtown Rio Vista, and the Waterfront Areas. Given the ongoing Complete Street enhancements within the SR 12 Corridor, Downtown, and Waterfront Areas, the importance of such a secure, well-lit crosswalk becomes even more pronounced.

CITY OF RIO VISTA DESIGN STANDARDS AND STANDARD PLANS (2015)

The purpose of these design standards is to provide certain minimum standards for design, construction, repair and alteration of streets, roadways, alleys, drainage, sewerage, parks, landscaping, irrigation, water supply facilities, and all appurtenances thereto, within the City of Rio Vista.

CEQA TRANSPORTATION ANALYSIS

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

Thresholds of Significance

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

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

CEQA Project Impacts and Proposed Mitigations

TRAF-1	The proposed Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. (Less than significant)

Implementation of the Brann Ranch Master Planned Community would not conflict with adopted programs, plans, policies, or ordinances that address the circulation system, including vehicle, transit, bicycle, and pedestrian facilities.

The proposed Brann Ranch road system would be consistent with the current (2001) Rio Vista General Plan. The General Plan Proposed Circulation Map includes street connections to the project area west of Liberty Island Road/Province Path at four locations, at McCormack Road, Canright Road, and new east-west local streets north and south of Canright Road. The proposed project provides these local street connections. The project provides for a through connection on McCormack Road west of the project site and does not preclude an eventual connection of Canright Road west of the project site. The project therefore does not conflict with the General Plan.

The Project proposes the addition of a transit stop at the north-east direction of the project vicinity, i.e., north of Province Path/Canright Road intersection. This would be consistent with General Plan policies to provide transit service improvements and increase ridership.

Regarding bicycle facilities, the Rio Vista ATP proposes a class II buffered bicycle lane along SR 12, in the southern portion of the project site. The Project site plan does not conflict with Improvements related to Highway 12 which are under Caltrans jurisdiction and are called out as areas where potential permits and approvals may be required. The Rio Vista ATP calls out a proposed class I multi-use path along Province Path and Liberty Island Road. The site plan for the project designates a bike path/pedestrian trail along these segments of roadway, consistent with the ATP. Other pedestrian and bicycle facilities are planned along McCormack Road and local roads within the site. A pedestrian trail is also proposed within the site. These networks are consistent with regional and local planning efforts supporting these modes of travel, most notably General Plan Goals 5.5, 5.10, 8.3, and 9.3. Therefore, the impact of the proposed project would be less than significant.

TRAF-2	Project implementation may result in VMT metrics that are greater than the applicable thresholds (15 percent below Baseline conditions) (Significant and Unavoidable)

The City of Rio Vista has not established thresholds for VMT impacts. Therefore the OPR Technical Advisory is used to establish impact criteria. Generally, for new land use development, OPR recommends that a reduction of 15 percent or more in vehicle-miles of travel (VMT) efficiency metrics compared to baseline conditions should be the target in order to meet state greenhouse gas reduction goals.

The following thresholds of significance are used to evaluate potential VMT impacts with implementation of the Project:

- Residential land uses: 15% below the region's baseline year average VMT per capita. For the purpose of this analysis, the applicable region is Solano County.
- Office/employment land uses: 15% below the region's average VMT per employee under baseline conditions.
- Local-serving retail (or local essential service): Developments with a floor area up to 50,000 square feet may be considered local-serving and are assumed to result in a net decrease in VMT by providing services closer to residential areas.

A value of VMT per capita or VMT per employee with the proposed Project exceeding the respective threshold (15% below the applicable baseline) would be considered a significant impact.

For residential and non-retail components of the employment land uses, the VMT metrics for the 2015 base year were extracted from the Solano-Napa Travel Demand Model maintained by the Solano Transportation Authority (STA). The employees for the non-retail components of the project land use are analyzed based on the VMT per employee metric. The retail portion of the project land use is analyzed separately with a different threshold, i.e., using local-serving retail, as outlined in the sections below.

The VMT statistics were compiled for Solano County, for the City of Rio Vista including the current city limits, and for the individual transportation analysis zones (TAZs) including and surrounding the proposed Project. Because there was very little land use in the Project site in the 2015 base year, the VMT for the project area has been calculated as a weighted average of the TAZs within and adjacent to the project site. Table 1 summarizes the total countywide VMT for the 2015 baseline, the applicable threshold, and the result for the project area. As shown in the table, the proposed Project would result in a VMT per capita and VMT per employee that would be 114 percent and 54 percent above the applicable thresholds of 13.90 and 8.33, respectively. This indicates a significant impact.

Table 1: VMT Results Summary

Units	Solano County 2015	Impact Threshold (15% **below County's** Average)	City of Rio Vista 2015	Project Area TAZs	Impact
VMT Per Capita	16.35	*13.90*	25.30	29.76	Significant
VMT Per Employee	9.80	*8.33*	10.17	12.79	Significant

For the school component of the proposed project, it is assumed to be a local essential service which can be evaluated similar to local-serving retail. The addition of a school should reduce regional VMT given that school trips will be made irrespective of the distance given their inelastic and non-discretionary nature. Development of a school on the project site would serve proposed residents on the site that would likely use non-auto modes or drive shorter distances to get to school than they would if a school were not provided as part of the project. Hence, the VMT generated would be expected to be less with a school on the project site when compared to the school not being present in the proposed project area.

For the commercial land use component of the proposed Project, the potential retail square footage of 25,000 square feet would be lower than the 50,000 square feet which is considered the upper limit of locally serving retail in the OPR Technical Advisory. The proposed retail commercial uses could therefore be considered local serving and would be assumed to result in a net decrease in VMT by providing services closer to residential areas. Therefore, the project retail component can be considered local serving for the City of Rio Vista and would not result in VMT impacts.

CUMULATIVE IMPACTS

According to the OPR Technical Advisory, a project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project-level impact. Accordingly, a finding of a less-than-significant project-level impact would imply a less than significant cumulative impact, and vice versa (OPR 2018: 6). Thus, VMT analyses are cumulative by nature, and the significance of a potential cumulative impact is determined based on the project's individual VMT contribution to cumulative regional VMT impacts. Consequently, the project-level VMT analysis in Impact TRAF-2 is also a cumulative impact analysis. The VMT analysis considers whether the proposed project would either result in VMT per capita (for residential uses) and VMT per employee (for employment uses) that exceeds the efficiency-based threshold (i.e., 15 percent below the county average). Therefore, if the VMT per capita or VMT per employee of the proposed uses (i.e., residential and/or employment) would not be 15 percent below the county average, it would result in significant project-level and cumulative impacts.

As discussed in Impact TRAF-2, the proposed project would generate less VMT with a school on the project site when compared to the school not being present on the project site. For the commercial land use component of the proposed project, it can be considered local serving for the City of Rio Vista and would not result in VMT impacts.

Similarly, the residential and employment components of the project could rely on the project-level analysis found in Impact TRAF-2. As discussed in Impact TRAF-2, VMT per capita and VMT per employee for the project under Existing plus Project conditions would not meet the 15 percent below existing county average threshold and would therefore result in a significant project-level impact. Accordingly, the project's contribution to cumulative impacts related to VMT from residential and non-retail component of employment uses would be significant.

MITIGATION

The following measures are included as part of the proposed project:

- Addition of a bus stop/shelter at the project site,
- Bicycle facilities and trails through the project site,
- Well-developed street network, i.e., network of streets through the project site including trails through open space and across Watson Hollow Creek, and
- Roundabout at Bill Brann Road and Canright Road.

The potential effectiveness of mitigation measures for VMT has been estimated using the CAPCOA *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*[5]. The potential VMT reduction already included by the project are as follows:

- Bus stop/shelter – no VMT reduction applicable, as CAPCOA provides credit for expanded transit service and not the presence of transit stops,
- Bicycle lanes – 0.5% reduction in VMT,
- Well-developed street network - 20 intersections per ½ square mile (i.e., for 322 acres of project site) – 0.01% reduction in VMT, and

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

- Roundabout at Bill Brann Road and Canright Road – no VMT reduction applicable.

The measures included in the project would reduce the VMT by 0.51% for both residential and employment land uses. However, additional mitigation measures are required to reduce the VMT impacts for residential, and employment uses and would include mitigation measures TRAF-2-1 through TRAF-2-8. These measures would be focused on reducing the number and/or lengths of vehicle trips by residents and employees.

Mitigation Measure TRAF-2-1: Implement a Transportation Demand Management Program for Residential Land Use

Before issuance of the first building permit in the first phase of development, the applicant shall develop a Transportation Demand Management (TDM) program for the project and shall submit the TDM program to the City of Rio Vista for review and approval. The TDM program must be designed to achieve a 10 to15 percent reduction in daily vehicle miles traveled generated by the proposed residential uses.

The project's homeowner's association (HOA) shall be responsible for implementing the TDM program and included in the covenants, conditions, and restrictions (CC&Rs). The HOA shall be responsible for funding and overseeing the delivery of trip reduction/TDM proposed programs and strategies to achieve the trip reduction objective, which may include, but shall not be limited to, the following strategies:

- School Pool Programs: Organize a program that matches families in carpools for school pick-up and drop-off,
- Subsidized Transit Program: Provide either partially or fully subsidized transit passes for all residents who request them and shall publicize the availability of transit passes to residents in periodic communications, and
- Voluntary Travel Behavior Change Program: The HOA shall provide educational materials (e.g., brochure) to new homebuyers that target individual attitudes towards travel and provide tools for individuals to analyze and alter their travel behavior.

The HOA shall submit an annual status report on the TDM program to the City of Rio Vista beginning 1 year after the issuance of any certificate of occupancy and continuing until full project buildout. Data shall be collected in October of each year and submitted by December 31 of each year. The report shall be prepared in the form and format designated by the City, which must either approve or disapprove the program within 90 days. The HOA shall conduct household travel surveys to determine TDM program participation, estimated mode shares, and trip reduction levels. The survey instrument and monitoring plan shall be reviewed and approved by the County before implementation. The HOA shall also develop and implement a program to monitor daily traffic volumes entering and exiting project site, to be conducted annually and which shall consider ongoing construction traffic, as appropriate, through coordination with on-site construction contractors.

Mitigation Measure TRAF-2-2: Future employers within the project shall implement a commute trip reduction program (voluntary), consistent with other trip reduction programs (if applicable) in the City of Rio Vista. The program would discourage single occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The CAPCOA Handbook Measure T-5 estimates that a voluntary commute trip reduction

program can reduce commute VMT by up to 4.0 percent with full participation of all eligible employees.

Mitigation Measure TRAF-2-3: Provide end-of-trip bicycle facilities for employee use including bike parking, bike lockers, showers, and personal lockers. The CAPCOA Handbook Measure T-10 estimates that provision of end-of-trip bicycle facilities can reduce commute VMT by up to 4.4 percent.

Mitigation Measure TRAF-2-4: Contribute to implementation of expanded transit service in Rio Vista, including potential service to the project site. The project includes the addition of a bus stop/shelter at the project site. Since this is an addition of a transit stop and not expanding the presence of the transit service, no VMT reduction is applicable. Implementation of expanded transit service would require both capital expenditures for support facilities, including construction of transit stops and facilitating extensions of future transit routes. The CAPCOA Handbook Measure T-25 estimates that a 25 percent increase in transit service hours could reduce citywide VMT by 0.3 percent.

Mitigation Measure TRAF-2-5: Increase the length of the area bicycle network, including separated trails available to bicycles as well as on-street bike lanes. There is no existing bike lane infrastructure in the community and the project includes bicycle facilities and trails through the project site. The CAPCOA Handbook Measure T-20 provides a maximum VMT reduction of 0.5 percent for maximum percent increase in bike lane miles in the community. Note that these VMT reductions would occur for the project area only and would not be for citywide VMT.

Mitigation Measure TRAF-2-6: Provide a well-connected street network, particularly for non-motorized connections. Characteristics of street network connectivity include short block lengths, numerous three and four-way intersections, and minimal dead-ends (cul-de-sacs). Street connectivity helps to facilitate shorter vehicle trips and greater numbers of walk and bike trips and thus a reduction in VMT. The CAPCOA Handbook Measure T-17 uses increased vehicle intersection density as a proxy for street connectivity improvements. The CAPCOA Handbook estimates that VMT can be reduced up to 30 percent if a development provides a street grid that has much greater density (up to about three times) of streets and street intersections than the average American street grid density of 36 street intersections per square mile. The project provides network of streets through the project site including trails through open space and across Watson Hollow Creek, providing 20 intersections per ½ square mile (i.e., for 322 acres of project site). The CAPCOA Handbook calculations estimate about 0.01% reduction in VMT with the network of streets provided at the project site.

NON-QUANTIFIED MITIGATIONS

The above mitigations are all supported by the CAPCOA Handbook with a quantified VMT reduction percentage. However, the handbook also provides non-quantified measures including equity considerations. The below mitigations should also be reviewed to ensure that the measure's implementation is as equitable as possible.

Mitigation Measure TRAF-2-7: Short-term and long-term bicycle parking facilities shall be provided to meet peak season maximum demand that can be accessed by all, not just project employees or residents, including areas near transit stops, schools, commercial, and recreational areas. Providing bicycle parking is not a requirement by the city, except at commercial amusement center, according to the city's Municipal code.

Mitigation Measure TRAF-2-8: Traffic calming measures which include but not limited to, speed humps, speed tables, raised crosswalks, and curb extensions on roadways shall be implemented to reduce motor vehicle speeds and to encourage pedestrian and bicycle trips.

SIGNIFICANCE AFTER MITIGATION

VMT reduction depends on factors such as actual implementation of planned land use development, demographic change, household preferences for housing types and locations, the cost of fuel, and the competitiveness of transit relative to driving, which relates to congestion along vehicular commute routes that are not under the project's jurisdiction, as well as transit provided by parties other than the project or the City of Rio Vista. The measures included in the project would reduce the VMT by 0.51% for both residential and employment land uses. Employing the TDM program would reduce the VMT per capita by up to 15 percent. By employing these measures, the proposed Project would result in a VMT per capita and VMT per employee that would be 98.4 percent and 53.4 percent above the applicable thresholds.

For the other mitigation measures, the feasibility and effectiveness of the mitigation measures is either insufficient or unknown at this time. The project cannot demonstrate definitively that implementation of these policies would achieve VMT reductions to meet the VMT per capita or VMT per employee thresholds. With implementation of the project and the recommended mitigation measures, this impact would remain significant and unavoidable.

TRAF-3	The proposed Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Less Than Significant)

Implementation of the proposed project would add transportation facilities and street connections to the city's transportation system. There will be a need to ensure that hazards are not increased with the construction of new facilities.

Hazards are typically assessed at the individual project level when an actual design and construction of a circulation facility is proposed. The potential impacts associated with the proposed project would be analyzed and evaluated in detail through the city review process when the design plans become available. The city's design and construction standards and specifications provide for coordinated and standardized development of city facilities, including roadways. The proposed project driveways will be required to follow the city's design standards as they apply to, regulate, and guide the design and preparation of plans, and the construction of streets, highways, alleys, drainage, traffic signals, site access, and related public improvements. The driveway width shall range from 10 feet to 20 feet for residential and 25 feet to 35 feet for commercial and industrial driveways[6]. The City of Rio Vista will review the design and connection of new driveways and would ensure that the design and construction of new driveways would be as per city's design standards and would not interfere with the movement of vehicles along existing roads. Therefore, the project would not increase hazards due to geometric design features.

[6] https://www.riovistacity.com/media/3711 (Page 24)

The project would create an entrance/exit to the project site via SR 12. State Route 12 has a posted limit of 50 MPH. The California Highway Design Manual specifies that deceleration and acceleration lanes should be provided for safe operation of intersections on state highway facilities. Deceleration lane length at intersections is determined by the roadway's design speed. Ideally, deceleration should occur entirely off the through traffic lanes. According to the Highway Design Manual, a roadway with a design speed of 50 MPH should have a deceleration lane length of 435 feet. The site plan for the Project aligns with this guidance, featuring a separate deceleration lane on Highway 12 that enters the site and meets the desired length. The project applicant has prepared preliminary encroachment plans for the SR 12/Bill Brann Road driveway and widening. Caltrans will review the encroachment plans and SR 12 widening design details and would ensure that the design and construction of this new driveway on SR 12 would be as per California Highway Design Manual and would not increase hazards due to geometric design features. Therefore, the impact of the proposed project would be less than significant.

TRAF-4	The proposed Project would not result in inadequate emergency access. (Less than Significant)

Emergency response requires a balance of emergency response time and evacuation needs with other community concerns, such as urban design and traffic calming. The City of Rio Vista would review the design and connection of new driveways and would ensure that the design and construction of new driveways would not interfere with the emergency response times and evacuation needs. According to the City Design Standards and Standard Plans (2015), all proposed roadways must have a minimum of two connections to either an existing, upgraded public street or a future street extension approved by the City. An exception to this requirement is allowed only if the dead-end length of the roadway is 350 feet or less. The proposed site plan shows that the local roadways in the project site meet this requirement and provides multiple access points into the project site. Therefore, with respect to inadequate emergency access, the impact of the proposed project would be less than significant, and no mitigation measures would be required.

Local Transportation Analysis

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

ANALYSIS METHODOLOGIES

The traffic operations analyses were conducted based on the methodologies described below.

Traffic Volumes

Traffic volumes for existing conditions were based on the intersection turn movement data collected at the study intersections in October 2023. Traffic volumes for the cumulative scenario were based on growth factors derived from the 2040 horizon year from the Solano-Napa Activity Based Model (SNABM). For the existing plus project and cumulative plus project traffic volumes, the increments of project traffic were estimated and added to the existing or cumulative traffic volumes.

Intersection Delay and Level of Service (LOS)

Level of service (LOS) describes the operating conditions experienced by motorists. LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions and delay, freedom to maneuver, driving comfort, and convenience. LOS A through LOS F covers the entire range of traffic operations that might occur. Motorists using a facility that operates at a LOS A experience very little delay, while those using a facility that operates at a LOS F will experience long delays.

Table 2 presents the relationship of average delay to level of service for both signalized and unsignalized intersections.

The City of Rio Vista General Plan (2001) contains standards to be used in conducting an intersection LOS analysis. The city requires the latest version of the Transportation Research Board, Highway Capacity Manual (HCM) methodology to evaluate peak hour LOS at both signalized and unsignalized intersections. For signalized intersections or all-way stop-controlled intersections, the HCM procedure calculates a weighted average control delay in seconds per vehicle at a signalized intersection and assigns a level of service designation based upon the delay. For unsignalized two-way stop-controlled intersections, the HCM methodology calculates a weighted average control delay in seconds per vehicle for each controlled intersection leg; the LOS for the worst approach is used as the LOS performance measure.

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

Table 2: Level of Service Definitions for Intersections

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

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

CITY OF RIO VISTA LOS STANDARDS

Per the City of Rio Vista General Plan (2001), all city streets and intersections shall maintain a level of service (LOS) "D" as the target LOS, except for the following locations where LOS E is acceptable:

- Main Street and Front Street between Main Street and SR 12
- In the Downtown area, neighborhood commercial areas, and other areas where vitality, pedestrian activity, and transit accessibility are or will be the primary considerations as the community grows.

Intersection Queueing Analysis

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

Recommended Improvements

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

PROJECT TRAFFIC

Project-related trip estimates were calculated to assess the project's potential impacts on traffic operations.

Trip Generation

Trip generation for the proposed project was estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition).

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

- 1,073 single family detached units
- 59 low-rise multifamily units
- 80 acres of open space (neighborhood parks and wetlands)
- 9 acres of mixed-use (25,000 square feet for a shopping plaza)
- 8.7-acre elementary school with 325 students

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

- Single-family detached housing (ITE 210)
- Multifamily housing low rise (ITE 220)
- Public Park (ITE 411)
- Strip Retail Plaza <40,000 square feet (ITE 822)
- Elementary School (ITE 520)

The resulting trip generation for the Brann Ranch area is shown in Table 3. As shown, the total trip generation for the master plan area is estimated to be 12,677 daily trips with 1,078 occurring in the AM peak hour and 1,266 occurring in the PM peak hour.

Trip Distribution

The project trip distribution was estimated from the likely origins and destinations and travel time comparison for travel between the project site to major destinations on the state highway system, i.e., SR 12 and SR 113. This was supplemented by considering the existing travel patterns

using the turning movement counts collected for the existing conditions. The trip distribution patterns were developed separately for the residential, commercial, park and school components for the proposed project. The trip distribution and project trips are included in Appendix A.

Table 3: Trip Generation for the Brann Ranch Project

	ITE Code	Amount	Land Use	Daily[3]	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Single-Family Detached Housing	210	1,073	DU	10,118	188	564	752	636	373	1,009
Multifamily Housing (Low Rise)	220	59	DU	398	6	18	24	20	11	31
Residential Internal Trips[1]					3	6	9	21	8	29
Public Park	411	80	Acres	62	1	1	2	5	4	9
Strip Retail Plaza (<40 KSF)[2]	822	25	KSF	1,361	35	24	59	83	82	165
Residential Internal Trips[1]					6	3	9	8	21	29
Elementary School	520	325	Students	738	130	111	241	24	28	52
Proposed Uses Total	12,677 daily trips				360	718	1,078	768	498	1,266
Net New Project Trips	12,677 daily trips				351	709	1,060	739	469	1,208

Based on ITE Trip Generation Manual 11th Edition, DU: Dwelling Units, KSF: Thousand Square Feet
[1]-calculated using the NCHRP 684 internal trip capture estimation tool, [2]-applicable for retail plazas smaller than 40,000 square feet of gross leasable area, [3]-ITE trip generation handbook does not include information on daily trip reduction, therefore no adjustments for daily trips.

Source: Kittelson & Associates, Inc. 2024

EXISTING TRAFFIC OPERATIONS

Existing Traffic Volumes

Weekday intersection vehicle turning movement counts were collected during the AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods on Thursday, October 26, 2023 at the study intersections, as shown in Figure 1.

The existing counts for the study intersections in the AM and PM peak hour are shown in Figure 7 and Figure 8, respectively. The raw intersection turning movement count data are provided in Appendix B. The existing lane configurations and traffic control types are shown in Figure 9.

Existing Intersection Operations

Table 4 summarizes the operations of the study intersections during the AM and PM peak hours for existing conditions. With existing traffic counts and controls, the stop-sign controlled approaches at SR 12 & Azevedo Road and SR12/N Front Street & SR 84 are estimated to operate at deficient LOS F conditions during the PM peak hour.

The LOS calculation sheets for existing conditions are shown in Appendix C.

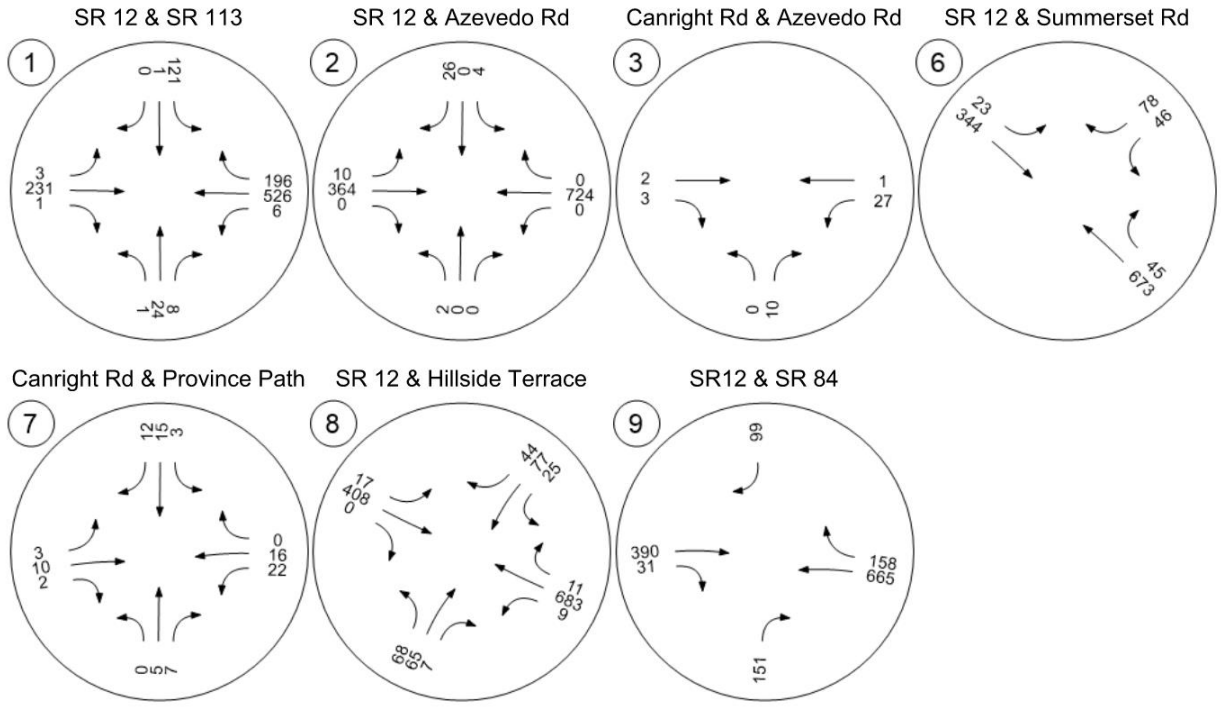
Table 4: Existing Traffic Operations

ID	Intersection	Control Type	Existing AM			Existing PM		
			V/C	Delay	LOS	V/C	Delay	LOS
1	SR 12 & SR 113	RBT	N/A	17.5	C	N/A	17.3	C
2	SR 12 & Azevedo Rd	2W Stop	N/A	34.3	D	N/A	121.7	F
3	Canright Rd & Azevedo Rd	2W Stop	N/A	8.4	A	N/A	11.0	B
4	SR 12 & Project Dwy*	-	-	-	-	-	-	-
5	McCormack Rd & Project Dwy*	-	-	-	-	-	-	-
6	SR 12 & Summerset Rd	Signalized	0.76	23.7	C	0.58	12.3	C
7	Canright Rd & Province Path	AW Stop	0.06	7.6	A	0.46	10.2	A
8	SR 12 & Hillside Terrace	Signalized	0.80	20.3	C	0.74	14.7	C
9	SR12/N Front Street & SR 84	2W Stop	N/A	16.9	C	N/A	81.9	F

Notes:
Control Types: 2W Stop = Two-way stop control, AW Stop = All-way stop control, RBT = Roundabout
V/C = Volume/capacity ratio, Delay = Average vehicle delay in seconds, Bold = Deficient (LOS E or F), Dwy – Driveway
*-Project driveways – do not exist currently

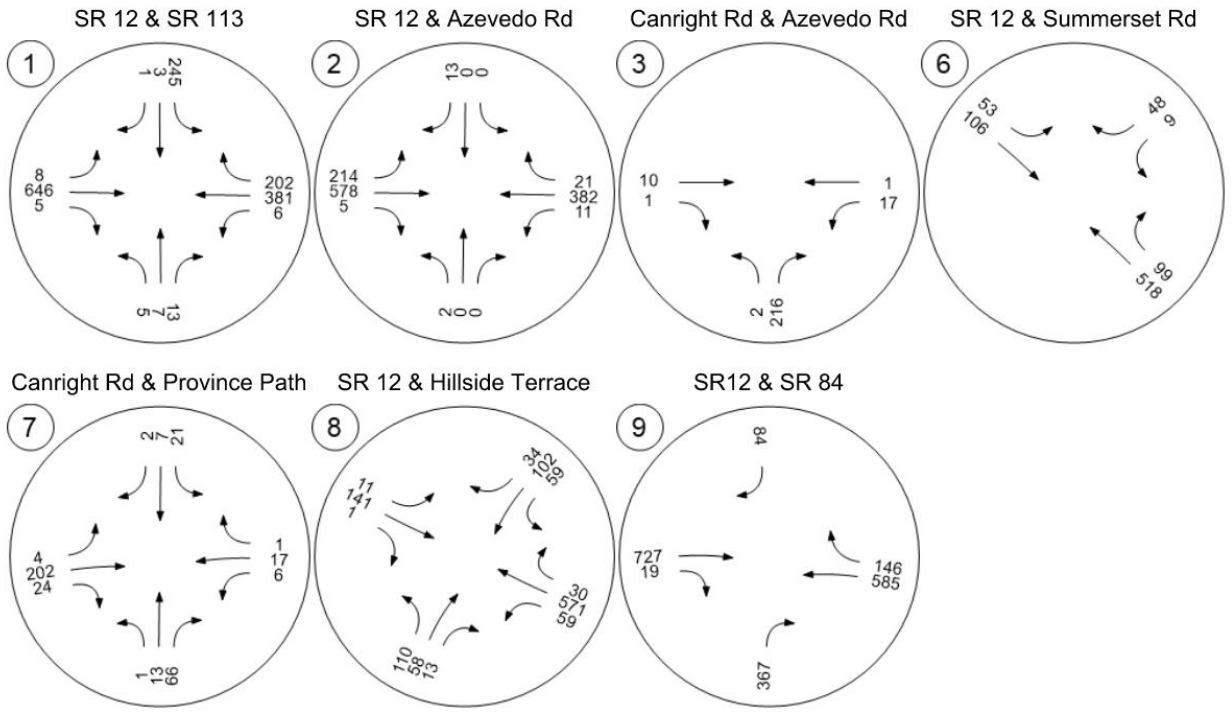
Source: Kittelson & Associates, 2024

Figure 7: Study Intersections – Existing AM Peak Hour Volumes



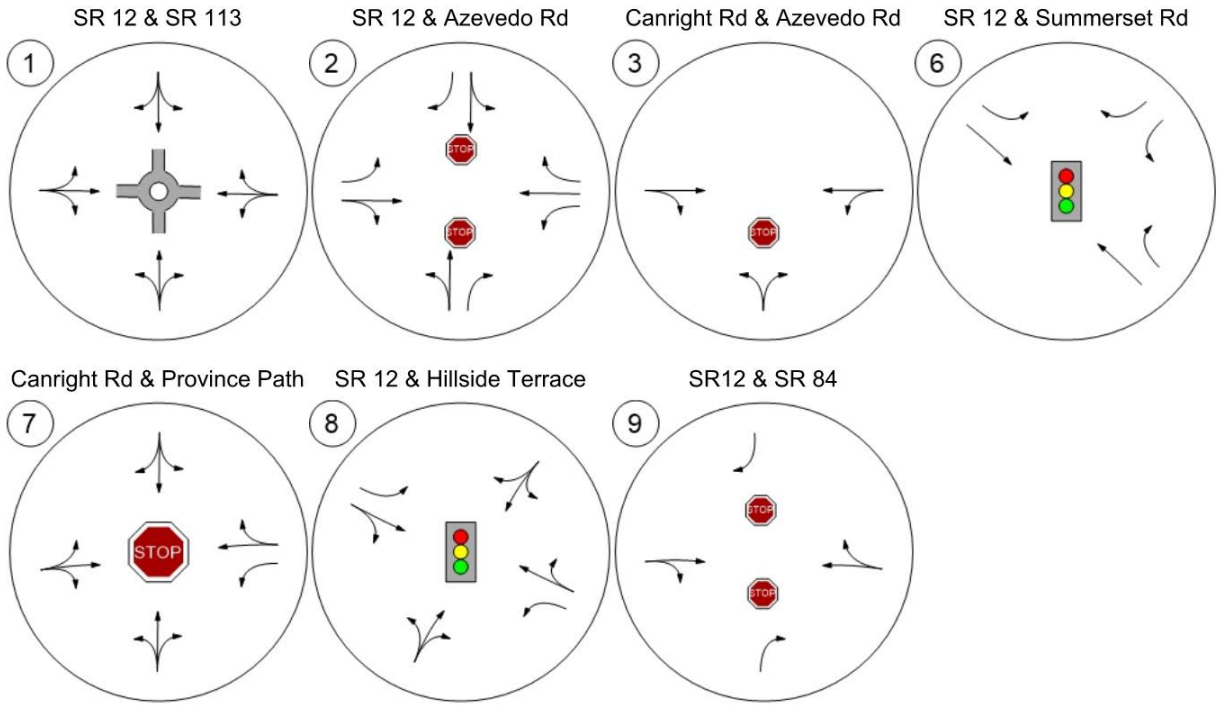
SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Figure 8: Study Intersections – Existing PM Peak Hour Volumes



SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Figure 9: Existing Lane Configurations and Traffic Control at Study Intersections



SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

QUEUING

An analysis of maximum design (95th percentile) queue lengths was performed for each scenario using Vistro software. Individual movement queues were compared against available storage lengths in dedicated turn lanes in the existing conditions. Table 5 shows the existing queues where the turning storage is applicable and available. As indicated in the table below, all queues can be accommodated within the current turn lane pockets in the existing conditions.

Existing Plus Project Traffic Volumes

The existing plus project conditions include existing counts combined with the project volumes which are estimated based on the project trip generation and trip distribution described in sections above.

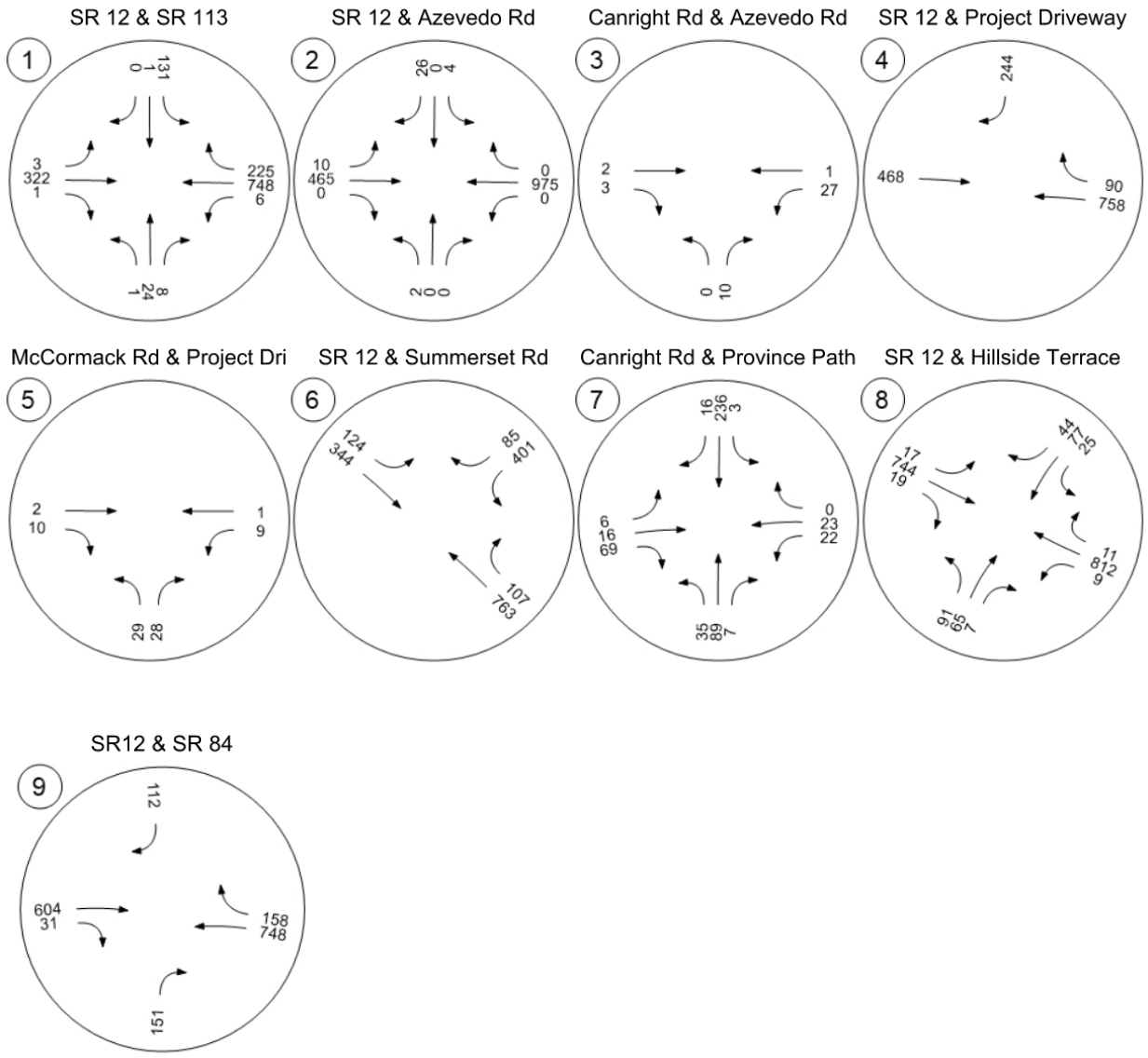
This scenario assumes the existing intersection lane configurations and traffic control types. The existing plus project volumes for the study intersections in the AM and PM peak hour are shown in Figure 10 and Figure 11, respectively. The existing plus project lane configurations and traffic control types are shown in Figure 12.

Table 5: Existing Conditions - 95th Percentile Queue Lengths (feet)

#	Intersection	Existing Scenario	Eastbound		Westbound		Northbound		Southbound	
			L	R	L	R	L	R	L	R
1	SR 12 & SR 113	Storage	-	-	-	-	-	-	-	-
		AM								
		PM				-				
2	SR 12 & Azevedo Rd	Storage	295	-	295	100	-	-	-	50
		AM	1		0	0				7
		PM	26		1	0				2
3	Canright Rd & Azevedo Rd	Storage	-	-	-	-	-	-	-	-
		AM								
		PM								
6	SR12 & Summerset Rd	Storage	700	-	-	620	-	-	-	-
		AM	18			11				
		PM	21			21				
7	Canright Rd & Province Path	Storage	-	-	220	-	-	-	-	-
		AM			4					
		PM			1					
8	SR 12 & Hillside Terrace	Storage	120	-	85	-	-	-	-	-
		AM	10		6					
		PM	6		26					
9	SR12/N Front Street & SR 84	Storage	-	-	-	-	-	-	-	-
		AM								
		PM								

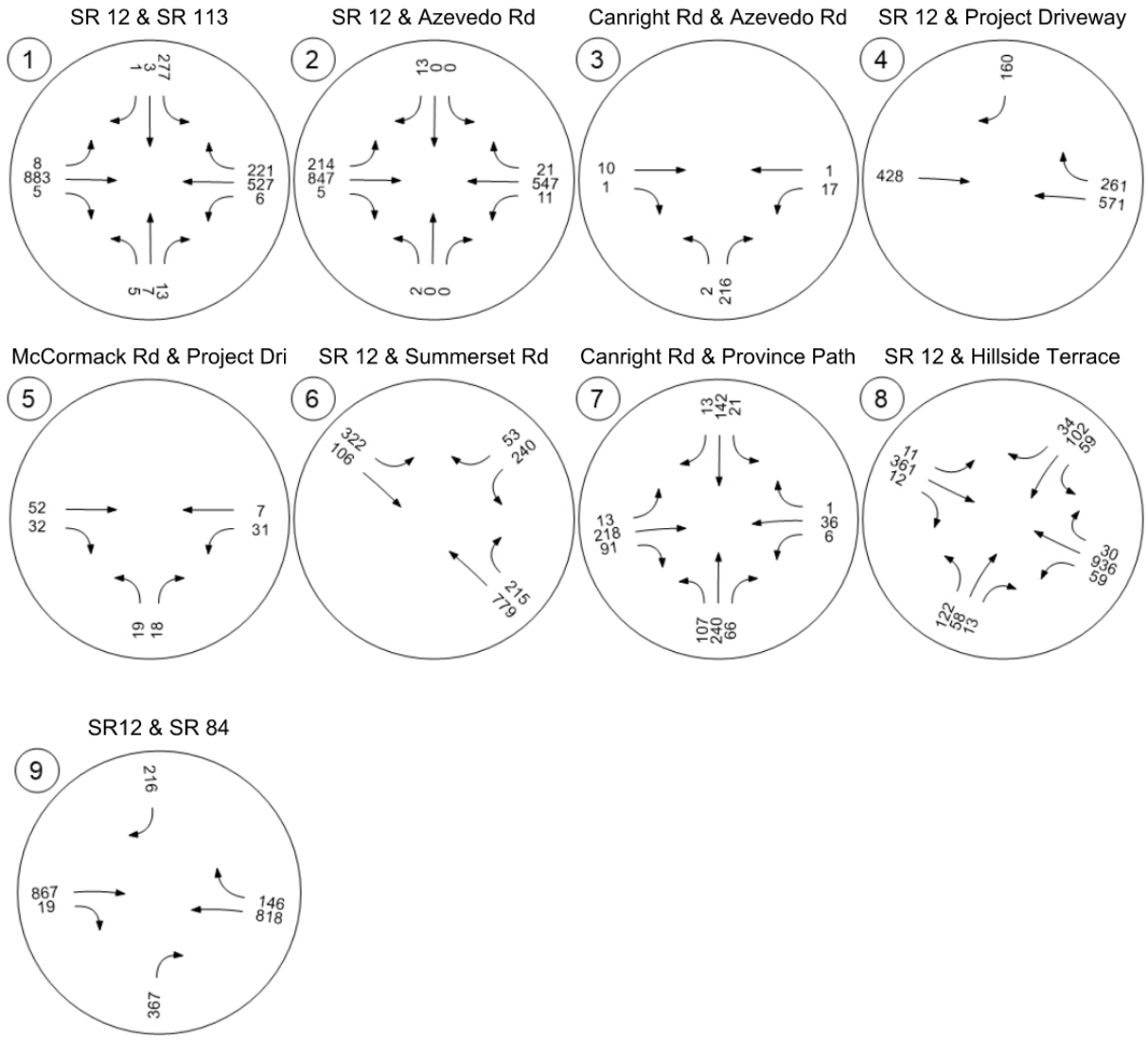
Notes: L-Left, R-Right, "-": no exclusive turn lane pocket

Figure 10: Study Intersections – Existing Plus Project AM Peak Hour Volumes



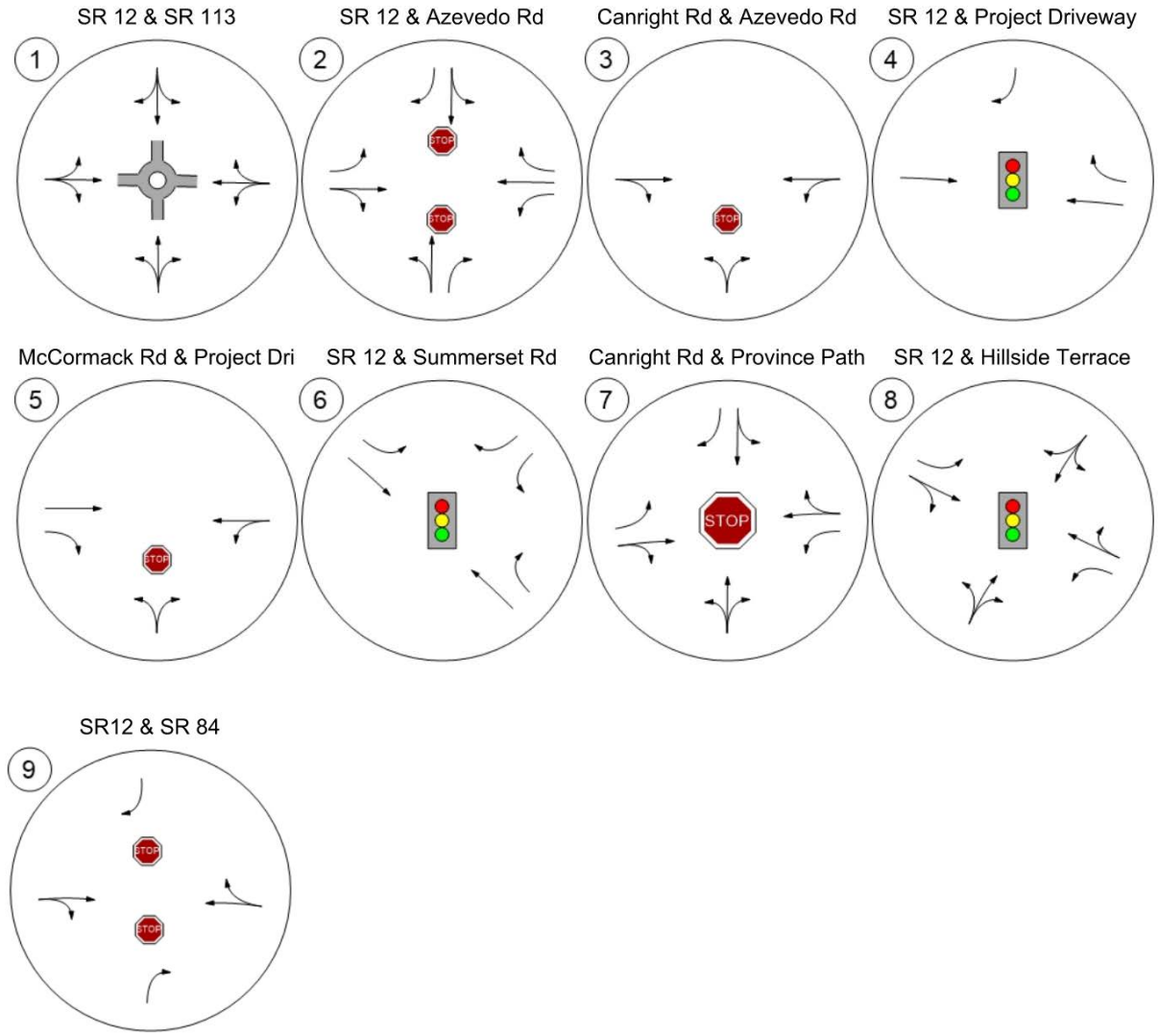
SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Figure 11: Study Intersections – Existing Plus Project PM Peak Hour Volumes



SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Figure 12: Existing Plus Project Lane Configurations and Traffic Control at Study Intersections



Existing Plus Project Intersection Operations

Table 6 summarizes the operations of the study intersections during the AM and PM peak hours in existing plus project conditions. With existing plus project traffic volumes and controls, the roundabout at SR 12 & SR 113, intersections at SR 12 & Azevedo Road and SR 12 & Summerset Road are estimated to operate at deficient LOS F conditions during both AM and PM peak hours. Three other intersections at Canright Road & Province Path, SR 12 & Hillside Terrace, and SR12/N Front Street & SR 84 are estimated to operate at deficient LOS F conditions in the PM peak hour.

Improvements to address the deficient locations caused by project traffic are discussed in the Improvement Recommendations section below.

Table 6: Existing Plus Project Traffic Operations

	Intersection	Control Type	Existing+Project AM			Existing+Project PM		
			V/C	Delay	LOS	V/C	Delay	LOS
1	SR 12 & SR 113	RBT	N/A	61.8	F	N/A	63.5	F
2	SR 12 & Azevedo Rd	2W Stop	0.03	65.4	F	0.25	386.1	F
3	Canright Rd & Azevedo Rd	2W Stop	0.01	8.4	A	0.01	11.0	B
4	SR 12 & Project Dwy	2W Stop	0.00	1.2	A	0.00	0.5	A
5	McCormack Rd & Project Dwy	2W Stop	0.03	8.8	A	0.02	9.4	A
6	SR 12 & Summerset Rd	Signalized	1.16	139.1	F	1.08	110.5	F
7	Canright Rd & Province Path	AW Stop	0.48	11.2	B	1.35	107.4	F
8	SR 12 & Hillside Terrace	Signalized	0.92	48.5	D	1.01	83.1	F
9	SR12/N Front Street & SR 84	2W Stop	0.37	22.0	C	1.23	164.1	F

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

Source: Kittelson & Associates, 2024

QUEUING

An analysis of maximum design (95th percentile) queue lengths was performed for existing plus project scenario using Vistro software. Individual movement queues were compared against available storage lengths in dedicated turn lanes in the existing conditions. Table 7 shows the existing plus project queues where the turning storage is applicable and available. As indicated in the table below, all queues can be accommodated within the current turn lane pockets in the existing conditions.

Table 7: Existing Plus Project Conditions - 95th Percentile Queue Lengths (feet)

#	Intersection	Existing Scenario	Eastbound		Westbound		Northbound		Southbound	
			L	R	L	R	L	R	L	R
1	SR 12 & SR 113	Storage	-	-	-	-	-	-	-	-
		AM								
		PM				-				
2	SR 12 & Azevedo Rd	Storage	295	-	295	100	-	-	-	50
		AM	1		0	0				11
		PM	33		2	0				3
3	Canright Rd & Azevedo Rd	Storage	-	-	-	-	-	-	-	-
		AM								
		PM								
4	SR 12 & Project Dwy	Storage	-	-	-	425	-	-	-	-
		AM				2				
		PM				5				
5	McCormack Rd & Project Dwy	Storage	-	150	-	-	-	-	-	-
		AM		0						
		PM		0						
6	SR12 & Summerset Rd	Storage	700	-	-	620	-	-	-	-
		AM	138			50				
		PM	696			128				
7	Canright Rd & Province Path	Storage	100	-	220	-	-	-	-	100
		AM	1		5					2
		PM	4		2					3
8	SR 12 & Hillside Terrace	Storage	120	-	85	-	-	-	-	-
		AM	12		6					
		PM	9		45					
9	SR12/N Front Street & SR 84	Storage	-	-	-	-	-	-	-	-
		AM								
		PM								

Notes: L-Left, R-Right, "-": no exclusive turn lane pocket

SIGNAL WARRANT ANALYSIS

Analysis of signal warrants were conducted using the Manual on Uniform Traffic Control Devices (MUTCD) procedure for 8-hour, 4- hour, and peak hour study periods for the plus-project scenarios. Table 8 lists a summary of signal warrant findings for existing plus project conditions. A "Yes" indicates that the intersection would meet the warrant for any of the three-signal warrant analysis; a "No" indicates that the intersection did not meet the warrants.

Of the three study intersections that are currently unsignalized and exceed the LOS threshold (i.e., LOS D), two intersections would meet one or more signal warrants with existing plus project conditions.

Table 8: Existing Plus Project Condition Signal Warrants

ID	Intersection	Signal Warrant		
		8 HR	4 HR	1 HR
2	SR 12 & Azevedo Rd	No	No	No
7	Canright Rd & Province Path	No	No	Yes
9	SR12/N Front Street & SR 84	Yes	Yes	Yes

Source: Kittelson & Associates, 2024

IMPROVEMENT RECOMMENDATIONS

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

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

Recommendations are provided for changes in lanes and traffic controls to address LOS deficiencies for existing plus project conditions with the Brann Ranch project. Table 9 lists the recommendations for existing traffic with development of Brann Ranch project.

Table 10 shows the traffic operations changes with and without the recommended improvements. As shown in the table, the recommended improvements would provide acceptable LOS operations (LOS D or better) at three out of five intersections that are projected to have deficient operations with Brann Ranch project. These improvements can be accommodated within the existing roadway area.

The LOS calculation sheets for existing plus project conditions with and without improvements and signal warrants are shown in Appendix D.

Table 9: Recommendations for Existing Plus Project Conditions

ID	Intersection	Lane Changes	Intersection Control Change
1	SR 12 & SR 113	No feasible improvement measures identified within available right-of-way	No change
2	SR 12 & Azevedo Rd	No improvements identified as the volumes would not meet the minimum warrant requirements to install a traffic signal. Only two vehicles turning left from the minor street would experience significant delays corresponding to LOS F	No change
6	SR 12 & Summerset Rd	-Change SB right turn lane to shared left-right turn lane; -Change WB right turn only to shared through-right turn lane; -Restripe WB gore area to a 700ft WB exit pocket lane; -Restripe EB gore area to a 500 ft EB exit pocket lane	No change
7	Canright Rd & Province Path	No change	Meets signal warrant, replace All-way stop with signal
8	SR 12 & Hillside Terrace	No feasible improvement measures identified within available right-of-way	No change
9	SR12/N Front Street & SR 84	No change	Meets signal warrant, replace Two-way stop with signal

Table 10: Intersection Operations with Recommended Improvements - Existing Plus Project

ID	Intersection	Control Type	Peak Hour	Existing Plus Project			Recommended Improvements	Existing Plus Project With Improvements		
				V/C	Delay	LOS		V/C	Delay	LOS
6	SR 12 & Summerset Rd	2W Stop	AM	1.16	139.1	F	Shared SB left-right lane Shared WB thru-right lane	0.76	25.1	C
			PM	1.08	110.5	F		0.82	40.0	D
7	Canright Rd & Province Path	AW Stop	AM	0.48	11.2	B	Signal	0.28	19.6	B
			PM	1.35	107.4	F		0.83	41.3	D
9	SR12/N Front Street & SR 84	2W Stop	AM	0.37	22.0	C	Signal	0.88	26.7	C
			PM	1.23	164.1	F		1.00	60.1	E

CUMULATIVE TRAFFIC OPERATIONS

Cumulative land use assumptions and traffic levels without the Brann Ranch project are consistent with the Solano-Napa Activity Based Travel Demand model forecasts horizon year of 2040. The Brann Ranch project trips were then added to the cumulative volumes to represent cumulative conditions with the project.

Cumulative No Project Traffic Volumes

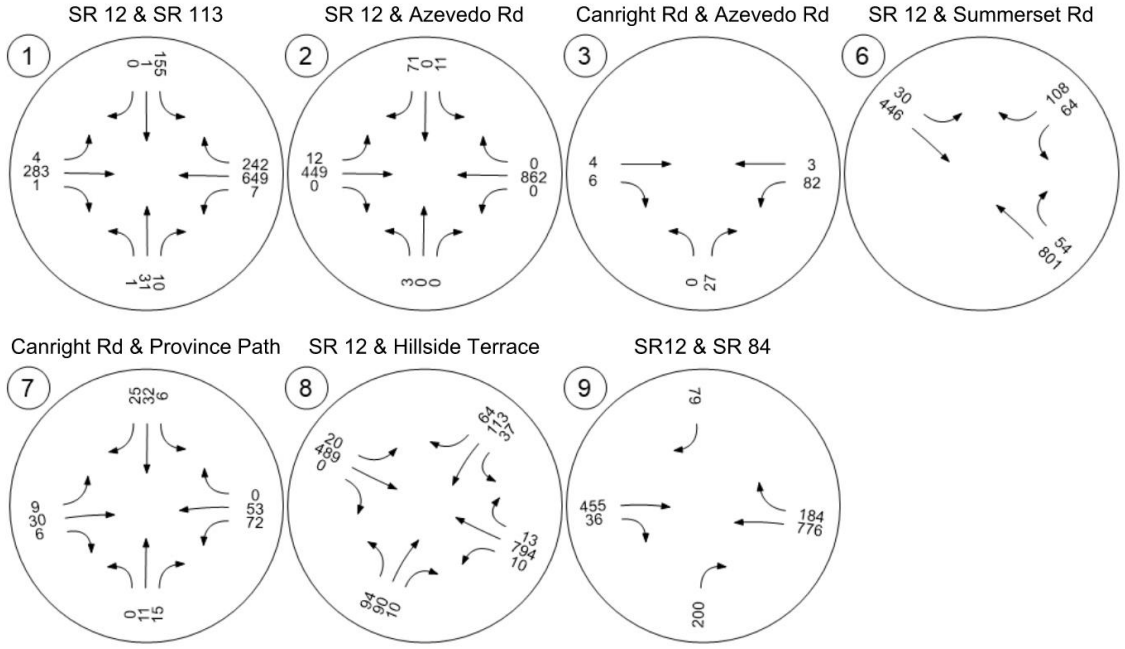
The cumulative traffic operations are evaluated for AM and PM peak hours. This scenario assumes the existing intersection lane configurations and traffic control types. The cumulative volumes for the study intersections in the AM and PM peak hour are shown in Figure 13 and Figure 14, respectively. The existing lane configurations and traffic control types are shown in Figure 9.

Cumulative No Project Intersection Operations

Table 11 summarizes the operations of the study intersections during the AM and PM peak hours in cumulative conditions. With cumulative traffic volumes and controls, the roundabout at SR 12 & SR 113 and intersection at SR 12 & Azevedo Road are estimated to operate at deficient LOS E/F conditions during both AM and PM peak hours. Three other intersections at Canright Road & Azevedo Road, Canright Road & Province Path, and SR12/N Front Street & SR 84are estimated to operate at deficient LOS F conditions in the PM peak hour. One intersection at SR 12 & Hillside Terrace is estimated to operate at LOS E condition in the AM peak hour.

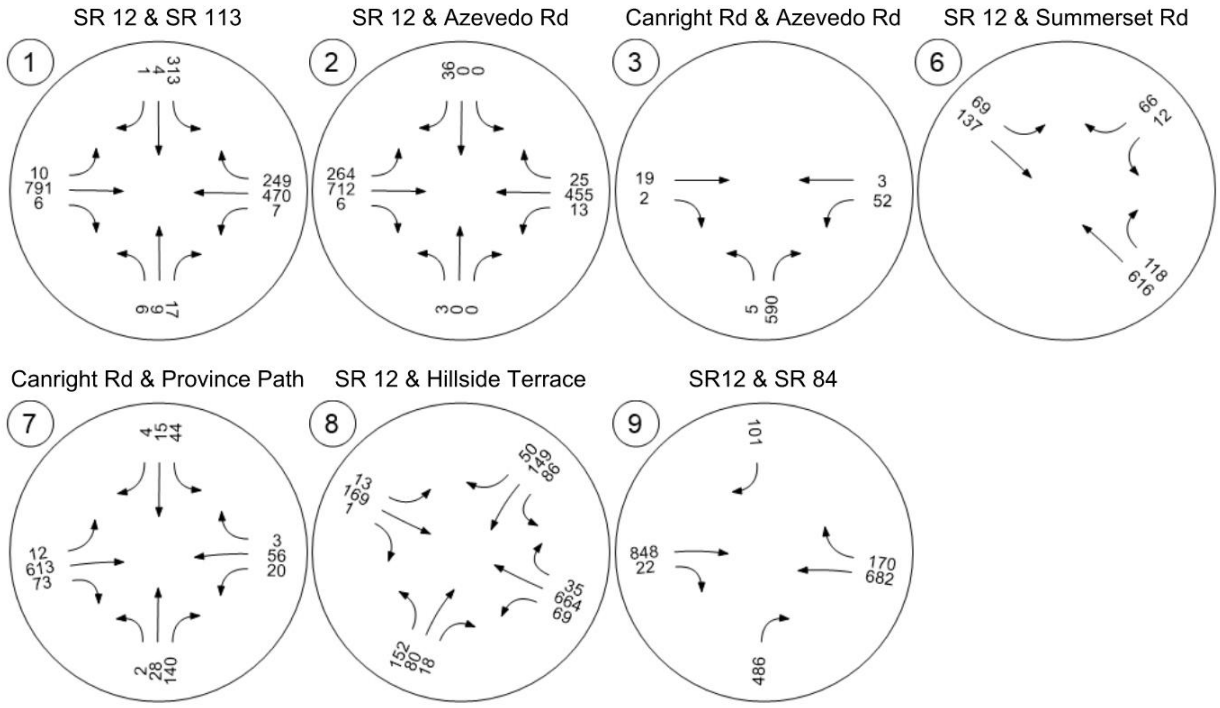
The LOS calculation sheets for cumulative no project conditions are shown in Appendix E.

Figure 13: Study Intersections – Cumulative No Project AM Peak Hour Volumes



SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Figure 14: Study Intersections – Cumulative No Project PM Peak Hour Volumes



SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Table 11: Cumulative No Project Traffic Operations

	Intersection	Control Type	Cumulative no Project AM			Cumulative no Project PM		
			V/C	Delay	LOS	V/C	Delay	LOS
1	SR 12 & SR 113	RBT	N/A	43.8	E	N/A	49.7	E
2	SR 12 & Azevedo Rd	2W Stop	0.05	67.7	F	0.30	354.8	F
3	Canright Rd & Azevedo Rd	2W Stop	0.03	8.4	A	0.01	59.9	F
4	SR 12 & Project Dwy*	-	-	-	-	-	-	-
5	McCormack Rd & Project Dwy*	-	-	-	-	-	-	-
6	SR 12 & Summerset Rd	Signalized	0.91	52.7	D	0.68	13.8	B
7	Canright Rd & Province Path	AW Stop	0.22	8.4	A	1.68	228.7	F
8	SR 12 & Hillside Terrace	Signalized	0.95	56.5	E	0.89	37.9	D
9	SR12/N Front Street & SR 84	2W Stop	0.27	20.8	C	1.59	310.8	F

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

Source: Kittelson & Associates, 2024

QUEUING

An analysis of maximum design (95th percentile) queue lengths was performed for cumulative scenario using Vistro software. Individual movement queues were compared against available storage lengths in dedicated turn lanes in the existing conditions. Table 12 shows the cumulative no project queues where the turning storage is applicable and available. As indicated in the table below, all queues can be accommodated within the current turn lane pockets in cumulative conditions.

Table 12: Cumulative No Project Conditions - 95th Percentile Queue Lengths (feet)

#	Intersection	Cumulative No Project Scenario	Eastbound		Westbound		Northbound		Southbound	
			L	R	L	R	L	R	L	R
1	SR 12 & SR 113	Storage	-	-	-	-	-	-	-	-
		AM								
		PM				-				
2	SR 12 & Azevedo Rd	Storage	295	-	295	100	-	-	-	50
		AM	2		0	0				30
		PM	39		2	0				8
3	Canright Rd & Azevedo Rd	Storage	-	-	-	-	-	-	-	-
		AM								
		PM								
6	SR12 & Summerset Rd	Storage	700	-	-	620	-	-	-	-
		AM	30			13				
		PM	42			23				
7	Canright Rd & Province Path	Storage	-	-	220	-	-	-	-	-
		AM			13					
		PM			5					
8	SR 12 & Hillside Terrace	Storage	120	-	85	-	-	-	-	-
		AM	15		8					
		PM	12		60					
9	SR12/N Front Street & SR 84	Storage	-	-	-	-	-	-	-	-
		AM								
		PM								

Notes: L-Left, R-Right, "-": no exclusive turn lane pocket

Cumulative Plus Project Traffic Volumes

The cumulative plus project conditions include cumulative volumes combined with the project volumes which are estimated based on the project trip generation and trip distribution described in sections above.

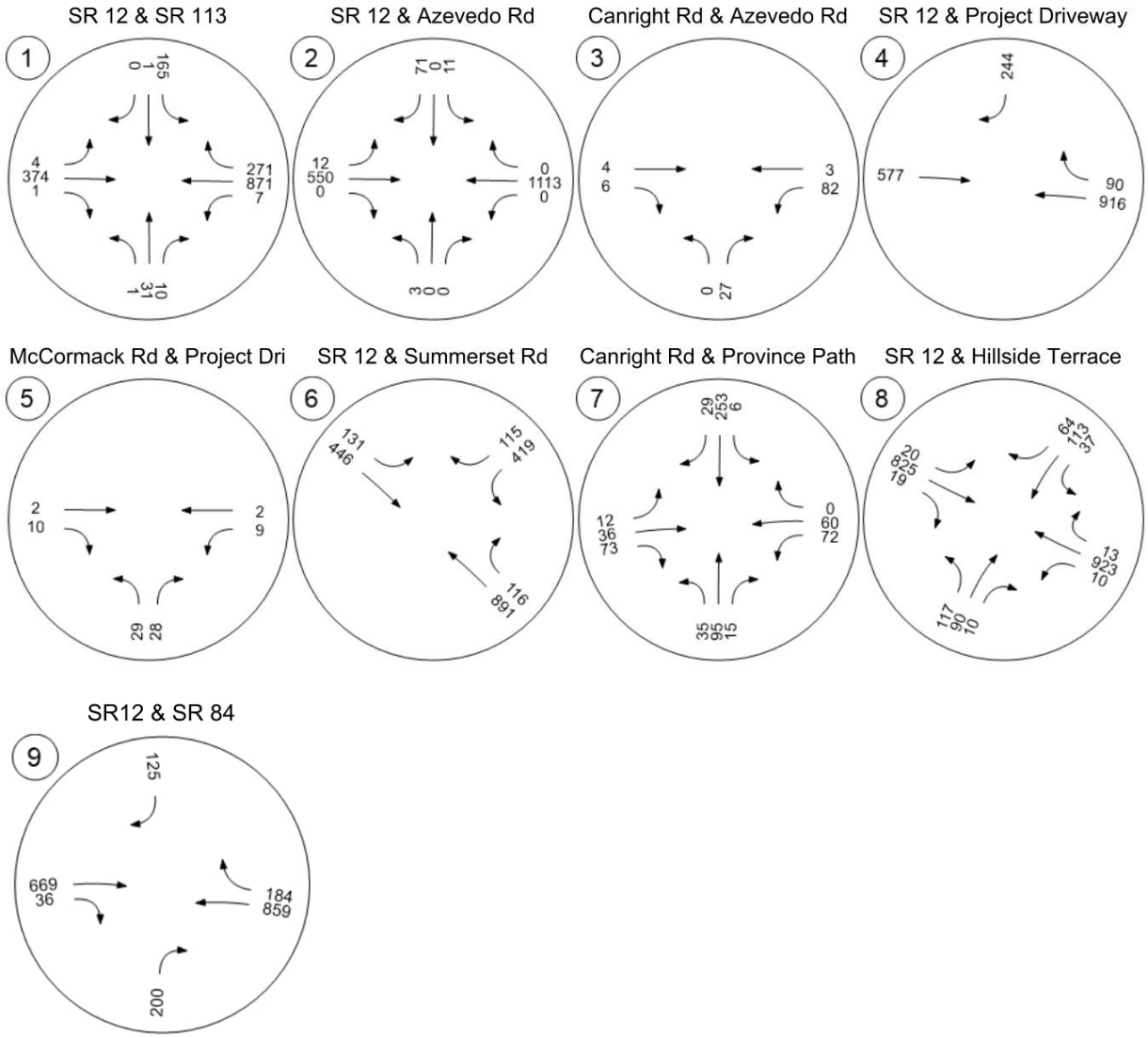
The cumulative plus project traffic operations are evaluated for AM and PM peak hours. This scenario assumes the existing plus project intersection lane configurations and traffic control types. The cumulative plus project volumes for the study intersections in the AM and PM peak hour are shown in Figure 15 and Figure 16, respectively. The existing plus project lane configurations and traffic control types are shown in Figure 17.

Cumulative Plus Project Intersection Operations

Table 13 summarizes the operations of the study intersections during the AM and PM peak hours in cumulative plus project conditions. With cumulative plus project traffic volumes, the roundabout at SR 12 & SR 113, intersections at SR 12 & Azevedo Road, SR 12 & Summerset Road, and SR 12 & Hillside Terrace are estimated to operate at deficient LOS F conditions during both AM and PM peak hours. Three other intersections at Canright Road & Azevedo Road, Canright Road & Province Path, and SR12/N Front Street & SR 84 are estimated to operate at deficient LOS F conditions in the PM peak hour.

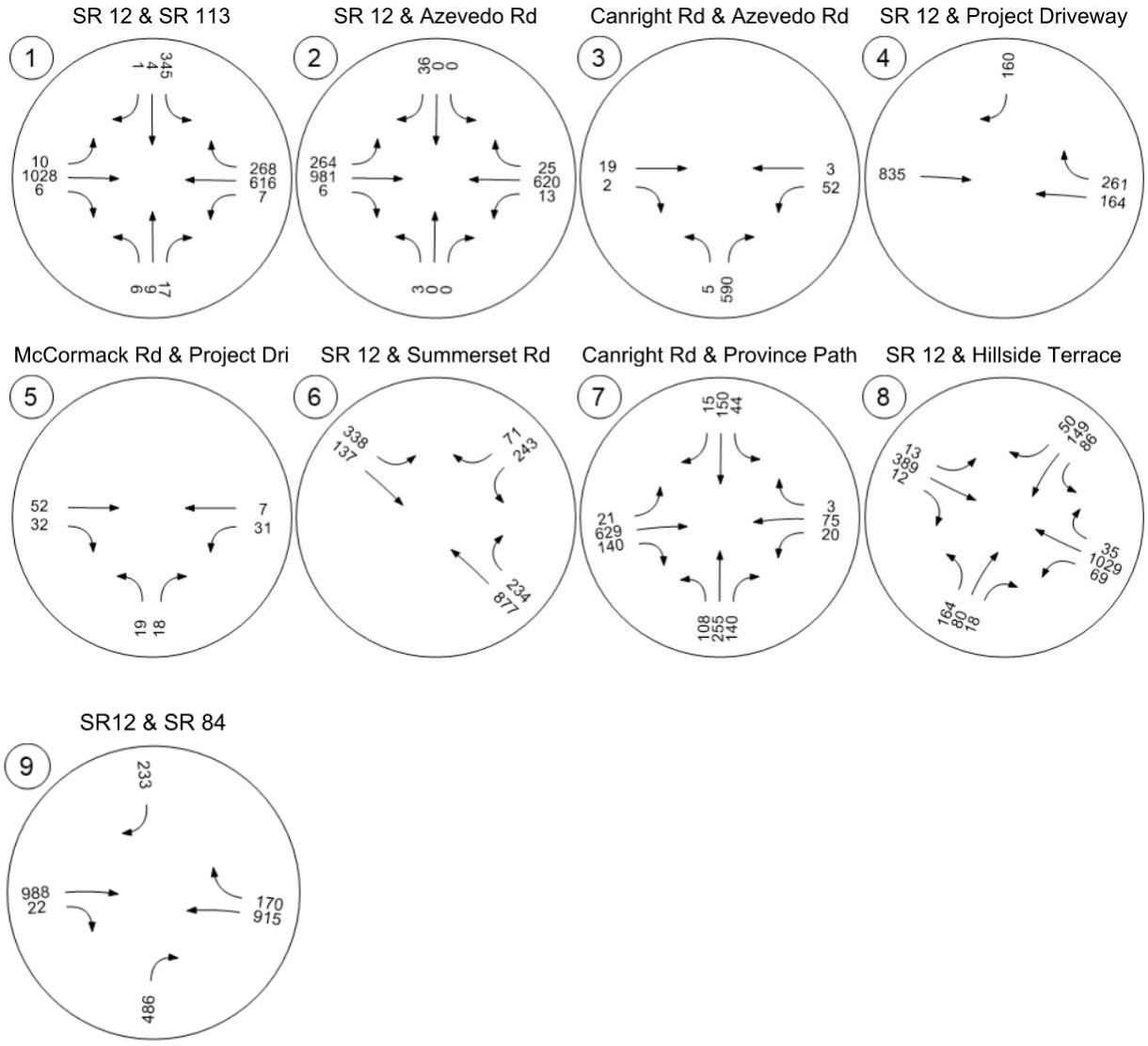
Improvements to address the deficient locations caused by project traffic are discussed in the Improvement Recommendations section.

Figure 15: Study Intersections – Cumulative Plus Project AM Peak Hour Volumes



SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Figure 16: Study Intersections – Cumulative Plus Project PM Peak Hour Volumes



SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

Figure 17: Cumulative Plus Project Lane Configurations and Traffic Control at Study Intersections

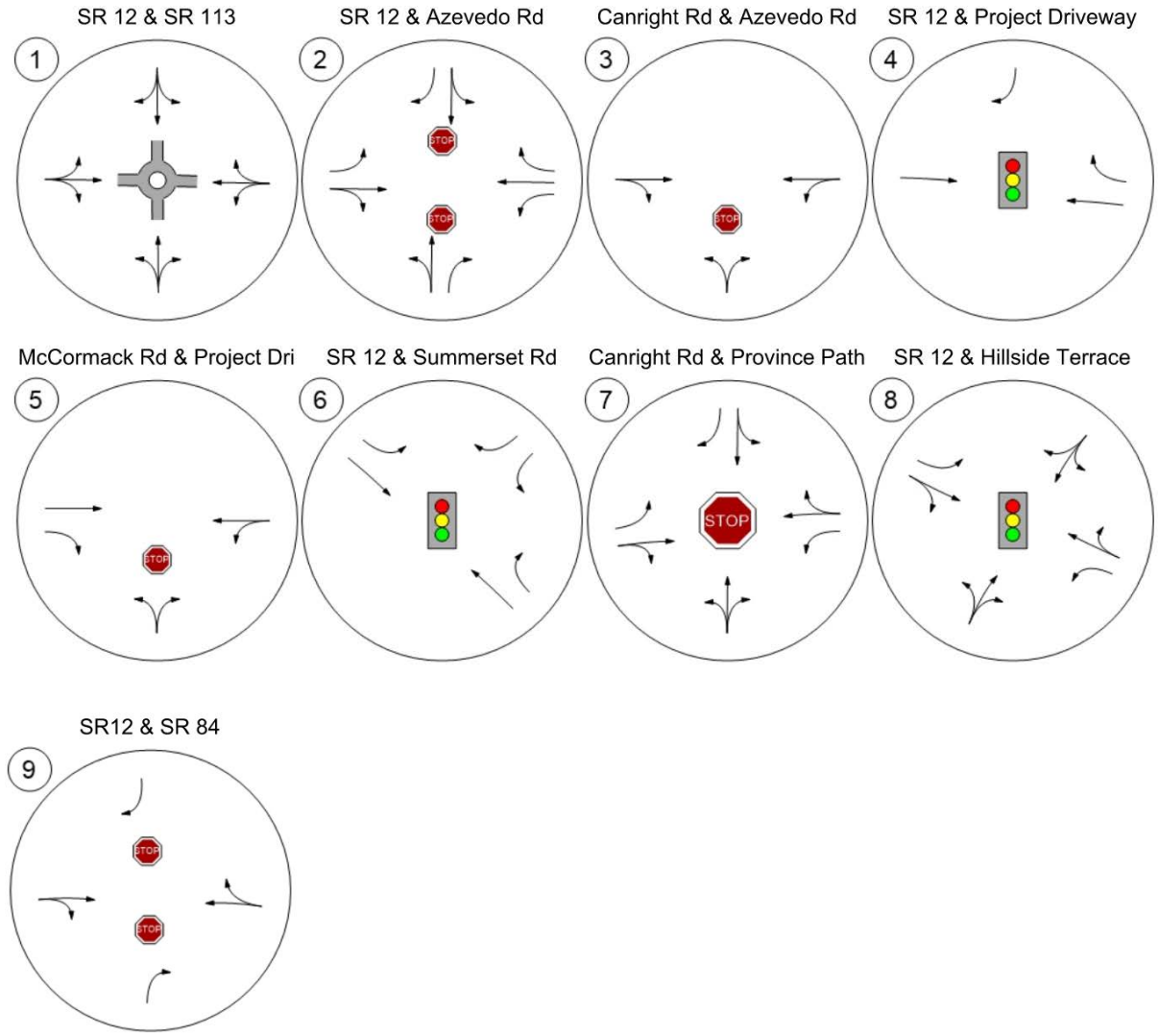


Table 13: Cumulative Plus Project Traffic Operations

	Intersection	Control Type	Cumulative+Project AM			Cumulative+Project PM		
			V/C	Delay	LOS	V/C	Delay	LOS
1	SR 12 & SR 113	RBT	N/A	121.5	F	N/A	130.6	F
2	SR 12 & Azevedo Rd	2W Stop	0.12	171.1	F	0.90	1358.6	F
3	Canright Rd & Azevedo Rd	2W Stop	0.03	8.4	A	0.01	59.9	F
4	SR 12 & Project Dwy	2W Stop	0.00	1.0	A	0.00	0.8	A
5	McCormack Rd & Project Dwy	2W Stop	0.03	8.8	A	0.02	9.4	A
6	SR 12 & Summerset Rd	Signalized	1.30	182.2	F	1.17	143.6	F
7	Canright Rd & Province Path	AW Stop	0.58	13.4	B	1.69	194.6	F
8	SR 12 & Hillside Terrace	Signalized	1.09	119.2	F	1.20	147.3	F
9	SR12/N Front Street & SR 84	2W Stop	0.49	29.9	D	1.95	471.7	F

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

Source: Kittelson & Associates, 2024

QUEUING

An analysis of maximum design (95th percentile) queue lengths was performed for cumulative plus project scenario using Vistro software. Individual movement queues were compared against available storage lengths in dedicated turn lanes in the existing conditions. Table 14 shows the cumulative plus project queues where the turning storage is applicable and available. As indicated in the table below, all queues can be accommodated within the current turn lane pockets in the cumulative plus project conditions except at SR 12 & Azevedo Road for SB right turn which exceeds the available storage.

Table 14: Cumulative Plus Project Conditions - 95th Percentile Queue Lengths (feet)

#	Intersection	Cumulative Plus Project Scenario	Eastbound		Westbound		Northbound		Southbound	
			L	R	L	R	L	R	L	R
1	SR 12 & SR 113	Storage	-	-	-	-	-	-	-	-
		AM								
		PM				-				
2	SR 12 & Azevedo Rd	Storage	295	-	295	100	-	-	-	50
		AM	2		0	0				51
		PM	51		2	0				11
3	Canright Rd & Azevedo Rd	Storage	-	-	-	-	-	-	-	-
		AM								
		PM								
4	SR 12 & Project Dwy	Storage	-	-	-	425	-	-	-	-
		AM				2				
		PM				5				
5	McCormack Rd & Project Dwy	Storage	-	150	-	-	-	-	-	-
		AM		0						
		PM		0						
6	SR12 & Summerset Rd	Storage	700	-	-	620	-	-	-	-
		AM	146			56				
		PM	696			128				
7	Canright Rd & Province Path	Storage	100	-	220	-	-	-	-	100
		AM	2		5					4
		PM	4		5					3
8	SR 12 & Hillside Terrace	Storage	120	-	85	-	-	-	-	-
		AM	16		9					
		PM	12		60					
9	SR12/N Front Street & SR 84	Storage	-	-	-	-	-	-	-	-
		AM								
		PM								

Notes: L-Left, R-Right, "-": no exclusive turn lane pocket

SIGNAL WARRANT ANALYSIS

Analysis of signal warrants were conducted using the Manual on Uniform Traffic Control Devices (MUTCD) procedure for 8-hour, 4- hour, and peak hour study periods for the plus-project scenarios. Table 15 lists a summary of signal warrant findings for cumulative plus project conditions. A "Yes" indicates that the intersection would meet the warrant for any of the three-signal warrant analysis; a "No" indicates that the intersection did not meet the warrants.

Of the four study intersections that are currently unsignalized and exceed the LOS threshold (i.e., LOS D), three intersections would meet one or more signal warrants with cumulative plus project conditions.

Table 15: Cumulative Plus Project Condition Signal Warrants

ID	Intersection	Existing Plus Project		
		8 HR	4 HR	1 HR
2	SR 12 & Azevedo Rd	No	No	No
3	Canright Rd & Azevedo Rd	No	Yes	**Yes**
7	Canright Rd & Province Path	No	**Yes**	Yes
9	SR12/N Front Street & SR 84	Yes	Yes	Yes

Source: Kittelson & Associates, 2024

IMPROVEMENT RECOMMENDATIONS

Recommendations are provided for changes in lanes and traffic controls to address LOS deficiencies for cumulative plus project conditions with the Brann Ranch project. Table 16 lists the recommendations for cumulative traffic with development of the Brann Ranch project. Table 17 shows the traffic operations changes with and without the recommended improvements. These improvements can be accommodated within the existing roadway area.

The LOS calculation sheets for cumulative plus project conditions with and without improvements and signal warrants are shown in Appendix F.

Table 16: Recommendations for Cumulative Plus Project Conditions

ID	Intersection	Lane Changes	Intersection Control Change
1	SR 12 & SR 113	No feasible improvement measures identified within available right-of-way	No change
2	SR 12 & Azevedo Rd	No planned improvements identified since three vehicles turning left from the minor street would experience significant delays, thereby causing LOS F	No change
3	Canright Rd & Azevedo Rd	No change	Make Canright Rd stop-controlled and Azevedo Rd uncontrolled
6	SR 12 & Summerset Rd	-Add dual left-turn lanes EB; Change SB right turn only to shared left-right turn lane; -Change WB right turn only to shared through-right turn lane; -Restripe WB gore area to a 700ft WB exit pocket lane; -Restripe EB gore area to a 500 ft EB exit pocket lane	No change
7	Canright Rd & Province Path	No change	Meets signal warrant, replace All-way stop with signal
8	SR 12 & Hillside Terrace	No feasible improvements measures identified within available right-of-way	No change
9	SR12/N Front Street & SR 84	No change	Meets signal warrant, replace Two-way stop with signal

Table 17: Intersection Operations with Recommended Improvements - Cumulative Plus Project

ID	Intersection	Control Type	Peak Hour	Existing Plus Project			Recommended Improvements	Existing Plus Project With Improvements		
				V/C	Delay	LOS		V/C	Delay	LOS
3	Canright Rd & Azevedo Rd	2W Stop	AM	0.03	8.4	A	Canright Rd stop-controlled Azevedo Rd uncontrolled	0.01	9.6	A
			PM	0.01	59.9	F		0.16	25.3	D
6	SR 12 & Summerset Rd	Signalized	AM	1.30	182.2	F	Dual EB left-turn lanes Shared SB left-right lane Shared WB thru-right lane	0.80	31.2	C
			PM	1.17	143.6	F		0.77	26.6	C
7	Canright Rd & Province Path	AW Stop	AM	0.58	13.4	B	Signal	0.34	24.8	C
			PM	1.69	194.6	F		0.91	34.3	C
9	SR12/N Front Street & SR 84	2W Stop	AM	0.49	29.9	D	Signal	1.04	49.9	D
			PM	1.95	471.7	F		1.19	123.6	F

The results are as follows:

- As shown in the table, the recommended roadway improvements would provide acceptable LOS operations (LOS D or better) at three out of six intersections that are projected to have deficient operations with Brann Ranch project.
    - Canright Rd & Azevedo Rd
    - SR 12 & Summerset Rd
    - Canright Rd & Province Path
- For two intersections, no feasible roadway improvements were identified within available right-of-way.
    - SR 12 & SR 113
    - SR 12 & Hillside Terrace
- For SR12/N Front Street & SR 84, the recommended improvements would reduce the delay from 471 seconds to 123 seconds per vehicle, still maintaining the LOS F in the PM peak hour. No feasible additional improvements were identified within the available right-of-way. Any roadway improvements involving SR 12 and SR 84 would require Caltrans' approval.

ROADWAY SEGMENT ANALYSIS

In addition to the intersection operations, Kittelson evaluated the roadway segment operations on SR 12 east and west of the project driveway, which included the following two roadway segments:

1. SR 12 west of Bill Brann Road (Project Driveway)
2. SR 12 east of Bill Brann Road (Project Driveway)

The peak hour roadway capacity thresholds from Highway Capacity Manual (HCM) were considered in evaluating the segment operations. Table 18 identifies the peak hour roadway capacity for different LOS thresholds based on the HCM. The existing and cumulative roadway functional classification is two-lane undivided state highway.

Table 18: Road Segment Thresholds for SR 12 in the City of Rio Vista

Roadway Segment	Existing Peak Hour Roadway Capacity	Thresholds[1]		
		LOS C	LOS D	LOS E
Two-Lane Undivided State Highway	2,470	1,020	1,730	2,470

1 Highway Capacity Manual (Transportation Research Board, 2000)

Similar to the forecasts done for intersection operations, the Solano-Napa Activity Based Travel Demand Model was used to estimate the roadway volumes in cumulative conditions. The project trips are added to existing and cumulative conditions to get the existing plus project and cumulative plus project volumes, respectively. Table 19 summarizes the volumes for existing and cumulative scenarios with and without the project.

Table 19: Roadway Segment Operations in Existing and Cumulative Conditions

Road Segment Name	Peak Hour	Existing		Existing Plus Project		Cumulative		Cumulative Plus Project	
		Vol.	LOS	Vol.	LOS	Vol.	LOS	Vol.	LOS
1. SR 12 West of Bill Brann Road	AM	1226	D	1570	D	1470	D	1820	E
	PM	1349	D	1780	E	1620	D	2050	E
2. SR 12 East of Bill Brann Road	AM	1226	D	1420	D	1430	D	1630	D
	PM	1349	D	1880	E	1570	D	2110	E

The following segments are forecast to operate at LOS E under the following scenarios and at LOS D or better in other scenarios and time periods.

- SR 12 West of Bill Brann Road
  - Existing Plus Project PM peak hour
  - Cumulative Plus Project AM and PM peak hour
- SR 12 East of Bill Brann Road
  - Existing Plus Project PM peak hour
  - Cumulative Plus Project PM peak hour

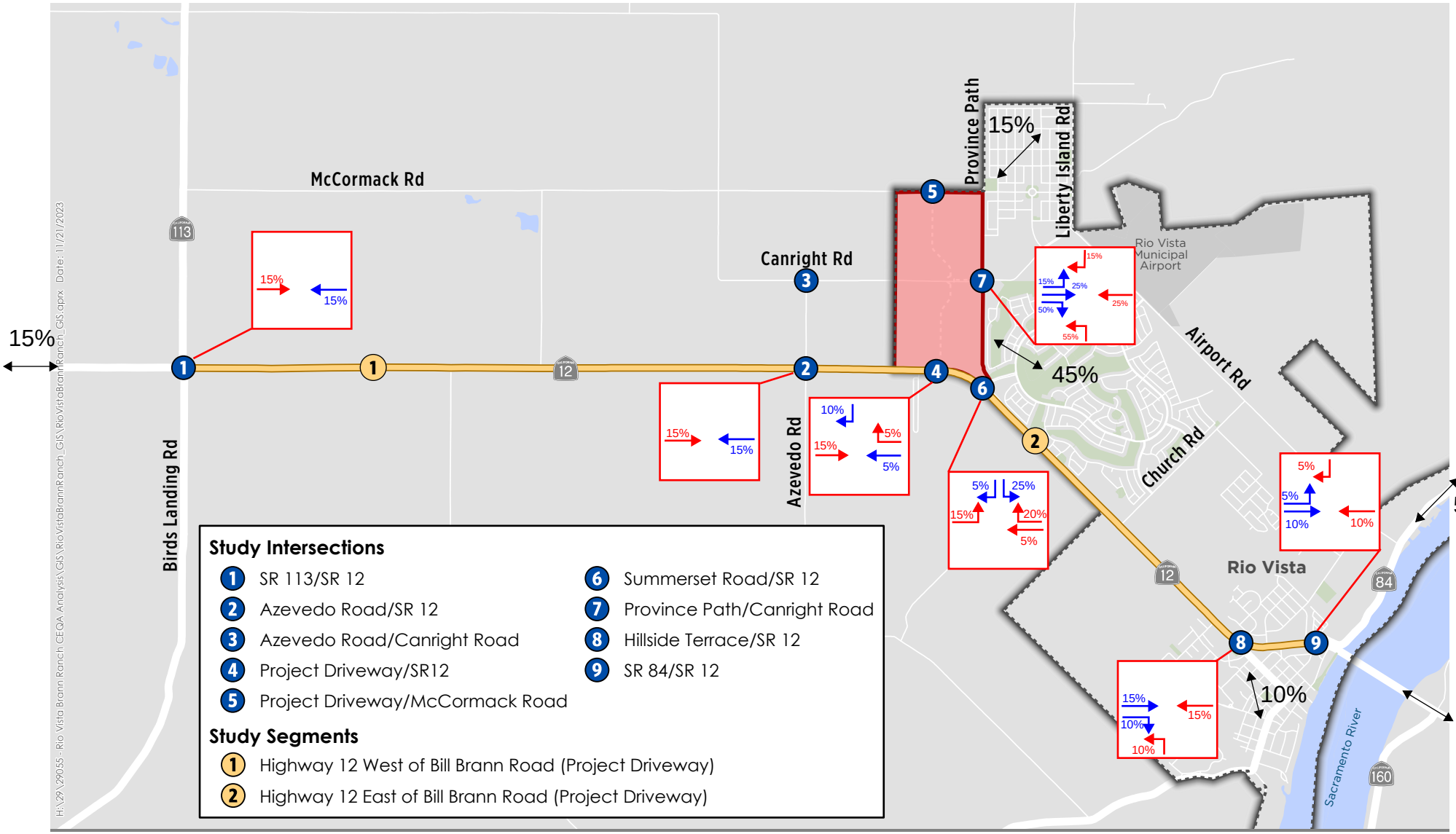
Appendix

A. Trip Distribution and Project Trips
B. Traffic Counts
C. Level of Service Calculation Sheets– Existing Conditions
D. Level of Service Calculation Sheets with and without Improvements and Signal Warrants – Existing Plus Project Conditions
E. Level of Service Calculation Sheets– Cumulative No Project Conditions
F. Level of Service Calculation Sheets with and without Improvements and Signal Warrants – Cumulative Plus Project Conditions

Appendix A

Trip Distribution and Project Trips

Commercial Trip Distribution



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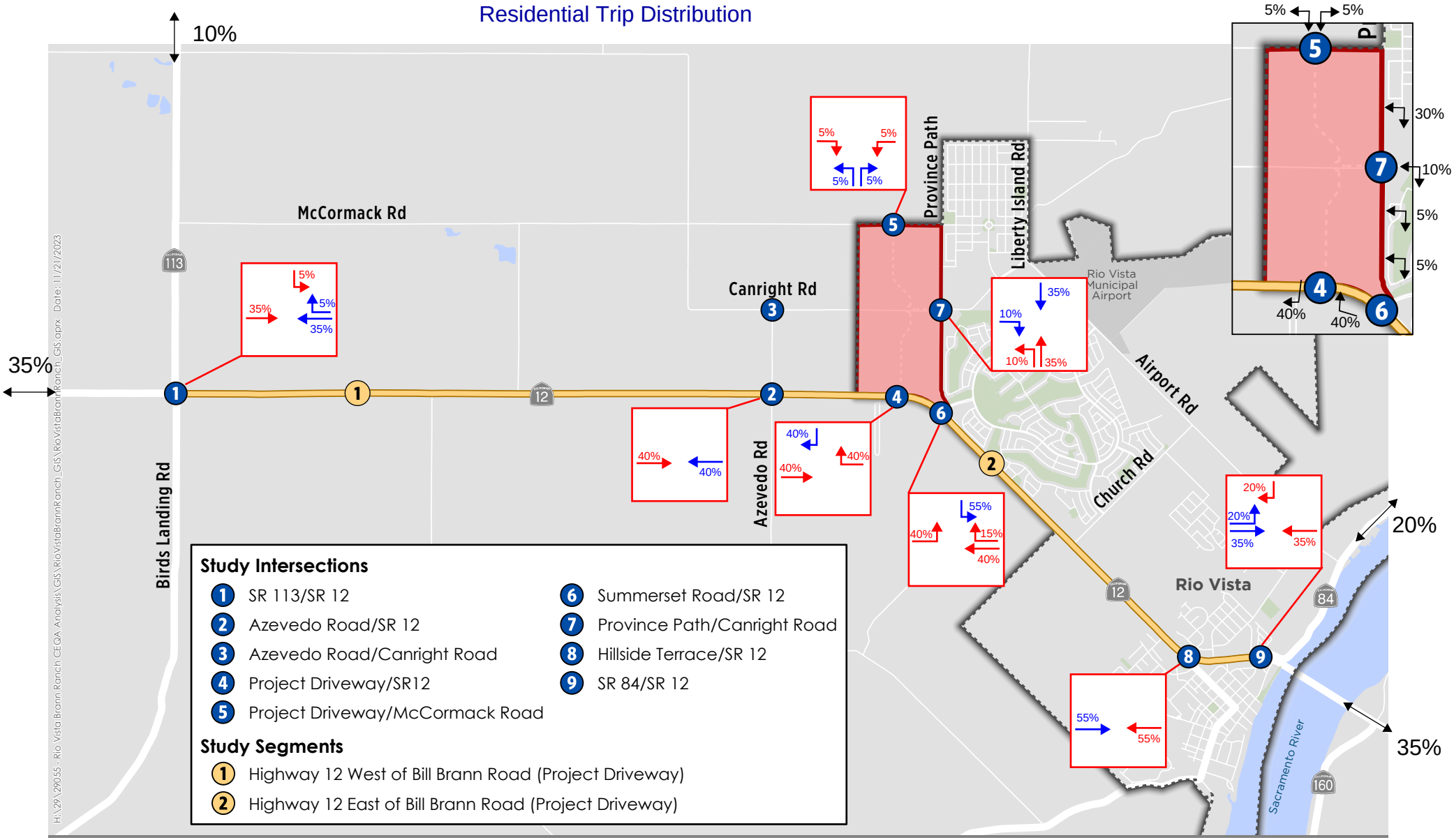
Residential Trip Distribution



Study Intersection
Project Location
Study Segment
Rio Vista City Boundary

xx% Ingress Trip Percentage
xx% Egress Trip Percentage
xx% Overall Trip Distribution

0 1 2 Miles

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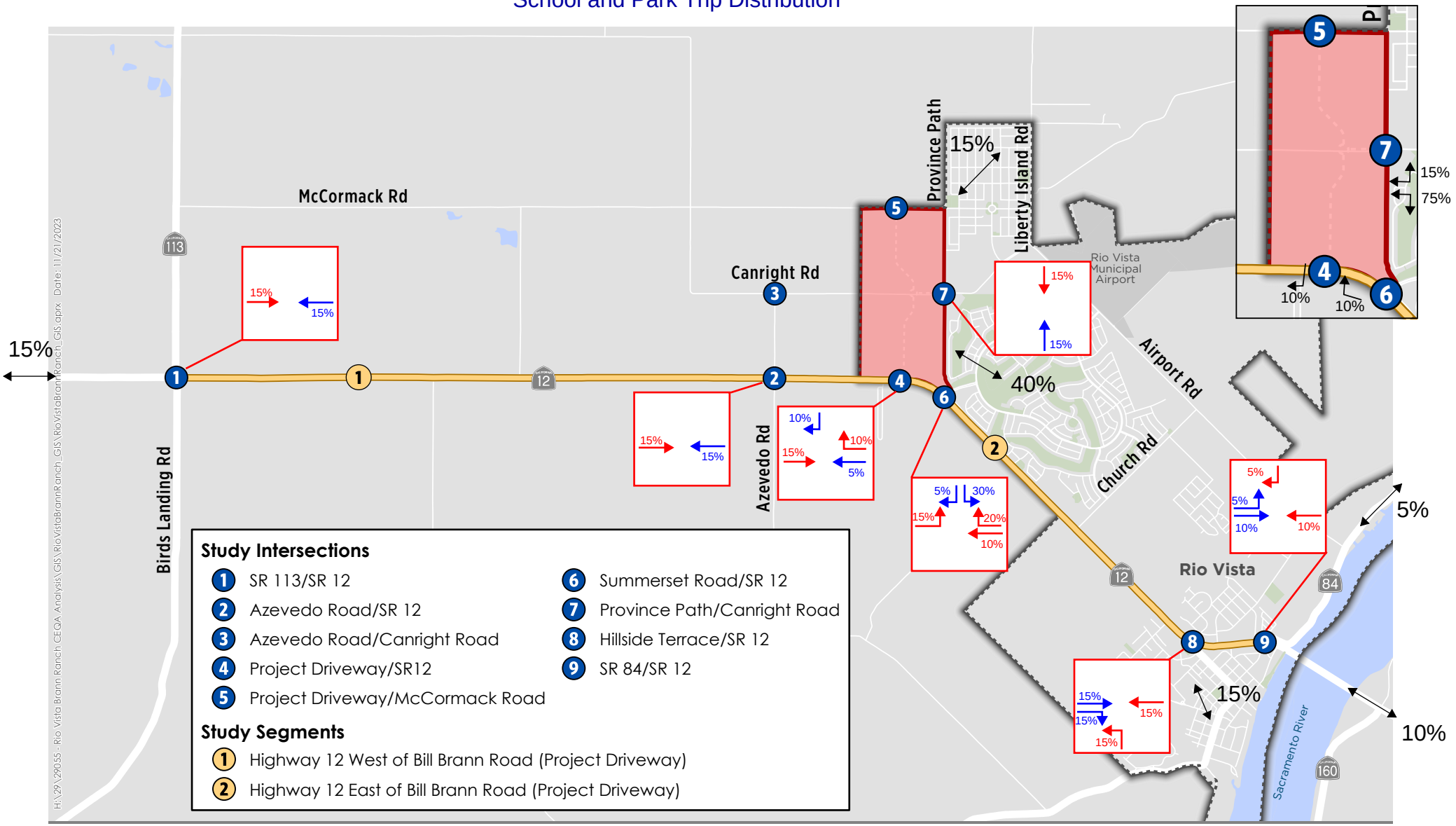
School and Park Trip Distribution



Study Intersection
Project Location
Study Segment
Rio Vista City Boundary

xx% Ingress Trip Percentage
xx% Egress Trip Percentage
xx% Overall Trip Distribution

0 1 2 Miles

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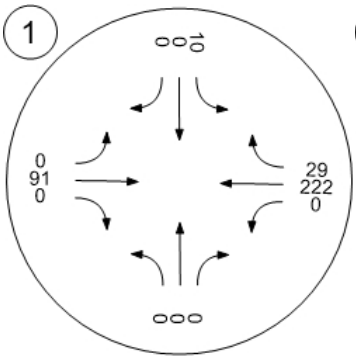
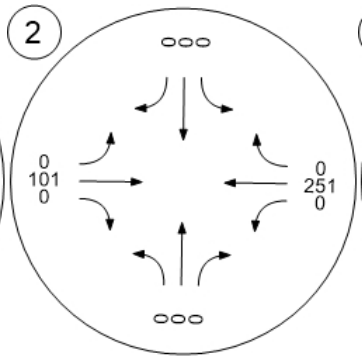
Traffic Volume - Net New Site Trips



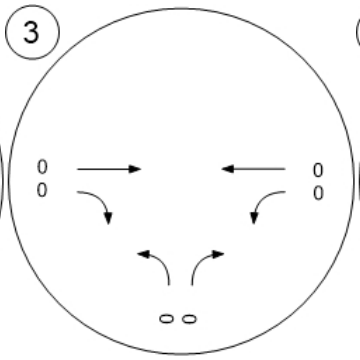
SR 12 & SR 113



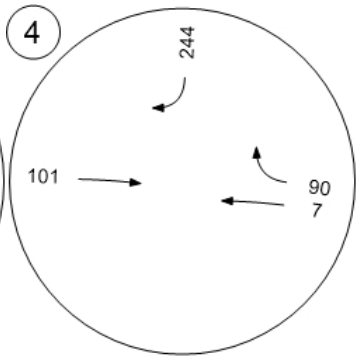
SR 12 & Azevedo Rd



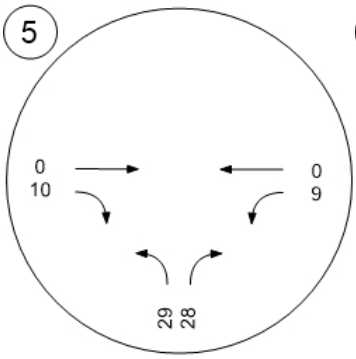
Canright Rd & Azevedo Rd



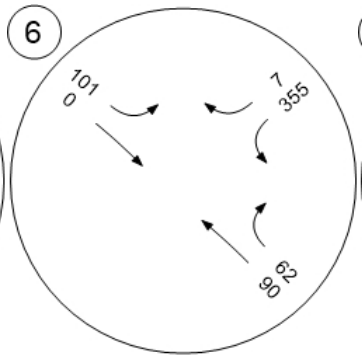
SR 12 & Project Driveway



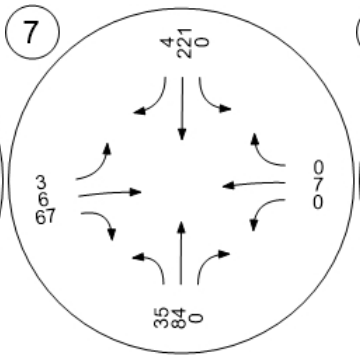
McCormack Rd & Project Dri



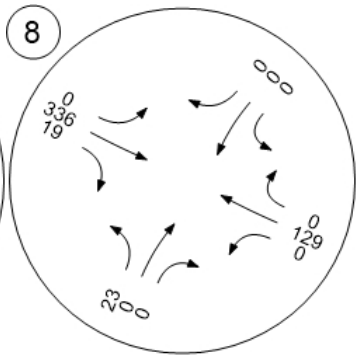
SR 12 & Summerset Rd



Canright Rd & Province Path



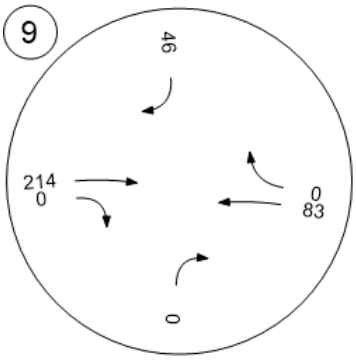
SR 12 & Hillside Terrace



Traffic Volume - Net New Site Trips



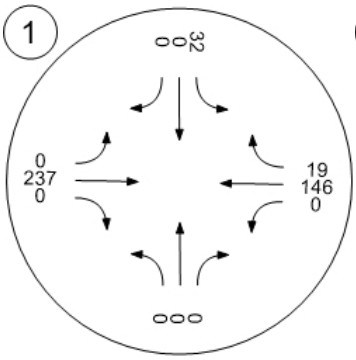
SR12 & SR 84



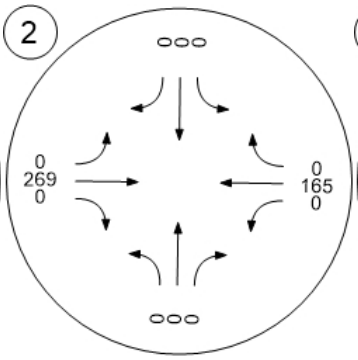
Traffic Volume - Net New Site Trips



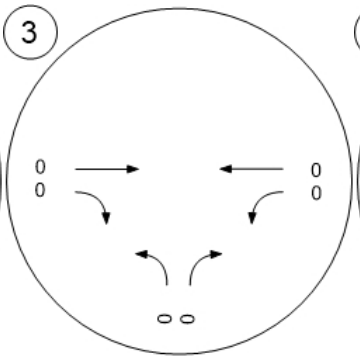
SR 12 & SR 113



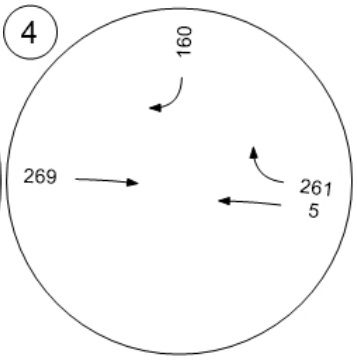
SR 12 & Azevedo Rd



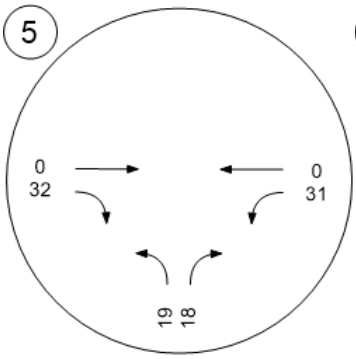
Canright Rd & Azevedo Rd



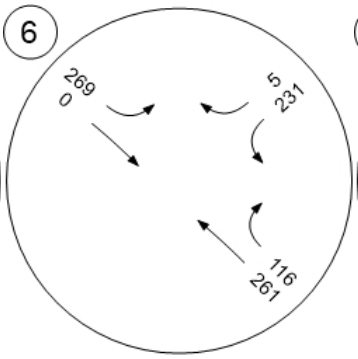
SR 12 & Project Driveway



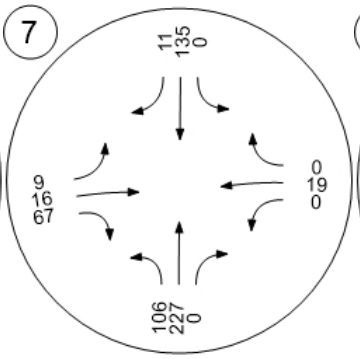
McCormack Rd & Project Dri



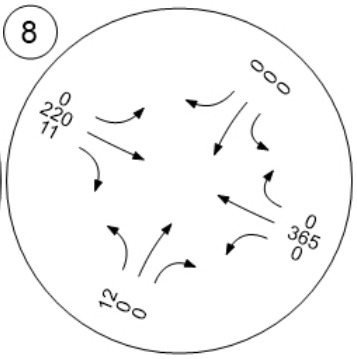
SR 12 & Summerset Rd



Canright Rd & Province Path



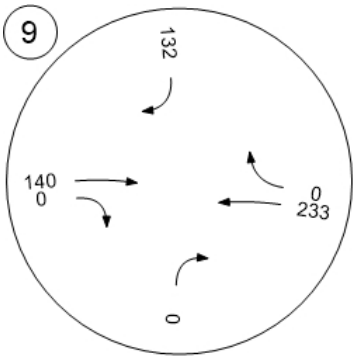
SR 12 & Hillside Terrace



Traffic Volume - Net New Site Trips



SR12 & SR 84



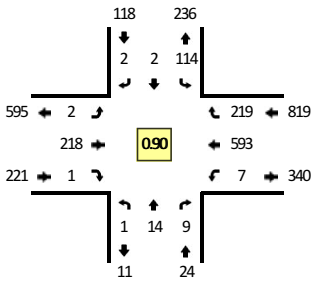
Appendix B

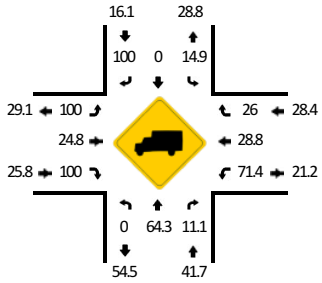
Traffic Counts

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

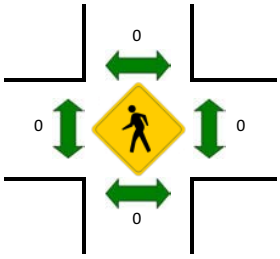
LOCATION: SR 113/Birds Landing Rd -- SR 12 | **QC JOB #:** 16374201
CITY/STATE: Rio Vista, CA | **DATE:** Thu, Oct 26 2023

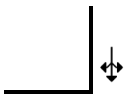
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

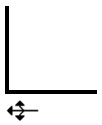


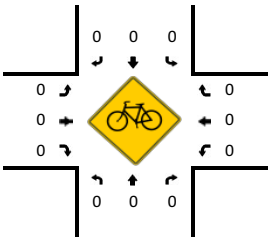


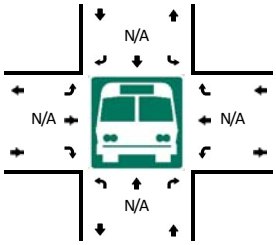
TRUE DATA TO IMPROVE MOBILITY

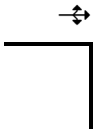


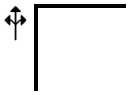


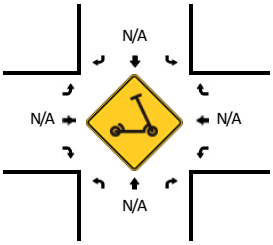












5-Min Count Period Beginning At	SR 113/Birds Landing Rd (Northbound)				SR 113/Birds Landing Rd (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	7	1	0	0	0	17	1	0	0	53	24	0	105	
7:05 AM	0	1	0	0	11	1	1	0	0	24	0	0	1	58	13	0	110	
7:10 AM	0	0	2	0	12	1	0	0	0	23	0	0	0	44	12	0	94	
7:15 AM	0	0	0	0	11	1	1	0	0	27	0	0	1	50	16	0	107	
7:20 AM	0	9	0	0	11	0	0	0	0	20	0	0	0	14	9	0	63	
7:25 AM	0	1	0	0	23	0	0	0	1	27	0	0	1	12	6	0	71	
7:30 AM	0	3	0	0	5	0	0	0	0	14	0	0	0	53	21	0	96	
7:35 AM	0	5	0	0	14	0	0	0	0	17	0	0	0	53	18	0	107	
7:40 AM	0	0	0	0	7	0	0	0	0	15	0	0	0	44	21	0	87	
7:45 AM	0	0	2	0	9	0	0	0	0	12	0	0	1	60	27	0	111	
7:50 AM	0	4	1	0	13	0	0	0	0	22	0	0	2	43	12	0	97	
7:55 AM	0	1	1	0	8	0	0	0	0	28	1	0	0	49	26	0	114	1162
8:00 AM	0	0	2	0	12	1	0	0	0	20	0	0	2	60	19	0	116	1173
8:05 AM	0	1	0	1	9	0	0	0	1	14	0	0	0	46	17	0	89	1152
8:10 AM	0	0	2	0	5	0	0	1	1	20	0	0	0	49	12	0	90	1148
8:15 AM	0	0	0	0	4	0	0	0	0	22	0	0	0	43	8	0	77	1118
8:20 AM	0	0	0	0	16	1	2	0	0	18	0	0	2	51	19	0	109	1164
8:25 AM	0	0	1	0	11	0	0	0	0	16	0	0	0	42	19	0	89	1182
8:30 AM	0	0	0	0	7	1	2	0	0	26	1	0	2	45	11	0	95	1181
8:35 AM	0	0	0	0	7	2	0	0	0	21	0	0	1	48	15	0	94	1168
8:40 AM	0	0	1	0	10	1	3	0	0	21	0	0	1	21	7	0	65	1146
8:45 AM	0	0	1	0	15	0	1	0	0	20	0	0	1	39	18	0	95	1130
8:50 AM	0	0	2	0	9	0	0	0	0	18	0	0	1	35	20	0	85	1118
8:55 AM	2	0	1	0	15	1	0	0	0	29	0	0	0	44	18	1	111	1115

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	20	16	0	132	4	0	0	0	280	4	0	16	608	228	0	1308
Heavy Trucks	0	16	0		12	0	0		0	88	4		16	176	52		364
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/6/2023 2:55 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

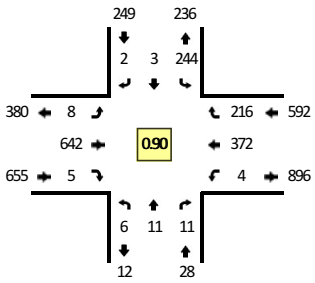
Type of peak hour being reported: Intersection Peak

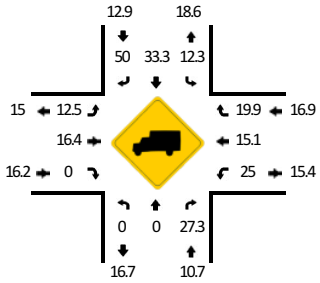
Method for determining peak hour: Total Entering Volume

LOCATION: SR 113/Birds Landing Rd -- SR 12
CITY/STATE: Rio Vista, CA

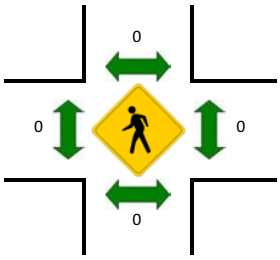
QC JOB #: 16374202
DATE: Thu, Oct 26 2023

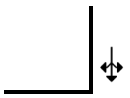
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

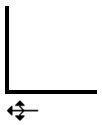


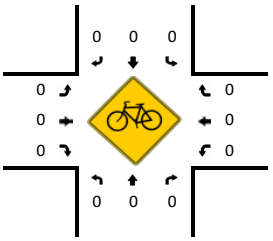


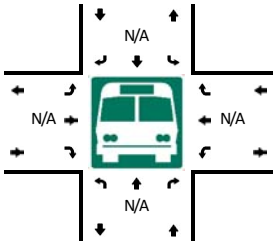
TRUE DATA TO IMPROVE MOBILITY

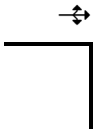


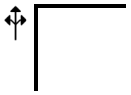


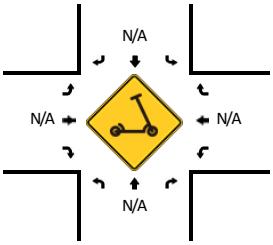












5-Min Count Period Beginning At	SR 113/Birds Landing Rd (Northbound)				SR 113/Birds Landing Rd (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	0	0	17	0	0	0	0	42	0	0	0	12	6	0	78	
4:05 PM	0	0	3	0	15	1	0	0	0	48	0	0	1	25	9	1	103	
4:10 PM	0	2	1	0	24	1	0	0	1	76	0	0	0	45	21	0	171	
4:15 PM	0	0	0	0	24	0	0	0	2	59	0	0	0	40	22	0	147	
4:20 PM	0	0	1	0	25	0	0	0	1	30	0	0	0	34	12	0	103	
4:25 PM	2	0	0	0	25	0	1	1	0	61	1	0	1	14	12	0	118	
4:30 PM	0	0	4	0	15	0	0	0	0	69	3	0	0	32	17	0	140	
4:35 PM	1	0	0	0	28	0	0	0	1	45	0	0	1	37	16	0	129	
4:40 PM	0	0	0	0	22	0	0	0	0	47	0	0	1	43	23	0	136	
4:45 PM	0	0	0	0	22	0	0	0	1	48	0	0	0	27	18	0	116	
4:50 PM	1	0	1	0	15	1	0	0	0	64	0	0	0	29	16	0	127	
4:55 PM	0	5	2	0	13	0	0	0	0	24	1	0	0	25	15	0	85	1453
5:00 PM	1	0	1	0	16	0	0	0	2	75	0	0	1	30	21	0	147	1522
5:05 PM	1	4	1	0	14	1	1	0	0	44	0	0	0	16	23	0	105	1524
5:10 PM	0	2	1	0	19	0	1	0	0	38	0	0	1	30	25	0	117	1470
5:15 PM	0	3	0	0	17	0	0	0	2	45	0	0	2	26	18	0	113	1436
5:20 PM	0	0	0	0	9	0	0	0	0	39	0	0	0	29	14	0	91	1424
5:25 PM	0	0	1	0	23	0	1	0	0	43	0	0	0	14	10	0	92	1398
5:30 PM	0	1	1	0	17	0	0	0	0	45	0	0	2	29	18	0	113	1371
5:35 PM	0	2	0	0	16	0	0	0	0	41	0	1	0	20	12	0	92	1334
5:40 PM	0	0	0	0	20	1	1	0	0	54	0	0	0	35	24	0	135	1333
5:45 PM	1	0	3	0	9	0	0	0	1	24	0	0	0	24	25	0	87	1304
5:50 PM	0	0	0	0	21	0	0	0	0	61	1	0	1	23	15	0	122	1299
5:55 PM	0	0	2	0	9	0	0	0	0	41	1	0	1	22	13	0	89	1303

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	8	8	0	292	4	0	0	16	660	0	0	0	476	220	0	1684
Heavy Trucks	0	0	0		40	0	0		4	104	0		0	56	60		264
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/6/2023 2:55 PM

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

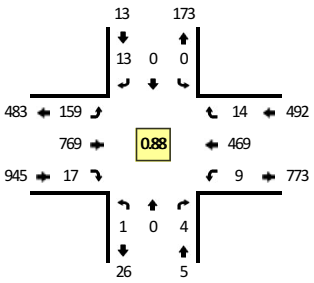
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

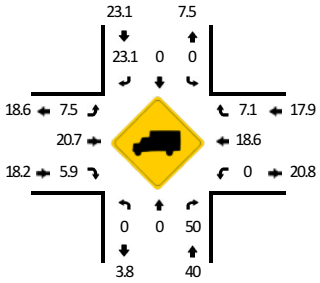
LOCATION: Azevedo Rd -- SR 12
CITY/STATE: Rio Vista, CA

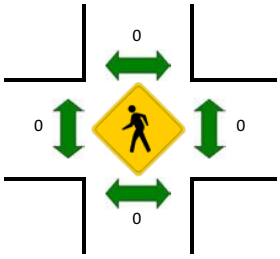
QC JOB #: 16374207
DATE: Thu, Oct 26 2023

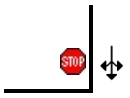
Peak-Hour: 3:15 PM -- 4:15 PM
Peak 15-Min: 3:50 PM -- 4:05 PM

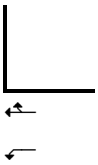


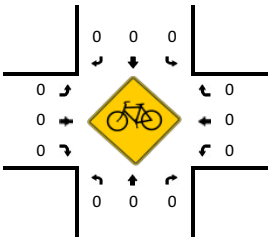
TRUE DATA TO IMPROVE MOBILITY

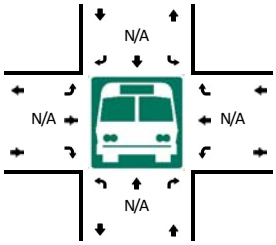


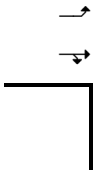


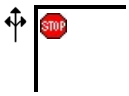


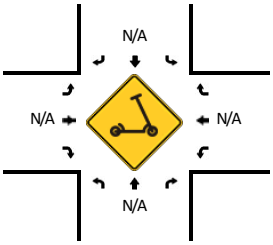












5-Min Count Period Beginning At	Azevedo Rd (Northbound)				Azevedo Rd (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	2	0	0	31	0	0	0	62	0	0	95	
7:05 AM	0	0	0	0	0	0	1	0	1	31	0	0	0	57	0	0	90	
7:10 AM	1	0	0	0	0	0	4	0	2	24	0	0	0	66	0	0	97	
7:15 AM	0	0	0	0	0	0	2	0	3	26	0	0	0	21	0	0	52	
7:20 AM	1	0	0	0	0	0	1	0	1	43	0	0	0	14	0	0	60	
7:25 AM	0	0	0	0	1	0	1	0	1	33	0	0	0	69	0	0	105	
7:30 AM	0	0	0	0	0	0	3	0	0	44	0	0	0	69	0	0	116	
7:35 AM	0	0	0	0	0	0	3	0	0	23	0	0	0	70	0	0	96	
7:40 AM	0	0	0	0	0	0	3	0	1	34	0	0	0	78	0	0	116	
7:45 AM	0	0	0	0	1	0	4	0	0	24	0	0	0	61	0	0	90	
7:50 AM	0	0	0	0	1	0	0	0	0	24	0	0	0	68	0	0	93	
7:55 AM	0	0	0	0	1	0	5	0	3	23	0	0	0	69	0	0	101	1111
8:00 AM	0	0	0	0	0	0	2	0	2	44	0	0	0	64	0	0	112	1128
8:05 AM	0	0	0	0	0	0	2	0	0	29	0	0	0	50	0	0	81	1119
8:10 AM	1	0	0	0	0	0	2	0	1	29	0	0	0	54	0	0	87	1109
8:15 AM	0	0	0	0	0	0	0	0	1	14	0	0	0	58	0	0	73	1130
8:20 AM	0	1	1	0	0	0	0	0	1	27	0	0	1	65	0	0	96	1166
8:25 AM	1	0	0	0	1	0	3	0	1	27	0	0	0	60	0	0	93	1154
8:30 AM	0	0	0	0	0	0	4	0	1	31	0	0	0	64	0	0	100	1138
8:35 AM	0	0	0	0	0	0	3	0	2	32	0	0	0	23	0	0	60	1102
8:40 AM	0	0	0	0	0	0	1	0	1	20	0	0	0	46	0	0	68	1054
8:45 AM	0	0	0	0	0	0	2	0	0	38	0	0	0	63	0	0	103	1067
8:50 AM	0	0	0	0	0	0	1	0	1	30	0	0	0	62	0	0	94	1068
8:55 AM	0	0	0	0	0	0	2	0	1	36	0	0	0	71	0	0	110	1077
9:00 AM	1	0	0	0	0	0	1	0	2	36	0	0	0	58	0	0	98	1063
9:05 AM	0	0	1	0	0	0	2	0	0	26	0	0	0	38	0	0	67	1049
9:10 AM	0	0	0	0	0	0	4	0	1	24	0	0	0	52	1	0	82	1044
9:15 AM	1	0	0	0	0	0	2	0	1	27	0	0	0	48	0	0	79	1050
9:20 AM	1	0	0	0	0	0	4	0	0	40	0	0	1	60	0	0	106	1060
9:25 AM	0	0	0	0	0	0	7	0	2	28	0	1	0	42	0	0	80	1047
9:30 AM	1	0	0	0	1	1	3	0	0	36	0	0	1	45	0	0	88	1035
9:35 AM	1	0	0	0	0	0	0	0	1	30	0	0	0	44	0	0	76	1051
9:40 AM	1	0	0	0	0	0	2	0	1	31	0	0	0	34	3	0	72	1055
9:45 AM	0	0	0	0	0	0	1	0	1	37	0	0	1	39	0	0	79	1031
9:50 AM	0	0	0	0	0	0	1	0	1	37	0	0	0	39	0	0	78	1015
9:55 AM	0	0	1	0	0	0	2	0	1	46	0	0	0	51	1	0	102	1007
10:00 AM	0	0	0	0	0	0	4	0	0	18	0	0	0	59	0	0	81	990
10:05 AM	0	0	0	0	0	0	1	0	0	30	0	0	0	64	0	0	95	1018

5-Min Count Period Beginning At	Azevedo Rd (Northbound)				Azevedo Rd (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:10 AM	1	0	1	0	0	0	3	0	2	31	0	0	0	37	0	0	75	1011
10:15 AM	0	0	0	0	0	0	3	0	2	33	0	0	0	34	0	0	72	1004
10:20 AM	0	0	0	0	0	0	2	0	3	39	0	0	0	51	0	0	95	993
10:25 AM	0	0	1	0	0	0	0	0	2	41	0	0	0	31	0	0	75	988
10:30 AM	0	0	1	0	0	0	0	0	2	22	0	0	0	36	0	0	61	961
10:35 AM	2	0	0	0	0	0	0	0	2	32	0	0	0	41	0	0	77	962
10:40 AM	0	0	0	0	0	0	1	0	1	29	0	0	0	37	0	0	68	958
10:45 AM	0	0	0	0	0	0	3	0	3	57	0	0	0	32	0	0	95	974
10:50 AM	0	0	0	0	0	0	0	0	0	43	0	0	0	29	0	0	72	968
10:55 AM	0	0	0	0	0	0	1	0	1	37	0	0	0	16	1	0	56	922
11:00 AM	0	0	0	0	0	0	3	0	1	37	0	0	0	39	1	0	81	922
11:05 AM	0	0	0	0	0	0	2	0	1	30	0	0	0	57	0	0	90	917
11:10 AM	0	0	0	0	0	0	3	0	3	36	0	0	0	43	0	0	85	927
11:15 AM	0	0	0	0	0	0	1	0	0	44	0	0	0	33	0	0	78	933
11:20 AM	0	0	0	0	0	0	0	0	3	37	0	0	0	53	0	0	93	931
11:25 AM	1	0	0	0	0	0	1	0	1	25	0	0	0	62	0	0	90	946
11:30 AM	1	0	0	0	0	0	5	0	0	42	0	0	0	61	0	0	109	994
11:35 AM	0	0	0	0	0	0	5	0	2	39	0	0	1	49	0	0	96	1013
11:40 AM	0	0	0	0	0	0	3	0	3	43	0	0	0	27	0	0	76	1021
11:45 AM	0	0	0	0	0	0	0	0	0	24	0	0	0	46	0	0	70	996
11:50 AM	0	0	0	0	0	0	2	0	0	32	0	0	1	30	0	0	65	989
11:55 AM	0	0	0	0	0	0	1	0	0	32	0	0	0	48	0	0	81	1014
12:00 PM	1	0	0	0	0	0	0	0	0	35	0	0	0	30	0	0	66	999
12:05 PM	0	0	0	0	0	0	0	0	1	63	0	0	0	38	0	0	102	1011
12:10 PM	1	0	0	0	1	0	0	0	0	47	0	0	0	34	0	0	83	1009
12:15 PM	1	0	0	0	0	0	1	0	2	56	0	0	0	32	0	0	92	1023
12:20 PM	0	0	1	0	0	0	3	0	5	33	0	0	0	15	0	0	57	987
12:25 PM	0	0	0	0	0	0	1	0	0	56	0	0	0	30	0	0	87	984
12:30 PM	0	0	0	0	0	0	1	0	1	49	0	0	0	63	0	0	114	989
12:35 PM	0	0	0	0	0	0	1	0	0	53	0	0	0	46	0	0	100	993
12:40 PM	0	0	0	0	0	0	1	0	1	51	0	0	0	27	0	0	80	997
12:45 PM	0	0	0	0	0	0	1	0	2	65	0	0	1	41	0	0	110	1037
12:50 PM	0	0	1	0	0	0	2	0	1	39	0	0	0	14	0	0	57	1029
12:55 PM	0	0	0	0	0	0	1	0	1	33	0	0	0	19	0	0	54	1002
1:00 PM	0	0	0	0	0	0	1	0	2	51	0	0	0	47	0	0	101	1037
1:05 PM	0	0	0	0	0	0	2	0	2	40	0	0	0	28	0	0	72	1007
1:10 PM	0	0	1	0	0	0	3	0	4	52	0	0	0	45	0	0	105	1029
1:15 PM	0	0	0	0	0	0	5	0	4	51	0	0	0	34	0	0	94	1031
1:20 PM	1	1	0	0	0	0	4	0	1	58	0	0	0	41	0	0	106	1080
1:25 PM	1	0	0	0	0	1	1	0	0	41	0	0	0	29	0	0	73	1066
1:30 PM	0	0	0	0	0	0	0	0	1	41	0	0	0	22	0	0	64	1016
1:35 PM	0	0	0	0	0	0	0	0	1	45	2	0	0	11	0	0	59	975
1:40 PM	1	0	0	0	0	0	1	0	0	42	0	0	1	20	0	0	65	960
1:45 PM	0	0	0	0	0	0	0	0	5	44	0	0	0	40	0	0	89	939
1:50 PM	0	0	0	0	0	0	0	0	1	68	1	0	0	56	0	0	126	1008
1:55 PM	0	0	0	0	0	0	1	0	2	45	0	0	0	43	0	0	91	1045
2:00 PM	0	0	0	0	0	0	1	0	0	52	1	0	0	27	1	0	82	1026
2:05 PM	0	0	0	0	0	0	1	0	0	60	1	0	0	35	0	0	97	1051
2:10 PM	0	0	0	0	0	0	1	0	2	41	0	0	0	14	0	0	58	1004
2:15 PM	0	0	0	0	0	0	1	0	6	74	0	0	0	45	0	0	126	1036
2:20 PM	0	0	0	0	0	0	1	0	2	55	0	0	0	52	0	0	110	1040
2:25 PM	0	0	0	0	1	0	4	0	2	51	0	0	0	40	0	0	98	1065
2:30 PM	0	0	1	0	0	0	2	0	1	53	0	0	0	27	0	0	84	1085
2:35 PM	0	0	1	0	0	0	2	0	1	42	2	0	1	60	0	0	109	1135
2:40 PM	0	0	0	0	0	0	0	0	2	60	0	0	0	25	0	0	87	1157
2:45 PM	0	0	0	0	0	0	3	0	1	67	0	0	0	29	0	0	100	1168
2:50 PM	0	0	1	0	0	0	2	0	2	59	1	0	0	46	0	0	111	1153
2:55 PM	0	0	0	0	0	0	3	0	2	83	3	0	0	23	0	0	114	1176
3:00 PM	0	0	1	0	0	0	2	0	0	38	1	0	1	30	0	0	73	1167
3:05 PM	0	0	0	0	0	0	1	0	3	73	3	0	0	36	0	0	116	1186
3:10 PM	0	0	0	0	0	0	0	0	6	31	2	0	0	32	1	0	72	1200
3:15 PM	0	0	1	0	0	0	0	0	4	83	1	0	0	28	0	0	117	1191
3:20 PM	0	0	1	0	0	0	0	0	4	88	5	0	0	56	0	0	154	1235
3:25 PM	0	0	0	0	0	0	0	0	6	68	0	0	0	40	1	0	115	1252
3:30 PM	0	0	0	0	0	0	2	0	6	86	0	0	1	42	0	0	137	1305
3:35 PM	0	0	0	0	0	0	6	0	6	82	2	0	0	12	0	0	108	1304
3:40 PM	0	0	0	0	0	0	0	0	5	72	2	0	1	13	0	0	93	1310
3:45 PM	1	0	0	0	0	0	2	0	14	62	1	0	0	43	2	0	125	1335
3:50 PM	0	0	0	0	0	0	0	0	24	54	1	0	2	66	3	0	150	1374
3:55 PM	0	0	1	0	0	0	0	0	22	35	1	0	3	50	5	0	117	1377
4:00 PM	0	0	1	0	0	0	0	0	29	42	1	0	1	70	3	0	147	1451
4:05 PM	0	0	0	0	0	0	2	0	17	51	2	0	0	37	0	0	109	1444
4:10 PM	0	0	0	0	0	0	1	0	22	46	1	0	1	12	0	0	83	1455
4:15 PM	0	0	0	0	0	0	1	0	11	45	0	0	2	27	1	0	87	1425
4:20 PM	0	0	0	0	0	0	0	0	22	58	0	0	0	34	1	0	115	1386
4:25 PM	1	0	0	0	0	0	1	0	13	58	0	0	2	66	2	0	143	1414
4:30 PM	1	0	0	0	0	0	0	0	23	57	0	0	1	36	6	0	124	1401
4:35 PM	0	0	0	0	0	0	3	0	21	34	0	0	2	46	4	0	110	1403
4:40 PM	0	0	0	0	0	0	1	0	29	43	1	0	0	29	3	0	106	1416
4:45 PM	0	0	0	0	0	0	0	0	12	42	0	0	0	17	2	0	73	1364
4:50 PM	0	0	0	0	0	0	1	0	11	46	1	0	0	14	0	0	73	1287
4:55 PM	0	0	0	0	0	0	1	0	18	55	0	0	0	18	0	0	92	1262
5:00 PM	0	0	0	0	0	0	2	0	15	43	0	0	3	46	2	0	111	1226
5:05 PM	0	0	0	0	0	0	6	0	13	45	0	0	2	67	7	0	140	1257
5:10 PM	0	0	0	0	0	0	1	0	30	38	3	0	1	64	12	0	149	1323
5:15 PM	0	0	0	0	0	0	1	0	44	14	3	0	2	29	12	0	105	1341
5:20 PM	0	0	0	0	0	0	0	0	30	18	0	0	1	45	1	0	95	1321
5:25 PM	0	0	0	0	0	0	0	0	27	65	0	0	1	68	0	0	161	1339

5-Min Count Period Beginning At	Azevedo Rd (Northbound)				Azevedo Rd (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:30 PM	0	0	0	0	0	0	1	0	16	44	0	0	2	44	5	0	112	1327
5:35 PM	0	0	0	0	0	0	3	0	28	27	2	0	2	37	10	0	109	1326
5:40 PM	0	0	0	0	0	0	1	0	37	12	2	0	4	35	9	0	100	1320
5:45 PM	0	0	0	0	0	0	0	0	30	3	0	0	0	36	5	0	74	1321
5:50 PM	0	0	0	0	0	0	1	0	22	24	0	0	1	31	1	0	80	1328
5:55 PM	0	0	0	0	0	0	1	0	25	52	0	0	0	31	0	0	109	1345
6:00 PM	0	0	0	0	0	0	0	0	16	46	0	0	1	25	6	0	94	1328
6:05 PM	0	1	0	0	0	0	2	0	19	32	1	0	1	37	6	0	99	1287
6:10 PM	1	0	0	0	1	0	2	0	14	52	0	0	0	34	0	0	104	1242
6:15 PM	0	0	0	0	0	0	0	0	7	30	0	0	1	18	2	0	58	1195
6:20 PM	0	0	0	0	0	0	1	0	7	39	0	0	0	27	0	0	74	1174
6:25 PM	0	0	0	0	0	0	0	0	7	59	0	0	0	16	0	0	82	1095
6:30 PM	0	0	0	0	0	0	1	0	7	50	1	0	0	33	0	0	92	1075
6:35 PM	0	0	0	0	0	0	1	0	6	47	0	0	0	14	0	0	68	1034
6:40 PM	0	0	0	0	1	0	1	0	3	41	0	0	0	12	0	0	58	992
6:45 PM	1	0	0	0	0	0	1	0	3	53	0	0	0	3	0	0	61	979
6:50 PM	0	0	0	0	0	0	0	0	3	29	0	0	0	3	0	0	35	934
6:55 PM	1	0	0	0	0	0	3	0	5	39	0	0	0	51	0	0	99	924

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	8	0	0	0	0	0	300	524	12	0	24	744	44	0	1656
Heavy Trucks	0	0	4		0	0	0		16	92	0		0	148	4		264
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/6/2023 2:55 PM

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

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Azevedo Rd -- Canright Rd

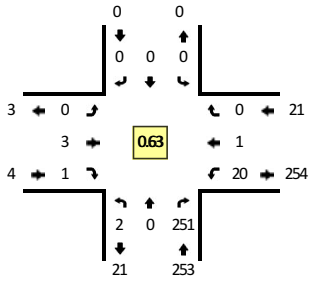
CITY/STATE: Rio Vista, CA

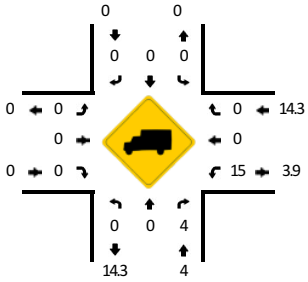
QC JOB #: 16374208

DATE: Thu, Oct 26 2023

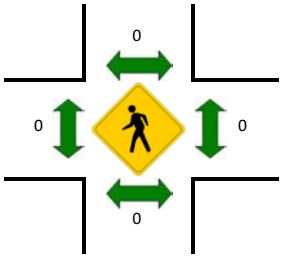
Peak-Hour: 3:45 PM -- 4:45 PM

Peak 15-Min: 4:10 PM -- 4:25 PM

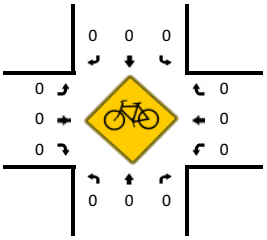


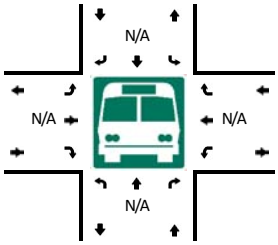


TRUE DATA TO IMPROVE MOBILITY

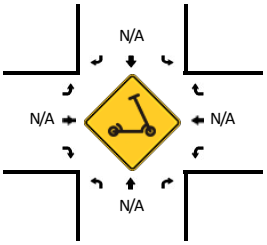












5-Min Count Period Beginning At	Azevedo Rd (Northbound)				Azevedo Rd (Southbound)				Canright Rd (Eastbound)				Canright Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
7:05 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	
7:10 AM	0	0	2	0	0	0	0	0	0	0	0	0	5	0	0	0	7	
7:15 AM	0	0	3	0	0	0	0	0	0	0	1	0	0	1	0	0	5	
7:20 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	
7:25 AM	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	3	
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	4	
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
7:40 AM	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	6	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	
7:50 AM	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	4	
7:55 AM	0	0	3	0	0	0	0	0	0	0	1	0	2	0	0	0	6	46
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	4	48
8:05 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	4	50
8:10 AM	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	3	46
8:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	43
8:20 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	42
8:25 AM	0	0	2	0	0	0	0	0	0	0	0	0	4	0	0	0	6	45
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	46
8:35 AM	0	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	5	49
8:40 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	45
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	44
8:50 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	43
8:55 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	40
9:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	3	39
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	38
9:10 AM	1	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	5	40
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	43
9:20 AM	1	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	5	47
9:25 AM	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	6	47
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	46
9:35 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	42
9:40 AM	2	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	5	45
9:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	44
9:50 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	43
9:55 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	43
10:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	4	44
10:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	43

5-Min Count Period Beginning At	Azevedo Rd (Northbound)				Azevedo Rd (Southbound)				Canright Rd (Eastbound)				Canright Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:10 AM	0	0	2	0	0	0	0	0	0	0	0	0	4	0	0	0	6	44
10:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	42
10:20 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	4	41
10:25 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	37
10:30 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	35
10:35 AM	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	5	39
10:40 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	36
10:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	4	39
10:50 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	38
10:55 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	4	39
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	37
11:05 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	4	39
11:10 AM	0	0	3	0	0	0	0	0	0	0	1	0	3	0	0	0	7	40
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
11:20 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	35
11:25 AM	0	0	3	0	0	0	0	0	0	0	0	0	4	0	0	0	7	40
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	42
11:35 AM	0	0	2	0	0	0	0	0	0	0	0	0	5	0	0	0	7	44
11:40 AM	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	4	46
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
11:50 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	43
11:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	40
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
12:05 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	35
12:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
12:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	31
12:20 PM	0	0	6	0	0	0	0	0	0	0	0	0	2	0	0	0	8	37
12:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	31
12:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	3	30
12:35 PM	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	3	26
12:40 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	23
12:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	26
12:50 PM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	27
12:55 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	28
1:00 PM	1	0	2	0	0	0	0	0	0	0	1	0	2	0	0	0	6	34
1:05 PM	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	5	38
1:10 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	40
1:15 PM	0	0	6	0	0	0	0	0	0	0	0	0	3	1	0	0	10	47
1:20 PM	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	4	43
1:25 PM	0	0	10	0	0	0	0	0	0	0	0	0	3	0	0	0	13	55
1:30 PM	0	0	13	0	0	0	0	0	0	0	1	0	2	0	0	0	16	68
1:35 PM	0	0	20	0	0	0	0	0	0	1	0	0	1	0	0	0	22	87
1:40 PM	0	0	8	0	0	0	0	0	0	0	0	0	3	0	0	0	11	97
1:45 PM	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	18	112
1:50 PM	0	0	15	0	0	0	0	0	0	0	0	0	2	1	0	0	18	127
1:55 PM	1	0	9	0	0	0	0	0	0	0	0	0	1	0	0	0	11	136
2:00 PM	0	0	7	0	0	0	0	0	0	0	0	0	3	0	0	0	10	140
2:05 PM	0	0	4	0	0	0	0	0	0	0	0	0	5	0	0	0	9	144
2:10 PM	0	0	4	0	0	0	0	0	0	0	0	0	4	1	0	0	9	151
2:15 PM	0	0	4	0	0	0	0	0	0	0	0	0	1	1	0	0	6	147
2:20 PM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	4	147
2:25 PM	0	0	4	0	0	0	0	0	0	1	0	0	2	0	0	0	7	141
2:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	127
2:35 PM	0	0	6	0	0	0	0	0	0	0	0	0	1	0	0	0	7	112
2:40 PM	0	0	8	0	0	0	0	0	0	1	0	0	1	1	0	0	11	112
2:45 PM	0	0	4	0	0	0	0	0	0	0	1	0	3	0	0	0	8	102
2:50 PM	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	4	88
2:55 PM	1	0	10	0	0	0	0	0	0	0	0	0	3	1	0	0	15	92
3:00 PM	0	0	6	0	0	0	0	0	0	0	0	0	1	0	0	0	7	89
3:05 PM	0	0	8	0	0	0	0	0	0	0	0	0	1	0	0	0	9	89
3:10 PM	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	5	85
3:15 PM	0	0	7	0	0	0	0	0	0	1	0	0	1	0	0	0	9	88
3:20 PM	0	0	14	0	0	0	0	0	0	0	0	0	0	1	0	0	15	99
3:25 PM	1	0	12	0	0	0	0	0	0	0	0	0	2	0	0	0	15	107
3:30 PM	0	0	16	0	0	0	0	0	0	0	0	0	4	0	0	0	20	125
3:35 PM	1	0	13	0	0	0	0	0	0	0	0	0	2	0	0	0	16	134
3:40 PM	0	0	6	0	0	0	0	0	0	0	1	0	2	0	0	0	9	132
3:45 PM	0	0	21	0	0	0	0	0	0	0	0	0	1	0	0	0	22	146
3:50 PM	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	5	147
3:55 PM	1	0	12	0	0	0	0	0	0	0	0	0	2	0	0	0	15	147
4:00 PM	0	0	23	0	0	0	0	0	0	1	0	0	4	0	0	0	28	168
4:05 PM	0	0	13	0	0	0	0	0	0	0	0	0	1	0	0	0	14	173
4:10 PM	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	26	194
4:15 PM	0	0	31	0	0	0	0	0	0	1	0	0	0	0	0	0	32	217
4:20 PM	0	0	51	0	0	0	0	0	0	0	0	0	2	0	0	0	53	255
4:25 PM	0	0	15	0	0	0	0	0	0	1	0	0	5	0	0	0	21	261
4:30 PM	0	0	21	0	0	0	0	0	0	0	0	0	3	0	0	0	24	265
4:35 PM	0	0	18	0	0	0	0	0	0	0	0	0	1	0	0	0	19	268
4:40 PM	1	0	16	0	0	0	0	0	0	0	1	0	0	1	0	0	19	278
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	5	0	0	0	7	263
4:50 PM	0	0	6	0	0	0	0	0	0	3	0	0	0	0	0	0	9	267
4:55 PM	1	0	4	0	0	0	0	0	0	2	0	0	0	0	0	0	7	259
5:00 PM	0	0	13	0	0	0	0	0	0	3	0	0	0	0	0	0	16	247
5:05 PM	0	0	19	0	0	0	0	0	0	0	0	0	1	0	0	0	20	253
5:10 PM	0	0	9	0	0	0	0	0	0	4	0	0	2	0	0	0	15	242
5:15 PM	0	0	11	0	0	0	0	0	0	0	0	0	2	0	0	0	13	223
5:20 PM	0	0	23	0	0	0	0	0	0	1	1	0	1	0	0	0	26	196
5:25 PM	0	0	20	0	0	0	0	0	0	2	0	0	2	0	0	0	24	199

5-Min Count Period Beginning At	Azevedo Rd (Northbound)				Azevedo Rd (Southbound)				Canright Rd (Eastbound)				Canright Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:30 PM	0	0	34	0	0	0	0	0	0	1	0	0	3	0	0	0	38	213
5:35 PM	0	0	44	0	0	0	0	0	0	0	0	0	2	0	0	0	46	240
5:40 PM	1	0	19	0	0	0	0	0	0	0	0	0	1	0	0	0	21	242
5:45 PM	0	0	26	0	0	0	0	0	0	1	0	0	0	0	0	0	27	262
5:50 PM	0	0	10	0	0	0	0	0	0	0	0	0	1	0	0	0	11	264
5:55 PM	0	0	13	0	0	0	0	0	0	0	0	0	1	0	0	0	14	271
6:00 PM	0	0	7	0	0	0	0	0	0	0	0	0	3	0	0	0	10	265
6:05 PM	0	0	14	0	0	0	0	0	0	0	1	0	3	0	0	0	18	263
6:10 PM	0	0	10	0	0	0	0	0	0	0	0	0	1	0	0	0	11	259
6:15 PM	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	7	253
6:20 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	229
6:25 PM	0	0	6	0	0	0	0	0	0	0	1	0	1	0	0	0	8	213
6:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	178
6:35 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	135
6:40 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	116
6:45 PM	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	5	94
6:50 PM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	86
6:55 PM	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	4	76

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	432	0	0	0	0	0	0	4	0	0	8	0	0	0	444
Heavy Trucks	0	0	24		0	0	0		0	0	0		4	0	0		28
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/6/2023 2:55 PM

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

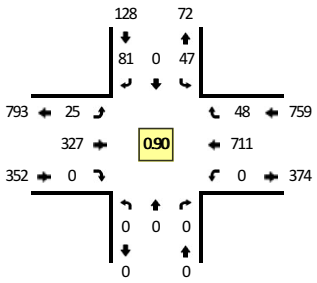
Type of peak hour being reported: Intersection Peak

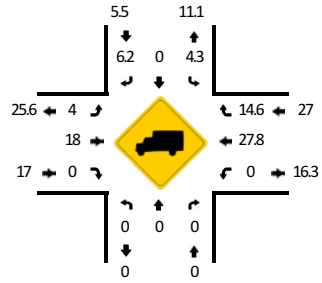
Method for determining peak hour: Total Entering Volume

LOCATION: Summerset Rd -- SR 12
CITY/STATE: Rio Vista, CA

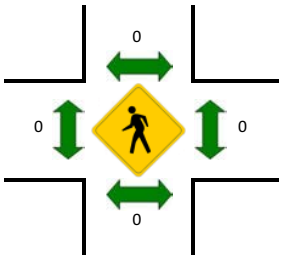
QC JOB #: 16374203
DATE: Thu, Oct 26 2023

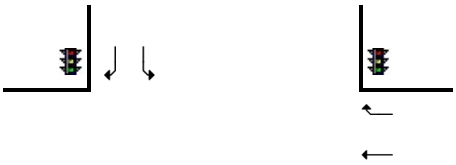
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

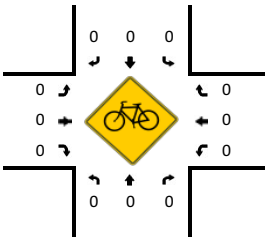


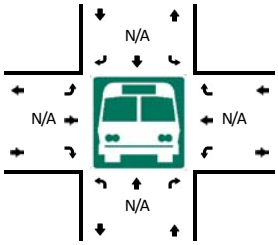


TRUE DATA TO IMPROVE MOBILITY

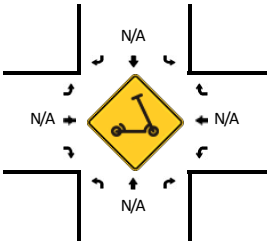












5-Min Count Period Beginning At	Summerset Rd (Northbound)				Summerset Rd (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	2	0	8	0	0	30	0	0	0	49	3	0	92	
7:05 AM	0	0	0	0	5	0	5	0	1	23	0	1	0	62	1	0	98	
7:10 AM	0	0	0	0	4	0	8	0	0	33	0	0	0	30	4	0	79	
7:15 AM	0	0	0	0	8	0	7	0	0	33	0	0	0	13	0	0	61	
7:20 AM	0	0	0	0	3	0	7	0	0	39	0	0	0	14	3	0	66	
7:25 AM	0	0	0	0	2	0	9	0	0	28	0	0	0	72	6	0	117	
7:30 AM	0	0	0	0	2	0	6	0	3	46	0	0	0	66	3	0	126	
7:35 AM	0	0	0	0	3	0	4	0	1	22	0	0	0	63	3	0	96	
7:40 AM	0	0	0	0	4	0	8	0	1	32	0	1	0	74	3	0	123	
7:45 AM	0	0	0	0	6	0	7	0	2	22	0	0	0	57	0	0	94	
7:50 AM	0	0	0	0	7	0	8	0	2	20	0	0	0	65	3	0	105	
7:55 AM	0	0	0	0	2	0	6	0	4	30	0	0	0	49	3	0	94	1151
8:00 AM	0	0	0	0	7	0	4	0	3	30	0	0	0	54	7	0	105	1164
8:05 AM	0	0	0	0	4	0	7	0	4	32	0	0	0	49	5	0	101	1167
8:10 AM	0	0	0	0	2	0	5	0	1	21	0	0	0	60	6	0	95	1183
8:15 AM	0	0	0	0	4	0	7	0	1	22	0	0	0	50	3	0	87	1209
8:20 AM	0	0	0	0	4	0	10	0	2	22	0	0	0	52	6	0	96	1239
8:25 AM	0	0	0	0	3	0	6	0	0	33	0	0	0	59	4	0	105	1227
8:30 AM	0	0	0	0	6	0	11	0	1	25	0	0	0	41	4	0	88	1189
8:35 AM	0	0	0	0	5	0	5	0	1	33	0	0	0	11	9	0	64	1157
8:40 AM	0	0	0	0	3	0	7	0	0	20	0	0	0	53	12	0	95	1129
8:45 AM	0	0	0	0	5	0	6	0	3	32	0	0	0	47	5	0	98	1133
8:50 AM	0	0	0	0	4	0	6	0	7	24	0	0	0	52	10	0	103	1131
8:55 AM	0	0	0	0	13	0	9	0	1	30	0	0	0	73	2	0	128	1165

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	36	0	72	0	20	400	0	4	0	812	36	0	1380
Heavy Trucks	0	0	0		0	0	4		0	72	0		0	224	12		312
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/6/2023 2:55 PM

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

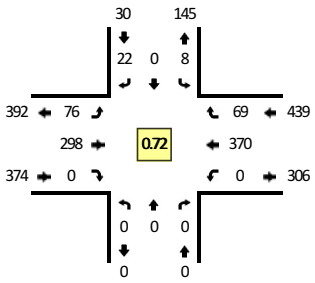
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

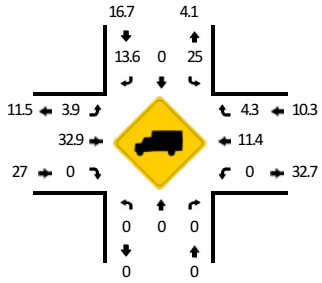
LOCATION: Summerset Rd -- SR 12
CITY/STATE: Rio Vista, CA

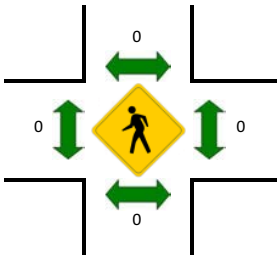
QC JOB #: 16374204
DATE: Thu, Oct 26 2023

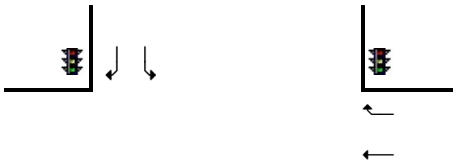
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:35 PM -- 5:50 PM

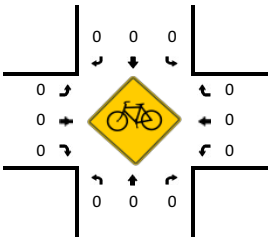


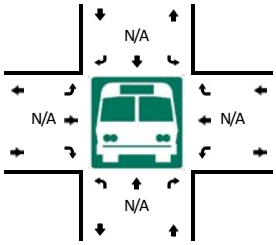




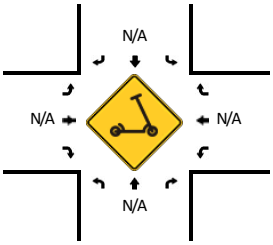












5-Min Count Period Beginning At	Summerset Rd (Northbound)				Summerset Rd (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	1	0	6	0	25	4	0	0	0	31	10	0	77	
4:05 PM	0	0	0	0	0	0	6	0	9	0	0	0	0	58	12	0	85	
4:10 PM	0	0	0	0	1	0	3	0	2	0	0	0	0	61	5	0	72	
4:15 PM	0	0	0	0	1	0	4	0	1	0	0	0	0	50	7	0	63	
4:20 PM	0	0	0	0	3	0	6	0	2	18	0	0	0	16	3	0	48	
4:25 PM	0	0	0	0	1	0	10	0	21	19	0	0	0	41	4	0	96	
4:30 PM	0	0	0	0	1	0	2	1	2	0	0	0	0	51	9	0	66	
4:35 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	56	8	0	66	
4:40 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	49	13	0	63	
4:45 PM	0	0	0	0	0	0	4	0	0	7	0	0	0	39	14	0	64	
4:50 PM	0	0	0	0	0	0	7	0	6	29	0	0	0	29	7	0	78	
4:55 PM	0	0	0	0	1	0	2	0	5	6	0	0	0	35	6	0	55	833
5:00 PM	0	0	0	0	0	0	3	0	4	26	0	0	0	33	11	0	77	833
5:05 PM	0	0	0	0	1	0	3	0	1	8	0	0	0	37	6	0	56	804
5:10 PM	0	0	0	0	0	0	2	0	3	19	0	0	0	37	3	0	64	796
5:15 PM	0	0	0	0	1	0	1	0	5	27	0	0	0	31	6	0	71	804
5:20 PM	0	0	0	0	0	0	0	0	3	13	0	0	0	12	2	0	30	786
5:25 PM	0	0	0	0	0	0	0	0	1	15	0	0	0	22	7	0	45	735
5:30 PM	0	0	0	0	2	0	0	0	4	13	0	0	0	17	7	0	43	712
5:35 PM	0	0	0	0	0	0	4	0	15	26	0	0	0	57	5	0	107	753
5:40 PM	0	0	0	0	1	0	1	0	4	25	0	0	0	40	5	0	76	766
5:45 PM	0	0	0	0	2	0	2	0	10	58	0	0	0	31	6	0	109	811
5:50 PM	0	0	0	0	0	0	4	0	8	33	0	0	0	20	8	0	73	806
5:55 PM	0	0	0	0	1	0	2	0	18	35	0	0	0	33	3	0	92	843

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	12	0	28	0	116	436	0	0	0	512	64	0	1168
Heavy Trucks	0	0	0		4	0	12		8	132	0		0	60	4		220
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/6/2023 2:55 PM

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

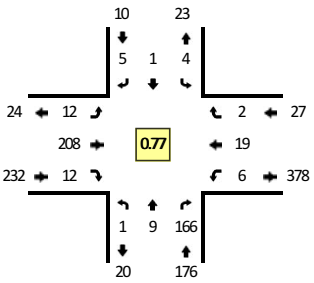
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

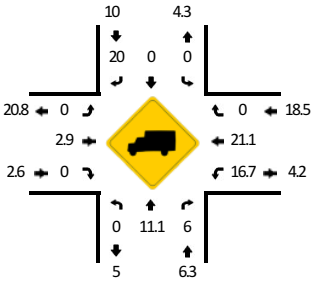
LOCATION: Province Path -- Canright Rd
CITY/STATE: Rio Vista, CA

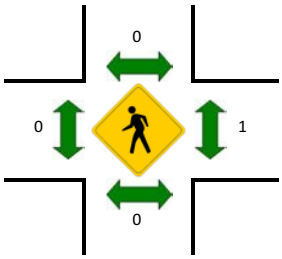
QC JOB #: 16374210
DATE: Thu, Oct 26 2023

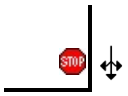
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

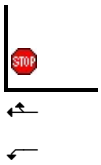


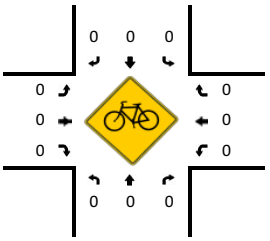


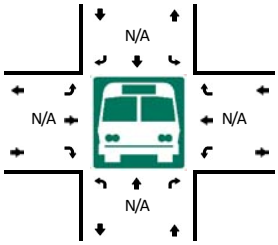


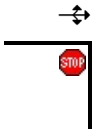


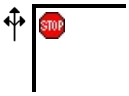


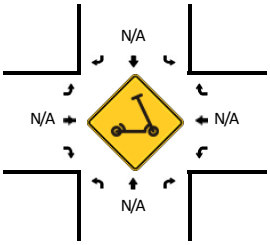












5-Min Count Period Beginning At	Province Path (Northbound)				Province Path (Southbound)				Canright Rd (Eastbound)				Canright Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3	
7:05 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0	4	
7:10 AM	0	1	0	0	1	4	1	0	0	1	0	0	2	2	0	0	12	
7:15 AM	0	0	0	0	0	3	1	0	2	2	0	0	0	1	0	0	9	
7:20 AM	0	0	1	0	0	3	0	0	0	2	0	0	2	1	0	0	9	
7:25 AM	0	0	0	0	0	1	0	0	0	0	0	0	3	1	0	0	5	
7:30 AM	0	1	1	0	0	1	3	0	0	1	0	0	2	1	0	0	10	
7:35 AM	0	0	1	0	0	1	1	0	0	0	0	0	2	1	0	0	6	
7:40 AM	0	1	0	0	0	1	2	0	0	1	0	0	1	3	0	0	9	
7:45 AM	0	0	0	0	0	2	1	0	0	1	1	0	4	1	0	0	10	
7:50 AM	0	0	0	0	2	4	2	0	0	0	0	0	1	2	0	0	11	
7:55 AM	0	0	1	0	1	1	0	0	2	1	0	0	3	2	0	0	11	99
8:00 AM	0	1	2	0	0	1	2	0	0	0	0	0	1	0	0	0	7	103
8:05 AM	0	2	0	0	0	0	1	0	1	1	0	0	1	2	0	0	8	107
8:10 AM	0	0	1	0	0	0	0	0	0	1	1	0	0	2	0	0	5	100
8:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	4	95
8:20 AM	0	1	1	0	0	1	0	0	0	0	0	0	0	2	1	0	6	92
8:25 AM	0	0	0	0	0	0	2	0	0	2	0	0	1	1	0	0	6	93
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	4	0	0	6	89
8:35 AM	0	1	2	0	0	1	1	0	1	0	0	0	2	2	0	0	10	93
8:40 AM	0	1	0	0	0	0	0	0	1	2	0	0	1	1	0	0	6	90
8:45 AM	0	0	0	0	0	3	1	0	0	0	0	0	2	2	0	0	8	88
8:50 AM	0	0	1	0	0	3	1	0	0	0	0	0	3	0	0	0	8	85
8:55 AM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	6	80
9:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	3	76
9:05 AM	0	0	0	0	0	3	0	0	1	0	0	0	2	2	0	0	8	76
9:10 AM	0	1	0	0	0	0	3	0	0	0	0	0	2	1	1	0	8	79
9:15 AM	0	0	3	0	0	0	1	0	0	1	0	0	2	4	0	0	11	86
9:20 AM	0	2	1	0	0	0	1	0	0	0	0	0	0	5	0	0	9	89
9:25 AM	0	0	2	0	0	2	1	0	0	0	0	0	0	0	0	0	5	88
9:30 AM	0	1	3	0	0	1	1	0	1	1	0	0	2	2	0	0	12	94
9:35 AM	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	3	87
9:40 AM	0	0	1	0	0	1	0	0	0	0	1	0	0	2	0	0	5	86
9:45 AM	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	4	82
9:50 AM	0	0	2	0	0	0	0	0	0	1	0	0	2	2	0	0	7	81
9:55 AM	0	2	0	0	0	3	1	0	0	0	0	0	0	1	0	0	7	82
10:00 AM	0	3	1	0	0	0	1	0	1	0	0	0	0	1	0	0	7	86
10:05 AM	0	0	1	0	0	2	0	0	0	0	0	0	3	2	0	0	8	86

5-Min Count Period Beginning At	Province Path (Northbound)				Province Path (Southbound)				Canright Rd (Eastbound)				Canright Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:10 AM	0	0	0	0	0	2	1	0	0	0	1	0	0	3	1	0	8	86
10:15 AM	0	0	2	0	0	0	1	0	0	1	0	0	0	1	0	0	5	80
10:20 AM	0	0	1	0	0	2	0	0	1	1	0	0	2	1	1	0	9	80
10:25 AM	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	3	78
10:30 AM	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	3	69
10:35 AM	0	0	0	0	0	2	0	0	1	2	0	0	1	1	0	0	7	73
10:40 AM	1	1	0	0	0	0	2	0	0	1	0	0	3	0	0	0	8	76
10:45 AM	0	1	2	0	0	0	1	0	0	2	0	0	0	0	0	0	6	78
10:50 AM	0	0	0	0	0	1	0	0	0	2	1	0	2	0	0	0	6	77
10:55 AM	0	0	1	0	0	2	1	0	0	1	0	0	1	1	0	0	7	77
11:00 AM	0	1	1	0	0	0	3	0	1	0	0	0	0	0	0	0	6	76
11:05 AM	0	1	2	0	0	0	1	0	0	1	0	0	2	0	0	0	7	75
11:10 AM	0	1	1	0	0	0	1	0	0	3	0	0	2	2	1	0	11	78
11:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	2	0	0	0	4	77
11:20 AM	0	1	0	0	0	2	0	0	0	1	0	0	2	0	0	0	6	74
11:25 AM	0	2	2	0	0	0	3	0	0	3	1	0	1	1	0	0	13	84
11:30 AM	0	1	2	0	0	0	1	0	0	0	1	0	1	4	0	0	10	91
11:35 AM	0	0	1	0	0	1	1	0	0	2	0	0	1	4	0	0	10	94
11:40 AM	0	2	1	0	0	0	0	0	0	1	0	0	2	0	0	0	6	92
11:45 AM	0	4	0	0	0	2	0	0	1	0	0	0	0	0	0	0	7	93
11:50 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	3	90
11:55 AM	0	1	2	0	0	1	0	0	0	0	0	0	0	1	0	0	5	88
12:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	3	0	1	0	7	89
12:05 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	84
12:10 PM	0	2	2	0	0	0	1	0	0	0	0	0	0	0	0	0	5	78
12:15 PM	0	1	1	0	0	1	0	0	1	0	0	0	1	2	0	0	7	81
12:20 PM	0	4	0	0	0	0	0	0	1	4	0	0	1	1	0	0	11	86
12:25 PM	0	1	4	0	0	3	1	0	0	1	0	0	0	1	0	0	11	84
12:30 PM	1	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	4	78
12:35 PM	0	1	0	0	0	0	1	0	0	2	0	0	1	0	0	0	5	73
12:40 PM	0	2	0	0	0	1	0	0	0	0	0	0	1	1	0	0	5	72
12:45 PM	0	1	2	0	0	1	1	0	0	1	0	0	1	2	0	0	9	74
12:50 PM	0	0	2	0	0	5	0	0	0	3	0	0	3	0	0	0	13	84
12:55 PM	0	0	0	0	0	1	0	0	1	1	1	0	1	3	0	0	8	87
1:00 PM	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	0	5	85
1:05 PM	0	1	1	0	0	0	0	0	2	0	0	0	2	1	0	0	7	90
1:10 PM	0	1	4	0	0	0	1	0	0	2	0	0	0	1	0	0	9	94
1:15 PM	0	2	14	0	0	0	0	0	0	3	0	0	0	4	1	0	24	111
1:20 PM	0	0	14	0	0	0	0	0	1	3	0	0	1	1	1	0	21	121
1:25 PM	0	0	6	0	0	1	2	0	1	4	0	0	0	2	0	0	16	126
1:30 PM	0	3	8	0	0	0	0	0	1	13	1	0	0	1	0	1	28	150
1:35 PM	0	5	4	0	0	0	0	0	4	20	1	0	0	1	0	0	35	180
1:40 PM	0	2	4	0	1	2	1	0	0	5	1	0	1	2	0	0	19	194
1:45 PM	0	0	1	0	1	0	0	0	2	15	1	0	2	1	0	0	23	208
1:50 PM	0	0	5	0	0	0	0	0	0	7	1	0	0	2	0	0	15	210
1:55 PM	0	0	4	0	0	1	0	0	0	15	3	0	1	2	0	0	26	228
2:00 PM	0	1	12	0	0	0	1	0	1	6	0	0	0	3	0	0	24	247
2:05 PM	0	1	18	0	0	1	1	0	1	6	0	0	1	6	0	0	35	275
2:10 PM	0	1	4	0	0	2	0	0	0	4	0	0	4	2	0	0	17	283
2:15 PM	0	0	6	0	1	3	1	0	1	3	0	0	0	1	0	0	16	275
2:20 PM	0	1	7	0	1	0	1	0	0	2	0	0	1	1	0	0	14	268
2:25 PM	0	0	2	0	0	0	0	0	0	5	0	0	1	3	0	0	11	263
2:30 PM	0	1	3	0	0	0	0	0	1	1	0	0	0	0	0	0	6	241
2:35 PM	0	2	0	0	0	1	1	0	1	1	0	0	1	2	0	0	9	215
2:40 PM	0	1	1	0	1	0	1	0	4	10	0	0	2	1	0	0	21	217
2:45 PM	0	0	4	0	0	0	0	0	0	6	0	0	2	2	0	0	14	208
2:50 PM	0	0	14	0	0	1	0	0	1	1	1	0	2	3	0	0	23	216
2:55 PM	1	2	18	0	0	0	1	0	0	8	0	0	1	0	0	0	31	221
3:00 PM	0	2	25	0	1	0	0	0	1	6	0	0	2	1	2	0	40	237
3:05 PM	0	0	13	0	0	1	1	0	1	7	0	0	1	0	0	0	24	226
3:10 PM	0	2	10	0	0	2	1	0	1	3	0	0	0	0	0	0	19	228
3:15 PM	0	2	14	0	0	0	0	0	0	6	0	0	3	1	1	0	27	239
3:20 PM	1	2	5	0	0	0	1	0	0	14	0	0	2	1	0	0	26	251
3:25 PM	0	2	13	0	1	1	1	0	1	12	0	0	0	1	0	0	32	272
3:30 PM	0	2	21	0	0	0	1	0	2	12	2	0	2	3	1	0	46	312
3:35 PM	0	2	23	0	0	0	0	0	2	13	0	0	0	1	0	0	41	344
3:40 PM	0	1	9	0	1	0	2	0	0	4	0	0	0	0	0	0	17	340
3:45 PM	0	0	10	0	1	1	1	0	1	14	0	0	0	0	0	0	28	354
3:50 PM	0	0	20	0	0	0	1	0	0	11	0	0	0	1	0	0	33	364
3:55 PM	0	1	16	0	1	0	0	0	1	8	0	0	0	2	0	0	29	362
4:00 PM	0	2	23	0	0	0	0	0	4	17	0	0	0	3	0	0	49	371
4:05 PM	0	0	18	1	1	0	0	0	0	17	0	0	1	1	0	0	39	386
4:10 PM	0	0	5	0	0	0	0	0	0	8	3	0	2	0	0	0	18	385
4:15 PM	0	0	6	0	0	0	0	0	1	35	3	0	0	0	0	0	45	403
4:20 PM	0	0	1	0	0	0	0	0	1	49	2	0	1	5	1	0	60	437
4:25 PM	0	1	14	0	0	0	0	0	0	20	2	0	0	3	0	0	40	445
4:30 PM	0	1	8	0	0	0	0	0	1	17	3	0	0	2	0	0	32	431
4:35 PM	0	0	3	0	1	0	0	0	0	18	3	0	0	1	0	0	26	416
4:40 PM	0	1	1	0	2	1	0	0	0	8	4	0	0	3	0	0	20	419
4:45 PM	0	2	1	0	2	2	2	0	0	7	1	0	0	2	0	0	19	410
4:50 PM	0	4	4	0	1	1	0	0	0	7	1	0	0	0	0	0	18	395
4:55 PM	0	1	3	0	3	1	0	0	0	5	0	0	2	0	0	0	15	381
5:00 PM	0	3	2	0	11	2	0	0	1	11	2	0	0	0	0	0	32	364
5:05 PM	0	4	4	0	0	1	0	0	2	20	2	0	2	1	0	0	36	361
5:10 PM	0	2	4	0	3	1	0	0	1	8	3	0	0	2	0	0	24	367
5:15 PM	0	1	6	0	2	1	1	0	0	5	1	0	1	1	0	0	19	341
5:20 PM	0	4	7	0	0	1	0	0	2	17	3	0	0	1	0	0	35	316
5:25 PM	0	1	2	0	1	0	1	0	4	23	1	0	0	1	0	0	34	310

5-Min Count Period Beginning At	Province Path (Northbound)				Province Path (Southbound)				Canright Rd (Eastbound)				Canright Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:30 PM	1	1	2	0	1	1	4	0	2	22	4	0	1	0	0	0	39	317
5:35 PM	0	1	10	0	0	0	0	0	2	42	6	0	0	2	1	0	64	355
5:40 PM	0	0	5	0	1	0	0	0	0	16	1	0	1	0	0	0	24	359
5:45 PM	0	1	6	0	1	1	0	0	2	26	2	0	1	0	0	0	40	380
5:50 PM	2	1	8	0	0	0	0	0	2	13	0	0	0	2	0	0	28	390
5:55 PM	0	1	16	0	0	0	0	0	3	11	0	0	0	2	0	0	33	408
6:00 PM	0	0	10	0	0	1	1	0	2	5	1	0	0	0	0	0	20	396
6:05 PM	0	1	8	0	0	0	1	0	0	7	1	0	1	2	0	0	21	381
6:10 PM	0	1	2	0	0	0	1	0	1	14	0	0	1	1	0	0	21	378
6:15 PM	0	3	5	0	0	1	0	0	1	3	0	0	1	0	0	0	14	373
6:20 PM	0	0	4	0	0	1	0	0	1	2	1	0	1	0	0	0	10	348
6:25 PM	0	0	3	0	0	0	0	0	0	8	0	0	1	0	0	0	12	326
6:30 PM	0	2	3	0	0	0	0	0	1	1	0	0	1	1	0	0	9	296
6:35 PM	0	1	2	0	0	1	0	0	3	0	0	0	0	0	0	0	7	239
6:40 PM	0	3	3	0	0	1	0	0	1	1	0	0	0	1	0	0	10	225
6:45 PM	0	2	0	0	0	1	0	0	0	4	0	0	2	0	0	0	9	194
6:50 PM	0	3	0	0	0	2	2	0	3	0	0	0	1	0	0	0	11	177
6:55 PM	0	0	3	0	0	5	2	0	1	3	0	0	1	1	0	0	16	160

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	4	84	0	0	0	0	0	8	416	28	0	4	32	4	0	580
Heavy Trucks	0	0	4		0	0	0		0	20	0		4	4	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

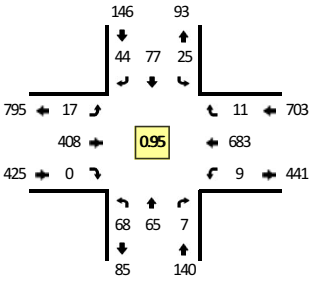
Report generated on 11/6/2023 2:55 PM

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

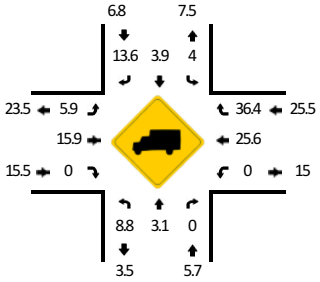
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

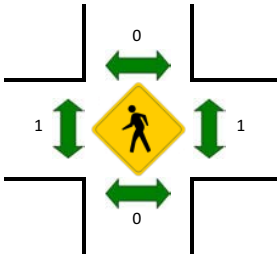
LOCATION: Hillside Ter -- SR 12 | **QC JOB #:** 16374205
CITY/STATE: Rio Vista, CA | **DATE:** Thu, Oct 26 2023

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:25 AM -- 7:40 AM

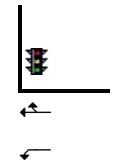


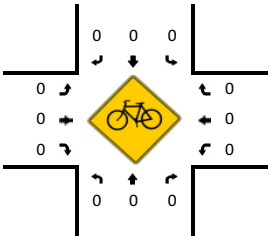
TRUE DATA TO IMPROVE MOBILITY

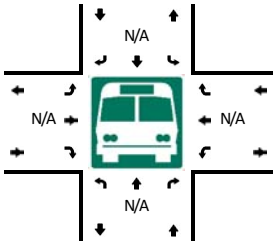


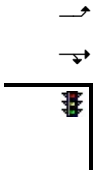


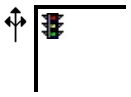


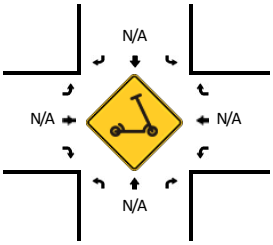












5-Min Count Period Beginning At	Hillside Ter (Northbound)				Hillside Ter (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	0	0	0	0	2	2	0	3	33	0	0	0	53	1	0	97	
7:05 AM	3	0	1	0	1	1	3	0	0	32	0	0	1	54	0	0	96	
7:10 AM	4	0	0	0	2	2	0	0	2	32	0	0	0	5	0	0	47	
7:15 AM	5	1	1	0	0	0	0	0	2	5	0	0	0	5	0	0	19	
7:20 AM	4	1	0	0	2	3	2	0	0	44	0	0	0	53	2	0	111	
7:25 AM	6	1	0	0	1	2	3	0	0	55	0	0	0	63	1	0	132	
7:30 AM	3	2	1	0	0	1	1	0	0	45	0	0	0	69	0	0	122	
7:35 AM	5	2	2	0	3	3	2	0	0	38	0	0	0	64	0	0	119	
7:40 AM	3	1	0	0	1	3	3	0	1	25	0	0	0	65	0	0	102	
7:45 AM	1	8	0	0	0	4	3	0	1	29	0	0	3	62	1	1	113	
7:50 AM	4	6	0	0	3	8	4	0	2	26	0	0	1	58	1	0	113	
7:55 AM	5	6	2	0	4	11	6	0	5	23	0	0	3	48	3	0	116	1187
8:00 AM	10	9	1	0	3	11	6	0	0	30	0	0	0	56	1	0	127	1217
8:05 AM	6	14	0	0	3	14	1	0	4	40	0	0	1	38	0	0	121	1242
8:10 AM	9	10	0	0	3	9	9	0	2	20	0	0	0	50	0	0	112	1307
8:15 AM	12	5	1	0	2	8	4	0	2	33	0	0	0	57	2	0	126	1414
8:20 AM	6	5	0	0	1	7	5	0	2	20	0	0	3	59	1	0	109	1412
8:25 AM	7	3	1	0	1	6	3	0	0	25	0	0	2	50	1	0	99	1379
8:30 AM	7	3	0	0	1	2	5	0	1	38	1	0	0	11	0	0	69	1326
8:35 AM	12	1	0	0	1	2	1	0	2	20	0	0	3	31	0	0	73	1280
8:40 AM	6	2	2	0	2	0	0	0	1	36	0	0	0	56	3	0	108	1286
8:45 AM	4	1	1	0	3	2	4	0	1	30	0	0	2	61	1	0	110	1283
8:50 AM	12	2	2	0	1	1	2	0	1	31	0	0	1	55	1	0	109	1279
8:55 AM	6	0	0	0	2	4	2	0	0	28	0	0	0	54	1	0	97	1260

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	56	20	12	0	16	24	24	0	0	552	0	0	0	784	4	0	1492
Heavy Trucks	4	4	0		0	0	8		0	80	0		0	184	4		284
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

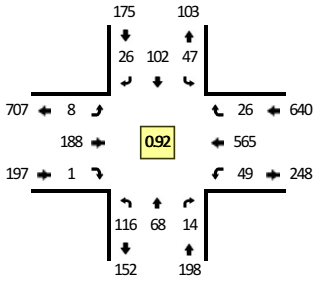
Comments:

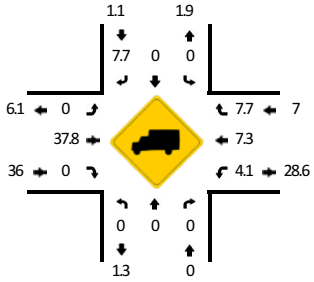
Report generated on 11/6/2023 2:55 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

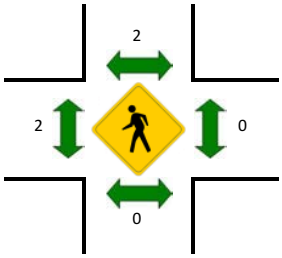
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

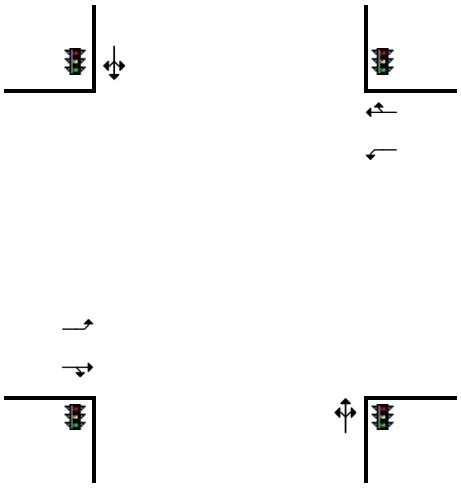
LOCATION: Hillside Ter -- SR 12 | **QC JOB #:** 16374206
CITY/STATE: Rio Vista, CA | **DATE:** Thu, Oct 26 2023

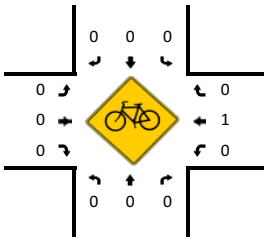
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:35 PM -- 4:50 PM

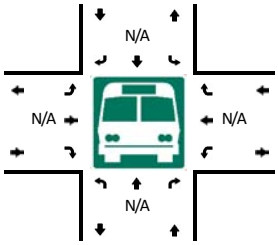


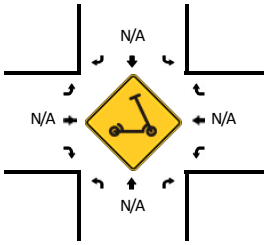












5-Min Count Period Beginning At	Hillside Ter (Northbound)				Hillside Ter (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	8	2	0	3	1	2	0	0	2	0	0	5	60	0	0	92	
4:05 PM	14	5	3	0	2	3	4	0	1	7	0	0	5	56	1	0	101	
4:10 PM	7	6	1	0	11	10	3	0	1	17	0	0	6	57	4	0	123	
4:15 PM	7	6	0	0	3	5	1	0	2	7	0	0	6	26	1	0	64	
4:20 PM	6	6	1	0	1	10	6	0	0	0	0	0	5	30	2	0	67	
4:25 PM	7	5	1	0	5	13	2	1	2	6	1	0	5	59	4	0	111	
4:30 PM	4	2	0	0	5	17	2	0	2	8	0	0	7	52	1	0	100	
4:35 PM	12	4	0	0	6	3	2	0	1	19	0	0	2	62	2	0	113	
4:40 PM	13	3	2	0	8	11	3	0	1	4	0	0	7	47	1	0	100	
4:45 PM	12	3	2	0	4	9	2	0	1	25	0	0	6	48	3	0	115	
4:50 PM	11	6	2	0	3	10	3	0	0	14	0	0	4	47	3	0	103	
4:55 PM	8	8	0	0	2	4	2	0	0	18	0	0	3	52	4	0	101	1190
5:00 PM	9	4	1	0	8	7	4	0	0	16	0	0	3	35	4	0	91	1189
5:05 PM	7	6	1	0	1	4	2	0	1	23	0	0	2	49	0	0	96	1184
5:10 PM	12	9	1	0	3	9	3	0	0	17	0	0	2	30	2	0	88	1149
5:15 PM	12	7	2	0	0	3	1	0	0	19	0	0	5	37	1	0	87	1172
5:20 PM	9	11	2	0	1	12	0	0	0	19	0	0	3	47	1	0	105	1210
5:25 PM	10	9	1	0	1	4	1	0	1	24	0	0	2	32	4	0	89	1188
5:30 PM	10	5	4	0	2	6	3	0	0	29	0	0	2	38	2	0	101	1189
5:35 PM	12	2	0	0	2	5	5	0	1	21	0	0	4	54	0	0	106	1182
5:40 PM	5	8	2	0	1	8	3	0	2	37	0	0	1	34	3	0	104	1186
5:45 PM	5	3	2	0	1	5	4	0	1	32	0	1	3	29	1	0	87	1158
5:50 PM	7	4	1	0	3	3	0	0	0	33	0	0	3	45	2	0	101	1156
5:55 PM	6	2	1	0	3	6	2	0	1	45	0	0	2	45	1	0	114	1169

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	148	40	16	0	72	92	28	0	12	192	0	0	60	628	24	0	1312
Heavy Trucks	0	0	0		0	0	4		0	64	0		0	56	0		124
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/6/2023 2:55 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SR 84 (River Rd)/N Front St -- SR 12

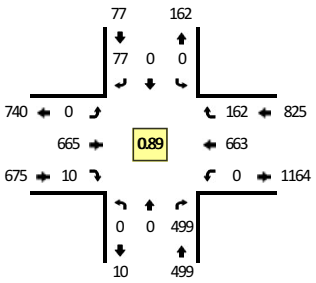
CITY/STATE: Rio Vista, CA

QC JOB #: 16374211

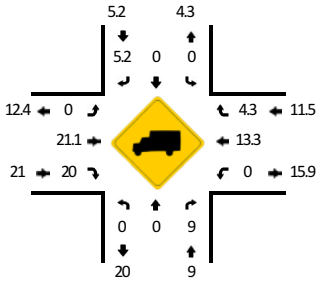
DATE: Thu, Nov 2 2023

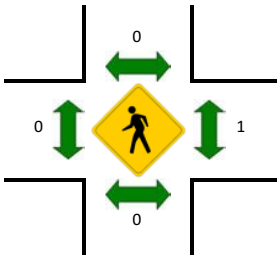
Peak-Hour: 3:25 PM -- 4:25 PM

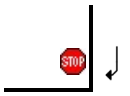
Peak 15-Min: 3:25 PM -- 3:40 PM

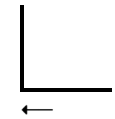


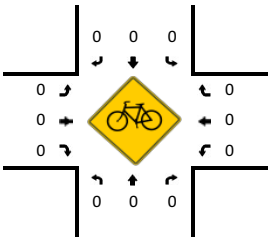
TRUE DATA TO IMPROVE MOBILITY

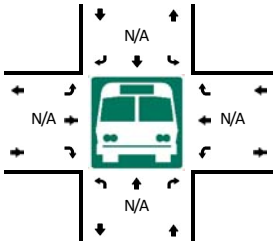


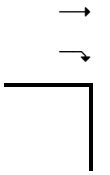


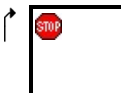


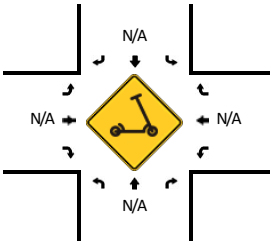












5-Min Count Period Beginning At	SR 84 (River Rd)/N Front St (Northbound)				SR 84 (River Rd)/N Front St (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	8	0	0	0	0	0	0	28	3	0	0	68	14	0	121	
7:05 AM	0	0	14	0	0	0	3	0	0	31	4	0	0	79	8	0	139	
7:10 AM	0	0	7	0	0	0	2	0	0	34	3	0	0	64	9	0	119	
7:15 AM	0	0	13	0	0	0	2	0	0	34	1	0	0	62	4	0	116	
7:20 AM	0	0	10	0	0	0	3	0	0	22	2	0	0	76	13	0	126	
7:25 AM	0	0	14	0	0	0	1	0	0	27	2	0	0	48	8	0	100	
7:30 AM	0	0	10	0	0	0	2	0	0	34	1	0	0	75	8	0	130	
7:35 AM	0	0	11	0	0	0	2	0	0	49	2	0	0	62	9	0	135	
7:40 AM	0	0	11	0	0	0	5	0	0	30	2	0	0	54	15	0	117	
7:45 AM	0	0	11	0	0	0	1	0	0	29	5	0	0	64	15	0	125	
7:50 AM	0	0	9	0	0	0	3	0	0	33	1	0	0	64	17	0	127	
7:55 AM	0	0	18	0	0	0	8	0	0	32	2	0	0	50	24	0	134	1489
8:00 AM	0	0	16	0	0	0	8	0	0	46	5	0	0	44	17	0	136	1504
8:05 AM	0	0	14	0	0	0	12	0	0	29	3	0	0	52	15	0	125	1490
8:10 AM	0	0	17	0	0	0	9	0	0	32	2	0	0	50	10	0	120	1491
8:15 AM	0	0	10	0	0	0	12	0	0	27	4	0	0	26	7	0	86	1461
8:20 AM	0	0	1	0	0	0	7	0	0	0	0	0	0	0	0	0	8	1343
8:25 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	1248
8:30 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	1122
8:35 AM	0	0	20	0	0	0	3	0	0	18	1	0	0	23	3	0	68	1055
8:40 AM	0	0	34	0	0	0	3	0	0	59	1	0	0	62	17	0	176	1114
8:45 AM	0	0	13	0	0	0	5	0	0	67	1	0	0	75	15	0	176	1165
8:50 AM	0	0	16	0	0	0	4	0	0	61	2	0	0	59	16	0	158	1196
8:55 AM	0	0	9	0	0	0	3	0	0	32	3	0	0	67	11	0	125	1187
9:00 AM	0	0	7	0	0	0	5	0	0	28	4	0	0	68	13	0	125	1176
9:05 AM	0	0	12	0	0	0	1	0	0	43	1	0	0	81	19	0	157	1208
9:10 AM	0	0	7	0	0	0	4	0	0	37	3	0	0	58	5	0	114	1202
9:15 AM	0	0	14	0	0	0	2	0	0	28	4	0	0	40	3	0	91	1207
9:20 AM	0	0	10	0	0	0	9	0	0	39	1	0	0	32	4	0	95	1294
9:25 AM	0	0	10	0	0	0	6	0	0	29	2	0	0	44	9	0	100	1389
9:30 AM	0	0	10	0	0	0	7	0	0	39	0	0	0	38	5	0	99	1484
9:35 AM	0	0	15	0	0	0	6	0	0	31	0	0	0	27	7	0	86	1502
9:40 AM	0	0	12	0	0	0	10	0	0	42	3	0	0	31	5	0	103	1429
9:45 AM	0	0	10	0	0	0	5	0	0	28	2	0	0	37	7	0	89	1342
9:50 AM	0	0	12	0	0	0	1	0	0	45	2	0	0	41	5	0	106	1290
9:55 AM	0	0	9	0	0	0	6	0	0	35	1	0	0	41	4	0	96	1261
10:00 AM	0	0	11	0	0	0	8	0	0	34	3	0	0	39	2	0	97	1233
10:05 AM	0	0	15	0	0	0	6	0	0	35	6	0	0	37	9	0	108	1184

5-Min Count Period Beginning At	SR 84 (River Rd)/N Front St (Northbound)				SR 84 (River Rd)/N Front St (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:10 AM	0	0	10	0	0	0	7	0	0	34	4	0	0	39	5	0	99	1169
10:15 AM	0	0	13	0	0	0	7	0	0	48	5	0	0	32	5	0	110	1188
10:20 AM	0	0	9	0	0	0	3	0	0	35	1	0	0	29	9	0	86	1179
10:25 AM	0	0	8	0	0	0	3	0	0	38	4	0	0	40	6	0	99	1178
10:30 AM	0	0	13	0	0	0	7	0	0	25	2	0	0	49	3	0	99	1178
10:35 AM	0	0	19	0	0	0	11	0	0	38	4	0	0	33	5	0	110	1202
10:40 AM	0	0	5	0	0	0	8	0	0	39	2	0	0	29	11	0	94	1193
10:45 AM	0	0	10	0	0	0	6	0	0	41	3	0	0	33	4	0	97	1201
10:50 AM	0	0	8	0	0	0	3	0	0	43	7	0	0	37	5	0	103	1198
10:55 AM	0	0	10	0	0	0	5	0	0	42	3	0	0	48	13	0	121	1223
11:00 AM	0	0	6	0	0	0	7	0	0	16	1	0	0	9	2	0	41	1167
11:05 AM	0	0	0	0	0	0	12	0	0	0	3	0	0	0	0	0	15	1074
11:10 AM	0	0	0	0	0	0	5	0	0	0	2	0	0	0	0	0	7	982
11:15 AM	0	0	31	0	0	0	4	0	0	45	0	0	0	53	12	0	145	1017
11:20 AM	0	0	14	0	0	0	5	0	0	69	3	0	0	78	13	0	182	1113
11:25 AM	0	0	15	0	0	0	12	0	0	48	3	0	6	54	8	0	146	1160
11:30 AM	0	0	14	0	0	0	5	0	0	62	4	0	0	60	12	0	157	1218
11:35 AM	0	0	10	0	0	0	7	0	0	48	4	0	0	44	14	0	127	1235
11:40 AM	0	0	3	0	0	0	10	0	0	15	2	0	0	3	0	0	33	1174
11:45 AM	0	0	11	0	0	0	8	0	0	25	0	0	0	30	8	0	82	1159
11:50 AM	0	0	18	0	0	0	9	0	0	67	1	0	0	69	8	0	172	1228
11:55 AM	0	0	6	0	0	0	5	0	0	34	2	0	0	43	8	0	98	1205
12:00 PM	0	0	13	0	0	0	18	0	0	40	4	0	0	48	14	0	137	1301
12:05 PM	0	0	14	0	0	0	12	0	0	20	6	0	0	29	4	0	85	1371
12:10 PM	0	0	8	0	0	0	8	0	0	30	9	0	0	24	6	0	85	1449
12:15 PM	0	0	8	0	0	0	5	0	0	56	4	0	0	48	6	0	127	1431
12:20 PM	0	0	12	0	0	0	5	0	0	43	6	0	0	63	9	0	138	1387
12:25 PM	0	0	10	0	0	0	7	0	0	47	5	0	0	30	5	0	104	1345
12:30 PM	0	0	6	0	0	0	5	0	0	9	1	0	0	7	0	0	28	1216
12:35 PM	0	0	16	0	0	0	7	0	0	73	1	0	0	72	14	0	183	1272
12:40 PM	0	0	7	0	0	0	9	0	0	42	3	0	0	53	6	0	120	1359
12:45 PM	0	0	14	0	0	0	5	0	0	52	3	0	0	35	9	0	118	1395
12:50 PM	0	0	9	0	0	0	3	0	0	40	2	0	0	42	9	0	105	1328
12:55 PM	0	0	10	0	0	0	8	0	0	50	7	0	0	37	8	0	120	1350
1:00 PM	0	0	9	0	0	0	4	0	0	32	1	0	0	53	16	0	115	1328
1:05 PM	0	0	9	0	0	0	4	0	0	45	3	0	0	40	3	0	104	1347
1:10 PM	0	0	14	0	0	0	6	0	0	40	1	0	0	42	14	0	117	1379
1:15 PM	0	0	9	0	0	0	9	0	0	45	0	0	0	31	6	0	100	1352
1:20 PM	0	0	13	1	0	0	1	0	0	35	5	0	0	35	5	0	95	1309
1:25 PM	0	0	9	0	0	0	7	0	0	59	4	0	0	33	6	0	118	1323
1:30 PM	0	0	10	0	0	0	8	0	0	46	6	0	0	39	3	0	112	1407
1:35 PM	0	0	17	0	0	0	14	0	0	52	2	0	0	45	6	0	136	1360
1:40 PM	0	0	9	0	0	0	4	0	0	37	3	0	0	45	6	0	104	1344
1:45 PM	0	0	10	0	0	0	5	0	0	33	8	0	0	38	8	0	102	1328
1:50 PM	0	0	5	0	0	0	8	0	0	39	3	0	0	40	11	0	106	1329
1:55 PM	0	0	9	0	0	0	4	0	0	59	2	0	0	35	8	0	117	1326
2:00 PM	0	0	15	0	0	0	1	0	0	72	2	0	0	38	6	0	134	1345
2:05 PM	0	0	13	0	0	0	4	0	0	44	5	0	0	27	8	0	101	1342
2:10 PM	0	0	7	0	0	0	5	0	0	50	3	0	1	60	8	0	134	1359
2:15 PM	0	0	12	0	0	0	7	0	0	67	2	0	0	41	9	0	138	1397
2:20 PM	0	0	7	0	0	0	3	0	0	41	3	0	0	46	9	0	109	1411
2:25 PM	0	0	15	0	0	0	9	0	0	45	3	0	0	41	11	0	124	1417
2:30 PM	0	0	25	0	0	0	7	0	0	63	3	0	0	43	14	0	155	1460
2:35 PM	0	0	15	0	0	0	7	0	0	42	4	0	0	38	7	0	113	1437
2:40 PM	0	0	16	0	0	0	5	0	0	68	7	0	0	34	15	0	145	1478
2:45 PM	0	0	15	0	0	0	8	0	0	52	3	0	0	42	4	0	124	1500
2:50 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	6	0	0	8	1402
2:55 PM	0	0	32	0	0	0	4	0	0	62	0	0	0	77	12	0	187	1472
3:00 PM	0	0	16	0	0	0	2	0	0	70	3	0	0	60	26	0	177	1515
3:05 PM	0	0	23	0	0	0	12	0	0	55	1	0	0	31	11	0	133	1547
3:10 PM	0	0	12	0	0	0	7	0	0	42	1	0	0	13	3	0	78	1491
3:15 PM	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	14	1367
3:20 PM	0	0	17	0	0	0	11	0	0	17	0	0	0	17	3	0	65	1323
3:25 PM	0	0	44	0	0	0	14	0	0	57	0	0	0	76	22	0	213	1412
3:30 PM	0	0	38	0	0	0	6	0	0	47	0	0	0	70	23	0	184	1441
3:35 PM	0	0	41	0	0	0	1	0	0	58	0	0	0	68	18	0	186	1514
3:40 PM	0	0	38	0	0	0	4	0	0	62	2	0	0	49	10	0	165	1534
3:45 PM	0	0	33	0	0	0	8	0	0	59	1	0	0	64	15	0	180	1590
3:50 PM	0	0	42	0	0	0	6	0	0	57	3	0	0	51	8	0	167	1749
3:55 PM	0	0	46	0	0	0	5	0	0	53	2	0	0	42	10	0	158	1720
4:00 PM	0	0	42	0	0	0	5	0	0	53	0	0	0	47	8	0	155	1698
4:05 PM	0	0	40	0	0	0	10	0	0	58	0	0	0	38	12	0	158	1723
4:10 PM	0	0	43	0	0	0	4	0	0	56	0	0	0	50	15	0	168	1813
4:15 PM	0	0	49	0	0	0	9	0	0	53	0	0	0	47	12	0	170	1969
4:20 PM	0	0	43	0	0	0	5	0	0	52	2	0	0	61	9	0	172	2076
4:25 PM	0	0	35	0	0	0	2	0	0	71	1	0	0	48	13	0	170	2033
4:30 PM	0	0	23	0	0	0	7	0	0	67	0	0	0	45	11	0	153	2002
4:35 PM	0	0	28	0	0	0	17	0	0	57	4	0	0	28	9	0	143	1959
4:40 PM	0	0	23	0	0	0	8	0	0	53	2	0	0	54	19	0	159	1953
4:45 PM	0	0	20	0	0	0	9	0	0	60	1	0	0	63	10	0	163	1936
4:50 PM	0	0	23	0	0	0	4	0	0	71	2	0	0	51	14	0	165	1934
4:55 PM	0	0	18	0	0	0	5	0	0	59	3	0	0	45	16	0	146	1922
5:00 PM	0	0	22	0	0	0	4	0	0	70	4	0	0	55	6	0	161	1928
5:05 PM	0	0	11	0	0	0	12	0	0	56	4	0	0	48	5	0	136	1906
5:10 PM	0	0	21	0	0	0	5	0	0	65	2	0	0	41	11	0	145	1883
5:15 PM	0	0	23	0	0	0	5	0	0	63	2	0	0	52	8	0	153	1866
5:20 PM	0	0	11	0	0	0	6	0	0	60	2	0	0	52	10	0	141	1835
5:25 PM	0	0	16	0	0	0	3	0	0	68	6	0	0	50	13	0	156	1821

5-Min Count Period Beginning At	SR 84 (River Rd)/N Front St (Northbound)				SR 84 (River Rd)/N Front St (Southbound)				SR 12 (Eastbound)				SR 12 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:30 PM	0	0	15	0	0	0	7	0	0	55	2	0	0	43	11	0	133	1801
5:35 PM	0	0	14	0	0	0	4	0	0	68	2	0	0	46	8	0	142	1800
5:40 PM	0	0	12	0	0	0	9	0	0	70	5	0	0	46	11	0	153	1794
5:45 PM	0	0	10	0	0	0	4	0	0	51	3	0	0	42	10	0	120	1751
5:50 PM	0	0	6	0	0	0	5	0	0	66	1	0	0	48	11	0	137	1723
5:55 PM	0	0	9	0	0	0	4	0	0	59	0	0	0	38	9	0	119	1696
6:00 PM	0	0	9	0	0	0	3	0	0	57	4	0	0	44	9	0	126	1661
6:05 PM	0	0	10	0	0	0	5	0	0	47	1	0	0	28	3	0	94	1619
6:10 PM	0	0	10	0	0	0	6	0	0	61	3	0	0	45	8	0	133	1607
6:15 PM	0	0	16	0	0	0	3	0	0	43	4	0	0	40	7	0	113	1567
6:20 PM	0	0	6	0	0	0	4	0	0	68	1	0	0	36	7	0	122	1548
6:25 PM	0	0	11	0	0	0	6	0	0	42	6	0	0	17	4	0	86	1478
6:30 PM	0	0	8	0	0	0	3	0	0	42	4	0	0	38	10	0	105	1450
6:35 PM	0	0	5	0	0	0	1	0	0	34	1	0	0	36	7	0	84	1392
6:40 PM	0	0	7	0	0	0	3	0	0	52	2	0	0	23	6	0	93	1332
6:45 PM	0	0	4	0	0	0	1	0	0	28	2	0	0	34	11	0	80	1292
6:50 PM	0	0	4	0	0	0	2	0	0	35	0	0	0	31	5	0	77	1232
6:55 PM	0	0	7	0	0	0	2	0	0	48	2	0	0	35	5	0	99	1212

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	492	0	0	0	84	0	0	648	0	0	0	856	252	0	2332
Heavy Trucks	0	0	36		0	0	4		0	92	0		0	116	12		260
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/14/2023 3:13 PM

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

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Bill Brann Rd -- McCormack Rd

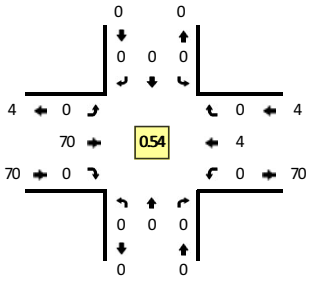
CITY/STATE: Rio Vista, CA

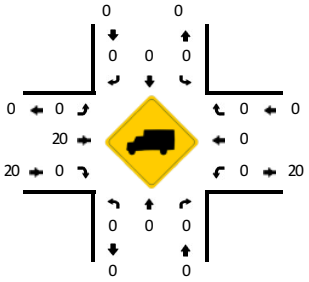
QC JOB #: 16374209

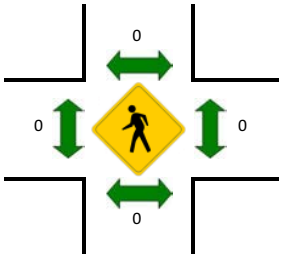
DATE: Thu, Oct 26 2023

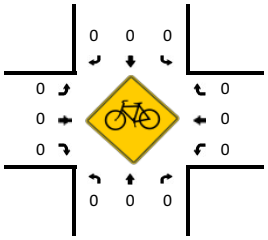
Peak-Hour: 4:30 PM -- 5:30 PM

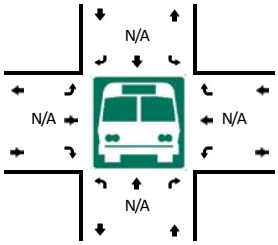
Peak 15-Min: 5:00 PM -- 5:15 PM

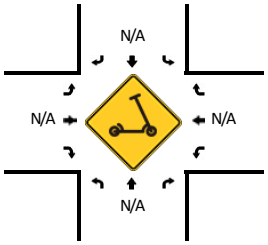












TRUE DATA TO IMPROVE MOBILITY

5-Min Count Period Beginning At	Bill Brann Rd (Northbound)				Bill Brann Rd (Southbound)				McCormack Rd (Eastbound)				McCormack Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
7:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	3
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	5
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	6
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7
8:55 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	10
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
9:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
9:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
9:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
9:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	9
9:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	10
9:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
9:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	9
10:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	10

5-Min Count Period Beginning At	Bill Brann Rd (Northbound)				Bill Brann Rd (Southbound)				McCormack Rd (Eastbound)				McCormack Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:10 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	11
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
10:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
10:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
10:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
10:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
10:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	8
10:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
10:55 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	8
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
11:05 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	7
11:10 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	7
11:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	10
11:20 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	12
11:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
11:35 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	13
11:40 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	16
11:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	14
11:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	15
11:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
12:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	16
12:05 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	17
12:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
12:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
12:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
12:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
12:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
12:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
12:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	6
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	5
1:05 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
1:10 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	5
1:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	7
1:20 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	8
1:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	10
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	11
1:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
1:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
1:50 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	12
1:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
2:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	11
2:05 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	11
2:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	10
2:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	10
2:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
2:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
2:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	8
2:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
2:40 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	11
2:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	14
2:50 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	15
2:55 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	16
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
3:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
3:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
3:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	13
3:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
3:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	12
3:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
3:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
3:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	7
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
3:55 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	5
4:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	8
4:05 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	11
4:10 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	12
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	13
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	15
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	18
4:35 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	0	8	26
4:40 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6	32
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
4:50 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	5	36
4:55 PM	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	9	44
5:00 PM	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	18	59
5:05 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	60
5:10 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	12	71
5:15 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	72
5:20 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	73
5:25 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	74

5-Min Count Period Beginning At	Bill Brann Rd (Northbound)				Bill Brann Rd (Southbound)				McCormack Rd (Eastbound)				McCormack Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70
5:35 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	63
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	58
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
5:50 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	54
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
6:05 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	26
6:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	15
6:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	12
6:20 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	10
6:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
6:35 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	9
6:40 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	9
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
6:50 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	10
6:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	136	0	0	0	0	0	0	136
Heavy Trucks	0	0	0		0	0	0		0	28	0		0	0	0		28
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/6/2023 2:55 PM

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

Appendix C

Level of Service Calculation Sheets – Existing Conditions

Rio Vista Brann Ranch

Vistro File: H:\...\29055 Rio Vista Brann Ranch.vistro
Report File: H:\...\Existing AM peak.pdf

Scenario 1 Existing AM
8/26/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	WB Thru		17.5	C
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.016	34.3	D
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Right	0.012	8.4	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	WB Thru	0.762	23.7	C
7	Canright Rd & Province Path	All-way stop	HCM 7th Edition	WB Left	0.045	7.6	A
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Left	0.799	20.3	C
9	SR12 & SR 84	Two-way stop	HCM 7th Edition	SB Right	0.192	16.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	17.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	1	24	8	121	1	0	3	231	1	6	526	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	75.00	0.00	13.00	0.00	0.00	100.00	22.00	100.00	67.00	28.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	24	8	121	1	0	3	231	1	6	526	196
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	2	36	0	0	1	68	0	2	155	58
Total Analysis Volume [veh/h]	1	28	9	142	1	0	4	272	1	7	619	231
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	500			805			173			58		
Exiting Flow Rate [veh/h]	15			341			793			501		
Demand Flow Rate [veh/h]	1	24	8	121	1	0	3	231	1	6	526	196
Adjusted Demand Flow Rate [veh/h]	1	28	9	142	1	0	4	272	1	7	619	231

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.69	0.89	0.81	0.79
Entry Flow Rate [veh/h]	56	162	341	1088
Capacity of Entry and Bypass Lanes [veh/h]	829	608	1157	1301
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	571	538	942	1026
X, volume / capacity	0.07	0.27	0.29	0.84

Movement, Approach, & Intersection Results

Lane LOS	A	B	A	F
95th-Percentile Queue Length [veh]	0.21	1.06	1.23	10.26
95th-Percentile Queue Length [ft]	5.34	26.59	30.80	256.61
Approach Delay [s/veh]	7.10	10.43	6.88	22.57
Approach LOS	A	B	A	F
Intersection Delay [s/veh]	17.50			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	34.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	2	0	0	4	0	26	10	364	0	0	724	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	12.00	0.00	17.00	0.00	0.00	29.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	0	4	0	26	10	364	0	0	724	0
Peak Hour Factor	0.8600	0.8600	0.8600	1.0000	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	1	0	8	3	106	0	0	210	0
Total Analysis Volume [veh/h]	2	0	0	4	0	30	12	423	0	0	842	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.03	0.00	0.09	0.01	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	34.30	27.59	10.67	31.76	27.90	16.26	9.55	0.00	0.00	8.14	0.00	0.00
Movement LOS	D	D	B	D	D	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.00	0.09	0.09	0.28	0.05	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.22	1.22	0.00	2.22	2.22	6.99	1.14	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	34.30			18.09			0.26			0.00		
Approach LOS	D			C			A			A		
d_I, Intersection Delay [s/veh]	0.61											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	0	10	2	3	27	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	11.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	10	2	3	27	1
Peak Hour Factor	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	1	1	9	0
Total Analysis Volume [veh/h]	0	13	3	4	35	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	8.99	8.36	0.00	0.00	7.36	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.91	0.91	0.00	0.00	1.68	1.68
d_A, Approach Delay [s/veh]	8.36		0.00		7.16	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	6.54					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	23.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.762

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	46	78	23	344	673	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	6.00	4.00	18.00	28.00	11.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	78	23	344	673	45
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	22	7	98	191	13
Total Analysis Volume [veh/h]	52	89	26	391	765	51
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing m	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	8	0	8	15	15	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No		No	Yes	Yes	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	64	64	64	64	64	64
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	7	7	3	46	38	38
g / C, Green / Cycle	0.11	0.11	0.05	0.71	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.02	0.27	0.57	0.04
s, saturation flow rate [veh/h]	1577	1385	1577	1467	1332	1327
c, Capacity [veh/h]	181	159	74	1039	784	781
d1, Uniform Delay [s]	26.10	26.98	29.76	3.73	12.79	5.66
k, delay calibration	0.04	0.04	0.04	0.04	0.34	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.32	1.15	1.07	0.08	21.30	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.56	0.35	0.38	0.98	0.07
d, Delay for Lane Group [s/veh]	26.43	28.13	30.82	3.82	34.09	5.67
Lane Group LOS	C	C	C	A	C	A
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.71	1.28	0.40	1.27	12.66	0.24
50th-Percentile Queue Length [ft/ln]	17.78	32.01	9.89	31.64	316.60	5.99
95th-Percentile Queue Length [veh/ln]	1.28	2.30	0.71	2.28	18.50	0.43
95th-Percentile Queue Length [ft/ln]	32.00	57.61	17.80	56.95	462.50	10.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.43	28.13	30.82	3.82	34.09	5.67
Movement LOS	C	C	C	A	C	A
d_A, Approach Delay [s/veh]	27.50		5.50		32.31	
Approach LOS	C		A		C	
d_I, Intersection Delay [s/veh]	23.68					
Intersection LOS	C					
Intersection V/C	0.762					

Emissions

Vehicle Miles Traveled [mph]	3.50	5.99	6.82	102.61	1565.37	104.36
Stops [stops/h]	39.83	71.70	22.16	70.87	709.22	13.42
Fuel consumption [US gal/h]	0.64	1.15	0.57	4.92	73.67	4.43
CO [g/h]	45.00	80.54	39.59	343.85	5149.20	309.59
NOx [g/h]	8.76	15.67	7.70	66.90	1001.85	60.24
VOC [g/h]	10.43	18.67	9.18	79.69	1193.38	71.75

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	19.67	19.67	19.67
l_p,int, Pedestrian LOS Score for Intersectio	1.988	2.330	2.326
Crosswalk LOS	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	1245	1245
d_b, Bicycle Delay [s]	18.89	4.59	4.59
l_b,int, Bicycle LOS Score for Intersection	1.560	2.248	2.906
Bicycle LOS	A	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	All-way stop	Delay (sec / veh):	7.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	0	5	7	3	15	12	3	10	2	22	16	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	29.00	33.00	7.00	0.00	0.00	10.00	0.00	14.00	19.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	5	7	3	15	12	3	10	2	22	16	0
Peak Hour Factor	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	2	1	5	4	1	3	1	7	5	0
Total Analysis Volume [veh/h]	0	7	9	4	20	16	4	14	3	30	22	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	887	901	848	670	726
Degree of Utilization, x	0.02	0.04	0.02	0.04	0.03

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.06	0.14	0.08	0.14	0.09
95th-Percentile Queue Length [ft]	1.38	3.48	1.90	3.51	2.34
Approach Delay [s/veh]	7.14	7.18	7.35	8.11	
Approach LOS	A	A	A	A	
Intersection Delay [s/veh]	7.58				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	20.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	68	65	7	25	77	44	17	408	0	9	683	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	9.00	3.00	0.00	4.00	4.00	14.00	6.00	16.00	0.00	0.00	26.00	36.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	65	7	25	77	44	17	408	0	9	683	11
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	17	2	7	20	12	4	107	0	2	180	3
Total Analysis Volume [veh/h]	72	68	7	26	81	46	18	429	0	9	719	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	1	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	52	52	52	52	52	52
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	7	7	1	29	1	29
g / C, Green / Cycle	0.13	0.13	0.03	0.57	0.01	0.56
(v / s)_i Volume / Saturation Flow Rate	0.11	0.10	0.01	0.29	0.01	0.54
s, saturation flow rate [veh/h]	1358	1600	1551	1494	1629	1355
c, Capacity [veh/h]	277	286	41	854	23	757
d1, Uniform Delay [s]	21.95	21.76	24.77	6.66	25.26	10.91
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.58	0.58	2.65	0.17	3.89	16.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.53	0.43	0.50	0.39	0.97
d, Delay for Lane Group [s/veh]	22.53	22.33	27.42	6.83	29.15	27.02
Lane Group LOS	C	C	C	A	C	C
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.63	1.67	0.23	2.00	0.13	8.84
50th-Percentile Queue Length [ft/ln]	40.65	41.82	5.79	50.00	3.17	221.02
95th-Percentile Queue Length [veh/ln]	2.93	3.01	0.42	3.60	0.23	13.72
95th-Percentile Queue Length [ft/ln]	73.16	75.27	10.43	90.00	5.70	342.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.53	22.53	22.53	22.33	22.33	22.33	27.42	6.83	6.83	29.15	27.02	27.02
Movement LOS	C	C	C	C	C	C	C	A	A	C	C	C
d_A, Approach Delay [s/veh]	22.53			22.33			7.66			27.04		
Approach LOS	C			C			A			C		
d_I, Intersection Delay [s/veh]	20.29											
Intersection LOS	C											
Intersection V/C	0.799											

Emissions

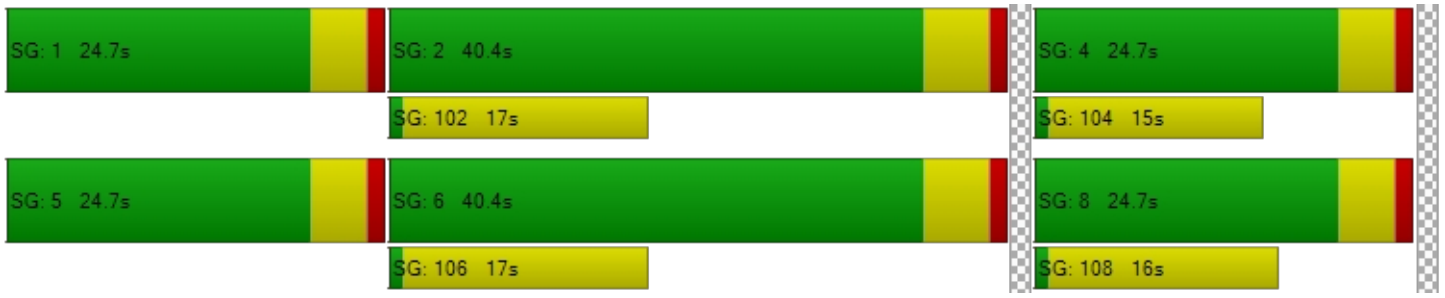
Vehicle Miles Traveled [mph]	7.05	10.35	36.83	877.83	3.87	313.98
Stops [stops/h]	113.54	116.81	16.18	139.67	8.85	617.40
Fuel consumption [US gal/h]	1.59	1.77	1.71	37.51	0.26	20.36
CO [g/h]	111.25	123.49	119.26	2621.60	18.27	1422.87
NOx [g/h]	21.65	24.03	23.20	510.07	3.56	276.84
VOC [g/h]	25.78	28.62	27.64	607.58	4.23	329.76

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.02	21.02	21.02	21.02
l_p,int, Pedestrian LOS Score for Intersectio	1.810	1.817	2.439	2.347
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	776	776	1358	1358
d_b, Bicycle Delay [s]	9.66	9.66	2.66	2.66
l_b,int, Bicycle LOS Score for Intersection	1.802	1.812	2.297	2.781
Bicycle LOS	A	A	B	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.192

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	151	0	0	66	0	390	31	0	665	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	6.00	2.00	18.00	10.00	2.00	23.00	9.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	151	0	0	66	0	390	31	0	665	158
Peak Hour Factor	1.0000	1.0000	0.9200	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	41	0	0	18	0	106	8	0	181	43
Total Analysis Volume [veh/h]	0	0	164	0	0	72	0	424	34	0	723	172
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.27	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	13.13	0.00	0.00	16.89	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS			B			C		A	A		A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.09	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	27.30	0.00	0.00	17.54	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.13			16.89			0.00			0.00		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	2.12											
Intersection LOS	C											

Rio Vista Brann Ranch

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Report File: H:\...\Existing AM peak.pdf

Scenario 1 Existing AM
8/26/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	1	24	8	121	1	0	3	231	1	6	526	196	1118

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	2	0	0	4	0	26	10	364	0	0	724	0	1130

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	0	10	2	3	27	1	43

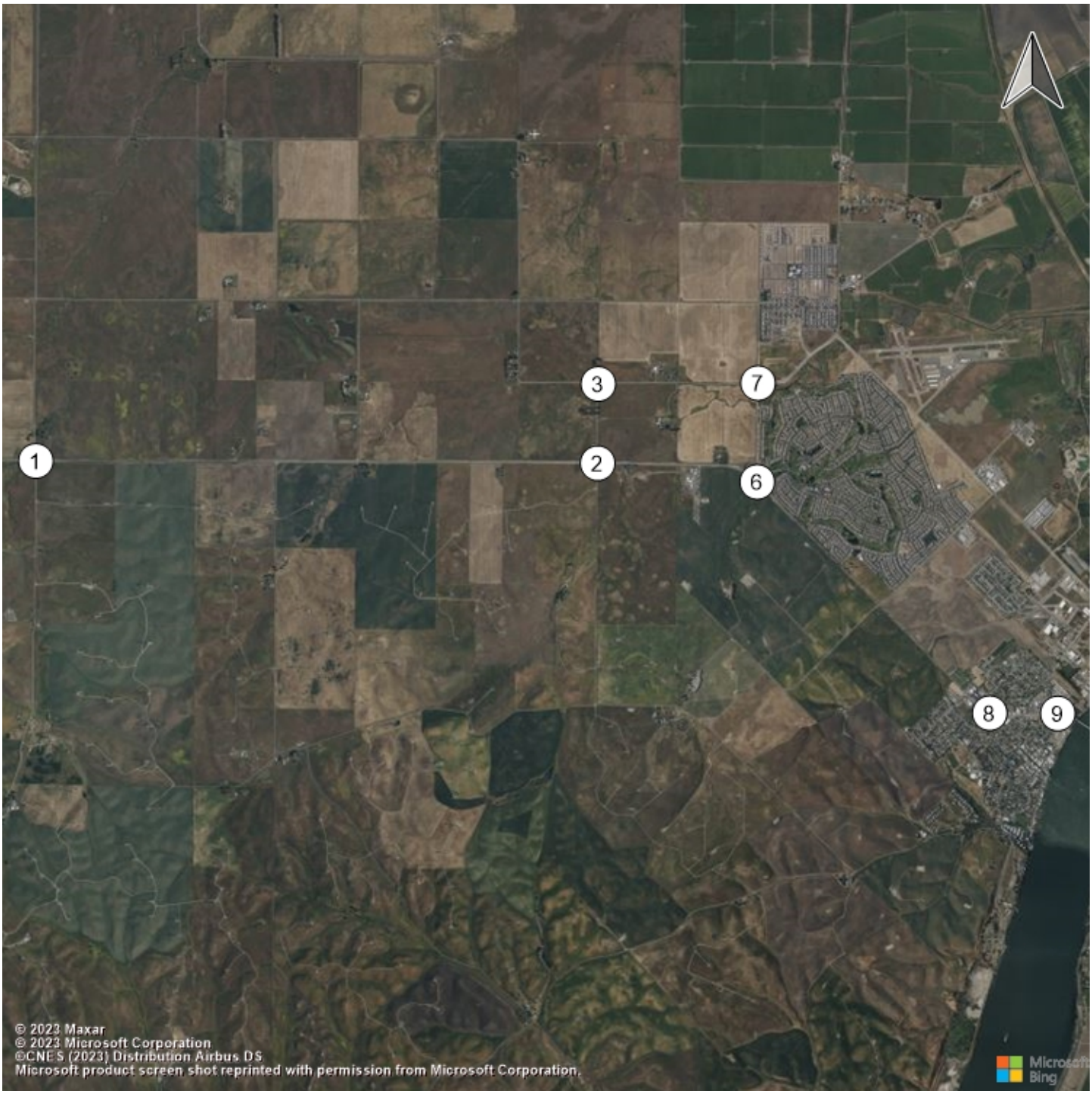
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	46	78	23	344	673	45	1209

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	0	5	7	3	15	12	3	10	2	22	16	0	95

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	68	65	7	25	77	44	17	408	0	9	683	11	1414

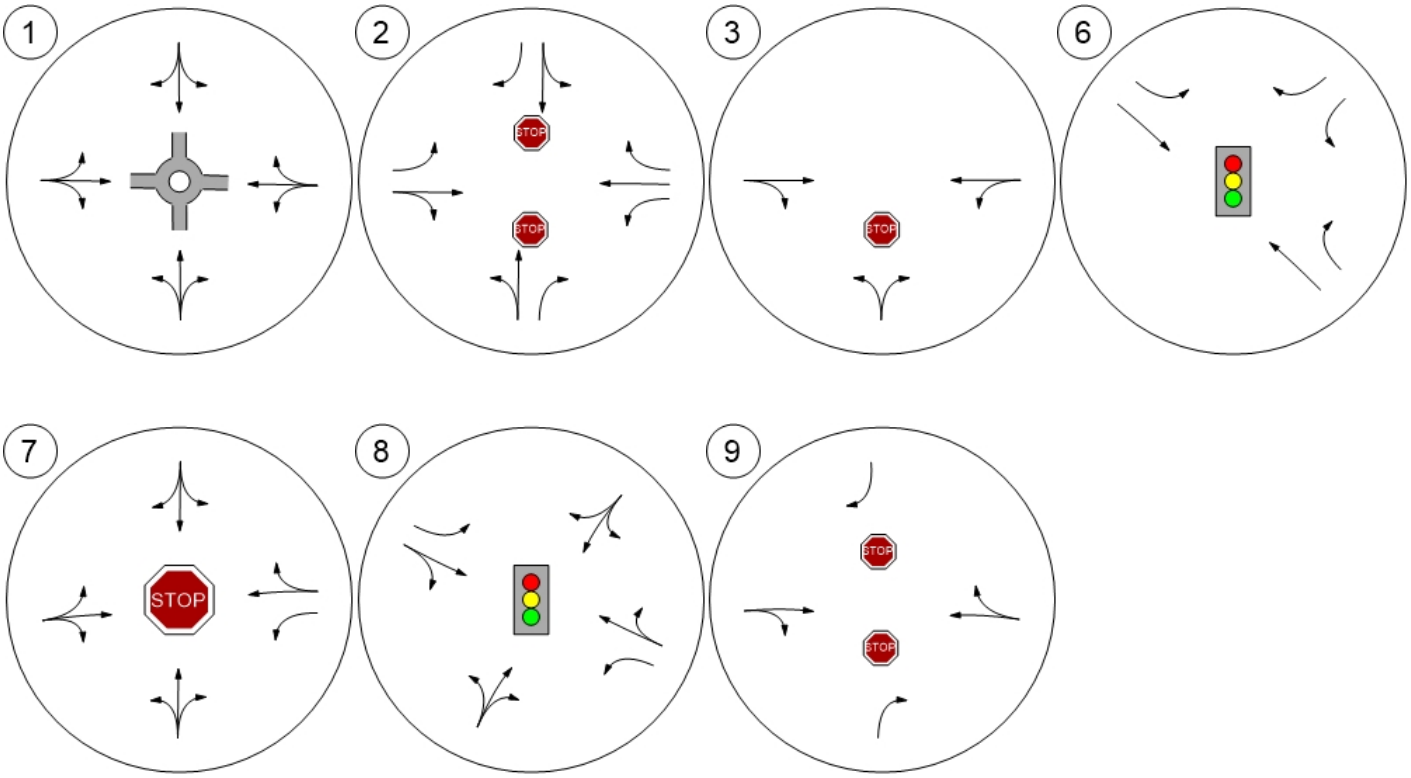
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	151	66	390	31	665	158	1461

Study Intersections



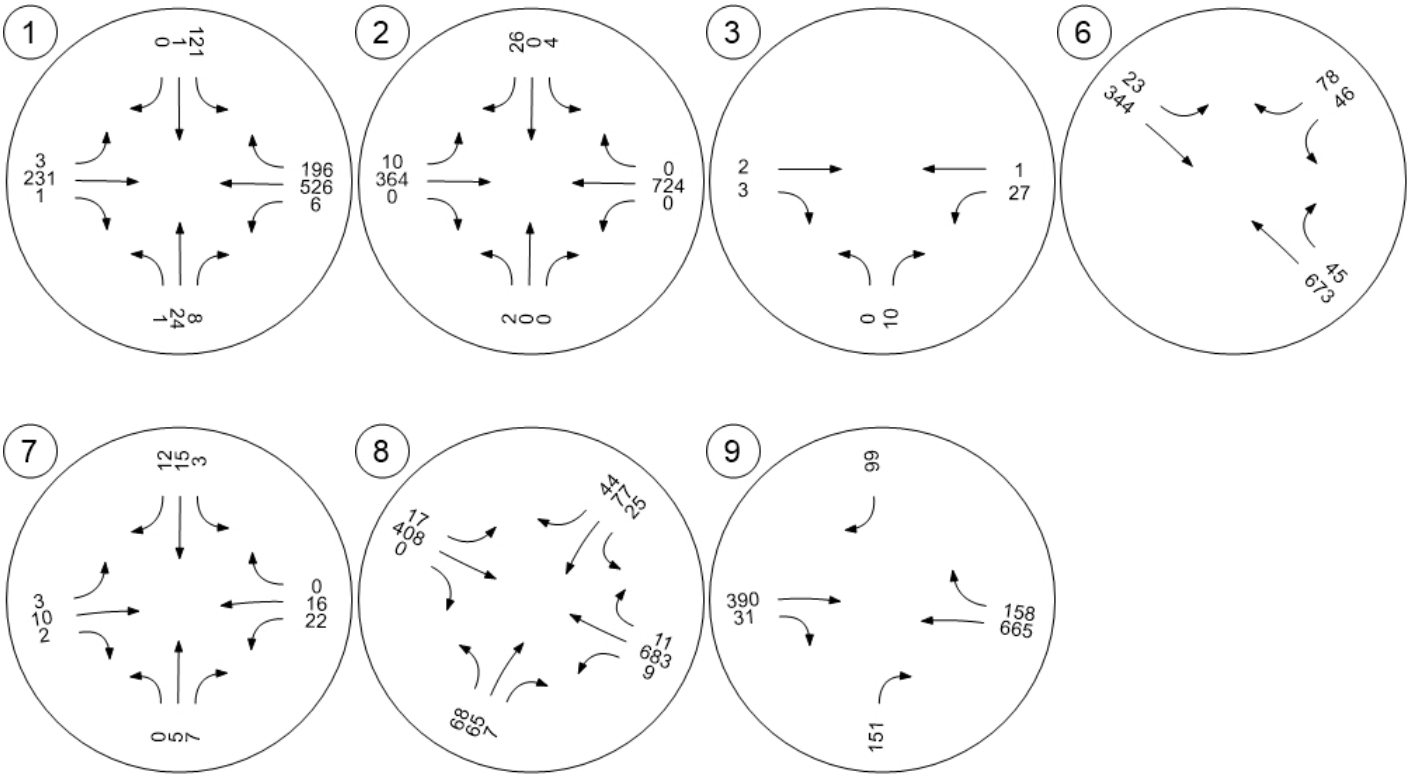
Lane Configuration and Traffic Control





Traffic Volume - Base Volume





Rio Vista Brann Ranch

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Report File: H:\...\Existing PM.pdf

Scenario 2 Existing PM
8/26/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	EB Thru		17.3	C
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.089	121.7	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.004	11.0	B
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	EB Left	0.577	12.3	B
7	Canright Rd & Province Path	All-way stop	HCM 7th Edition	EB Thru	0.456	10.2	B
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	EB Left	0.745	14.7	B
9	SR12 & SR 84	Two-way stop	HCM 7th Edition	NB Right	1.011	81.9	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	17.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	5	7	13	245	3	1	8	646	5	6	381	202
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	38.00	12.00	0.00	100.00	12.00	16.00	0.00	17.00	15.00	21.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	7	13	245	3	1	8	646	5	6	381	202
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	4	68	1	0	2	179	1	2	106	56
Total Analysis Volume [veh/h]	6	8	14	272	3	1	9	718	6	7	423	224
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	1148			501			316			24		
Exiting Flow Rate [veh/h]	17			289			494			1157		
Demand Flow Rate [veh/h]	5	7	13	245	3	1	8	646	5	6	381	202
Adjusted Demand Flow Rate [veh/h]	6	8	14	272	3	1	9	718	6	7	423	224

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.86	0.89	0.86	0.85
Entry Flow Rate [veh/h]	33	310	849	766
Capacity of Entry and Bypass Lanes [veh/h]	429	829	1000	1347
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	367	740	864	1151
X, volume / capacity	0.08	0.37	0.85	0.57

Movement, Approach, & Intersection Results

Lane LOS	B	A	D	B
95th-Percentile Queue Length [veh]	0.25	1.74	10.32	3.73
95th-Percentile Queue Length [ft]	6.16	43.39	258.08	93.15
Approach Delay [s/veh]	11.01	9.61	26.85	10.00
Approach LOS	B	A	D	B
Intersection Delay [s/veh]	17.26			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	121.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.089

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	2	0	0	0	0	13	214	578	5	11	382	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	50.00	0.00	0.00	0.00	0.00	31.00	6.00	18.00	0.00	0.00	15.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	0	0	0	13	214	578	5	11	382	21
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	0	0	4	67	181	2	3	119	7
Total Analysis Volume [veh/h]	3	0	0	0	0	16	268	723	6	14	478	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.00	0.00	0.03	0.26	0.01	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	121.74	75.67	13.41	79.76	63.58	11.97	9.66	0.00	0.00	9.14	0.00	0.00
Movement LOS	F	F	B	F	F	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.00	0.00	0.00	0.09	1.03	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.83	6.83	0.00	0.00	0.00	2.32	25.75	0.00	0.00	1.21	0.00	0.00
d_A, Approach Delay [s/veh]	121.74			11.97			2.60			0.25		
Approach LOS	F			B			A			A		
d_I, Intersection Delay [s/veh]	2.13											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	2	216	10	1	17	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	10.00	0.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	216	10	1	17	1
Peak Hour Factor	0.5600	0.5600	0.5600	0.5600	0.5600	0.5600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	96	4	0	8	0
Total Analysis Volume [veh/h]	4	386	18	2	30	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.37	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	10.98	10.44	0.00	0.00	7.39	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.74	1.74	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	43.48	43.48	0.00	0.00	1.40	1.40
d_A, Approach Delay [s/veh]	10.45		0.00		6.93	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	9.72					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	12.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.577

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	9	48	53	106	518	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	11.00	10.00	6.00	46.00	13.00	4.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	48	53	106	518	99
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	13	15	29	142	27
Total Analysis Volume [veh/h]	10	53	58	116	569	109
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing m	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	8	0	8	15	15	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No		No	Yes	Yes	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	40	40	40	40	40	40
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	4	4	4	25	16	16
g / C, Green / Cycle	0.10	0.10	0.10	0.62	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.01	0.04	0.04	0.11	0.37	0.08
s, saturation flow rate [veh/h]	1487	1339	1551	1089	1534	1408
c, Capacity [veh/h]	151	136	148	671	620	568
d1, Uniform Delay [s]	16.39	16.96	17.13	3.33	11.39	7.77
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.68	0.62	0.04	2.45	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.39	0.39	0.17	0.92	0.19
d, Delay for Lane Group [s/veh]	16.46	17.63	17.75	3.37	13.85	7.83
Lane Group LOS	B	B	B	A	B	A
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	0.42	0.46	0.19	3.85	0.46
50th-Percentile Queue Length [ft/ln]	1.87	10.52	11.52	4.79	96.13	11.42
95th-Percentile Queue Length [veh/ln]	0.13	0.76	0.83	0.35	6.92	0.82
95th-Percentile Queue Length [ft/ln]	3.37	18.93	20.74	8.63	173.03	20.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.46	17.63	17.75	3.37	13.85	7.83
Movement LOS	B	B	B	A	B	A
d_A, Approach Delay [s/veh]	17.45		8.17		12.88	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	12.30					
Intersection LOS	B					
Intersection V/C	0.577					

Emissions

Vehicle Miles Traveled [mph]	0.67	3.57	15.22	30.44	1164.30	223.04
Stops [stops/h]	6.71	37.65	41.24	17.16	344.07	40.86
Fuel consumption [US gal/h]	0.10	0.55	1.06	1.43	51.43	9.58
CO [g/h]	6.87	38.10	74.37	99.79	3595.29	669.73
NOx [g/h]	1.34	7.41	14.47	19.41	699.51	130.30
VOC [g/h]	1.59	8.83	17.24	23.13	833.24	155.22

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	8.55	8.55	8.55
l_p,int, Pedestrian LOS Score for Intersectio	1.958	2.142	2.145
Crosswalk LOS	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	746	1989	1989
d_b, Bicycle Delay [s]	7.91	0.00	0.00
l_b,int, Bicycle LOS Score for Intersection	1.560	1.847	2.678
Bicycle LOS	A	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	All-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	1	13	66	21	7	2	4	202	24	6	17	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	5.00	0.00	0.00	0.00	4.00	4.00	17.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	13	66	21	7	2	4	202	24	6	17	1
Peak Hour Factor	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	26	8	3	1	2	80	10	2	7	0
Total Analysis Volume [veh/h]	2	21	105	33	11	3	6	321	38	10	27	2
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	803	694	801	596	668
Degree of Utilization, x	0.16	0.07	0.46	0.02	0.04

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.56	0.22	2.41	0.05	0.14
95th-Percentile Queue Length [ft]	14.12	5.44	60.21	1.28	3.40
Approach Delay [s/veh]	8.33	8.57	11.21	8.47	
Approach LOS	A	A	B	A	
Intersection Delay [s/veh]	10.17				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	14.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	110	58	13	59	102	34	11	141	1	59	571	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	1.00	3.00	0.00	38.00	0.00	3.00	10.00	13.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	58	13	59	102	34	11	141	1	59	571	30
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	16	4	16	28	9	3	39	0	16	157	8
Total Analysis Volume [veh/h]	121	64	14	65	112	37	12	155	1	65	627	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	1	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	42	42	42	42	42	42
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	8	8	1	17	3	19
g / C, Green / Cycle	0.18	0.18	0.02	0.39	0.08	0.45
(v / s)_i Volume / Saturation Flow Rate	0.16	0.14	0.01	0.13	0.04	0.42
s, saturation flow rate [veh/h]	1274	1576	1629	1195	1590	1559
c, Capacity [veh/h]	367	395	31	472	121	706
d1, Uniform Delay [s]	16.81	16.48	20.64	8.96	18.94	11.06
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	0.43	2.96	0.15	1.36	2.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	0.54	0.39	0.33	0.54	0.94
d, Delay for Lane Group [s/veh]	17.28	16.91	23.60	9.11	20.30	13.77
Lane Group LOS	B	B	C	A	C	B
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.64	1.72	0.13	0.78	0.59	4.62
50th-Percentile Queue Length [ft/ln]	41.00	43.05	3.26	19.57	14.71	115.61
95th-Percentile Queue Length [veh/ln]	2.95	3.10	0.23	1.41	1.06	8.15
95th-Percentile Queue Length [ft/ln]	73.80	77.49	5.86	35.23	26.49	203.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.28	17.28	17.28	16.91	16.91	16.91	23.60	9.11	9.11	20.30	13.77	13.77
Movement LOS	B	B	B	B	B	B	C	A	A	C	B	B
d_A, Approach Delay [s/veh]	17.28			16.91			10.14			14.35		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.68											
Intersection LOS	B											
Intersection V/C	0.745											

Emissions

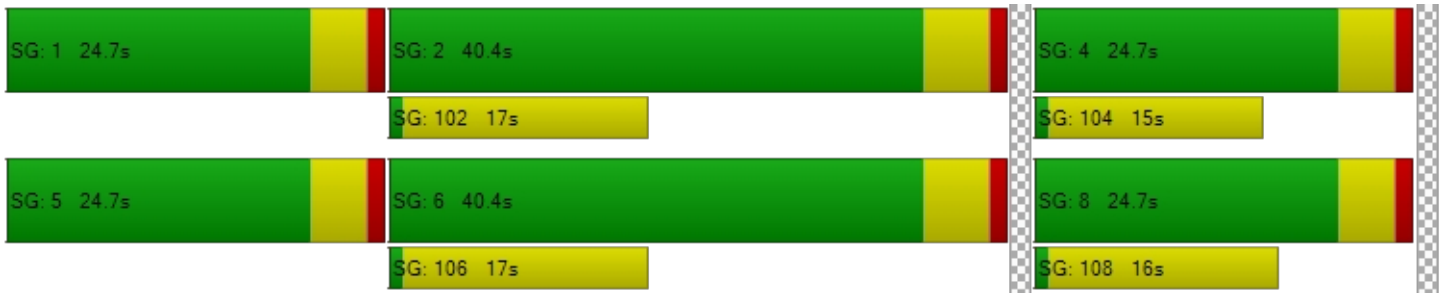
Vehicle Miles Traveled [mph]	9.54	14.47	24.55	319.21	27.92	283.48
Stops [stops/h]	139.10	146.05	11.05	66.40	49.92	392.21
Fuel consumption [US gal/h]	1.86	2.14	1.13	13.80	1.69	15.69
CO [g/h]	130.10	149.52	78.95	964.40	118.38	1096.48
NOx [g/h]	25.31	29.09	15.36	187.64	23.03	213.33
VOC [g/h]	30.15	34.65	18.30	223.51	27.44	254.12

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	16.52	16.52	16.52	16.52
l_p,int, Pedestrian LOS Score for Intersectio	1.868	1.842	2.392	2.314
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	942	942	1649	1649
d_b, Bicycle Delay [s]	5.93	5.93	0.65	0.65
l_b,int, Bicycle LOS Score for Intersection	1.888	1.913	1.837	2.756
Bicycle LOS	A	A	A	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Two-way stop	Delay (sec / veh):	81.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.011

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	367	0	0	84	0	727	19	0	585	146
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	2.00	2.00	18.00	16.00	2.00	10.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	367	0	0	84	0	727	19	0	585	146
Peak Hour Factor	1.0000	1.0000	0.9400	1.0000	1.0000	0.9400	1.0000	0.9400	0.9400	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	98	0	0	22	0	193	5	0	156	39
Total Analysis Volume [veh/h]	0	0	390	0	0	89	0	773	20	0	622	155
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	1.01	0.00	0.00	0.20	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	81.87	0.00	0.00	15.26	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS			F			C		A	A		A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	12.35	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	308.76	0.00	0.00	18.72	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	81.87			15.26			0.00			0.00		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	16.25											
Intersection LOS	F											

Rio Vista Brann Ranch

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Report File: H:\...\Existing PM.pdf

Scenario 2 Existing PM
8/26/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	5	7	13	245	3	1	8	646	5	6	381	202	1522

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	2	0	0	0	0	13	214	578	5	11	382	21	1226

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	2	216	10	1	17	1	247

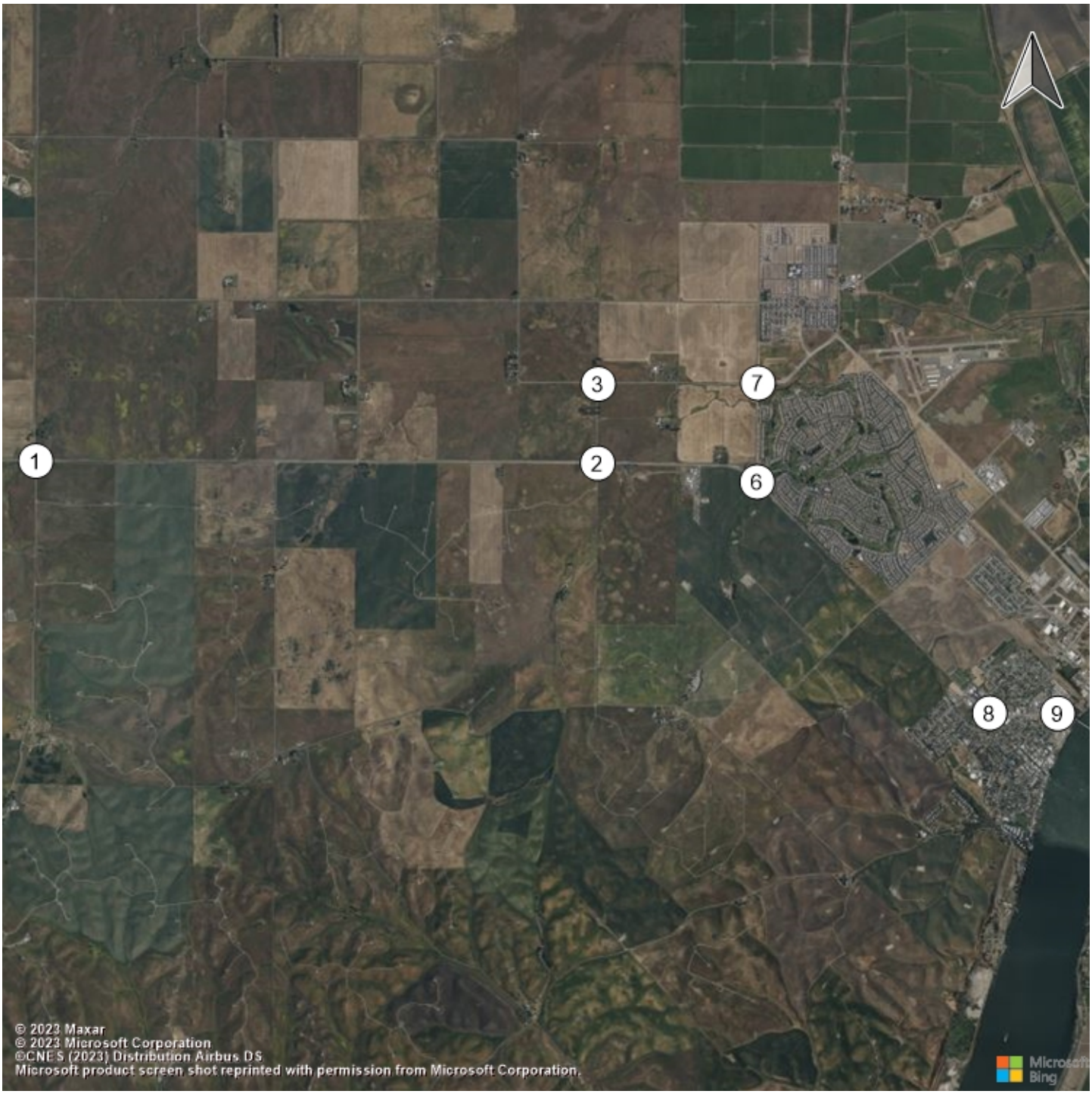
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	9	48	53	106	518	99	833

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	1	13	66	21	7	2	4	202	24	6	17	1	364

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	110	58	13	59	102	34	11	141	1	59	571	30	1189

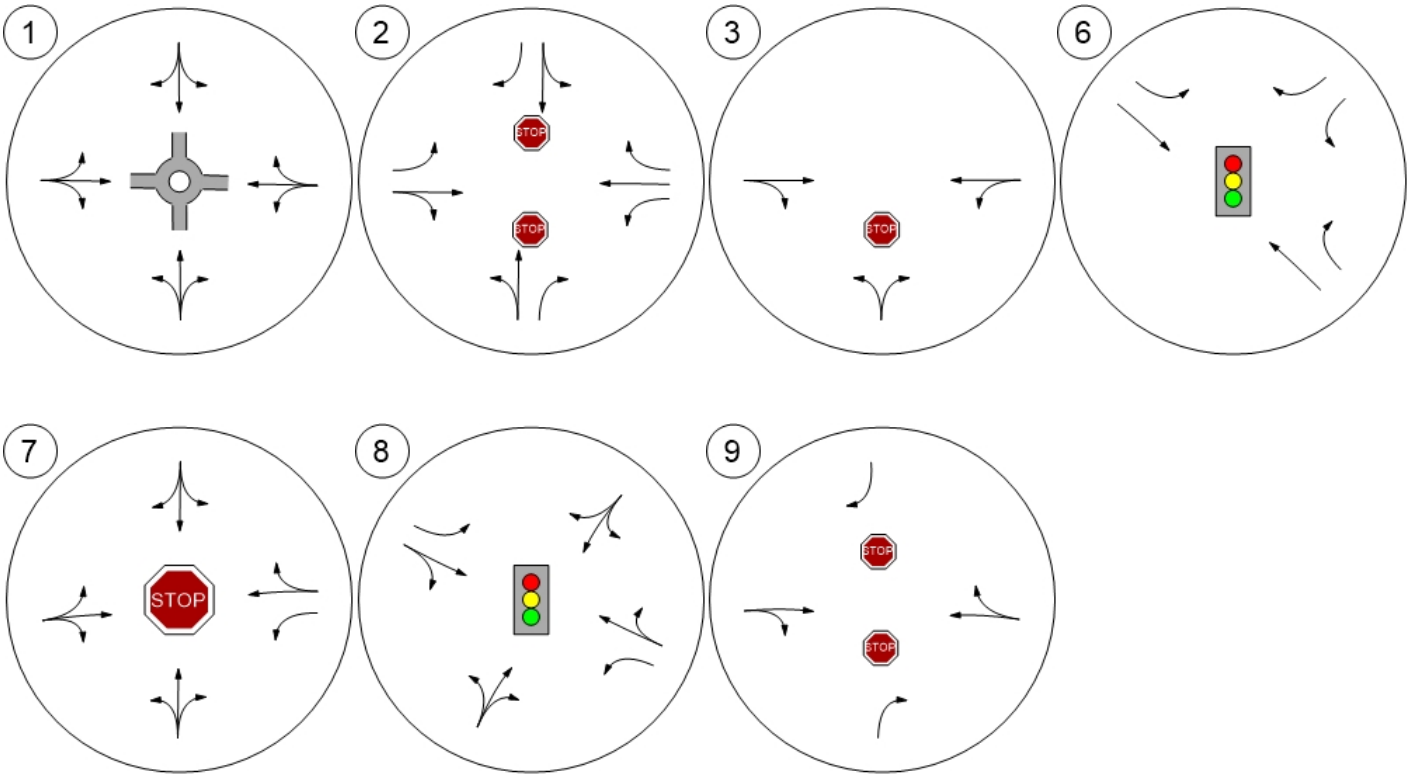
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	367	84	727	19	585	146	1928

Study Intersections



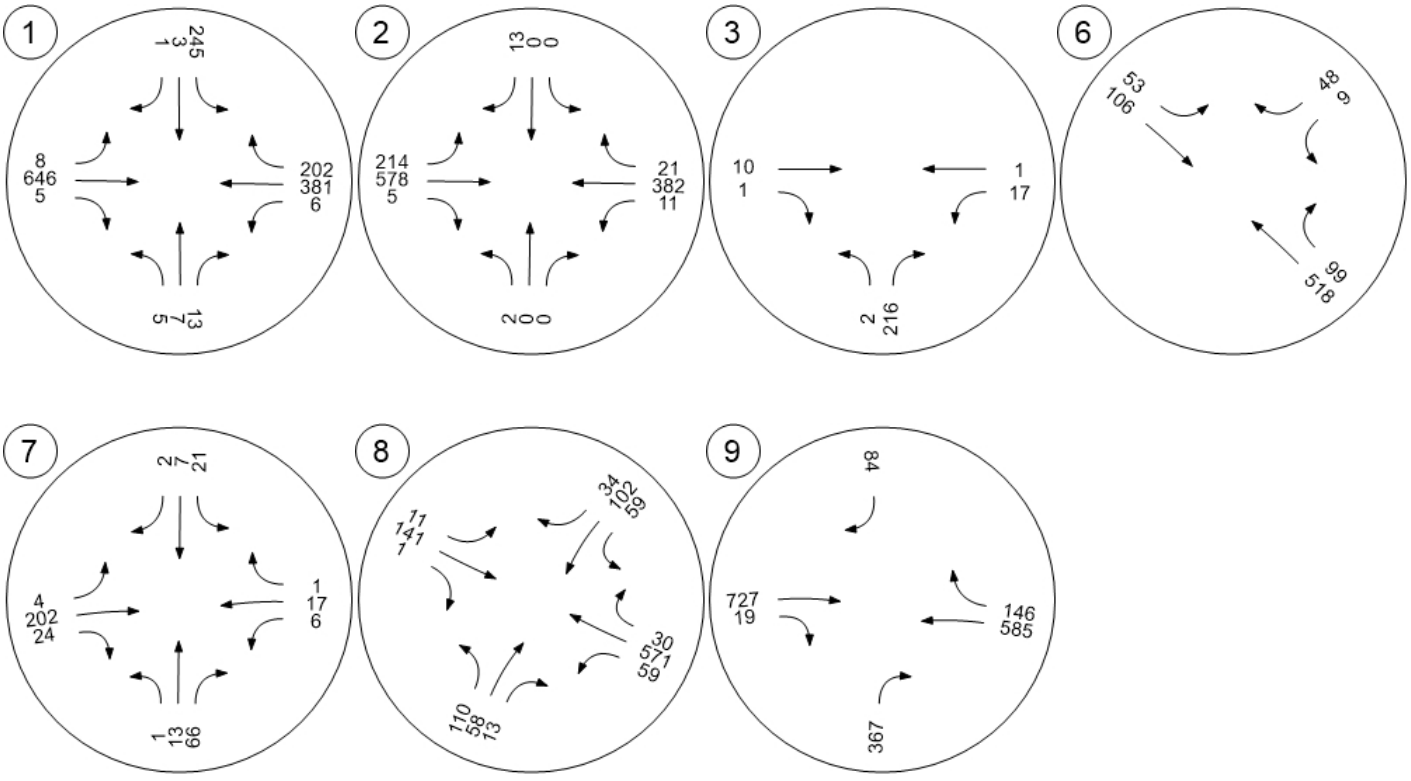
Lane Configuration and Traffic Control





Traffic Volume - Base Volume





Appendix D

Level of Service Calculation Sheets and Signal Warrants – Existing Plus Project Conditions

Rio Vista Brann Ranch

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Report File: H:\...\Existing Plus Project AM peak.pdf

Scenario 3 Existing Plus Project AM
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	WB Thru		61.8	F
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.032	65.4	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Right	0.012	8.4	A
4	SR 12 & Project Driveway	Signalized	HCM 7th Edition	WB Thru	0.000	1.2	A
5	McCormack Rd & Project Driveway	Two-way stop	HCM 7th Edition	NB Left	0.029	8.8	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	SB Left	1.161	139.1	F
7	Canright Rd & Province Path	All-way stop	HCM 7th Edition	SB Thru	0.480	11.2	B
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	0.921	48.5	D
9	SR12 & SR 84	Two-way stop	HCM 7th Edition	SB Right	0.368	22.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	61.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	1	24	8	121	1	0	3	231	1	6	526	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	75.00	0.00	13.00	0.00	0.00	100.00	22.00	100.00	67.00	28.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	10	0	0	0	91	0	0	222	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	24	8	131	1	0	3	322	1	6	748	225
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	2	39	0	0	1	95	0	2	220	66
Total Analysis Volume [veh/h]	1	28	9	154	1	0	4	379	1	7	880	265
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	644			1139			187			58		
Exiting Flow Rate [veh/h]	15			383			1127			645		
Demand Flow Rate [veh/h]	1	24	8	131	1	0	3	322	1	6	748	225
Adjusted Demand Flow Rate [veh/h]	1	28	9	154	1	0	4	379	1	7	880	265

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.69	0.89	0.82	0.79
Entry Flow Rate [veh/h]	56	175	471	1463
Capacity of Entry and Bypass Lanes [veh/h]	716	432	1141	1301
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	493	383	931	1025
X, volume / capacity	0.08	0.41	0.41	1.12

Movement, Approach, & Intersection Results

Lane LOS	A	C	A	F
95th-Percentile Queue Length [veh]	0.25	1.91	2.05	30.25
95th-Percentile Queue Length [ft]	6.25	47.87	51.16	756.28
Approach Delay [s/veh]	8.31	17.70	8.62	87.25
Approach LOS	A	C	A	F
Intersection Delay [s/veh]	61.81			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	65.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	2	0	0	4	0	26	10	364	0	0	724	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	12.00	0.00	17.00	0.00	0.00	29.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	101	0	0	251	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	0	4	0	26	10	465	0	0	975	0
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	1	0	8	3	135	0	0	283	0
Total Analysis Volume [veh/h]	2	0	0	5	0	30	12	541	0	0	1134	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.07	0.00	0.13	0.02	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	65.45	46.36	11.61	58.49	48.07	22.52	10.89	0.00	0.00	8.47	0.00	0.00
Movement LOS	F	E	B	F	E	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.22	0.22	0.43	0.06	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.49	2.49	0.00	5.43	5.43	10.78	1.47	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	65.45			27.66			0.24			0.00		
Approach LOS	F			D			A			A		
d_I, Intersection Delay [s/veh]	0.71											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	0	10	2	3	27	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	11.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	10	2	3	27	1
Peak Hour Factor	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	1	1	9	0
Total Analysis Volume [veh/h]	0	13	3	4	35	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	8.99	8.36	0.00	0.00	7.36	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.91	0.91	0.00	0.00	1.68	1.68
d_A, Approach Delay [s/veh]	8.36		0.00		7.16	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	6.54					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: SR 12 & Project Driveway

Control Type:	Signalized	Delay (sec / veh):	1.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project Driveway		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	425.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1200.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Project Driveway		SR 12		SR 12	
Base Volume Input [veh/h]	0	0	0	367	751	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	17.00	26.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	244	0	101	7	90
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	244	0	468	758	90
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	61	0	117	190	23
Total Analysis Volume [veh/h]	0	244	0	468	758	90
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	2	0	6	2	0
Auxiliary Signal Groups						
Maximum Green [s]	0	5	0	10	5	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	5	5	0
Pedestrian Clearance [s]	0	10	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	150	0	150	150	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	0	5	0	10	5	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No		No	No	
Maximum Recall		No		No	No	
Pedestrian Recall		No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	C	C	R
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	146	146	146	146
g / C, Green / Cycle	0.97	0.97	0.97	0.97
(v / s)_i Volume / Saturation Flow Rate	0.17	0.32	0.56	0.06
s, saturation flow rate [veh/h]	1431	1480	1359	1431
c, Capacity [veh/h]	1392	1441	1323	1392
d1, Uniform Delay [s]	0.06	0.08	0.12	0.06
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	0.60	1.81	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.32	0.57	0.06
d, Delay for Lane Group [s/veh]	0.34	0.68	1.93	0.15
Lane Group LOS	A	A	A	A
Critical Lane Group	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.11	0.24	0.67	0.03
50th-Percentile Queue Length [ft/ln]	2.65	6.00	16.63	0.86
95th-Percentile Queue Length [veh/ln]	0.19	0.43	1.20	0.06
95th-Percentile Queue Length [ft/ln]	4.78	10.80	29.93	1.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.34	0.00	0.68	1.93	0.15
Movement LOS		A		A	A	A
d_A, Approach Delay [s/veh]	0.34		0.68		1.74	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.20					
Intersection LOS	A					
Intersection V/C	0.000					

Emissions

Vehicle Miles Traveled [mph]	30.86	355.80	198.91	23.62
Stops [stops/h]	2.55	5.76	15.96	0.83
Fuel consumption [US gal/h]	1.30	14.74	8.57	0.98
CO [g/h]	90.97	1030.56	599.36	68.47
NOx [g/h]	17.70	200.51	116.61	13.32
VOC [g/h]	21.08	238.84	138.91	15.87

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	0.00	66.27
I_p,int, Pedestrian LOS Score for Intersectio	1.903	0.000	2.393
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1947	1947	1947
d_b, Bicycle Delay [s]	0.05	0.05	0.05
I_b,int, Bicycle LOS Score for Intersection	1.560	2.332	2.959
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: McCormack Rd & Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Project Driveway				McCormack Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway				McCormack Rd	
Base Volume Input [veh/h]	0	0	2	0	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	29	28	0	10	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	28	2	10	9	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	7	1	3	2	0
Total Analysis Volume [veh/h]	29	28	2	10	9	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	8.84	8.53	0.00	0.00	7.25	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	4.37	4.37	0.00	0.00	0.38	0.38
d_A, Approach Delay [s/veh]	8.69		0.00		6.53	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	7.09					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	139.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.161

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	46	78	23	344	673	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	6.00	4.00	18.00	28.00	11.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	355	7	101	0	90	62
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	401	85	124	344	763	107
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	24	35	98	217	30
Total Analysis Volume [veh/h]	456	97	141	391	867	122
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	53	0	10	37	27	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	15	15	9	53	40	40
g / C, Green / Cycle	0.19	0.19	0.11	0.67	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.29	0.07	0.09	0.27	0.65	0.09
s, saturation flow rate [veh/h]	1577	1385	1577	1467	1332	1327
c, Capacity [veh/h]	297	261	171	981	667	665
d1, Uniform Delay [s]	32.34	28.23	34.75	5.96	19.88	10.93
k, delay calibration	0.50	0.11	0.11	0.11	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	257.38	0.88	9.40	0.26	145.64	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.54	0.37	0.82	0.40	1.30	0.18
d, Delay for Lane Group [s/veh]	289.72	29.11	44.15	6.23	165.53	11.06
Lane Group LOS	F	C	D	A	F	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	26.75	1.64	3.06	2.44	37.91	1.12
50th-Percentile Queue Length [ft/ln]	668.78	40.97	76.43	61.09	947.69	28.04
95th-Percentile Queue Length [veh/ln]	42.08	2.95	5.50	4.40	57.20	2.02
95th-Percentile Queue Length [ft/ln]	1052.02	73.74	137.58	109.95	1429.88	50.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	289.72	29.11	44.15	6.23	165.53	11.06
Movement LOS	F	C	D	A	F	B
d_A, Approach Delay [s/veh]	244.01		16.28		146.47	
Approach LOS	F		B		F	
d_I, Intersection Delay [s/veh]	139.08					
Intersection LOS	F					
Intersection V/C	1.161					

Emissions

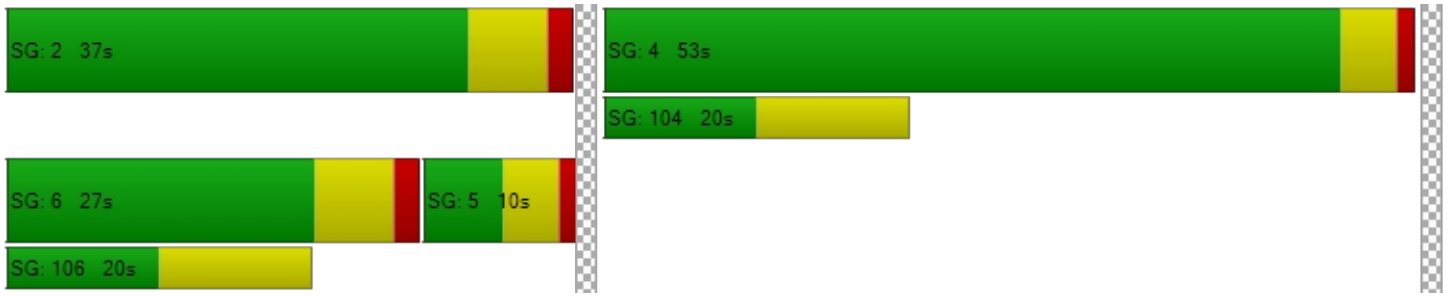
Vehicle Miles Traveled [mph]	27.97	5.95	37.00	102.61	1774.08	249.64
Stops [stops/h]	1207.73	73.99	138.03	110.31	1711.42	50.63
Fuel consumption [US gal/h]	34.70	1.23	3.55	5.33	111.69	10.83
CO [g/h]	2425.82	85.86	248.32	372.49	7806.96	757.09
NOx [g/h]	471.98	16.70	48.31	72.47	1518.95	147.30
VOC [g/h]	562.21	19.90	57.55	86.33	1809.34	175.46

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.10	27.10	27.10
l_p,int, Pedestrian LOS Score for Intersectio	2.195	2.416	2.527
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1211	760	509
d_b, Bicycle Delay [s]	6.20	15.33	22.15
l_b,int, Bicycle LOS Score for Intersection	1.560	2.437	3.191
Bicycle LOS	A	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	All-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.480

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	0	5	7	3	15	12	3	10	2	22	16	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	29.00	33.00	7.00	0.00	0.00	10.00	0.00	14.00	19.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	84	0	0	221	4	3	6	67	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	89	7	3	236	16	6	16	69	22	23	0
Peak Hour Factor	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	30	2	1	80	5	2	5	23	7	8	0
Total Analysis Volume [veh/h]	47	120	9	4	319	22	8	22	93	30	31	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	651	673	797	554	661	528	563
Degree of Utilization, x	0.27	0.48	0.03	0.01	0.17	0.06	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.09	2.61	0.09	0.04	0.63	0.18	0.17
95th-Percentile Queue Length [ft]	27.31	65.37	2.13	1.10	15.65	4.51	4.36
Approach Delay [s/veh]	10.57	12.54		9.29		9.70	
Approach LOS	B	B		A		A	
Intersection Delay [s/veh]	11.24						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	48.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.921

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	68	65	7	25	77	44	17	408	0	9	683	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	9.00	3.00	0.00	4.00	4.00	14.00	6.00	16.00	0.00	0.00	26.00	36.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	0	0	0	0	336	19	0	129	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	65	7	25	77	44	17	744	19	9	812	11
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	17	2	7	20	12	4	196	5	2	214	3
Total Analysis Volume [veh/h]	96	68	7	26	81	46	18	783	20	9	855	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	1	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	61	61	61	61	61	61
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	9	9	2	36	1	35
g / C, Green / Cycle	0.15	0.15	0.03	0.59	0.02	0.58
(v / s)_i Volume / Saturation Flow Rate	0.13	0.10	0.01	0.54	0.01	0.64
s, saturation flow rate [veh/h]	1278	1576	1551	1487	1629	1355
c, Capacity [veh/h]	288	310	45	873	27	780
d1, Uniform Delay [s]	25.11	24.19	29.04	11.26	29.58	12.92
k, delay calibration	0.04	0.04	0.04	0.37	0.04	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	0.45	2.17	12.75	2.60	67.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.49	0.40	0.92	0.33	1.11
d, Delay for Lane Group [s/veh]	25.84	24.64	31.20	24.02	32.18	80.43
Lane Group LOS	C	C	C	C	C	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.31	1.97	0.27	10.23	0.14	22.50
50th-Percentile Queue Length [ft/ln]	57.78	49.32	6.84	255.74	3.60	562.42
95th-Percentile Queue Length [veh/ln]	4.16	3.55	0.49	15.47	0.26	32.82
95th-Percentile Queue Length [ft/ln]	104.00	88.77	12.31	386.87	6.49	820.42

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.84	25.84	25.84	24.64	24.64	24.64	31.20	24.02	24.02	32.18	80.43	80.43
Movement LOS	C	C	C	C	C	C	C	C	C	C	F	F
d_A, Approach Delay [s/veh]	25.84			24.64			24.17			79.93		
Approach LOS	C			C			C			E		
d_I, Intersection Delay [s/veh]	48.52											
Intersection LOS	D											
Intersection V/C	0.921											

Emissions

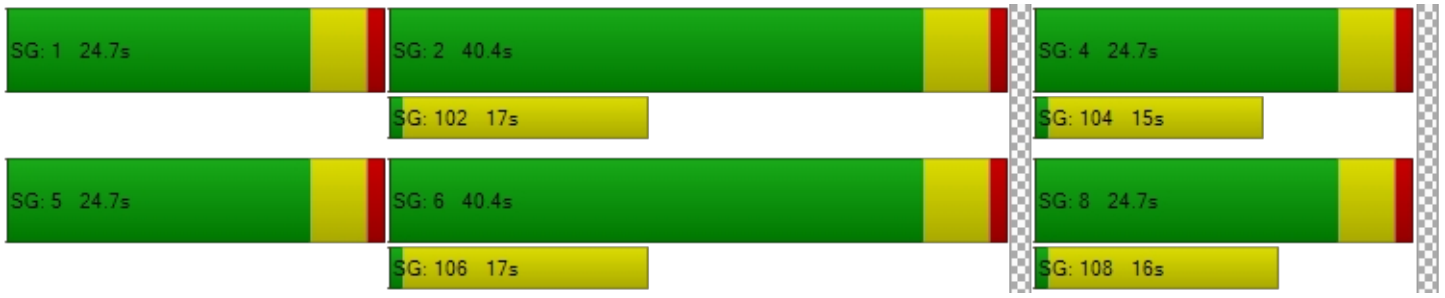
Vehicle Miles Traveled [mph]	8.20	10.35	36.83	1643.12	3.87	372.39
Stops [stops/h]	136.77	116.74	16.19	605.38	8.53	1331.36
Fuel consumption [US gal/h]	1.99	1.84	1.72	74.91	0.27	36.87
CO [g/h]	139.28	128.48	120.23	5236.25	18.54	2577.53
NOx [g/h]	27.10	25.00	23.39	1018.78	3.61	501.49
VOC [g/h]	32.28	29.78	27.86	1213.55	4.30	597.37

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.62	25.62	25.62	25.62
l_p,int, Pedestrian LOS Score for Intersectio	1.839	1.825	2.655	2.514
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	658	658	1151	1151
d_b, Bicycle Delay [s]	13.70	13.70	5.48	5.48
l_b,int, Bicycle LOS Score for Intersection	1.842	1.812	2.914	3.005
Bicycle LOS	A	A	C	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Two-way stop	Delay (sec / veh):	22.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.368

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	151	0	0	66	0	390	31	0	665	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	6.00	2.00	18.00	10.00	2.00	23.00	9.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	46	122	214	0	0	83	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	151	0	0	112	122	604	31	0	748	158
Peak Hour Factor	1.0000	1.0000	0.9200	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	41	0	0	30	31	164	8	0	203	43
Total Analysis Volume [veh/h]	0	0	164	0	0	122	122	657	34	0	813	172
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.37	0.00	0.00	0.37	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	17.69	0.00	0.00	22.01	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS			C			C		A	A		A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.67	0.00	0.00	1.64	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	41.65	0.00	0.00	41.02	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	17.69			22.01			0.00			0.00		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	2.85											
Intersection LOS	C											

Rio Vista Brann Ranch

Vistro File: H:\...\29055 Rio Vista Brann Ranch.vistro
Report File: H:\...\Existing Plus Project AM peak.pdf

Scenario 3 Existing Plus Project AM
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	1	24	8	131	1	0	3	322	1	6	748	225	1470

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	2	0	0	4	0	26	10	465	0	0	975	0	1482

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	0	10	2	3	27	1	43

ID	Intersection Name	Southbound	Eastbound	Westbound		Total Volume
		Right	Thru	Thru	Right	
4	SR 12 & Project Driveway	244	468	758	90	1560

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
5	McCormack Rd & Project Driveway	29	28	2	10	9	1	79

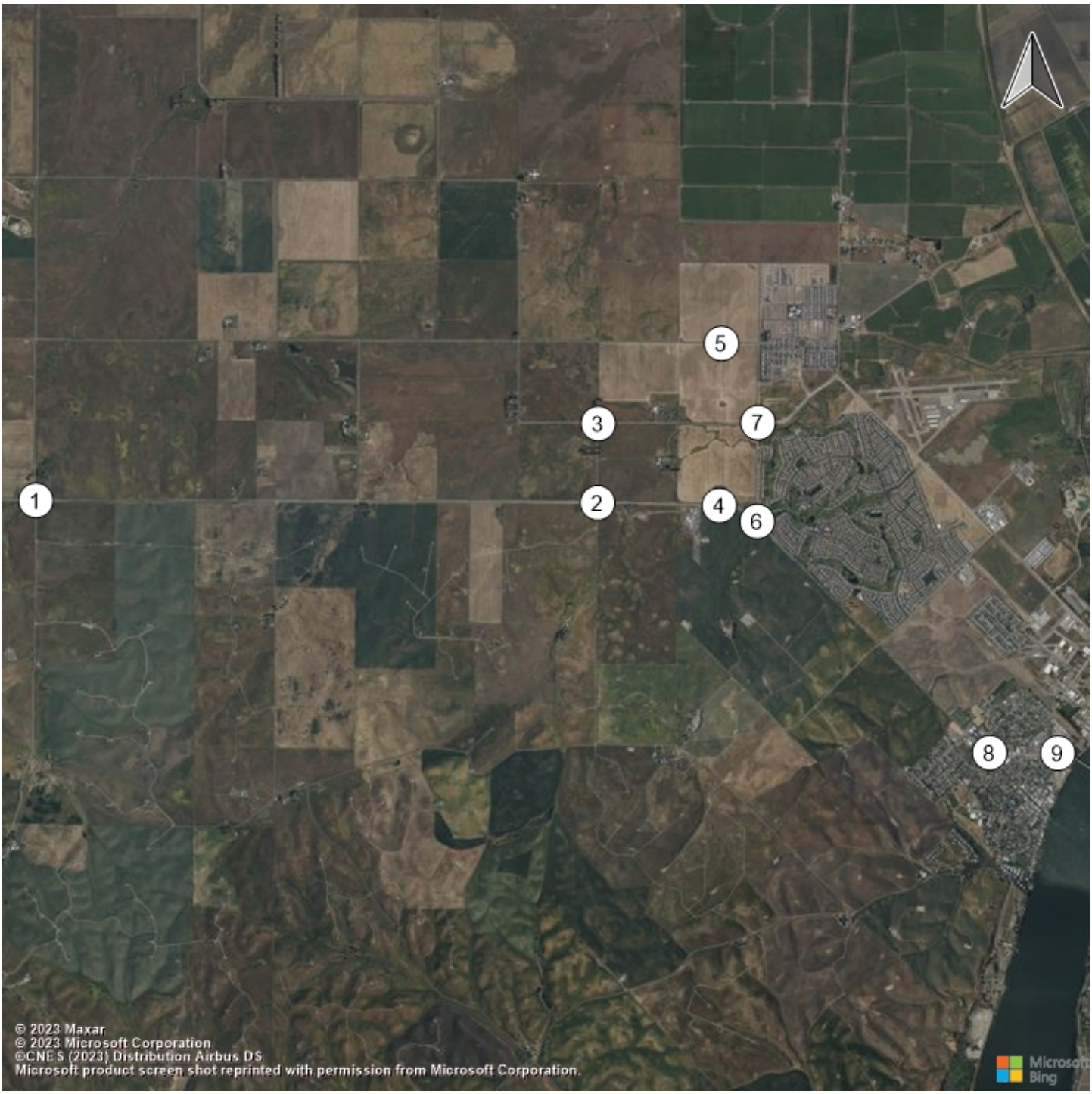
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	401	85	124	344	763	107	1824

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	35	89	7	3	236	16	6	16	69	22	23	0	522

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	91	65	7	25	77	44	17	744	19	9	812	11	1921

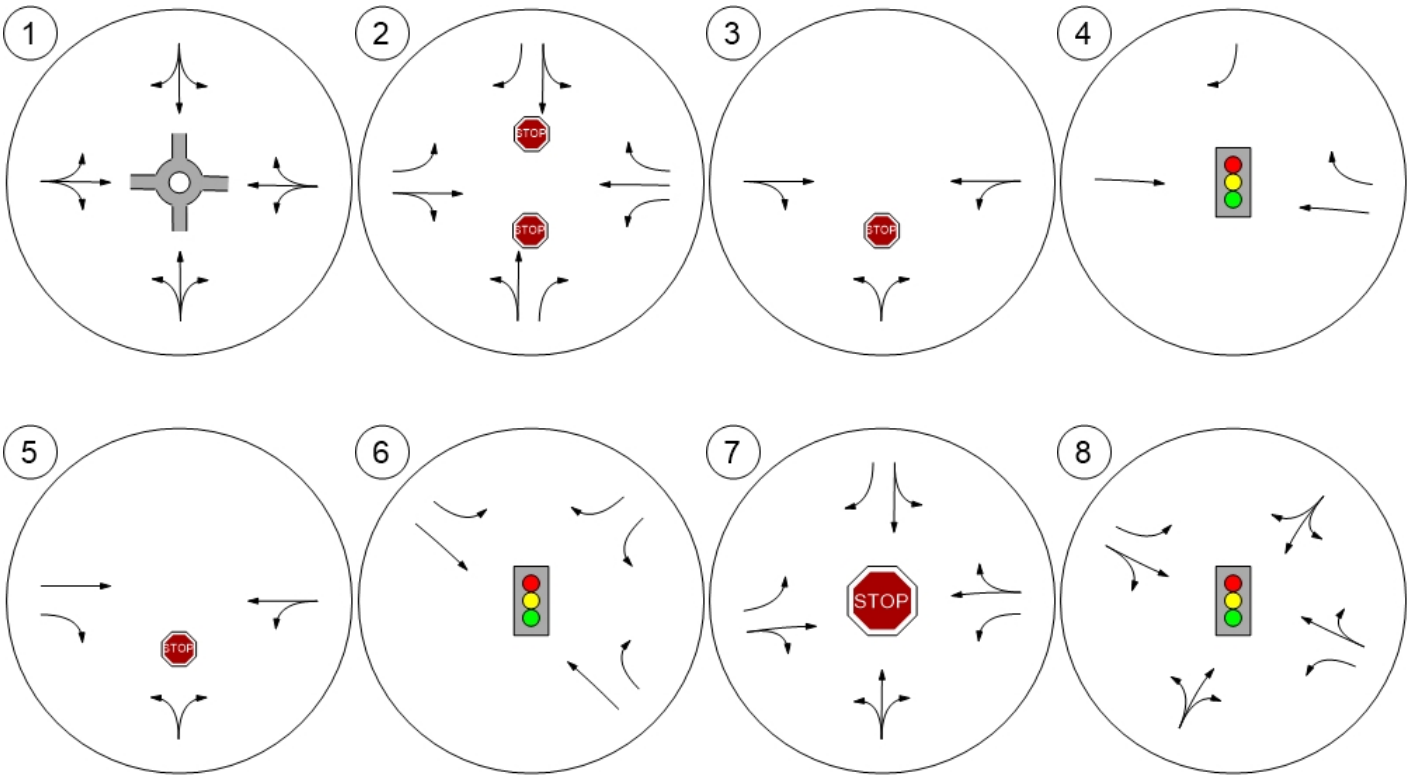
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	151	112	604	31	748	158	1804

Study Intersections



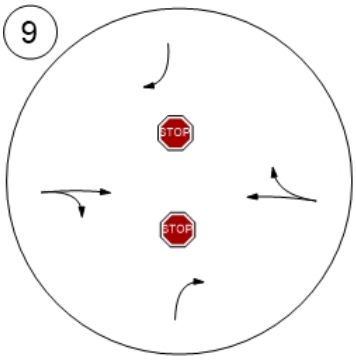
Lane Configuration and Traffic Control





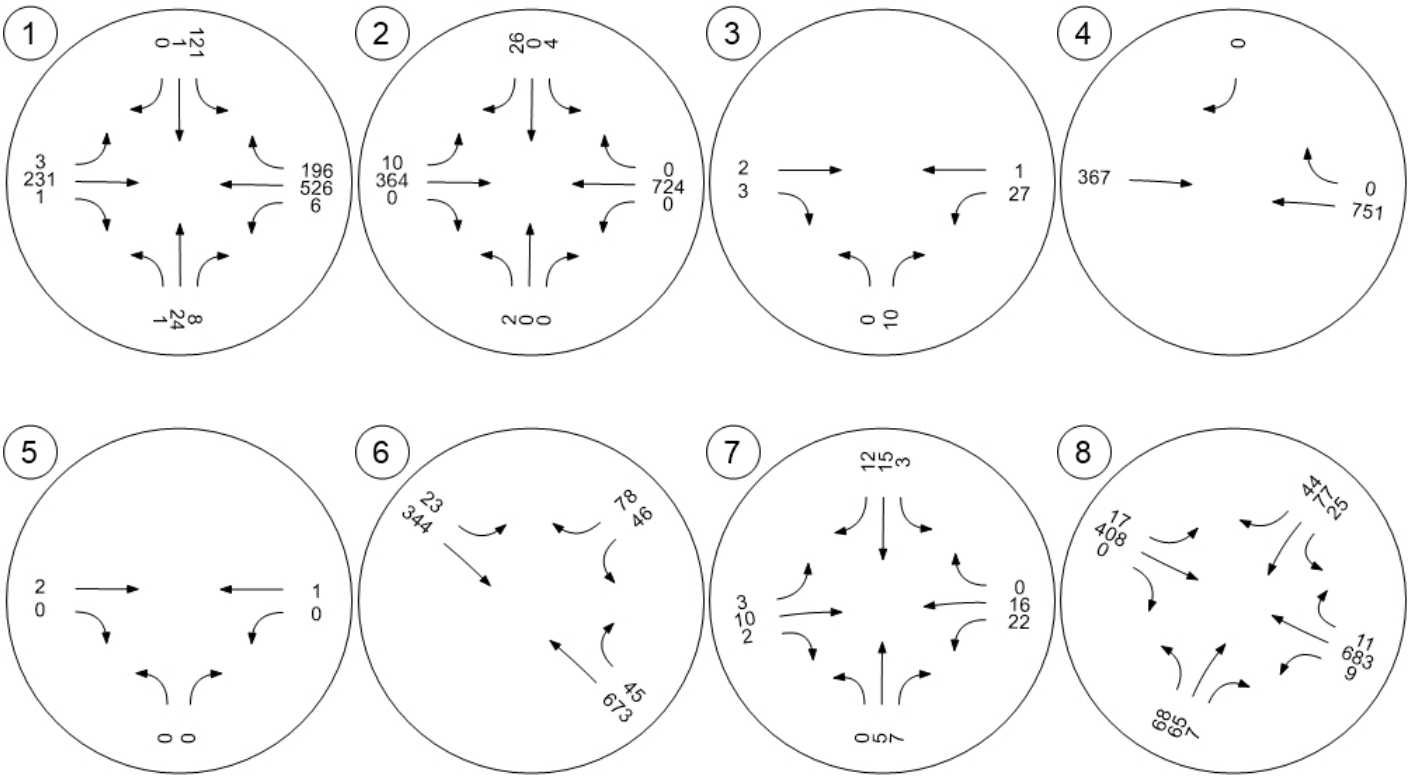
Lane Configuration and Traffic Control





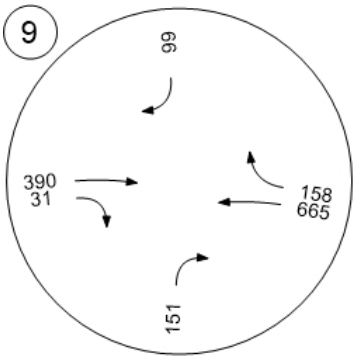
Traffic Volume - Base Volume





Traffic Volume - Base Volume





Rio Vista Brann Ranch

Vistro File: H:\...\29055 Rio Vista Brann Ranch.vistro
Report File: H:\...\Existing Plus Project PM peak.pdf

Scenario 4 4 Existing Plus Project PM
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	EB Thru		63.5	F
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.250	386.1	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.004	11.0	B
4	SR 12 & Project Driveway	Signalized	HCM 7th Edition	WB Thru	0.000	0.5	A
5	McCormack Rd & Project Driveway	Two-way stop	HCM 7th Edition	NB Left	0.022	9.4	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	EB Left	1.076	110.5	F
7	Canright Rd & Province Path	All-way stop	HCM 7th Edition	NB Thru	1.349	107.4	F
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	1.008	83.1	F
9	SR12 & SR 84	Two-way stop	HCM 7th Edition	NB Right	1.233	164.1	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	63.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	5	7	13	245	3	1	8	646	5	6	381	202
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	38.00	12.00	0.00	100.00	12.00	16.00	0.00	17.00	15.00	21.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	32	0	0	0	237	0	0	146	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	7	13	277	3	1	8	883	5	6	527	221
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	4	77	1	0	2	245	1	2	146	61
Total Analysis Volume [veh/h]	6	8	14	308	3	1	9	981	6	7	586	246
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	1493			688			356			24		
Exiting Flow Rate [veh/h]	17			316			682			1502		
Demand Flow Rate [veh/h]	5	7	13	277	3	1	8	883	5	6	527	221
Adjusted Demand Flow Rate [veh/h]	6	8	14	308	3	1	9	981	6	7	586	246

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.86	0.89	0.86	0.86
Entry Flow Rate [veh/h]	33	350	1154	980
Capacity of Entry and Bypass Lanes [veh/h]	301	685	960	1347
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	258	611	829	1154
X, volume / capacity	0.11	0.51	1.20	0.73

Movement, Approach, & Intersection Results

Lane LOS	C	B	F	B
95th-Percentile Queue Length [veh]	0.36	2.91	32.47	6.82
95th-Percentile Queue Length [ft]	9.02	72.71	811.70	170.42
Approach Delay [s/veh]	16.20	14.45	121.45	14.58
Approach LOS	C	B	F	B
Intersection Delay [s/veh]	63.52			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	386.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.250

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	2	0	0	0	0	13	214	578	5	11	382	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	50.00	0.00	0.00	0.00	0.00	31.00	6.00	18.00	0.00	0.00	15.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	269	0	0	165	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	0	0	0	13	214	847	5	11	547	21
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	0	0	4	67	265	2	3	171	7
Total Analysis Volume [veh/h]	3	0	0	0	0	16	268	1059	6	14	684	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.25	0.00	0.00	0.00	0.00	0.04	0.31	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	386.12	228.70	18.14	200.74	143.12	14.32	10.96	0.00	0.00	10.56	0.00	0.00
Movement LOS	F	F	C	F	F	B	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.64	0.64	0.00	0.00	0.00	0.12	1.31	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	15.96	15.96	0.00	0.00	0.00	3.10	32.77	0.00	0.00	1.62	0.00	0.00
d_A, Approach Delay [s/veh]	386.12			14.32			2.20			0.20		
Approach LOS	F			B			A			A		
d_I, Intersection Delay [s/veh]	2.15											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	2	216	10	1	17	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	10.00	0.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	216	10	1	17	1
Peak Hour Factor	0.5600	0.5600	0.5600	0.5600	0.5600	0.5600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	96	4	0	8	0
Total Analysis Volume [veh/h]	4	386	18	2	30	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.37	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	10.98	10.44	0.00	0.00	7.39	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.74	1.74	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	43.48	43.48	0.00	0.00	1.40	1.40
d_A, Approach Delay [s/veh]	10.45		0.00		6.93	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	9.72					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: SR 12 & Project Driveway

Control Type:	Signalized	Delay (sec / veh):	0.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project Driveway		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	425.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1200.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Project Driveway		SR 12		SR 12	
Base Volume Input [veh/h]	0	0	0	159	566	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	160	0	269	5	261
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	160	0	428	571	261
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	40	0	107	143	65
Total Analysis Volume [veh/h]	0	160	0	428	571	261
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	2	0	6	2	0
Auxiliary Signal Groups						
Maximum Green [s]	0	5	0	10	5	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	5	5	0
Pedestrian Clearance [s]	0	10	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	150	0	150	150	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	0	5	0	10	5	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No		No	No	
Maximum Recall		No		No	No	
Pedestrian Recall		No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	C	C	R
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	146	146	146	146
g / C, Green / Cycle	0.97	0.97	0.97	0.97
(v / s)_i Volume / Saturation Flow Rate	0.11	0.25	0.34	0.18
s, saturation flow rate [veh/h]	1431	1683	1683	1431
c, Capacity [veh/h]	1392	1638	1638	1392
d1, Uniform Delay [s]	0.06	0.07	0.08	0.07
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	0.39	0.59	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.26	0.35	0.19
d, Delay for Lane Group [s/veh]	0.23	0.46	0.67	0.36
Lane Group LOS	A	A	A	A
Critical Lane Group	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.06	0.18	0.27	0.12
50th-Percentile Queue Length [ft/ln]	1.62	4.42	6.68	2.88
95th-Percentile Queue Length [veh/ln]	0.12	0.32	0.48	0.21
95th-Percentile Queue Length [ft/ln]	2.92	7.95	12.02	5.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.23	0.00	0.46	0.67	0.36
Movement LOS		A		A	A	A
d_A, Approach Delay [s/veh]	0.23		0.46		0.57	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.50					
Intersection LOS	A					
Intersection V/C	0.000					

Emissions

Vehicle Miles Traveled [mph]	20.24	325.39	149.84	68.49
Stops [stops/h]	1.56	4.24	6.41	2.77
Fuel consumption [US gal/h]	0.85	13.46	6.28	2.85
CO [g/h]	59.35	940.75	439.07	199.50
NOx [g/h]	11.55	183.04	85.43	38.82
VOC [g/h]	13.76	218.03	101.76	46.24

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	0.00	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.946	0.000	2.375
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1947	1947	1947
d_b, Bicycle Delay [s]	0.05	0.05	0.05
l_b,int, Bicycle LOS Score for Intersection	1.560	2.266	2.932
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: McCormack Rd & Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Project Driveway				McCormack Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway				McCormack Rd	
Base Volume Input [veh/h]	0	0	52	0	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	18	0	32	31	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	18	52	32	31	7
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	5	13	8	8	2
Total Analysis Volume [veh/h]	19	18	52	32	31	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	9.36	8.71	0.00	0.00	7.41	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	3.11	3.11	0.00	0.00	1.31	1.31
d_A, Approach Delay [s/veh]	9.04		0.00		6.05	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.55					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	110.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.076

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	9	48	53	106	518	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	11.00	10.00	6.00	46.00	13.00	4.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	231	5	269	0	261	116
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	53	322	106	779	215
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	15	88	29	214	59
Total Analysis Volume [veh/h]	264	58	354	116	856	236
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	8	0	8	15	15	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No		No	Yes	Yes	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	86	86	86	86	86	86
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	15	15	15	60	40	40
g / C, Green / Cycle	0.17	0.17	0.17	0.69	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.18	0.04	0.23	0.11	0.56	0.17
s, saturation flow rate [veh/h]	1487	1339	1551	1089	1534	1408
c, Capacity [veh/h]	259	233	270	755	713	654
d1, Uniform Delay [s]	35.55	30.69	35.55	4.53	23.05	14.83
k, delay calibration	0.37	0.04	0.50	0.04	0.50	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	53.32	0.20	163.42	0.03	103.55	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.02	0.25	1.31	0.15	1.20	0.36
d, Delay for Lane Group [s/veh]	88.87	30.89	198.97	4.56	126.60	14.95
Lane Group LOS	F	C	F	A	F	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	9.13	1.04	17.79	0.58	33.71	2.84
50th-Percentile Queue Length [ft/ln]	228.21	25.89	444.73	14.62	842.83	70.89
95th-Percentile Queue Length [veh/ln]	14.21	1.86	27.82	1.05	49.09	5.10
95th-Percentile Queue Length [ft/ln]	355.32	46.61	695.61	26.32	1227.16	127.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	88.87	30.89	198.97	4.56	126.60	14.95
Movement LOS	F	C	F	A	F	B
d_A, Approach Delay [s/veh]	78.43		150.99		102.47	
Approach LOS	E		F		F	
d_I, Intersection Delay [s/veh]	110.47					
Intersection LOS	F					
Intersection V/C	1.076					

Emissions

Vehicle Miles Traveled [mph]	16.20	3.56	92.90	30.44	1751.57	482.91
Stops [stops/h]	381.68	43.31	743.79	24.46	1409.62	118.56
Fuel consumption [US gal/h]	7.55	0.75	22.26	1.50	101.94	21.25
CO [g/h]	527.71	52.45	1556.30	104.57	7125.90	1485.57
NOx [g/h]	102.67	10.20	302.80	20.35	1386.44	289.04
VOC [g/h]	122.30	12.16	360.69	24.24	1651.50	344.30

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	30.19	30.19	30.19
l_p,int, Pedestrian LOS Score for Intersectio	2.231	2.384	2.413
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	348	929	929
d_b, Bicycle Delay [s]	29.36	12.34	12.34
l_b,int, Bicycle LOS Score for Intersection	1.560	2.335	3.361
Bicycle LOS	A	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	All-way stop	Delay (sec / veh):	107.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.349

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	1	13	66	21	7	2	4	202	24	6	17	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	5.00	0.00	0.00	0.00	4.00	4.00	17.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	106	227	0	0	135	11	9	16	67	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	240	66	21	142	13	13	218	91	6	36	1
Peak Hour Factor	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	95	26	8	56	5	5	87	36	2	14	0
Total Analysis Volume [veh/h]	170	381	105	33	225	21	21	346	144	10	57	2
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	656	454	503	461	502	381	407
Degree of Utilization, x	1.35	0.57	0.04	0.05	0.98	0.03	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	29.56	3.45	0.13	0.14	12.83	0.08	0.50
95th-Percentile Queue Length [ft]	738.90	86.36	3.26	3.57	320.79	2.02	12.57
Approach Delay [s/veh]	192.35	19.74		58.86		12.94	
Approach LOS	F	C		F		B	
Intersection Delay [s/veh]	107.37						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	83.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.008

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	110	58	13	59	102	34	11	141	1	59	571	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	1.00	3.00	0.00	38.00	0.00	3.00	10.00	13.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	0	0	0	0	0	220	11	0	365	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	58	13	59	102	34	11	361	12	59	936	30
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	16	4	16	28	9	3	99	3	16	257	8
Total Analysis Volume [veh/h]	134	64	14	65	112	37	12	397	13	65	1029	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	5	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	64	64	64	64	64	64
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	13	13	1	32	4	35
g / C, Green / Cycle	0.21	0.21	0.02	0.50	0.07	0.54
(v / s)_i Volume / Saturation Flow Rate	0.18	0.14	0.01	0.34	0.04	0.68
s, saturation flow rate [veh/h]	1172	1520	1629	1190	1590	1565
c, Capacity [veh/h]	333	387	34	591	106	850
d1, Uniform Delay [s]	24.73	23.45	31.14	12.45	29.26	14.73
k, delay calibration	0.05	0.04	0.04	0.11	0.04	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.98	0.46	2.33	1.53	2.11	122.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.55	0.36	0.69	0.61	1.25
d, Delay for Lane Group [s/veh]	25.71	23.91	33.47	13.98	31.37	136.88
Lane Group LOS	C	C	C	B	C	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.03	2.85	0.20	4.06	1.00	38.61
50th-Percentile Queue Length [ft/ln]	75.86	71.26	4.97	101.39	24.95	965.18
95th-Percentile Queue Length [veh/ln]	5.46	5.13	0.36	7.30	1.80	57.19
95th-Percentile Queue Length [ft/ln]	136.56	128.27	8.95	182.50	44.91	1429.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.71	25.71	25.71	23.91	23.91	23.91	33.47	13.98	13.98	31.37	136.88	136.88
Movement LOS	C	C	C	C	C	C	C	B	B	C	F	F
d_A, Approach Delay [s/veh]	25.71			23.91			14.53			130.79		
Approach LOS	C			C			B			F		
d_I, Intersection Delay [s/veh]	83.09											
Intersection LOS	F											
Intersection V/C	1.008											

Emissions

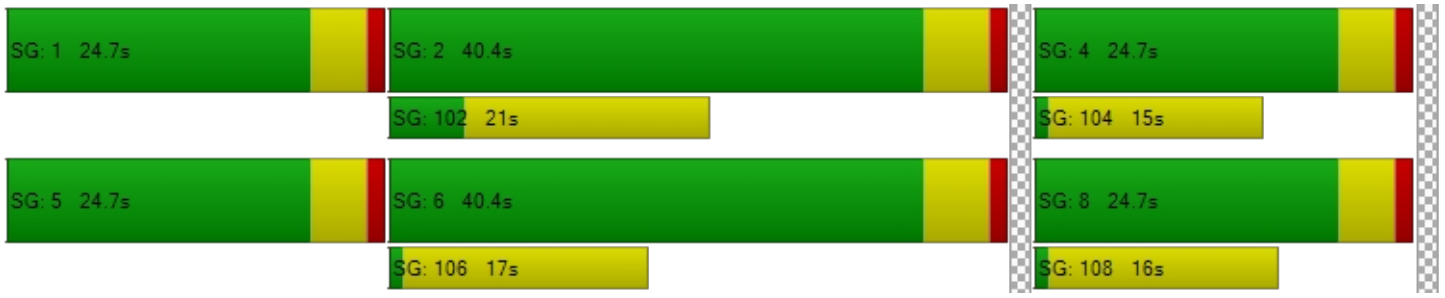
Vehicle Miles Traveled [mph]	10.17	14.47	24.55	838.95	27.92	456.15
Stops [stops/h]	169.87	159.56	11.13	227.03	55.87	2161.15
Fuel consumption [US gal/h]	2.47	2.52	1.15	36.96	1.87	60.30
CO [g/h]	172.41	176.04	80.67	2583.32	130.92	4214.69
NOx [g/h]	33.54	34.25	15.69	502.62	25.47	820.03
VOC [g/h]	39.96	40.80	18.70	598.71	30.34	976.80

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	23.79	27.35	27.35	27.35
l_p,int, Pedestrian LOS Score for Intersectio	1.895	1.862	2.648	2.544
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	622	1088	1088
d_b, Bicycle Delay [s]	15.27	15.27	6.68	6.68
l_b,int, Bicycle LOS Score for Intersection	1.909	1.913	2.256	3.419
Bicycle LOS	A	A	B	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Two-way stop	Delay (sec / veh):	164.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.233

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	367	0	0	84	0	727	19	0	585	146
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	2.00	2.00	18.00	16.00	2.00	10.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	132	80	140	0	0	233	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	367	0	0	216	80	867	19	0	818	146
Peak Hour Factor	1.0000	1.0000	0.9400	1.0000	1.0000	0.9400	1.0000	0.9400	0.9400	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	98	0	0	57	20	231	5	0	218	39
Total Analysis Volume [veh/h]	0	0	390	0	0	230	80	922	20	0	870	155
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	1.23	0.00	0.00	0.73	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	164.08	0.00	0.00	41.49	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS			F			E		A	A		A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	17.55	0.00	0.00	5.34	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	438.77	0.00	0.00	133.50	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	164.08			41.49			0.00			0.00		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	28.42											
Intersection LOS	F											

Rio Vista Brann Ranch

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Scenario 4 4 Existing Plus Project PM
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	5	7	13	277	3	1	8	883	5	6	527	221	1956

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	2	0	0	0	0	13	214	847	5	11	547	21	1660

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	2	216	10	1	17	1	247

ID	Intersection Name	Southbound	Eastbound	Westbound		Total Volume
		Right	Thru	Thru	Right	
4	SR 12 & Project Driveway	160	428	571	261	1420

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
5	McCormack Rd & Project Driveway	19	18	52	32	31	7	159

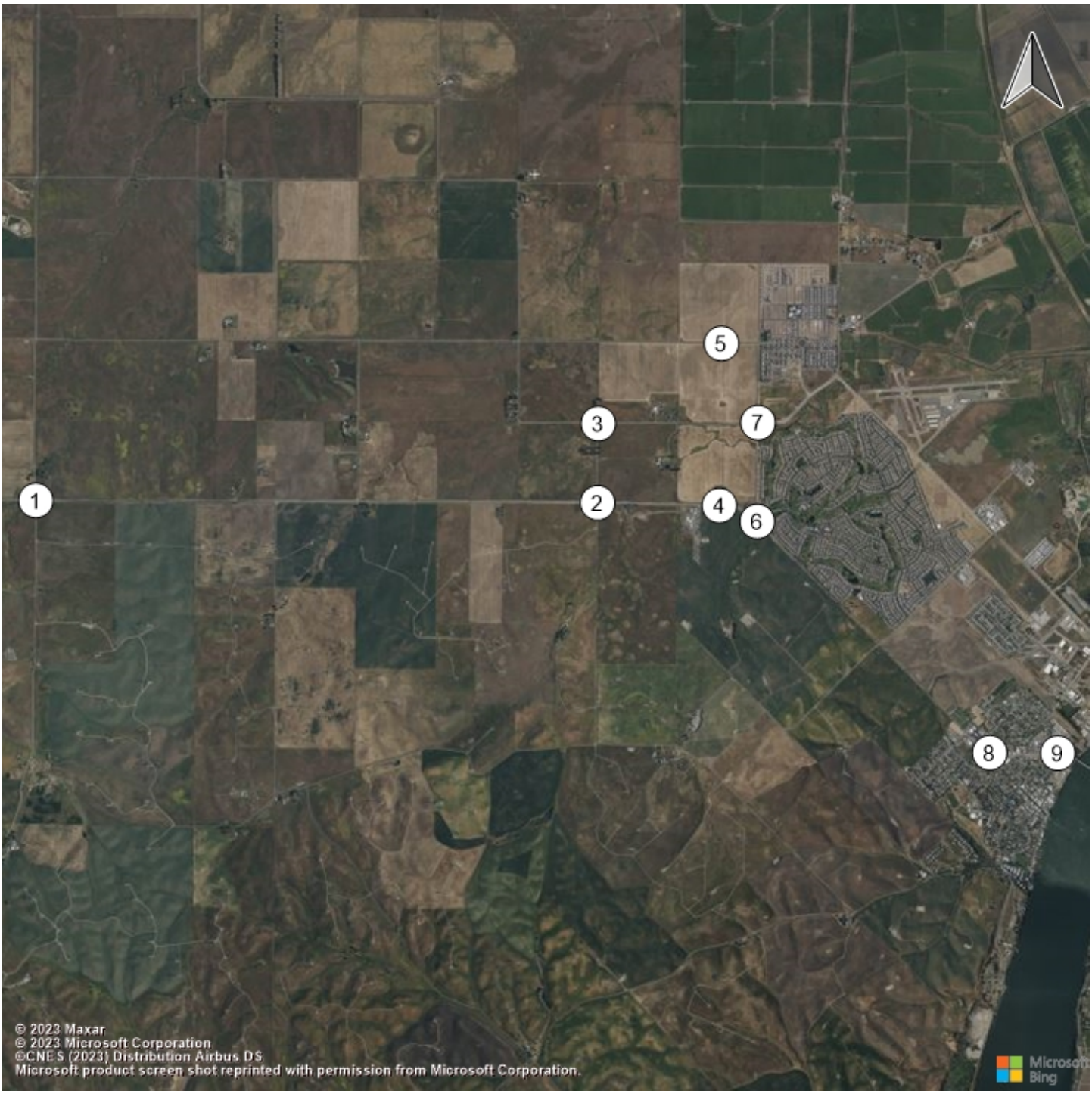
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	240	53	322	106	779	215	1715

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	107	240	66	21	142	13	13	218	91	6	36	1	954

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	122	58	13	59	102	34	11	361	12	59	936	30	1797

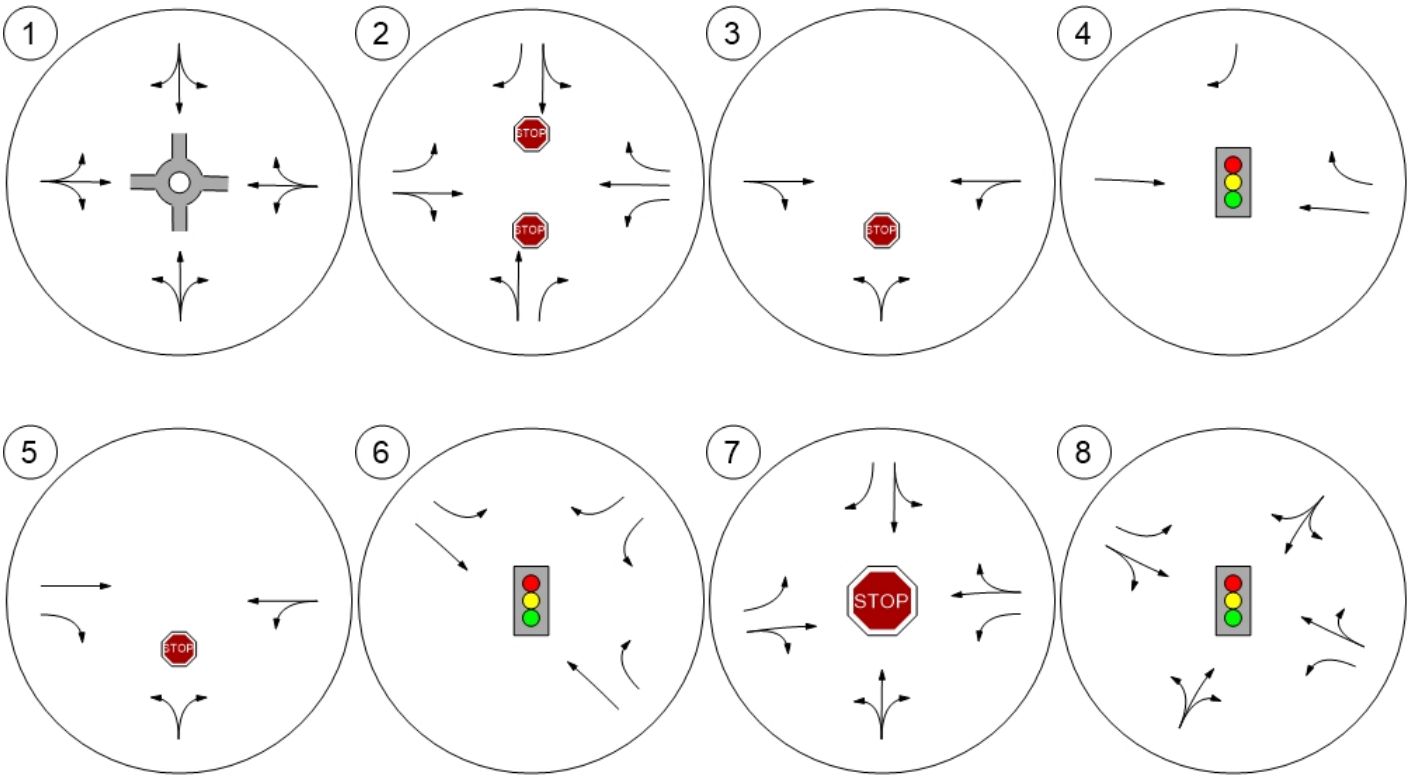
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	367	216	867	19	818	146	2433

Study Intersections



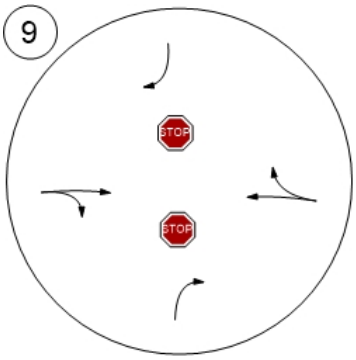
Lane Configuration and Traffic Control





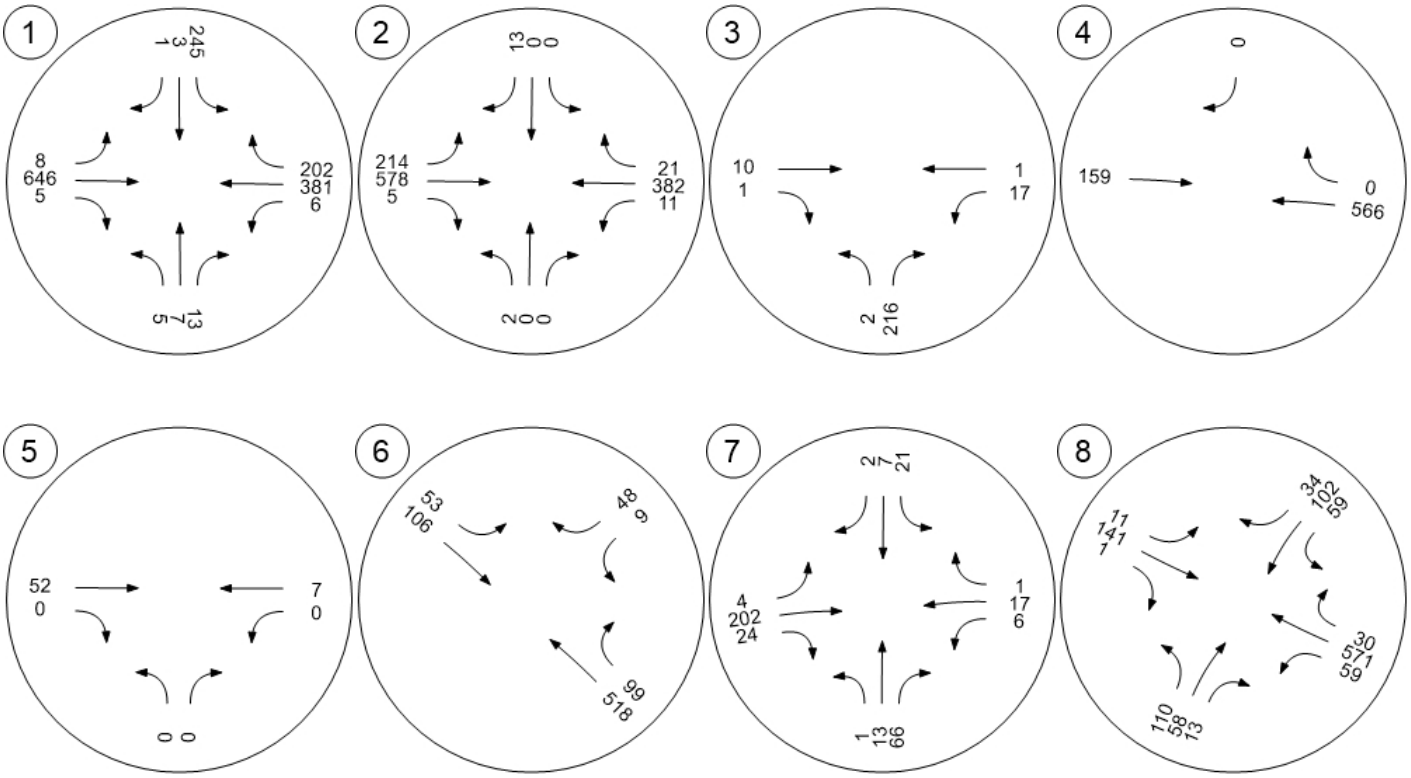
Lane Configuration and Traffic Control





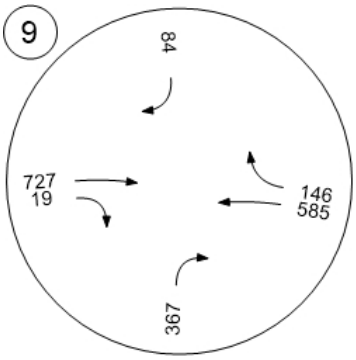
Traffic Volume - Base Volume





Traffic Volume - Base Volume





Rio Vista Brann Ranch

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Report File: H:\...\Existing Plus Project AM peak_Mitigation.pdf

Scenario 11 Existing Plus Project AM Mitigation
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	WB Thru		61.8	F
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.032	65.4	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Right	0.012	8.4	A
4	SR 12 & Project Driveway	Signalized	HCM 7th Edition	WB Thru	0.000	1.2	A
5	McCormack Rd & Project Driveway	Two-way stop	HCM 7th Edition	NB Left	0.029	8.8	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	SB Right	0.763	25.1	C
7	Canright Rd & Province Path	Signalized	HCM 7th Edition	WB Left	0.296	19.6	B
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	0.921	48.5	D
9	SR12 & SR 84	Signalized	HCM 7th Edition	NB Right	0.880	26.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	61.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	1	24	8	121	1	0	3	231	1	6	526	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	75.00	0.00	13.00	0.00	0.00	100.00	22.00	100.00	67.00	28.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	10	0	0	0	91	0	0	222	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	24	8	131	1	0	3	322	1	6	748	225
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	2	39	0	0	1	95	0	2	220	66
Total Analysis Volume [veh/h]	1	28	9	154	1	0	4	379	1	7	880	265
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	644			1139			187			58		
Exiting Flow Rate [veh/h]	15			383			1127			645		
Demand Flow Rate [veh/h]	1	24	8	131	1	0	3	322	1	6	748	225
Adjusted Demand Flow Rate [veh/h]	1	28	9	154	1	0	4	379	1	7	880	265

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.69	0.89	0.82	0.79
Entry Flow Rate [veh/h]	56	175	471	1463
Capacity of Entry and Bypass Lanes [veh/h]	716	432	1141	1301
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	493	383	931	1025
X, volume / capacity	0.08	0.41	0.41	1.12

Movement, Approach, & Intersection Results

Lane LOS	A	C	A	F
95th-Percentile Queue Length [veh]	0.25	1.91	2.05	30.25
95th-Percentile Queue Length [ft]	6.25	47.87	51.16	756.28
Approach Delay [s/veh]	8.31	17.70	8.62	87.25
Approach LOS	A	C	A	F
Intersection Delay [s/veh]	61.81			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	65.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	2	0	0	4	0	26	10	364	0	0	724	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	12.00	0.00	17.00	0.00	0.00	29.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	101	0	0	251	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	0	4	0	26	10	465	0	0	975	0
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	1	0	8	3	135	0	0	283	0
Total Analysis Volume [veh/h]	2	0	0	5	0	30	12	541	0	0	1134	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.07	0.00	0.13	0.02	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	65.45	46.36	11.61	58.49	48.07	22.52	10.89	0.00	0.00	8.47	0.00	0.00
Movement LOS	F	E	B	F	E	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.22	0.22	0.43	0.06	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.49	2.49	0.00	5.43	5.43	10.78	1.47	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	65.45			27.66			0.24			0.00		
Approach LOS	F			D			A			A		
d_I, Intersection Delay [s/veh]	0.71											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	0	10	2	3	27	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	11.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	10	2	3	27	1
Peak Hour Factor	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	1	1	9	0
Total Analysis Volume [veh/h]	0	13	3	4	35	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	8.99	8.36	0.00	0.00	7.36	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.91	0.91	0.00	0.00	1.68	1.68
d_A, Approach Delay [s/veh]	8.36		0.00		7.16	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	6.54					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: SR 12 & Project Driveway

Control Type:	Signalized	Delay (sec / veh):	1.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project Driveway		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	425.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1200.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Project Driveway		SR 12		SR 12	
Base Volume Input [veh/h]	0	0	0	367	751	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	17.00	26.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	244	0	101	7	90
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	244	0	468	758	90
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	61	0	117	190	23
Total Analysis Volume [veh/h]	0	244	0	468	758	90
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	2	0	6	2	0
Auxiliary Signal Groups						
Maximum Green [s]	0	5	0	10	5	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	5	5	0
Pedestrian Clearance [s]	0	10	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	150	0	150	150	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	0	5	0	10	5	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No		No	No	
Maximum Recall		No		No	No	
Pedestrian Recall		No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	C	C	R
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	146	146	146	146
g / C, Green / Cycle	0.97	0.97	0.97	0.97
(v / s)_i Volume / Saturation Flow Rate	0.17	0.32	0.56	0.06
s, saturation flow rate [veh/h]	1431	1480	1359	1431
c, Capacity [veh/h]	1392	1441	1323	1392
d1, Uniform Delay [s]	0.06	0.08	0.12	0.06
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	0.60	1.81	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.32	0.57	0.06
d, Delay for Lane Group [s/veh]	0.34	0.68	1.93	0.15
Lane Group LOS	A	A	A	A
Critical Lane Group	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.11	0.24	0.67	0.03
50th-Percentile Queue Length [ft/ln]	2.65	6.00	16.63	0.86
95th-Percentile Queue Length [veh/ln]	0.19	0.43	1.20	0.06
95th-Percentile Queue Length [ft/ln]	4.78	10.80	29.93	1.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.34	0.00	0.68	1.93	0.15
Movement LOS		A		A	A	A
d_A, Approach Delay [s/veh]	0.34		0.68		1.74	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.20					
Intersection LOS	A					
Intersection V/C	0.000					

Emissions

Vehicle Miles Traveled [mph]	30.86	355.80	198.91	23.62
Stops [stops/h]	2.55	5.76	15.96	0.83
Fuel consumption [US gal/h]	1.30	14.74	8.57	0.98
CO [g/h]	90.97	1030.56	599.36	68.47
NOx [g/h]	17.70	200.51	116.61	13.32
VOC [g/h]	21.08	238.84	138.91	15.87

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	0.00	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.903	0.000	2.393
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1947	1947	1947
d_b, Bicycle Delay [s]	0.05	0.05	0.05
l_b,int, Bicycle LOS Score for Intersection	1.560	2.332	2.959
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: McCormack Rd & Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Project Driveway				McCormack Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway				McCormack Rd	
Base Volume Input [veh/h]	0	0	2	0	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	29	28	0	10	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	28	2	10	9	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	7	1	3	2	0
Total Analysis Volume [veh/h]	29	28	2	10	9	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	8.84	8.53	0.00	0.00	7.25	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	4.37	4.37	0.00	0.00	0.38	0.38
d_A, Approach Delay [s/veh]	8.69		0.00		6.53	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	7.09					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	25.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.763

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	1	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	700.00	0.00	500.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	46	78	23	344	673	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	6.00	4.00	18.00	28.00	11.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	355	7	101	0	90	62
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	401	85	124	344	763	107
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	24	35	98	217	30
Total Analysis Volume [veh/h]	456	97	141	391	867	122
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	34	0	19	86	67	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	14	14	7	40	28	28
g / C, Green / Cycle	0.21	0.21	0.11	0.61	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.18	0.18	0.09	0.27	0.37	0.39
s, saturation flow rate [veh/h]	1577	1487	1577	1467	1332	1276
c, Capacity [veh/h]	332	313	176	902	574	550
d1, Uniform Delay [s]	24.81	24.82	28.27	6.60	16.80	17.24
k, delay calibration	0.24	0.24	0.11	0.11	0.14	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.87	13.61	8.12	0.33	5.08	7.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.86	0.80	0.43	0.86	0.90
d, Delay for Lane Group [s/veh]	37.68	38.42	36.39	6.93	21.88	25.15
Lane Group LOS	D	D	D	A	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.14	4.92	2.44	2.26	6.64	7.19
50th-Percentile Queue Length [ft/ln]	128.61	122.92	60.98	56.55	165.98	179.78
95th-Percentile Queue Length [veh/ln]	8.86	8.55	4.39	4.07	10.87	11.59
95th-Percentile Queue Length [ft/ln]	221.60	213.83	109.76	101.78	271.63	289.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.96	38.42	36.39	6.93	23.28	25.15
Movement LOS	D	D	D	A	C	C
d_A, Approach Delay [s/veh]	38.04		14.74		23.51	
Approach LOS	D		B		C	
d_I, Intersection Delay [s/veh]	25.14					
Intersection LOS	C					
Intersection V/C	0.763					

Emissions

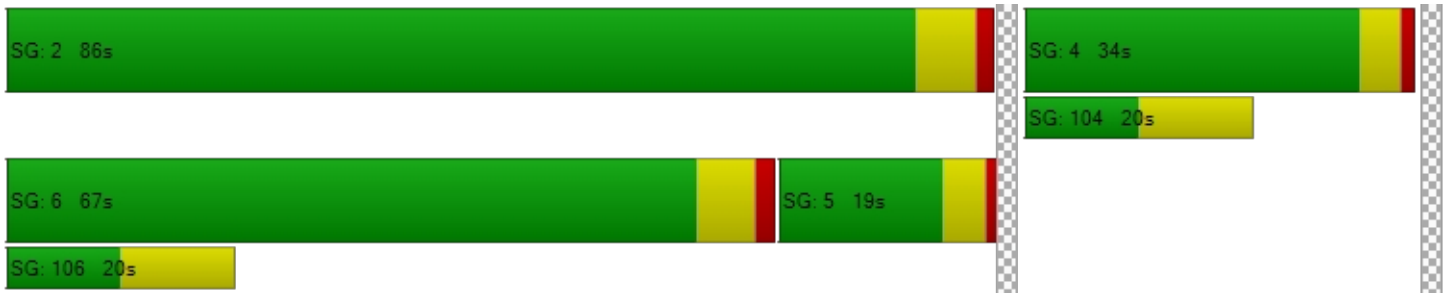
Vehicle Miles Traveled [mph]	17.46	16.47	37.00	102.61	1011.86	1011.86
Stops [stops/h]	284.42	271.83	134.85	125.05	367.08	397.59
Fuel consumption [US gal/h]	4.47	4.28	3.31	5.47	45.88	46.38
CO [g/h]	312.60	299.09	231.54	382.10	3207.34	3242.11
NOx [g/h]	60.82	58.19	45.05	74.34	624.03	630.80
VOC [g/h]	72.45	69.32	53.66	88.56	743.33	751.39

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.06	20.06	20.06
l_p,int, Pedestrian LOS Score for Intersectio	2.437	2.473	2.556
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	2436	1852
d_b, Bicycle Delay [s]	9.85	1.55	0.18
l_b,int, Bicycle LOS Score for Intersection	2.472	2.437	2.376
Bicycle LOS	B	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.296

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	0	5	7	3	15	12	3	10	2	22	16	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	29.00	33.00	7.00	0.00	0.00	10.00	0.00	14.00	19.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	84	0	0	221	4	3	6	67	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	89	7	3	236	16	6	16	69	22	23	0
Peak Hour Factor	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	30	2	1	80	5	2	5	23	7	8	0
Total Analysis Volume [veh/h]	47	120	9	4	319	22	8	22	93	30	31	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	103	0	0	103	0	0	47	0	0	47	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R	L	C	L	C
C, Cycle Length [s]	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	99	99	99	43	43	43	43
g / C, Green / Cycle	0.66	0.66	0.66	0.29	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.14	0.20	0.02	0.01	0.08	0.03	0.02
s, saturation flow rate [veh/h]	1284	1613	1454	1260	1378	1039	1453
c, Capacity [veh/h]	878	1089	959	373	395	264	417
d1, Uniform Delay [s]	10.26	10.84	8.80	41.58	41.64	48.40	39.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	0.70	0.04	0.11	1.86	0.87	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.30	0.02	0.02	0.29	0.11	0.07
d, Delay for Lane Group [s/veh]	10.77	11.53	8.85	41.69	43.50	49.26	39.34
Lane Group LOS	B	B	A	D	D	D	D
Critical Lane Group	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.34	4.77	0.26	0.24	3.57	0.99	0.89
50th-Percentile Queue Length [ft/ln]	58.52	119.14	6.59	5.92	89.29	24.84	22.26
95th-Percentile Queue Length [veh/ln]	4.21	8.35	0.47	0.43	6.43	1.79	1.60
95th-Percentile Queue Length [ft/ln]	105.34	208.64	11.87	10.65	160.72	44.72	40.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.77	10.77	10.77	11.53	11.53	8.85	41.69	43.50	43.50	49.26	39.34	39.34
Movement LOS	B	B	B	B	B	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.77			11.36			43.38			44.22		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.64											
Intersection LOS	B											
Intersection V/C	0.296											

Emissions

Vehicle Miles Traveled [mph]	38.69	91.85	6.26	0.99	14.18	3.01	3.11
Stops [stops/h]	56.18	114.37	6.33	5.68	85.71	23.85	21.37
Fuel consumption [US gal/h]	2.29	5.17	0.33	0.14	2.08	0.56	0.49
CO [g/h]	159.99	361.47	23.22	9.78	145.07	38.89	34.55
NOx [g/h]	31.13	70.33	4.52	1.90	28.22	7.57	6.72
VOC [g/h]	37.08	83.77	5.38	2.27	33.62	9.01	8.01

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	66.27	66.27	66.27
l_p,int, Pedestrian LOS Score for Intersectio	2.084	2.131	2.105	2.003
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1320	1320	573	573
d_b, Bicycle Delay [s]	8.67	8.67	38.16	38.16
l_b,int, Bicycle LOS Score for Intersection	1.850	2.129	1.763	1.660
Bicycle LOS	A	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	48.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.921

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	68	65	7	25	77	44	17	408	0	9	683	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	9.00	3.00	0.00	4.00	4.00	14.00	6.00	16.00	0.00	0.00	26.00	36.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	0	0	0	0	336	19	0	129	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	65	7	25	77	44	17	744	19	9	812	11
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	17	2	7	20	12	4	196	5	2	214	3
Total Analysis Volume [veh/h]	96	68	7	26	81	46	18	783	20	9	855	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	1	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	61	61	61	61	61	61
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	9	9	2	36	1	35
g / C, Green / Cycle	0.15	0.15	0.03	0.59	0.02	0.58
(v / s)_i Volume / Saturation Flow Rate	0.13	0.10	0.01	0.54	0.01	0.64
s, saturation flow rate [veh/h]	1278	1576	1551	1487	1629	1355
c, Capacity [veh/h]	288	310	45	873	27	780
d1, Uniform Delay [s]	25.11	24.19	29.04	11.26	29.58	12.92
k, delay calibration	0.04	0.04	0.04	0.37	0.04	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	0.45	2.17	12.75	2.60	67.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.49	0.40	0.92	0.33	1.11
d, Delay for Lane Group [s/veh]	25.84	24.64	31.20	24.02	32.18	80.43
Lane Group LOS	C	C	C	C	C	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.31	1.97	0.27	10.23	0.14	22.50
50th-Percentile Queue Length [ft/ln]	57.78	49.32	6.84	255.74	3.60	562.42
95th-Percentile Queue Length [veh/ln]	4.16	3.55	0.49	15.47	0.26	32.82
95th-Percentile Queue Length [ft/ln]	104.00	88.77	12.31	386.87	6.49	820.42

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.84	25.84	25.84	24.64	24.64	24.64	31.20	24.02	24.02	32.18	80.43	80.43
Movement LOS	C	C	C	C	C	C	C	C	C	C	F	F
d_A, Approach Delay [s/veh]	25.84			24.64			24.17			79.93		
Approach LOS	C			C			C			E		
d_I, Intersection Delay [s/veh]	48.52											
Intersection LOS	D											
Intersection V/C	0.921											

Emissions

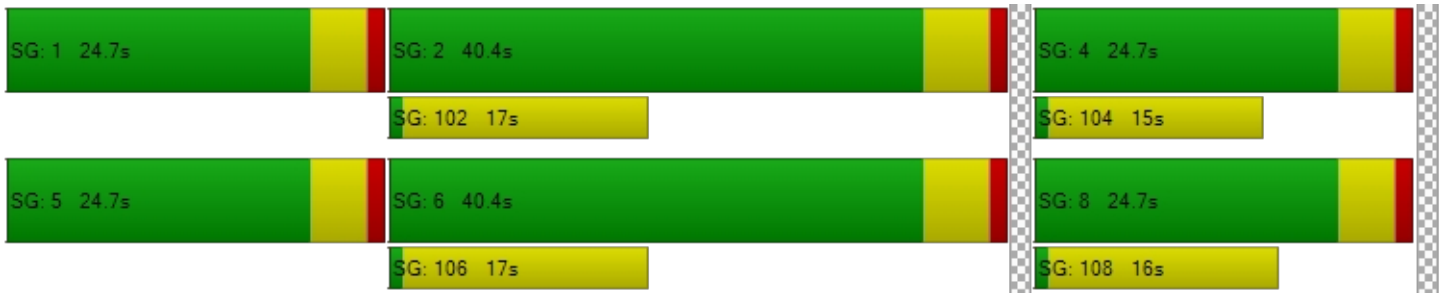
Vehicle Miles Traveled [mph]	8.20	10.35	36.83	1643.12	3.87	372.39
Stops [stops/h]	136.77	116.74	16.19	605.38	8.53	1331.36
Fuel consumption [US gal/h]	1.99	1.84	1.72	74.91	0.27	36.87
CO [g/h]	139.28	128.48	120.23	5236.25	18.54	2577.53
NOx [g/h]	27.10	25.00	23.39	1018.78	3.61	501.49
VOC [g/h]	32.28	29.78	27.86	1213.55	4.30	597.37

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.62	25.62	25.62	25.62
l_p,int, Pedestrian LOS Score for Intersectio	1.839	1.825	2.655	2.514
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	658	658	1151	1151
d_b, Bicycle Delay [s]	13.70	13.70	5.48	5.48
l_b,int, Bicycle LOS Score for Intersection	1.842	1.812	2.914	3.005
Bicycle LOS	A	A	C	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Signalized	Delay (sec / veh):	26.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.880

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	151	0	0	66	0	390	31	0	665	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	6.00	2.00	18.00	10.00	2.00	23.00	9.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	46	122	214	0	0	83	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	151	0	0	112	122	604	31	0	748	158
Peak Hour Factor	1.0000	1.0000	0.9200	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	41	0	0	30	31	164	8	0	203	43
Total Analysis Volume [veh/h]	0	0	164	0	0	122	122	657	34	0	813	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	4	0	0	8	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	0	5	0	0	5	0	10	0	0	10	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	0	5	0	0	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No		No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	0	24	0	0	24	0	126	0	0	126	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	5	0	10	0	0	10	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall			No			No		No			No	
Maximum Recall			No			No		No			No	
Pedestrian Recall			No			No		No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	R	C	C
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	20	122	122
g / C, Green / Cycle	0.13	0.13	0.81	0.81
(v / s)_i Volume / Saturation Flow Rate	0.12	0.09	0.48	0.73
s, saturation flow rate [veh/h]	1373	1385	1454	1357
c, Capacity [veh/h]	183	185	1183	1104
d1, Uniform Delay [s]	63.97	61.78	4.98	9.52
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	43.73	17.08	2.11	11.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.66	0.58	0.89
d, Delay for Lane Group [s/veh]	107.70	78.86	7.09	20.52
Lane Group LOS	F	E	A	C
Critical Lane Group	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.41	5.32	7.14	20.94
50th-Percentile Queue Length [ft/ln]	210.30	133.04	178.44	523.49
95th-Percentile Queue Length [veh/ln]	13.17	9.10	11.52	28.44
95th-Percentile Queue Length [ft/ln]	329.22	227.62	287.98	711.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	107.70	0.00	0.00	78.86	0.00	7.09	7.09	0.00	20.52	20.52
Movement LOS			F			E		A	A		C	C
d_A, Approach Delay [s/veh]	107.70			78.86			7.09			20.52		
Approach LOS	F			E			A			C		
d_I, Intersection Delay [s/veh]	26.71											
Intersection LOS	C											
Intersection V/C	0.880											

Emissions

Vehicle Miles Traveled [mph]	12.60	6.47	296.80	147.29
Stops [stops/h]	201.89	127.72	171.31	502.55
Fuel consumption [US gal/h]	5.23	2.93	14.16	12.95
CO [g/h]	365.43	204.78	989.93	905.41
NOx [g/h]	71.10	39.84	192.60	176.16
VOC [g/h]	84.69	47.46	229.43	209.84

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	66.27	66.27	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.837	1.884	2.533	2.621
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	267	267	1627	1627
d_b, Bicycle Delay [s]	56.33	56.33	2.61	2.61
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.700	3.185
Bicycle LOS	A	A	B	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Rio Vista Brann Ranch

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Report File: H:\...\Existing Plus Project AM peak_Mitigation.pdf

Scenario 11 Existing Plus Project AM Mitigation
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	1	24	8	131	1	0	3	322	1	6	748	225	1470

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	2	0	0	4	0	26	10	465	0	0	975	0	1482

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	0	10	2	3	27	1	43

ID	Intersection Name	Southbound	Eastbound	Westbound		Total Volume
		Right	Thru	Thru	Right	
4	SR 12 & Project Driveway	244	468	758	90	1560

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
5	McCormack Rd & Project Driveway	29	28	2	10	9	1	79

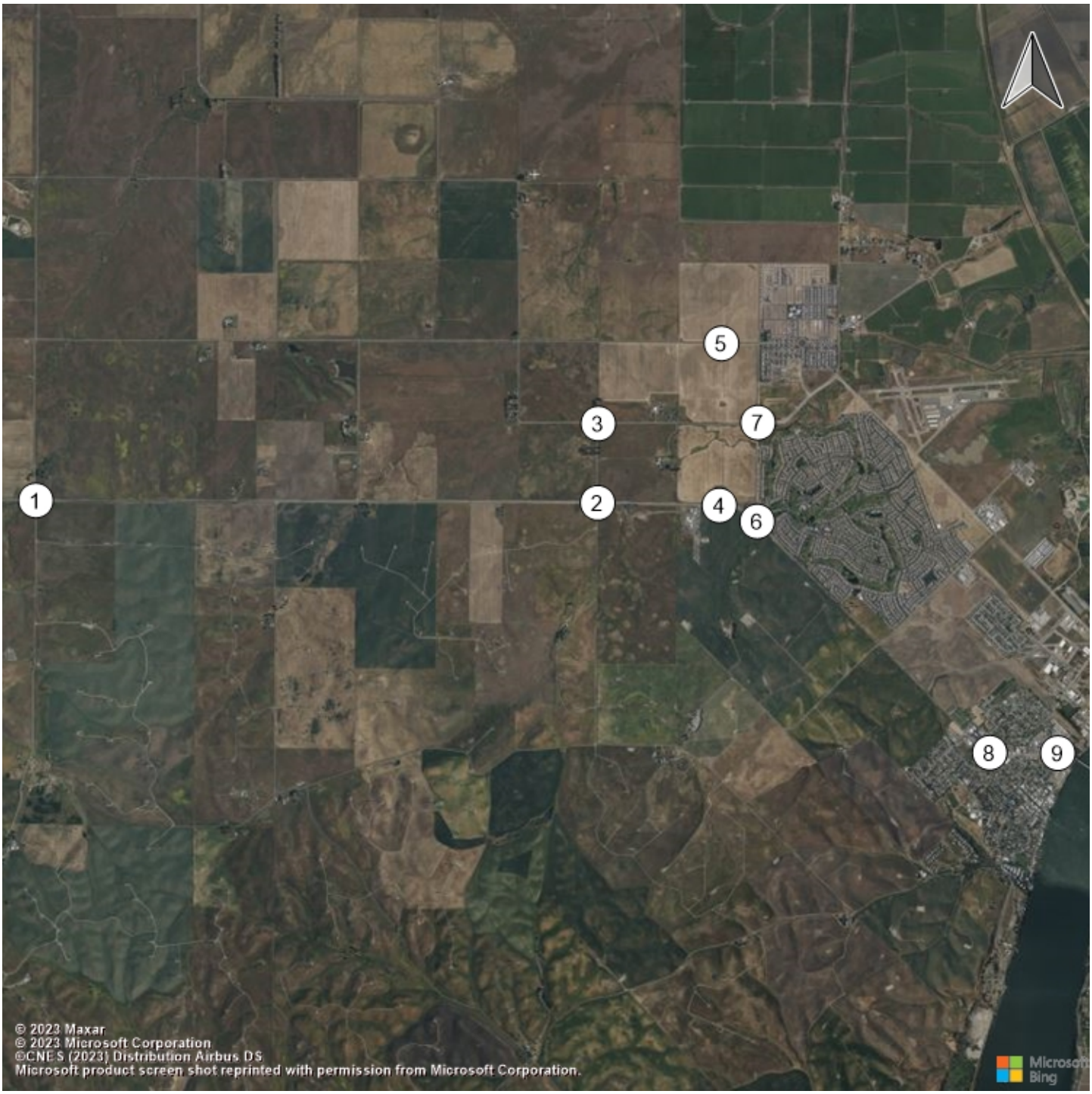
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	401	85	124	344	763	107	1824

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	35	89	7	3	236	16	6	16	69	22	23	0	522

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	91	65	7	25	77	44	17	744	19	9	812	11	1921

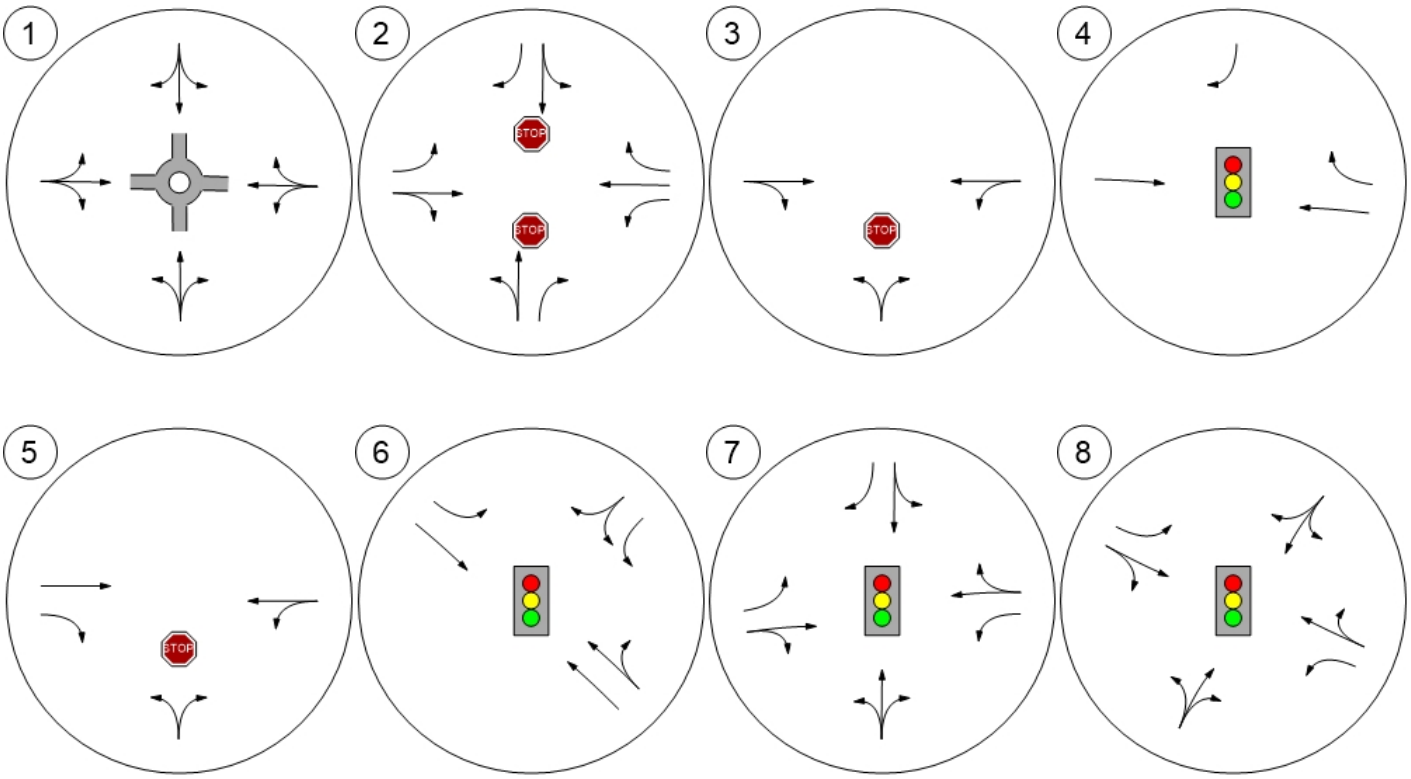
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	151	112	604	31	748	158	1804

Study Intersections



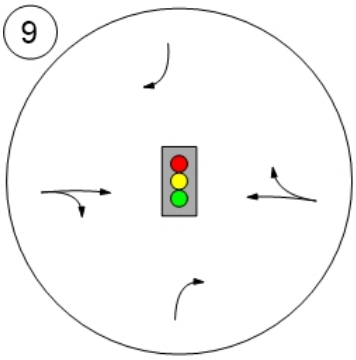
Lane Configuration and Traffic Control





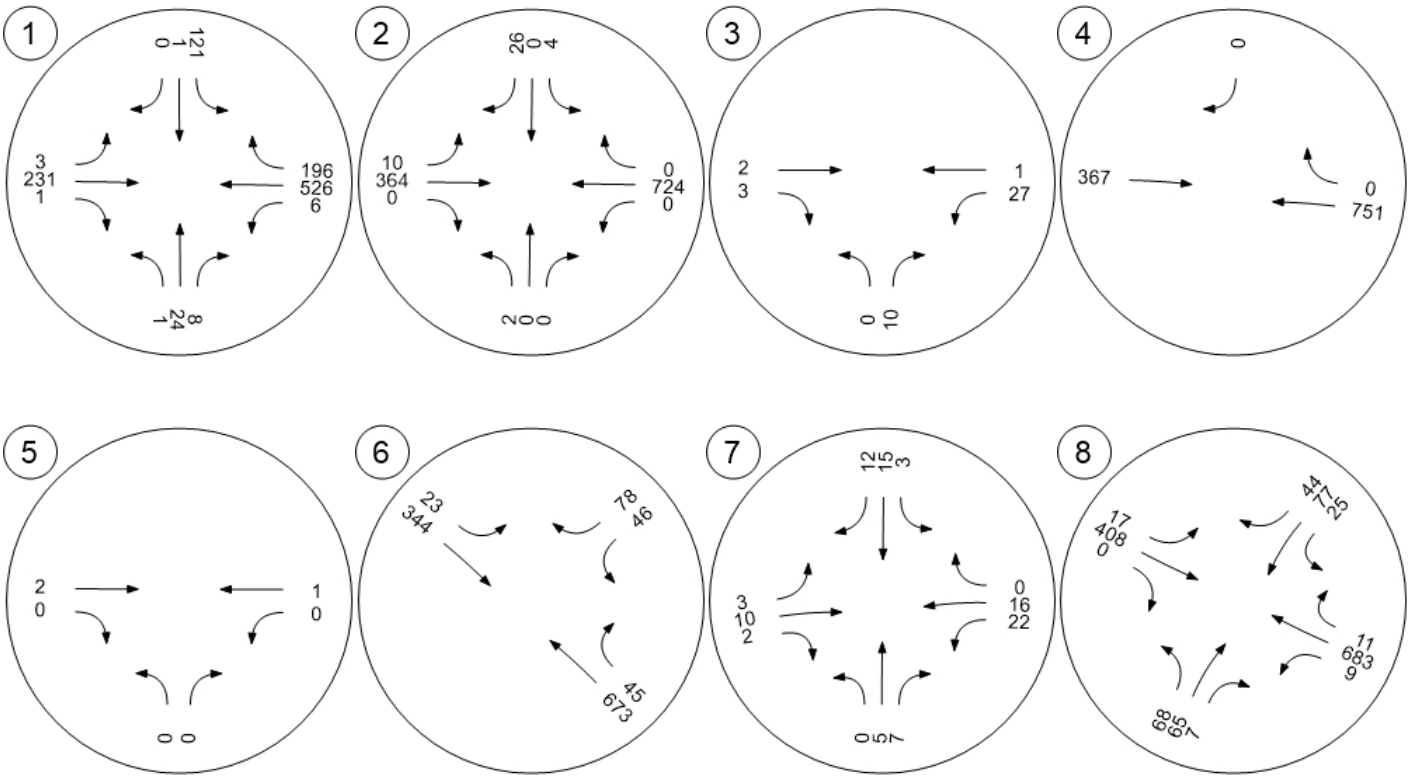
Lane Configuration and Traffic Control





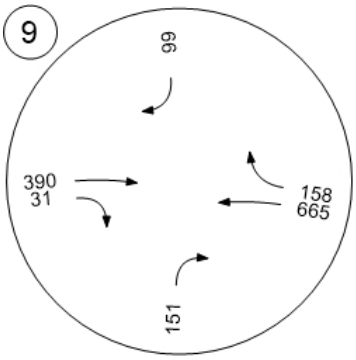
Traffic Volume - Base Volume





Traffic Volume - Base Volume





Rio Vista Brann Ranch

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Report File: H:\...\Existing Plus Project PM peak_Mitigation.pdf

Scenario 12 Existing Plus Project PM Mitigation
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	EB Thru		63.5	F
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.250	386.1	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.004	11.0	B
4	SR 12 & Project Driveway	Signalized	HCM 7th Edition	WB Thru	0.000	0.5	A
5	McCormack Rd & Project Driveway	Two-way stop	HCM 7th Edition	NB Left	0.022	9.4	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	EB Left	0.826	40.0	D
7	Canright Rd & Province Path	Signalized	HCM 7th Edition	WB Left	0.866	41.3	D
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	1.008	83.1	F
9	SR12 & SR 84	Signalized	HCM 7th Edition	NB Right	0.998	60.1	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	63.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	5	7	13	245	3	1	8	646	5	6	381	202
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	38.00	12.00	0.00	100.00	12.00	16.00	0.00	17.00	15.00	21.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	32	0	0	0	237	0	0	146	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	7	13	277	3	1	8	883	5	6	527	221
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	4	77	1	0	2	245	1	2	146	61
Total Analysis Volume [veh/h]	6	8	14	308	3	1	9	981	6	7	586	246
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	1493			688			356			24		
Exiting Flow Rate [veh/h]	17			316			682			1502		
Demand Flow Rate [veh/h]	5	7	13	277	3	1	8	883	5	6	527	221
Adjusted Demand Flow Rate [veh/h]	6	8	14	308	3	1	9	981	6	7	586	246

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.86	0.89	0.86	0.86
Entry Flow Rate [veh/h]	33	350	1154	980
Capacity of Entry and Bypass Lanes [veh/h]	301	685	960	1347
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	258	611	829	1154
X, volume / capacity	0.11	0.51	1.20	0.73

Movement, Approach, & Intersection Results

Lane LOS	C	B	F	B
95th-Percentile Queue Length [veh]	0.36	2.91	32.47	6.82
95th-Percentile Queue Length [ft]	9.02	72.71	811.70	170.42
Approach Delay [s/veh]	16.20	14.45	121.45	14.58
Approach LOS	C	B	F	B
Intersection Delay [s/veh]	63.52			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	386.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.250

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	2	0	0	0	0	13	214	578	5	11	382	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	50.00	0.00	0.00	0.00	0.00	31.00	6.00	18.00	0.00	0.00	15.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	269	0	0	165	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	0	0	0	13	214	847	5	11	547	21
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	0	0	4	67	265	2	3	171	7
Total Analysis Volume [veh/h]	3	0	0	0	0	16	268	1059	6	14	684	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.25	0.00	0.00	0.00	0.00	0.04	0.31	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	386.12	228.70	18.14	200.74	143.12	14.32	10.96	0.00	0.00	10.56	0.00	0.00
Movement LOS	F	F	C	F	F	B	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.64	0.64	0.00	0.00	0.00	0.12	1.31	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	15.96	15.96	0.00	0.00	0.00	3.10	32.77	0.00	0.00	1.62	0.00	0.00
d_A, Approach Delay [s/veh]	386.12			14.32			2.20			0.20		
Approach LOS	F			B			A			A		
d_I, Intersection Delay [s/veh]	2.15											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	2	216	10	1	17	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	10.00	0.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	216	10	1	17	1
Peak Hour Factor	0.5600	0.5600	0.5600	0.5600	0.5600	0.5600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	96	4	0	8	0
Total Analysis Volume [veh/h]	4	386	18	2	30	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.37	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	10.98	10.44	0.00	0.00	7.39	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.74	1.74	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	43.48	43.48	0.00	0.00	1.40	1.40
d_A, Approach Delay [s/veh]	10.45		0.00		6.93	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	9.72					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: SR 12 & Project Driveway

Control Type:	Signalized	Delay (sec / veh):	0.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project Driveway		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	425.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1200.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Project Driveway		SR 12		SR 12	
Base Volume Input [veh/h]	0	0	0	159	566	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	160	0	269	5	261
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	160	0	428	571	261
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	40	0	107	143	65
Total Analysis Volume [veh/h]	0	160	0	428	571	261
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	2	0	6	2	0
Auxiliary Signal Groups						
Maximum Green [s]	0	5	0	10	5	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	5	5	0
Pedestrian Clearance [s]	0	10	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	150	0	150	150	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	0	5	0	10	5	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No		No	No	
Maximum Recall		No		No	No	
Pedestrian Recall		No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	C	C	R
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	146	146	146	146
g / C, Green / Cycle	0.97	0.97	0.97	0.97
(v / s)_i Volume / Saturation Flow Rate	0.11	0.25	0.34	0.18
s, saturation flow rate [veh/h]	1431	1683	1683	1431
c, Capacity [veh/h]	1392	1638	1638	1392
d1, Uniform Delay [s]	0.06	0.07	0.08	0.07
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	0.39	0.59	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.26	0.35	0.19
d, Delay for Lane Group [s/veh]	0.23	0.46	0.67	0.36
Lane Group LOS	A	A	A	A
Critical Lane Group	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.06	0.18	0.27	0.12
50th-Percentile Queue Length [ft/ln]	1.62	4.42	6.68	2.88
95th-Percentile Queue Length [veh/ln]	0.12	0.32	0.48	0.21
95th-Percentile Queue Length [ft/ln]	2.92	7.95	12.02	5.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.23	0.00	0.46	0.67	0.36
Movement LOS		A		A	A	A
d_A, Approach Delay [s/veh]	0.23		0.46		0.57	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.50					
Intersection LOS	A					
Intersection V/C	0.000					

Emissions

Vehicle Miles Traveled [mph]	20.24	325.39	149.84	68.49
Stops [stops/h]	1.56	4.24	6.41	2.77
Fuel consumption [US gal/h]	0.85	13.46	6.28	2.85
CO [g/h]	59.35	940.75	439.07	199.50
NOx [g/h]	11.55	183.04	85.43	38.82
VOC [g/h]	13.76	218.03	101.76	46.24

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	0.00	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.946	0.000	2.375
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1947	1947	1947
d_b, Bicycle Delay [s]	0.05	0.05	0.05
l_b,int, Bicycle LOS Score for Intersection	1.560	2.266	2.932
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: McCormack Rd & Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Project Driveway				McCormack Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway				McCormack Rd	
Base Volume Input [veh/h]	0	0	52	0	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	18	0	32	31	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	18	52	32	31	7
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	5	13	8	8	2
Total Analysis Volume [veh/h]	19	18	52	32	31	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	9.36	8.71	0.00	0.00	7.41	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	3.11	3.11	0.00	0.00	1.31	1.31
d_A, Approach Delay [s/veh]	9.04		0.00		6.05	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.55					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	40.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.826

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	1	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	700.00	0.00	500.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	9	48	53	106	518	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	11.00	10.00	6.00	46.00	13.00	4.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	231	5	269	0	261	116
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	53	322	106	779	215
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	15	88	29	214	59
Total Analysis Volume [veh/h]	264	58	354	116	856	236
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	25	0	28	65	37	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	71	71	71	71	71	71
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	10	10	15	50	30	30
g / C, Green / Cycle	0.14	0.14	0.21	0.70	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.11	0.11	0.23	0.11	0.36	0.38
s, saturation flow rate [veh/h]	1487	1437	1551	1089	1534	1426
c, Capacity [veh/h]	209	202	326	762	651	605
d1, Uniform Delay [s]	29.65	29.67	28.24	3.61	18.40	19.21
k, delay calibration	0.11	0.11	0.44	0.11	0.16	0.20
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.22	6.55	72.23	0.09	4.40	9.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.78	1.09	0.15	0.84	0.90
d, Delay for Lane Group [s/veh]	35.87	36.22	100.48	3.70	22.80	28.20
Lane Group LOS	D	D	F	A	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.96	2.89	11.80	0.42	8.04	9.07
50th-Percentile Queue Length [ft/ln]	74.04	72.32	294.92	10.45	200.89	226.75
95th-Percentile Queue Length [veh/ln]	5.33	5.21	18.19	0.75	12.68	14.01
95th-Percentile Queue Length [ft/ln]	133.27	130.17	454.86	18.81	317.12	350.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.01	36.22	100.48	3.70	24.76	28.20
Movement LOS	D	D	F	A	C	C
d_A, Approach Delay [s/veh]	36.04		76.59		25.50	
Approach LOS	D		E		C	
d_I, Intersection Delay [s/veh]	40.05					
Intersection LOS	D					
Intersection V/C	0.826					

Emissions

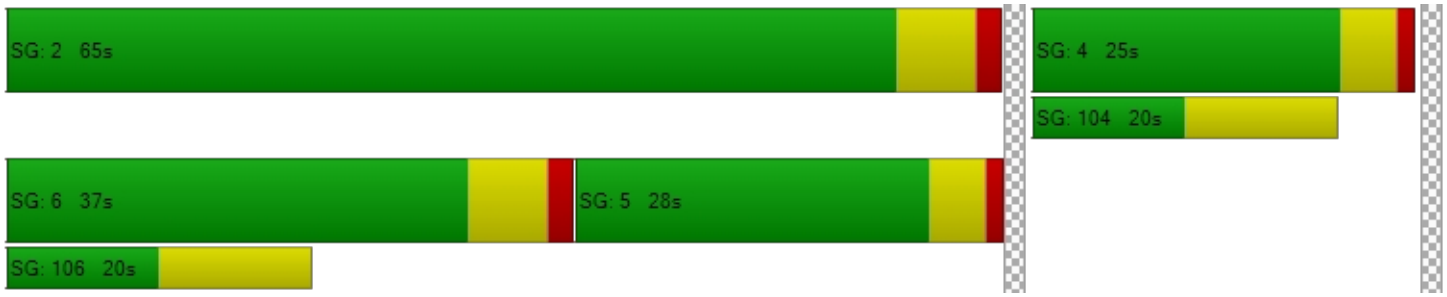
Vehicle Miles Traveled [mph]	10.02	9.73	92.90	30.44	1117.24	1117.24
Stops [stops/h]	149.33	145.86	594.83	21.07	405.19	457.34
Fuel consumption [US gal/h]	2.43	2.38	14.35	1.46	50.76	51.65
CO [g/h]	169.90	166.04	1002.92	101.83	3548.45	3610.57
NOx [g/h]	33.06	32.30	195.13	19.81	690.40	702.49
VOC [g/h]	39.37	38.48	232.44	23.60	822.39	836.78

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	23.07	23.07	23.07
l_p,int, Pedestrian LOS Score for Intersectio	2.220	2.452	2.473
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	569	1633	849
d_b, Bicycle Delay [s]	18.28	1.20	11.83
l_b,int, Bicycle LOS Score for Intersection	2.091	2.335	2.461
Bicycle LOS	B	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	Signalized	Delay (sec / veh):	41.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.866

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	1	13	66	21	7	2	4	202	24	6	17	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	5.00	0.00	0.00	0.00	4.00	4.00	17.00	12.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	106	227	0	0	135	11	9	16	67	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	240	66	21	142	13	13	218	91	6	36	1
Peak Hour Factor	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	95	26	8	56	5	5	87	36	2	14	0
Total Analysis Volume [veh/h]	170	381	105	33	225	21	21	346	144	10	57	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	85	0	0	85	0	0	55	0	0	55	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R	L	C	L	C
C, Cycle Length [s]	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81	81	51	51	51	51
g / C, Green / Cycle	0.58	0.58	0.58	0.36	0.36	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.52	0.19	0.01	0.02	0.31	0.01	0.04
s, saturation flow rate [veh/h]	1267	1369	1423	1229	1574	717	1539
c, Capacity [veh/h]	765	821	823	450	574	96	561
d1, Uniform Delay [s]	30.23	14.64	12.61	32.48	41.07	62.36	29.42
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.92	1.00	0.06	0.20	14.99	2.15	0.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.31	0.03	0.05	0.85	0.10	0.11
d, Delay for Lane Group [s/veh]	42.15	15.64	12.67	32.68	56.06	64.51	29.79
Lane Group LOS	D	B	B	C	E	E	C
Critical Lane Group	Yes	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	22.01	4.33	0.30	0.52	17.92	0.40	1.40
50th-Percentile Queue Length [ft/ln]	550.28	108.29	7.52	13.10	448.10	9.95	34.96
95th-Percentile Queue Length [veh/ln]	29.71	7.74	0.54	0.94	24.87	0.72	2.52
95th-Percentile Queue Length [ft/ln]	742.64	193.62	13.54	23.58	621.68	17.91	62.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.15	42.15	42.15	15.64	15.64	12.67	32.68	56.06	56.06	64.51	29.79	29.79
Movement LOS	D	D	D	B	B	B	C	E	E	E	C	C
d_A, Approach Delay [s/veh]	42.15			15.42			55.10			34.83		
Approach LOS	D			B			E			C		
d_I, Intersection Delay [s/veh]	41.26											
Intersection LOS	D											
Intersection V/C	0.866											

Emissions

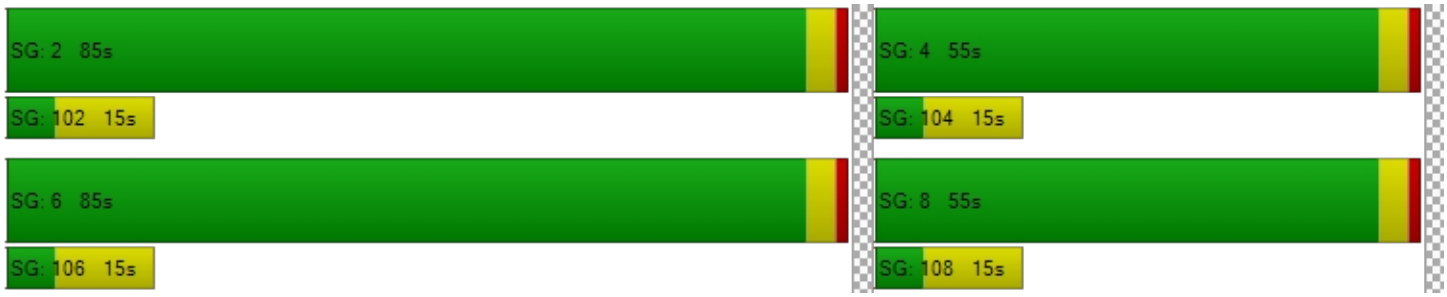
Vehicle Miles Traveled [mph]	144.20	73.37	5.97	2.59	60.44	1.00	5.92
Stops [stops/h]	566.01	111.38	7.74	13.47	460.90	10.23	35.96
Fuel consumption [US gal/h]	14.69	4.46	0.34	0.32	10.62	0.23	0.80
CO [g/h]	1026.79	311.54	23.96	22.42	742.62	16.01	55.92
NOx [g/h]	199.78	60.62	4.66	4.36	144.49	3.12	10.88
VOC [g/h]	237.97	72.20	5.55	5.20	172.11	3.71	12.96

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.29	61.29	61.29	61.29
l_p,int, Pedestrian LOS Score for Intersectio	2.256	2.214	2.451	2.189
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1157	1157	729	729
d_b, Bicycle Delay [s]	12.43	12.44	28.29	28.29
l_b,int, Bicycle LOS Score for Intersection	2.642	2.020	2.403	1.673
Bicycle LOS	B	B	B	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	83.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.008

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	110	58	13	59	102	34	11	141	1	59	571	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	1.00	3.00	0.00	38.00	0.00	3.00	10.00	13.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	0	0	0	0	0	220	11	0	365	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	58	13	59	102	34	11	361	12	59	936	30
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	16	4	16	28	9	3	99	3	16	257	8
Total Analysis Volume [veh/h]	134	64	14	65	112	37	12	397	13	65	1029	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	5	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	64	64	64	64	64	64
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	13	13	1	32	4	35
g / C, Green / Cycle	0.21	0.21	0.02	0.50	0.07	0.54
(v / s)_i Volume / Saturation Flow Rate	0.18	0.14	0.01	0.34	0.04	0.68
s, saturation flow rate [veh/h]	1172	1520	1629	1190	1590	1565
c, Capacity [veh/h]	333	387	34	591	106	850
d1, Uniform Delay [s]	24.73	23.45	31.14	12.45	29.26	14.73
k, delay calibration	0.05	0.04	0.04	0.11	0.04	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.98	0.46	2.33	1.53	2.11	122.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.55	0.36	0.69	0.61	1.25
d, Delay for Lane Group [s/veh]	25.71	23.91	33.47	13.98	31.37	136.88
Lane Group LOS	C	C	C	B	C	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.03	2.85	0.20	4.06	1.00	38.61
50th-Percentile Queue Length [ft/ln]	75.86	71.26	4.97	101.39	24.95	965.18
95th-Percentile Queue Length [veh/ln]	5.46	5.13	0.36	7.30	1.80	57.19
95th-Percentile Queue Length [ft/ln]	136.56	128.27	8.95	182.50	44.91	1429.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.71	25.71	25.71	23.91	23.91	23.91	33.47	13.98	13.98	31.37	136.88	136.88
Movement LOS	C	C	C	C	C	C	C	B	B	C	F	F
d_A, Approach Delay [s/veh]	25.71			23.91			14.53			130.79		
Approach LOS	C			C			B			F		
d_I, Intersection Delay [s/veh]	83.09											
Intersection LOS	F											
Intersection V/C	1.008											

Emissions

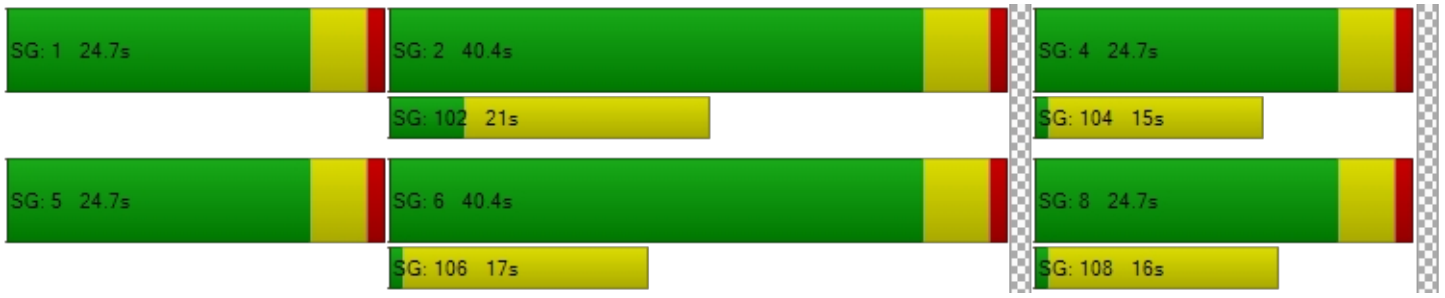
Vehicle Miles Traveled [mph]	10.17	14.47	24.55	838.95	27.92	456.15
Stops [stops/h]	169.87	159.56	11.13	227.03	55.87	2161.15
Fuel consumption [US gal/h]	2.47	2.52	1.15	36.96	1.87	60.30
CO [g/h]	172.41	176.04	80.67	2583.32	130.92	4214.69
NOx [g/h]	33.54	34.25	15.69	502.62	25.47	820.03
VOC [g/h]	39.96	40.80	18.70	598.71	30.34	976.80

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	23.79	27.35	27.35	27.35
l_p,int, Pedestrian LOS Score for Intersectio	1.895	1.862	2.648	2.544
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	622	1088	1088
d_b, Bicycle Delay [s]	15.27	15.27	6.68	6.68
l_b,int, Bicycle LOS Score for Intersection	1.909	1.913	2.256	3.419
Bicycle LOS	A	A	B	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Signalized	Delay (sec / veh):	60.1
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.998

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	367	0	0	84	0	727	19	0	585	146
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	2.00	2.00	18.00	16.00	2.00	10.00	7.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	132	80	140	0	0	233	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	367	0	0	216	80	867	19	0	818	146
Peak Hour Factor	1.0000	1.0000	0.9400	1.0000	1.0000	0.9400	1.0000	0.9400	0.9400	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	98	0	0	57	20	231	5	0	218	39
Total Analysis Volume [veh/h]	0	0	390	0	0	230	80	922	20	0	870	155
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	4	0	0	8	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	0	5	0	0	5	0	10	0	0	10	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	0	5	0	0	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No		No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	0	47	0	0	47	0	103	0	0	103	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	5	0	10	0	0	10	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall			No			No		No			No	
Maximum Recall			No			No		No			No	
Pedestrian Recall			No			No		No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	R	C	C
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	43	43	99	99
g / C, Green / Cycle	0.29	0.29	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.29	0.16	0.64	0.67
s, saturation flow rate [veh/h]	1344	1400	1461	1534
c, Capacity [veh/h]	385	401	964	1012
d1, Uniform Delay [s]	53.05	45.47	24.40	25.50
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	48.99	5.84	23.87	31.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.57	0.98	1.01
d, Delay for Lane Group [s/veh]	102.04	51.32	48.26	56.89
Lane Group LOS	F	D	D	F
Critical Lane Group	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	19.61	8.01	36.30	42.42
50th-Percentile Queue Length [ft/ln]	490.36	200.17	907.49	1060.61
95th-Percentile Queue Length [veh/ln]	27.09	12.65	46.18	53.72
95th-Percentile Queue Length [ft/ln]	677.29	316.18	1154.51	1342.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	102.04	0.00	0.00	51.32	0.00	48.26	48.26	0.00	56.89	56.89
Movement LOS			F			D		D	D		E	E
d_A, Approach Delay [s/veh]	102.04			51.32			48.26			56.89		
Approach LOS	F			D			D			E		
d_I, Intersection Delay [s/veh]	60.06											
Intersection LOS	E											
Intersection V/C	0.998											

Emissions

Vehicle Miles Traveled [mph]	29.96	12.20	404.61	153.27
Stops [stops/h]	470.75	192.16	871.19	1018.19
Fuel consumption [US gal/h]	11.93	3.97	30.72	23.80
CO [g/h]	833.99	277.19	2147.36	1663.67
NOx [g/h]	162.26	53.93	417.80	323.69
VOC [g/h]	193.29	64.24	497.67	385.57

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	66.27	66.27	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.940	1.928	2.736	2.880
Crosswalk LOS	A	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	573	573	1320	1320
d_b, Bicycle Delay [s]	38.18	38.18	8.67	8.67
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	3.114	3.251
Bicycle LOS	A	A	C	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Rio Vista Brann Ranch

Vistro File: H:\...\29055 Rio Vista Brann Ranch.vistro
Report File: H:\...\Existing Plus Project PM peak_Mitigation.pdf

Scenario 12 Existing Plus Project PM Mitigation
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	5	7	13	277	3	1	8	883	5	6	527	221	1956

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	2	0	0	0	0	13	214	847	5	11	547	21	1660

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	2	216	10	1	17	1	247

ID	Intersection Name	Southbound	Eastbound	Westbound		Total Volume
		Right	Thru	Thru	Right	
4	SR 12 & Project Driveway	160	428	571	261	1420

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
5	McCormack Rd & Project Driveway	19	18	52	32	31	7	159

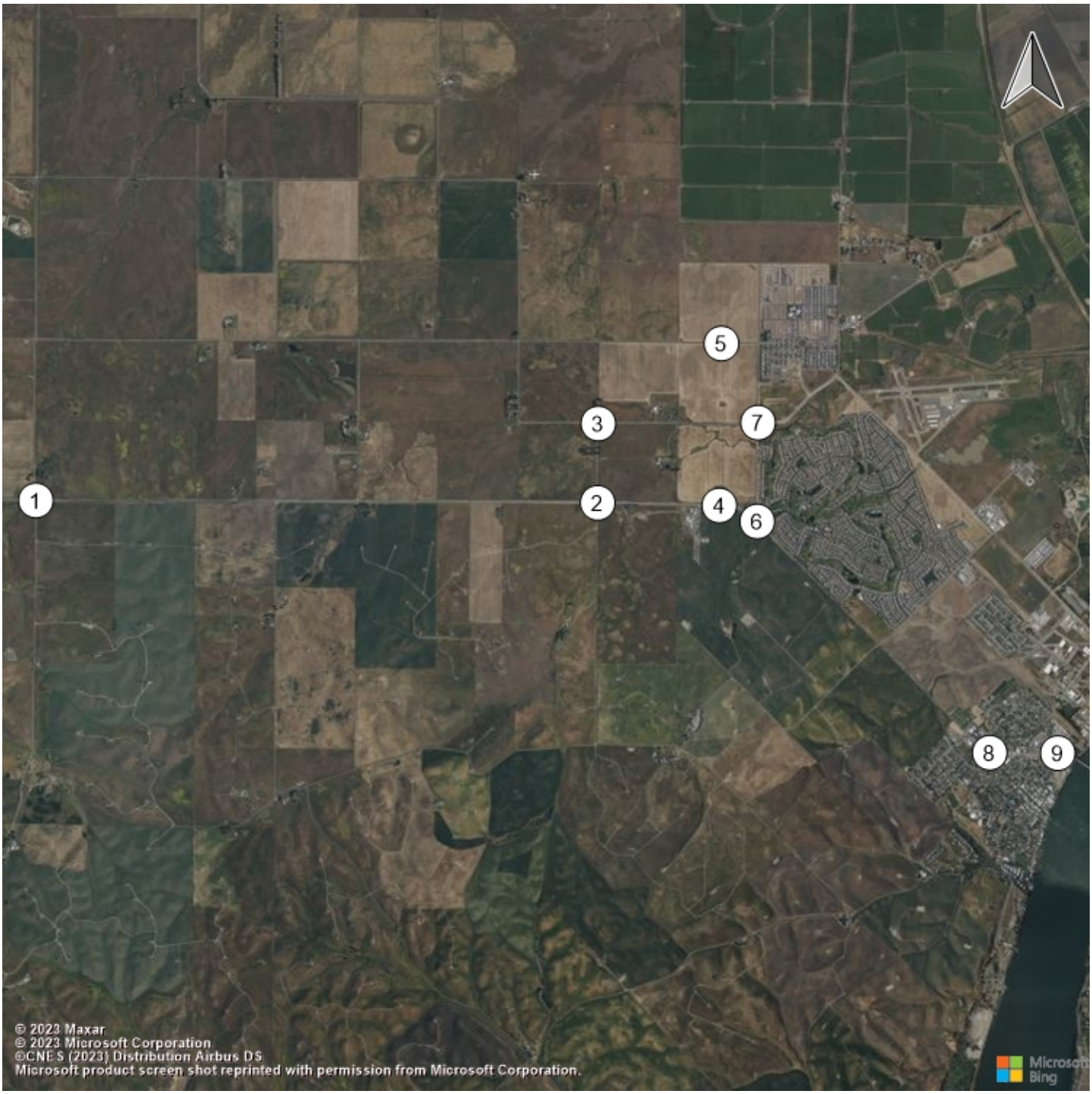
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	240	53	322	106	779	215	1715

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	107	240	66	21	142	13	13	218	91	6	36	1	954

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	122	58	13	59	102	34	11	361	12	59	936	30	1797

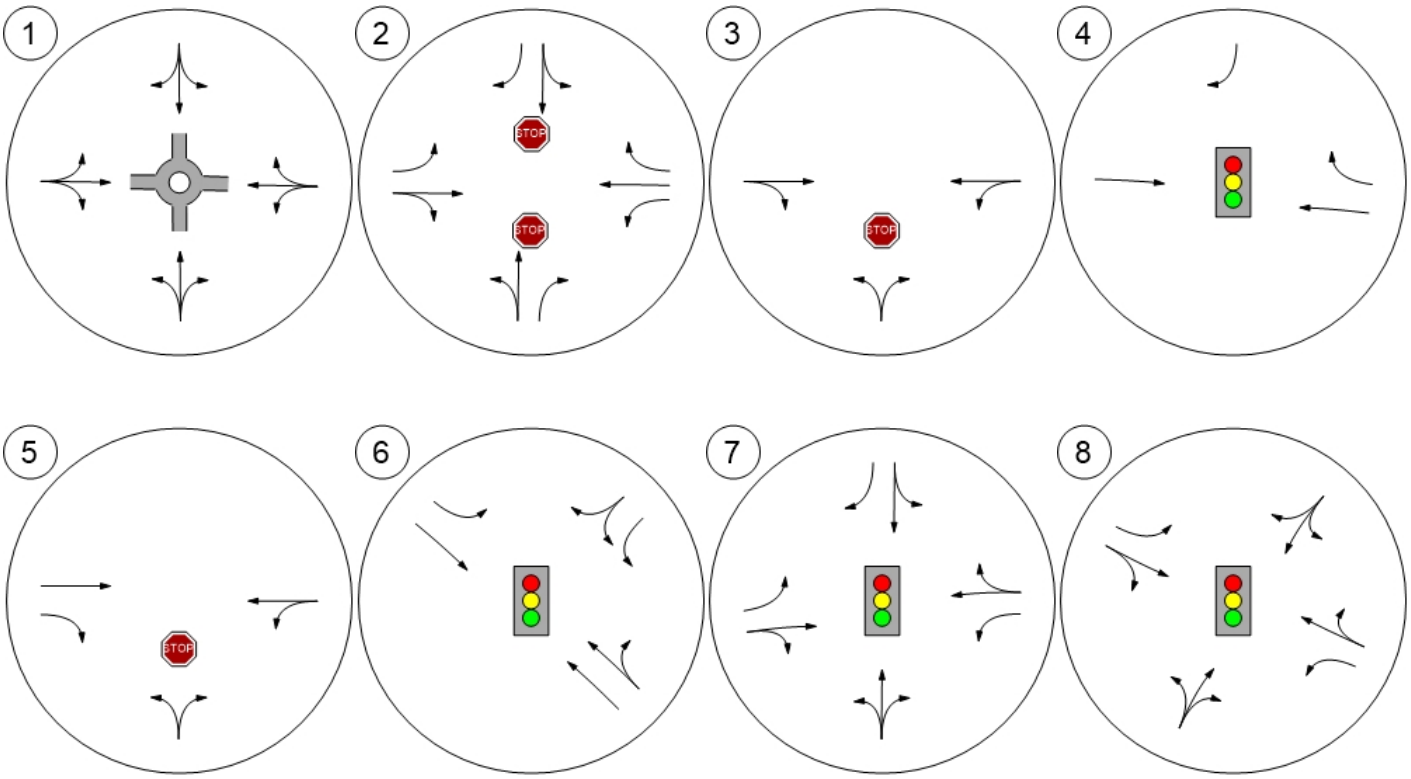
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	367	216	867	19	818	146	2433

Study Intersections



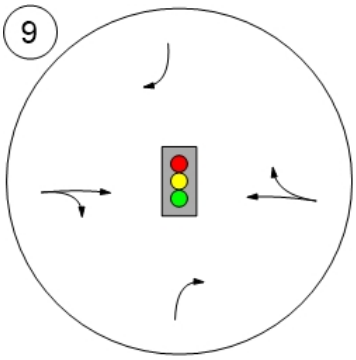
Lane Configuration and Traffic Control





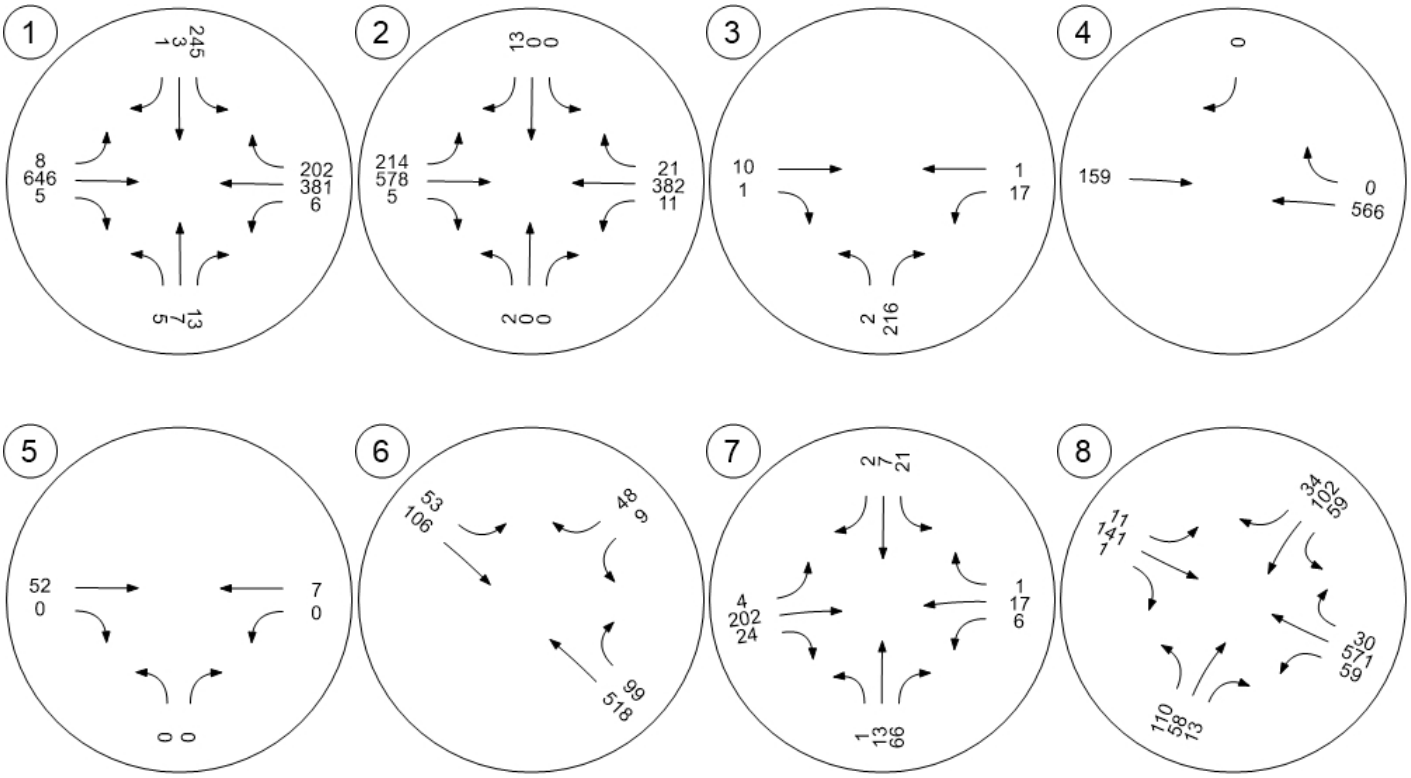
Lane Configuration and Traffic Control





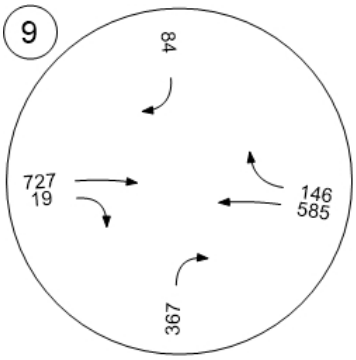
Traffic Volume - Base Volume





Traffic Volume - Base Volume





Signal Warrants Report For Intersection 2: SR 12 & Azevedo Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	975	475	30	2
2	946	461	29	2
3	926	451	29	2
4	868	423	27	2
5	770	375	24	2
6	761	371	23	2
7	751	366	23	2
8	683	333	21	1
9	673	328	21	1
10	663	323	20	1
11	575	280	18	1
12	536	261	17	1
13	527	257	16	1
14	390	190	12	1
15	390	190	12	1
16	273	133	8	1
17	156	76	5	0
18	156	76	5	0
19	88	43	3	0
20	49	24	2	0
21	29	14	1	0
22	10	5	0	0
23	10	5	0	0
24	10	5	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1450	2	30	No	No	No	No	No	No	No	No	No	No
2	3	1407	2	29	No	No	No	No	No	No	No	No	No	No
3	3	1377	2	29	No	No	No	No	No	No	No	No	No	No
4	3	1291	2	27	No	No	No	No	No	No	No	No	No	No
5	3	1145	2	24	No	No	No	No	No	No	No	No	No	No
6	3	1132	2	23	No	No	No	No	No	No	No	No	No	No
7	3	1117	2	23	No	No	No	No	No	No	No	No	No	No
8	3	1016	2	21	No	No	No	No	No	No	No	No	No	No
9	3	1001	2	21	No	No	No	No	No	No	No	No	No	No
10	3	986	2	20	No	No	No	No	No	No	No	No	No	No
11	3	855	2	18	No	No	No	No	No	No	No	No	No	No
12	3	797	2	17	No	No	No	No	No	No	No	No	No	No
13	3	784	2	16	No	No	No	No	No	No	No	No	No	No
14	3	580	2	12	No	No	No	No	No	No	No	No	No	No
15	3	580	2	12	No	No	No	No	No	No	No	No	No	No
16	3	406	2	8	No	No	No	No	No	No	No	No	No	No
17	3	232	2	5	No	No	No	No	No	No	No	No	No	No
18	3	232	2	5	No	No	No	No	No	No	No	No	No	No
19	3	131	2	3	No	No	No	No	No	No	No	No	No	No
20	3	73	2	2	No	No	No	No	No	No	No	No	No	No
21	3	43	2	1	No	No	No	No	No	No	No	No	No	No
22	3	15	2	0	No	No	No	No	No	No	No	No	No	No
23	3	15	2	0	No	No	No	No	No	No	No	No	No	No
24	3	15	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	27.7	65.4
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:13	0:02
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	30	2
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1482	1482
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 3: Canright Rd & Azevedo Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	28	5	10
2	27	5	10
3	27	5	10
4	25	4	9
5	22	4	8
6	22	4	8
7	22	4	8
8	20	4	7
9	19	3	7
10	19	3	7
11	17	3	6
12	15	3	6
13	15	3	5
14	11	2	4
15	11	2	4
16	8	1	3
17	4	1	2
18	4	1	2
19	3	0	1
20	1	0	1
21	1	0	0
22	0	0	0
23	0	0	0
24	0	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	33	1	10	No	No	No	No	No	No	No	No	No	No
2	1	32	1	10	No	No	No	No	No	No	No	No	No	No
3	1	32	1	10	No	No	No	No	No	No	No	No	No	No
4	1	29	1	9	No	No	No	No	No	No	No	No	No	No
5	1	26	1	8	No	No	No	No	No	No	No	No	No	No
6	1	26	1	8	No	No	No	No	No	No	No	No	No	No
7	1	26	1	8	No	No	No	No	No	No	No	No	No	No
8	1	24	1	7	No	No	No	No	No	No	No	No	No	No
9	1	22	1	7	No	No	No	No	No	No	No	No	No	No
10	1	22	1	7	No	No	No	No	No	No	No	No	No	No
11	1	20	1	6	No	No	No	No	No	No	No	No	No	No
12	1	18	1	6	No	No	No	No	No	No	No	No	No	No
13	1	18	1	5	No	No	No	No	No	No	No	No	No	No
14	1	13	1	4	No	No	No	No	No	No	No	No	No	No
15	1	13	1	4	No	No	No	No	No	No	No	No	No	No
16	1	9	1	3	No	No	No	No	No	No	No	No	No	No
17	1	5	1	2	No	No	No	No	No	No	No	No	No	No
18	1	5	1	2	No	No	No	No	No	No	No	No	No	No
19	1	3	1	1	No	No	No	No	No	No	No	No	No	No
20	1	1	1	1	No	No	No	No	No	No	No	No	No	No
21	1	1	1	0	No	No	No	No	No	No	No	No	No	No
22	1	0	1	0	No	No	No	No	No	No	No	No	No	No
23	1	0	1	0	No	No	No	No	No	No	No	No	No	No
24	1	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	10
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	43
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 4: SR 12 & Project Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	848	468	244
2	823	454	237
3	806	445	232
4	755	417	217
5	670	370	193
6	661	365	190
7	653	360	188
8	594	328	171
9	585	323	168
10	577	318	166
11	500	276	144
12	466	257	134
13	458	253	132
14	339	187	98
15	339	187	98
16	237	131	68
17	136	75	39
18	136	75	39
19	76	42	22
20	42	23	12
21	25	14	7
22	8	5	2
23	8	5	2
24	8	5	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1316	1	244	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2	1277	1	237	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2	1251	1	232	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2	1172	1	217	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	2	1040	1	193	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	2	1026	1	190	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
7	2	1013	1	188	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
8	2	922	1	171	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
9	2	908	1	168	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
10	2	895	1	166	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
11	2	776	1	144	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
12	2	723	1	134	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
13	2	711	1	132	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No
14	2	526	1	98	No	No	No	Yes	No	No	No	Yes	No	No
15	2	526	1	98	No	No	No	Yes	No	No	No	Yes	No	No
16	2	368	1	68	No	No	No	No	No	No	No	No	No	No
17	2	211	1	39	No	No	No	No	No	No	No	No	No	No
18	2	211	1	39	No	No	No	No	No	No	No	No	No	No
19	2	118	1	22	No	No	No	No	No	No	No	No	No	No
20	2	65	1	12	No	No	No	No	No	No	No	No	No	No
21	2	39	1	7	No	No	No	No	No	No	No	No	No	No
22	2	13	1	2	No	No	No	No	No	No	No	No	No	No
23	2	13	1	2	No	No	No	No	No	No	No	No	No	No
24	2	13	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					10	13	13	15	9	12	13	15	8	3

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	26.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:46
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	244
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1560
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 5: McCormack Rd & Project Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	10	12	57
2	10	12	55
3	10	11	54
4	9	11	51
5	8	9	45
6	8	9	44
7	8	9	44
8	7	8	40
9	7	8	39
10	7	8	39
11	6	7	34
12	6	7	31
13	5	6	31
14	4	5	23
15	4	5	23
16	3	3	16
17	2	2	9
18	2	2	9
19	1	1	5
20	1	1	3
21	0	0	2
22	0	0	1
23	0	0	1
24	0	0	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	22	1	57	No	No	No	No	No	No	No	No	No	No
2	2	22	1	55	No	No	No	No	No	No	No	No	No	No
3	2	21	1	54	No	No	No	No	No	No	No	No	No	No
4	2	20	1	51	No	No	No	No	No	No	No	No	No	No
5	2	17	1	45	No	No	No	No	No	No	No	No	No	No
6	2	17	1	44	No	No	No	No	No	No	No	No	No	No
7	2	17	1	44	No	No	No	No	No	No	No	No	No	No
8	2	15	1	40	No	No	No	No	No	No	No	No	No	No
9	2	15	1	39	No	No	No	No	No	No	No	No	No	No
10	2	15	1	39	No	No	No	No	No	No	No	No	No	No
11	2	13	1	34	No	No	No	No	No	No	No	No	No	No
12	2	13	1	31	No	No	No	No	No	No	No	No	No	No
13	2	11	1	31	No	No	No	No	No	No	No	No	No	No
14	2	9	1	23	No	No	No	No	No	No	No	No	No	No
15	2	9	1	23	No	No	No	No	No	No	No	No	No	No
16	2	6	1	16	No	No	No	No	No	No	No	No	No	No
17	2	4	1	9	No	No	No	No	No	No	No	No	No	No
18	2	4	1	9	No	No	No	No	No	No	No	No	No	No
19	2	2	1	5	No	No	No	No	No	No	No	No	No	No
20	2	2	1	3	No	No	No	No	No	No	No	No	No	No
21	2	0	1	2	No	No	No	No	No	No	No	No	No	No
22	2	0	1	1	No	No	No	No	No	No	No	No	No	No
23	2	0	1	1	No	No	No	No	No	No	No	No	No	No
24	2	0	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:08
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	57
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	79
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 7: Canright Rd & Province Path

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	255	131	45	91
2	247	127	44	88
3	242	124	43	86
4	227	117	40	81
5	201	103	36	72
6	199	102	35	71
7	196	101	35	70
8	179	92	31	64
9	176	90	31	63
10	173	89	31	62
11	150	77	27	54
12	140	72	25	50
13	138	71	24	49
14	102	52	18	36
15	102	52	18	36
16	71	37	13	25
17	41	21	7	15
18	41	21	7	15
19	23	12	4	8
20	13	7	2	5
21	8	4	1	3
22	3	1	0	1
23	3	1	0	1
24	3	1	0	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	386	2	91	No	No	No	No	No	No	No	No	No	No
2	2	374	2	88	No	No	No	No	No	No	No	No	No	No
3	2	366	2	86	No	No	No	No	No	No	No	No	No	No
4	2	344	2	81	No	No	No	No	No	No	No	No	No	No
5	2	304	2	72	No	No	No	No	No	No	No	No	No	No
6	2	301	2	71	No	No	No	No	No	No	No	No	No	No
7	2	297	2	70	No	No	No	No	No	No	No	No	No	No
8	2	271	2	64	No	No	No	No	No	No	No	No	No	No
9	2	266	2	63	No	No	No	No	No	No	No	No	No	No
10	2	262	2	62	No	No	No	No	No	No	No	No	No	No
11	2	227	2	54	No	No	No	No	No	No	No	No	No	No
12	2	212	2	50	No	No	No	No	No	No	No	No	No	No
13	2	209	2	49	No	No	No	No	No	No	No	No	No	No
14	2	154	2	36	No	No	No	No	No	No	No	No	No	No
15	2	154	2	36	No	No	No	No	No	No	No	No	No	No
16	2	108	2	25	No	No	No	No	No	No	No	No	No	No
17	2	62	2	15	No	No	No	No	No	No	No	No	No	No
18	2	62	2	15	No	No	No	No	No	No	No	No	No	No
19	2	35	2	8	No	No	No	No	No	No	No	No	No	No
20	2	20	2	5	No	No	No	No	No	No	No	No	No	No
21	2	12	2	3	No	No	No	No	No	No	No	No	No	No
22	2	4	2	1	No	No	No	No	No	No	No	No	No	No
23	2	4	2	1	No	No	No	No	No	No	No	No	No	No
24	2	4	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.7	9.3
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:07	0:14
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	45	91
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	522	522
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 9: SR12 & SR 84

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	906	635	112	151
2	879	616	109	146
3	861	603	106	143
4	806	565	100	134
5	716	502	88	119
6	707	495	87	118
7	698	489	86	116
8	634	445	78	106
9	625	438	77	104
10	616	432	76	103
11	535	375	66	89
12	498	349	62	83
13	489	343	60	82
14	362	254	45	60
15	362	254	45	60
16	254	178	31	42
17	145	102	18	24
18	145	102	18	24
19	82	57	10	14
20	45	32	6	8
21	27	19	3	5
22	9	6	1	2
23	9	6	1	2
24	9	6	1	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	1541	1	151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	1	1495	1	146	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	1	1464	1	143	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	1	1371	1	134	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	1	1218	1	119	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	1	1202	1	118	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
7	1	1187	1	116	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
8	1	1079	1	106	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
9	1	1063	1	104	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
10	1	1048	1	103	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
11	1	910	1	89	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
12	1	847	1	83	No	No	No	No	Yes	Yes	Yes	Yes	No	No
13	1	832	1	82	No	No	No	No	Yes	Yes	Yes	Yes	No	No
14	1	616	1	60	No	No	No	No	No	Yes	Yes	Yes	No	No
15	1	616	1	60	No	No	No	No	No	Yes	Yes	Yes	No	No
16	1	432	1	42	No	No	No	No	No	No	No	Yes	No	No
17	1	247	1	24	No	No	No	No	No	No	No	No	No	No
18	1	247	1	24	No	No	No	No	No	No	No	No	No	No
19	1	139	1	14	No	No	No	No	No	No	No	No	No	No
20	1	77	1	8	No	No	No	No	No	No	No	No	No	No
21	1	46	1	5	No	No	No	No	No	No	No	No	No	No
22	1	15	1	2	No	No	No	No	No	No	No	No	No	No
23	1	15	1	2	No	No	No	No	No	No	No	No	No	No
24	1	15	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					1	4	8	11	13	15	15	16	10	2

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	22	17.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:41	0:44
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	112	151
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	1804	1804
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 2: SR 12 & Azevedo Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	579	1066	13	2
2	562	1034	13	2
3	550	1013	12	2
4	515	949	12	2
5	457	842	10	2
6	452	831	10	2
7	446	821	10	2
8	405	746	9	1
9	400	736	9	1
10	394	725	9	1
11	342	629	8	1
12	318	586	7	1
13	313	576	7	1
14	232	426	5	1
15	232	426	5	1
16	162	298	4	1
17	93	171	2	0
18	93	171	2	0
19	52	96	1	0
20	29	53	1	0
21	17	32	0	0
22	6	11	0	0
23	6	11	0	0
24	6	11	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1645	2	13	No	No	No	No	No	No	No	No	No	No
2	3	1596	2	13	No	No	No	No	No	No	No	No	No	No
3	3	1563	2	12	No	No	No	No	No	No	No	No	No	No
4	3	1464	2	12	No	No	No	No	No	No	No	No	No	No
5	3	1299	2	10	No	No	No	No	No	No	No	No	No	No
6	3	1283	2	10	No	No	No	No	No	No	No	No	No	No
7	3	1267	2	10	No	No	No	No	No	No	No	No	No	No
8	3	1151	2	9	No	No	No	No	No	No	No	No	No	No
9	3	1136	2	9	No	No	No	No	No	No	No	No	No	No
10	3	1119	2	9	No	No	No	No	No	No	No	No	No	No
11	3	971	2	8	No	No	No	No	No	No	No	No	No	No
12	3	904	2	7	No	No	No	No	No	No	No	No	No	No
13	3	889	2	7	No	No	No	No	No	No	No	No	No	No
14	3	658	2	5	No	No	No	No	No	No	No	No	No	No
15	3	658	2	5	No	No	No	No	No	No	No	No	No	No
16	3	460	2	4	No	No	No	No	No	No	No	No	No	No
17	3	264	2	2	No	No	No	No	No	No	No	No	No	No
18	3	264	2	2	No	No	No	No	No	No	No	No	No	No
19	3	148	2	1	No	No	No	No	No	No	No	No	No	No
20	3	82	2	1	No	No	No	No	No	No	No	No	No	No
21	3	49	2	0	No	No	No	No	No	No	No	No	No	No
22	3	17	2	0	No	No	No	No	No	No	No	No	No	No
23	3	17	2	0	No	No	No	No	No	No	No	No	No	No
24	3	17	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.3	386.1
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:12
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	13	2
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1660	1660
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 3: Canright Rd & Azevedo Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	18	11	218
2	17	11	211
3	17	10	207
4	16	10	194
5	14	9	172
6	14	9	170
7	14	8	168
8	13	8	153
9	12	8	150
10	12	7	148
11	11	6	129
12	10	6	120
13	10	6	118
14	7	4	87
15	7	4	87
16	5	3	61
17	3	2	35
18	3	2	35
19	2	1	20
20	1	1	11
21	1	0	7
22	0	0	2
23	0	0	2
24	0	0	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	29	1	218	No	No	No	No	No	No	No	No	No	No
2	1	28	1	211	No	No	No	No	No	No	No	No	No	No
3	1	27	1	207	No	No	No	No	No	No	No	No	No	No
4	1	26	1	194	No	No	No	No	No	No	No	No	No	No
5	1	23	1	172	No	No	No	No	No	No	No	No	No	No
6	1	23	1	170	No	No	No	No	No	No	No	No	No	No
7	1	22	1	168	No	No	No	No	No	No	No	No	No	No
8	1	21	1	153	No	No	No	No	No	No	No	No	No	No
9	1	20	1	150	No	No	No	No	No	No	No	No	No	No
10	1	19	1	148	No	No	No	No	No	No	No	No	No	No
11	1	17	1	129	No	No	No	No	No	No	No	No	No	No
12	1	16	1	120	No	No	No	No	No	No	No	No	No	No
13	1	16	1	118	No	No	No	No	No	No	No	No	No	No
14	1	11	1	87	No	No	No	No	No	No	No	No	No	No
15	1	11	1	87	No	No	No	No	No	No	No	No	No	No
16	1	8	1	61	No	No	No	No	No	No	No	No	No	No
17	1	5	1	35	No	No	No	No	No	No	No	No	No	No
18	1	5	1	35	No	No	No	No	No	No	No	No	No	No
19	1	3	1	20	No	No	No	No	No	No	No	No	No	No
20	1	2	1	11	No	No	No	No	No	No	No	No	No	No
21	1	1	1	7	No	No	No	No	No	No	No	No	No	No
22	1	0	1	2	No	No	No	No	No	No	No	No	No	No
23	1	0	1	2	No	No	No	No	No	No	No	No	No	No
24	1	0	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:37
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	218
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	247
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 4: SR 12 & Project Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	832	428	160
2	807	415	155
3	790	407	152
4	740	381	142
5	657	338	126
6	649	334	125
7	641	330	123
8	582	300	112
9	574	295	110
10	566	291	109
11	491	253	94
12	458	235	88
13	449	231	86
14	333	171	64
15	333	171	64
16	233	120	45
17	133	68	26
18	133	68	26
19	75	39	14
20	42	21	8
21	25	13	5
22	8	4	2
23	8	4	2
24	8	4	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1260	1	160	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	2	1222	1	155	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	2	1197	1	152	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	2	1121	1	142	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	2	995	1	126	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
6	2	983	1	125	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
7	2	971	1	123	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
8	2	882	1	112	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
9	2	869	1	110	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
10	2	857	1	109	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
11	2	744	1	94	No	No	No	Yes	No	Yes	Yes	Yes	No	No
12	2	693	1	88	No	No	No	Yes	No	No	Yes	Yes	No	No
13	2	680	1	86	No	No	No	Yes	No	No	Yes	Yes	No	No
14	2	504	1	64	No	No	No	No	No	No	No	Yes	No	No
15	2	504	1	64	No	No	No	No	No	No	No	Yes	No	No
16	2	353	1	45	No	No	No	No	No	No	No	No	No	No
17	2	201	1	26	No	No	No	No	No	No	No	No	No	No
18	2	201	1	26	No	No	No	No	No	No	No	No	No	No
19	2	114	1	14	No	No	No	No	No	No	No	No	No	No
20	2	63	1	8	No	No	No	No	No	No	No	No	No	No
21	2	38	1	5	No	No	No	No	No	No	No	No	No	No
22	2	12	1	2	No	No	No	No	No	No	No	No	No	No
23	2	12	1	2	No	No	No	No	No	No	No	No	No	No
24	2	12	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					3	7	10	13	7	11	13	15	4	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	15
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:39
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	160
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1420
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 5: McCormack Rd & Project Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	38	84	37
2	37	81	36
3	36	80	35
4	34	75	33
5	30	66	29
6	30	66	29
7	29	65	28
8	27	59	26
9	26	58	26
10	26	57	25
11	22	50	22
12	21	46	20
13	21	45	20
14	15	34	15
15	15	34	15
16	11	24	10
17	6	13	6
18	6	13	6
19	3	8	3
20	2	4	2
21	1	3	1
22	0	1	0
23	0	1	0
24	0	1	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	122	1	37	No	No	No	No	No	No	No	No	No	No
2	2	118	1	36	No	No	No	No	No	No	No	No	No	No
3	2	116	1	35	No	No	No	No	No	No	No	No	No	No
4	2	109	1	33	No	No	No	No	No	No	No	No	No	No
5	2	96	1	29	No	No	No	No	No	No	No	No	No	No
6	2	96	1	29	No	No	No	No	No	No	No	No	No	No
7	2	94	1	28	No	No	No	No	No	No	No	No	No	No
8	2	86	1	26	No	No	No	No	No	No	No	No	No	No
9	2	84	1	26	No	No	No	No	No	No	No	No	No	No
10	2	83	1	25	No	No	No	No	No	No	No	No	No	No
11	2	72	1	22	No	No	No	No	No	No	No	No	No	No
12	2	67	1	20	No	No	No	No	No	No	No	No	No	No
13	2	66	1	20	No	No	No	No	No	No	No	No	No	No
14	2	49	1	15	No	No	No	No	No	No	No	No	No	No
15	2	49	1	15	No	No	No	No	No	No	No	No	No	No
16	2	35	1	10	No	No	No	No	No	No	No	No	No	No
17	2	19	1	6	No	No	No	No	No	No	No	No	No	No
18	2	19	1	6	No	No	No	No	No	No	No	No	No	No
19	2	11	1	3	No	No	No	No	No	No	No	No	No	No
20	2	6	1	2	No	No	No	No	No	No	No	No	No	No
21	2	4	1	1	No	No	No	No	No	No	No	No	No	No
22	2	1	1	0	No	No	No	No	No	No	No	No	No	No
23	2	1	1	0	No	No	No	No	No	No	No	No	No	No
24	2	1	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	9
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	37
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	159
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 7: Canright Rd & Province Path

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	176	413	43	322
2	171	401	42	312
3	167	392	41	306
4	157	368	38	287
5	139	326	34	254
6	137	322	34	251
7	136	318	33	248
8	123	289	30	225
9	121	285	30	222
10	120	281	29	219
11	104	244	25	190
12	97	227	24	177
13	95	223	23	174
14	70	165	17	129
15	70	165	17	129
16	49	116	12	90
17	28	66	7	52
18	28	66	7	52
19	16	37	4	29
20	9	21	2	16
21	5	12	1	10
22	2	4	0	3
23	2	4	0	3
24	2	4	0	3

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	589	2	322	No	Yes	Yes	Yes	No	No	No	Yes	No	No
2	2	572	2	312	No	Yes	Yes	Yes	No	No	No	Yes	No	No
3	2	559	2	306	No	Yes	Yes	Yes	No	No	No	Yes	No	No
4	2	525	2	287	No	Yes	Yes	Yes	No	No	No	Yes	No	No
5	2	465	2	254	No	No	Yes	Yes	No	No	No	No	No	No
6	2	459	2	251	No	No	Yes	Yes	No	No	No	No	No	No
7	2	454	2	248	No	No	Yes	Yes	No	No	No	No	No	No
8	2	412	2	225	No	No	No	Yes	No	No	No	No	No	No
9	2	406	2	222	No	No	No	Yes	No	No	No	No	No	No
10	2	401	2	219	No	No	No	Yes	No	No	No	No	No	No
11	2	348	2	190	No	No	No	Yes	No	No	No	No	No	No
12	2	324	2	177	No	No	No	No	No	No	No	No	No	No
13	2	318	2	174	No	No	No	No	No	No	No	No	No	No
14	2	235	2	129	No	No	No	No	No	No	No	No	No	No
15	2	235	2	129	No	No	No	No	No	No	No	No	No	No
16	2	165	2	90	No	No	No	No	No	No	No	No	No	No
17	2	94	2	52	No	No	No	No	No	No	No	No	No	No
18	2	94	2	52	No	No	No	No	No	No	No	No	No	No
19	2	53	2	29	No	No	No	No	No	No	No	No	No	No
20	2	30	2	16	No	No	No	No	No	No	No	No	No	No
21	2	17	2	10	No	No	No	No	No	No	No	No	No	No
22	2	6	2	3	No	No	No	No	No	No	No	No	No	No
23	2	6	2	3	No	No	No	No	No	No	No	No	No	No
24	2	6	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	4	7	11	0	0	0	4	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.9	58.9
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:09	5:15
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	43	322
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	954	954
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	Yes
Warrant Met for Intersection	**Yes**	

Signal Warrants Report For Intersection 9: SR12 & SR 84

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	964	886	216	367
2	935	859	210	356
3	916	842	205	349
4	858	789	192	327
5	762	700	171	290
6	752	691	168	286
7	742	682	166	283
8	675	620	151	257
9	665	611	149	253
10	656	602	147	250
11	569	523	127	217
12	530	487	119	202
13	521	478	117	198
14	386	354	86	147
15	386	354	86	147
16	270	248	60	103
17	154	142	35	59
18	154	142	35	59
19	87	80	19	33
20	48	44	11	18
21	29	27	6	11
22	10	9	2	4
23	10	9	2	4
24	10	9	2	4

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	1850	1	367	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	1	1794	1	356	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	1	1758	1	349	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	1	1647	1	327	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	1	1462	1	290	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	1	1443	1	286	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	1	1424	1	283	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	1	1295	1	257	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	1	1276	1	253	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	1	1258	1	250	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	1	1092	1	217	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
12	1	1017	1	202	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
13	1	999	1	198	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
14	1	740	1	147	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
15	1	740	1	147	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
16	1	518	1	103	No	No	No	Yes	No	No	No	Yes	No	No
17	1	296	1	59	No	No	No	No	No	No	No	No	No	No
18	1	296	1	59	No	No	No	No	No	No	No	No	No	No
19	1	167	1	33	No	No	No	No	No	No	No	No	No	No
20	1	92	1	18	No	No	No	No	No	No	No	No	No	No
21	1	56	1	11	No	No	No	No	No	No	No	No	No	No
22	1	19	1	4	No	No	No	No	No	No	No	No	No	No
23	1	19	1	4	No	No	No	No	No	No	No	No	No	No
24	1	19	1	4	No	No	No	No	No	No	No	No	No	No
Hours Met					13	15	15	16	13	15	15	16	13	10

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	41.5	164.1
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	2:29	16:43
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	216	367
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	2433	2433
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	Yes
Warrant Met for Intersection	**Yes**	

Appendix E

Level of Service Calculation Sheets– Cumulative No Project Conditions

Rio Vista Brann Ranch

Vistro File: H:\...\29055 Rio Vista Brann Ranch.vistro
Report File: H:\...\2040 AM.pdf

Scenario 5 2040 AM
8/26/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	WB Thru		43.8	E
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.050	67.7	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Right	0.032	8.4	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	WB Thru	0.919	52.7	D
7	Canright Rd & Province Path	All-way stop	HCM 7th Edition	WB Left	0.150	8.4	A
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	0.946	56.5	E
9	SR12 & SR 84	Two-way stop	HCM 7th Edition	SB Right	0.275	20.8	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	43.8
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	1	31	10	155	1	0	4	283	1	7	649	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	75.00	0.00	13.00	0.00	0.00	100.00	22.00	100.00	67.00	28.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	31	10	155	1	0	4	283	1	7	649	242
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	3	46	0	0	1	83	0	2	191	71
Total Analysis Volume [veh/h]	1	36	12	182	1	0	5	333	1	8	764	285
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	622			992			220			74		
Exiting Flow Rate [veh/h]	16			424			979			624		
Demand Flow Rate [veh/h]	1	31	10	155	1	0	4	283	1	7	649	242
Adjusted Demand Flow Rate [veh/h]	1	36	12	182	1	0	5	333	1	8	764	285

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.68	0.89	0.81	0.79
Entry Flow Rate [veh/h]	72	207	417	1341
Capacity of Entry and Bypass Lanes [veh/h]	732	502	1103	1280
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	501	445	898	1009
X, volume / capacity	0.10	0.41	0.38	1.05

Movement, Approach, & Intersection Results

Lane LOS	A	C	A	F
95th-Percentile Queue Length [veh]	0.32	1.98	1.78	23.14
95th-Percentile Queue Length [ft]	8.10	49.54	44.38	578.57
Approach Delay [s/veh]	8.47	15.72	8.31	61.70
Approach LOS	A	C	A	F
Intersection Delay [s/veh]	43.81			
Intersection LOS	E			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	67.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	3	0	0	11	0	71	12	449	0	0	862	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	12.00	0.00	17.00	0.00	0.00	29.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	0	11	0	71	12	449	0	0	862	0
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	3	0	21	3	131	0	0	251	0
Total Analysis Volume [veh/h]	3	0	0	13	0	83	14	522	0	0	1002	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.14	0.00	0.29	0.02	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	67.74	40.15	11.44	50.76	43.47	23.04	10.26	0.00	0.00	8.41	0.00	0.00
Movement LOS	F	E	B	F	E	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.47	0.47	1.20	0.06	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.84	3.84	0.00	11.85	11.85	29.90	1.53	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	67.74			26.79			0.27			0.00		
Approach LOS	F			D			A			A		
d_I, Intersection Delay [s/veh]	1.78											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	0	27	4	6	82	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	11.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	27	4	6	82	3
Peak Hour Factor	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	1	2	27	1
Total Analysis Volume [veh/h]	0	35	5	8	106	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.00	0.00	0.07	0.00
d_M, Delay for Movement [s/veh]	10.15	8.45	0.00	0.00	7.48	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.00	0.21	0.21
95th-Percentile Queue Length [ft/ln]	2.51	2.51	0.00	0.00	5.30	5.30
d_A, Approach Delay [s/veh]	8.45		0.00		7.21	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	6.89					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	52.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.919

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	64	108	30	446	801	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	6.00	4.00	18.00	28.00	11.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	108	30	446	801	54
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	31	9	127	228	15
Total Analysis Volume [veh/h]	73	123	34	507	910	61
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	33	0	10	37	27	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	66	66	66	66	66	66
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	8	8	2	47	40	40
g / C, Green / Cycle	0.12	0.12	0.04	0.71	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.02	0.35	0.68	0.05
s, saturation flow rate [veh/h]	1577	1385	1577	1467	1332	1327
c, Capacity [veh/h]	184	162	56	1042	805	802
d1, Uniform Delay [s]	27.02	28.28	31.41	4.23	13.08	5.43
k, delay calibration	0.11	0.11	0.11	0.12	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.38	7.17	10.25	0.38	74.31	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.76	0.61	0.49	1.13	0.08
d, Delay for Lane Group [s/veh]	28.40	35.45	41.67	4.61	87.38	5.47
Lane Group LOS	C	D	D	A	F	A
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.09	2.12	0.67	1.99	25.51	0.29
50th-Percentile Queue Length [ft/ln]	27.28	53.05	16.86	49.79	637.76	7.23
95th-Percentile Queue Length [veh/ln]	1.96	3.82	1.21	3.59	37.16	0.52
95th-Percentile Queue Length [ft/ln]	49.11	95.49	30.35	89.63	928.99	13.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.40	35.45	41.67	4.61	87.38	5.47
Movement LOS	C	D	D	A	F	A
d_A, Approach Delay [s/veh]	32.82		6.94		82.24	
Approach LOS	C		A		F	
d_I, Intersection Delay [s/veh]	52.72					
Intersection LOS	D					
Intersection V/C	0.919					

Emissions

Vehicle Miles Traveled [mph]	4.91	8.28	8.92	133.05	1862.07	124.82
Stops [stops/h]	59.42	115.55	36.72	108.46	1389.12	15.74
Fuel consumption [US gal/h]	0.95	1.87	0.86	6.55	100.51	5.29
CO [g/h]	66.57	130.47	60.01	457.96	7025.63	370.00
NOx [g/h]	12.95	25.38	11.68	89.10	1366.93	71.99
VOC [g/h]	15.43	30.24	13.91	106.14	1628.26	85.75

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.54	20.54	20.54
l_p,int, Pedestrian LOS Score for Intersectio	2.013	2.430	2.423
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	856	917	614
d_b, Bicycle Delay [s]	10.81	9.70	15.87
l_b,int, Bicycle LOS Score for Intersection	1.560	2.452	3.162
Bicycle LOS	A	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	All-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.150

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	0	11	15	6	32	25	9	30	6	72	53	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	29.00	33.00	7.00	0.00	0.00	10.00	0.00	14.00	19.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	11	15	6	32	25	9	30	6	72	53	0
Peak Hour Factor	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	5	2	11	8	3	10	2	24	18	0
Total Analysis Volume [veh/h]	0	15	20	8	43	34	12	41	8	97	72	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	796	816	788	646	698
Degree of Utilization, x	0.04	0.10	0.08	0.15	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.14	0.35	0.25	0.53	0.34
95th-Percentile Queue Length [ft]	3.44	8.69	6.27	13.15	8.59
Approach Delay [s/veh]	7.73	7.93	7.95	8.91	
Approach LOS	A	A	A	A	
Intersection Delay [s/veh]	8.39				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	56.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.946

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	94	90	10	37	113	64	20	489	0	10	794	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	9.00	3.00	0.00	4.00	4.00	14.00	6.00	16.00	0.00	0.00	26.00	36.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	90	10	37	113	64	20	489	0	10	794	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	24	3	10	30	17	5	129	0	3	209	3
Total Analysis Volume [veh/h]	99	95	11	39	119	67	21	515	0	11	836	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	1	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	13	13	2	36	1	35
g / C, Green / Cycle	0.20	0.20	0.03	0.56	0.02	0.54
(v / s)_i Volume / Saturation Flow Rate	0.17	0.15	0.01	0.34	0.01	0.63
s, saturation flow rate [veh/h]	1184	1525	1551	1494	1629	1355
c, Capacity [veh/h]	316	366	50	828	31	734
d1, Uniform Delay [s]	24.94	24.33	30.69	9.80	31.29	14.81
k, delay calibration	0.04	0.04	0.04	0.11	0.04	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.83	0.62	2.12	0.81	2.45	86.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.61	0.42	0.62	0.35	1.16
d, Delay for Lane Group [s/veh]	25.77	24.96	32.81	10.61	33.73	100.91
Lane Group LOS	C	C	C	B	C	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.92	3.09	0.34	4.19	0.18	26.06
50th-Percentile Queue Length [ft/ln]	73.12	77.28	8.44	104.67	4.61	651.52
95th-Percentile Queue Length [veh/ln]	5.26	5.56	0.61	7.54	0.33	38.34
95th-Percentile Queue Length [ft/ln]	131.62	139.10	15.19	188.40	8.29	958.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.77	25.77	25.77	24.96	24.96	24.96	32.81	10.61	10.61	33.73	100.91	100.91
Movement LOS	C	C	C	C	C	C	C	B	B	C	F	F
d_A, Approach Delay [s/veh]	25.77			24.96			11.48			100.06		
Approach LOS	C			C			B			F		
d_I, Intersection Delay [s/veh]	56.49											
Intersection LOS	E											
Intersection V/C	0.946											

Emissions

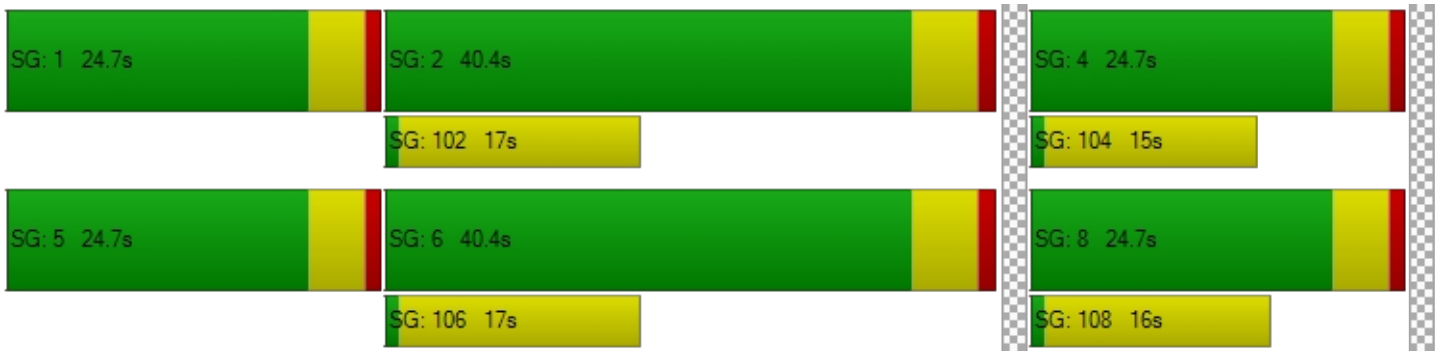
Vehicle Miles Traveled [mph]	9.83	15.22	42.97	1053.81	4.72	365.09
Stops [stops/h]	163.20	172.47	18.84	233.60	10.28	1454.12
Fuel consumption [US gal/h]	2.38	2.72	2.01	45.78	0.33	40.52
CO [g/h]	166.47	190.27	140.73	3200.29	22.85	2832.14
NOx [g/h]	32.39	37.02	27.38	622.66	4.44	551.03
VOC [g/h]	38.58	44.10	32.61	741.70	5.29	656.38

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.45	27.45	27.45	27.45
l_p,int, Pedestrian LOS Score for Intersectio	1.868	1.878	2.571	2.449
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	620	620	1085	1085
d_b, Bicycle Delay [s]	15.36	15.36	6.75	6.75
l_b,int, Bicycle LOS Score for Intersection	1.898	1.931	2.444	2.980
Bicycle LOS	A	A	B	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.275

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	200	0	0	79	0	455	36	0	776	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	6.00	2.00	18.00	10.00	2.00	23.00	9.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	200	0	0	79	0	455	36	0	776	184
Peak Hour Factor	1.0000	1.0000	0.9200	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	54	0	0	21	0	124	10	0	211	50
Total Analysis Volume [veh/h]	0	0	217	0	0	86	0	495	39	0	843	200
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.39	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	15.74	0.00	0.00	20.80	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS			C			C		A	A		A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.87	0.00	0.00	1.09	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	46.73	0.00	0.00	27.36	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.74			20.80			0.00			0.00		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	2.77											
Intersection LOS	C											

Rio Vista Brann Ranch

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Report File: H:\...\2040 AM.pdf

Scenario 5 2040 AM
8/26/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	1	31	10	155	1	0	4	283	1	7	649	242	1384

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	3	0	0	11	0	71	12	449	0	0	862	0	1408

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	0	27	4	6	82	3	122

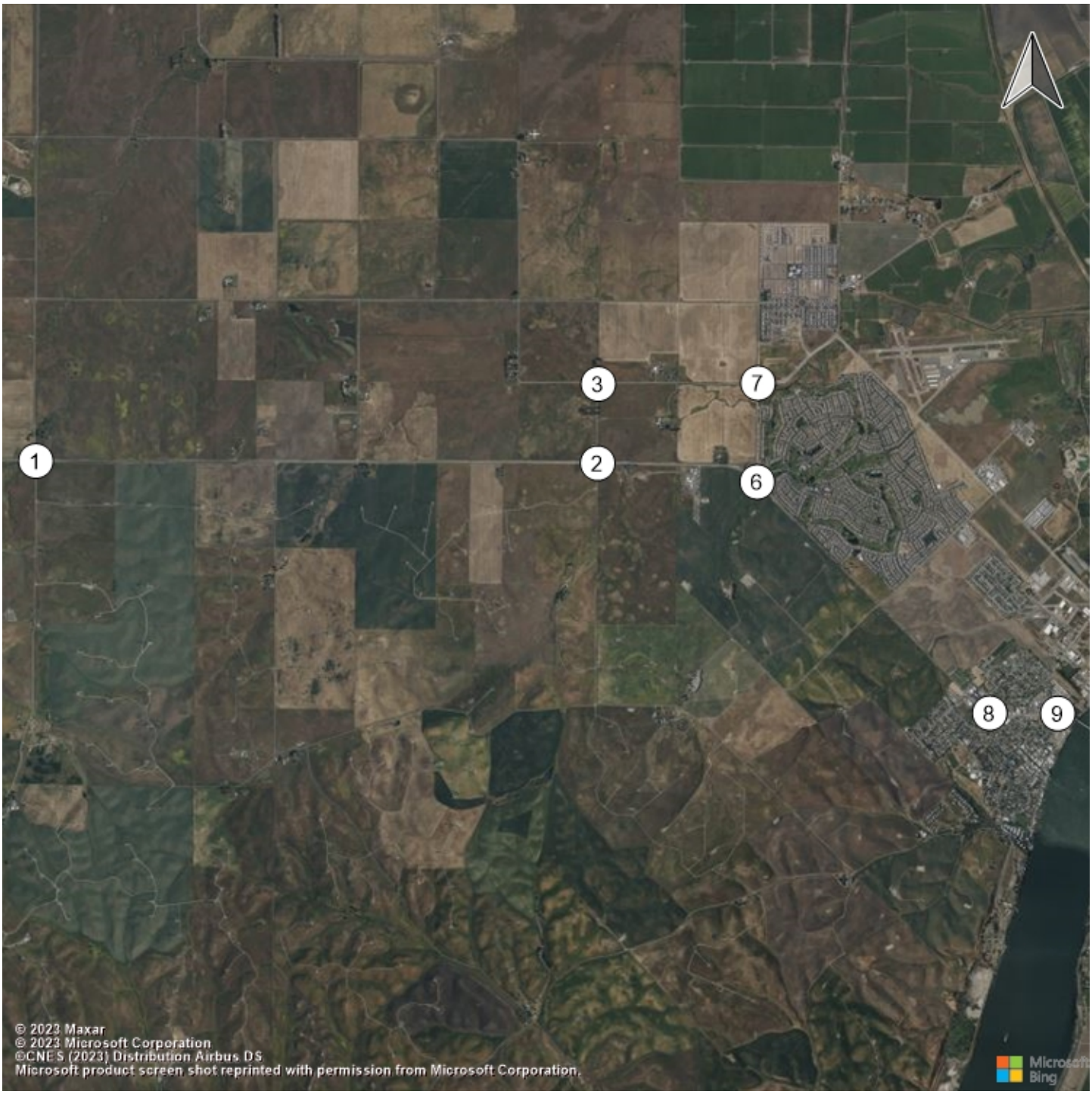
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	64	108	30	446	801	54	1503

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	0	11	15	6	32	25	9	30	6	72	53	0	259

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	94	90	10	37	113	64	20	489	0	10	794	13	1734

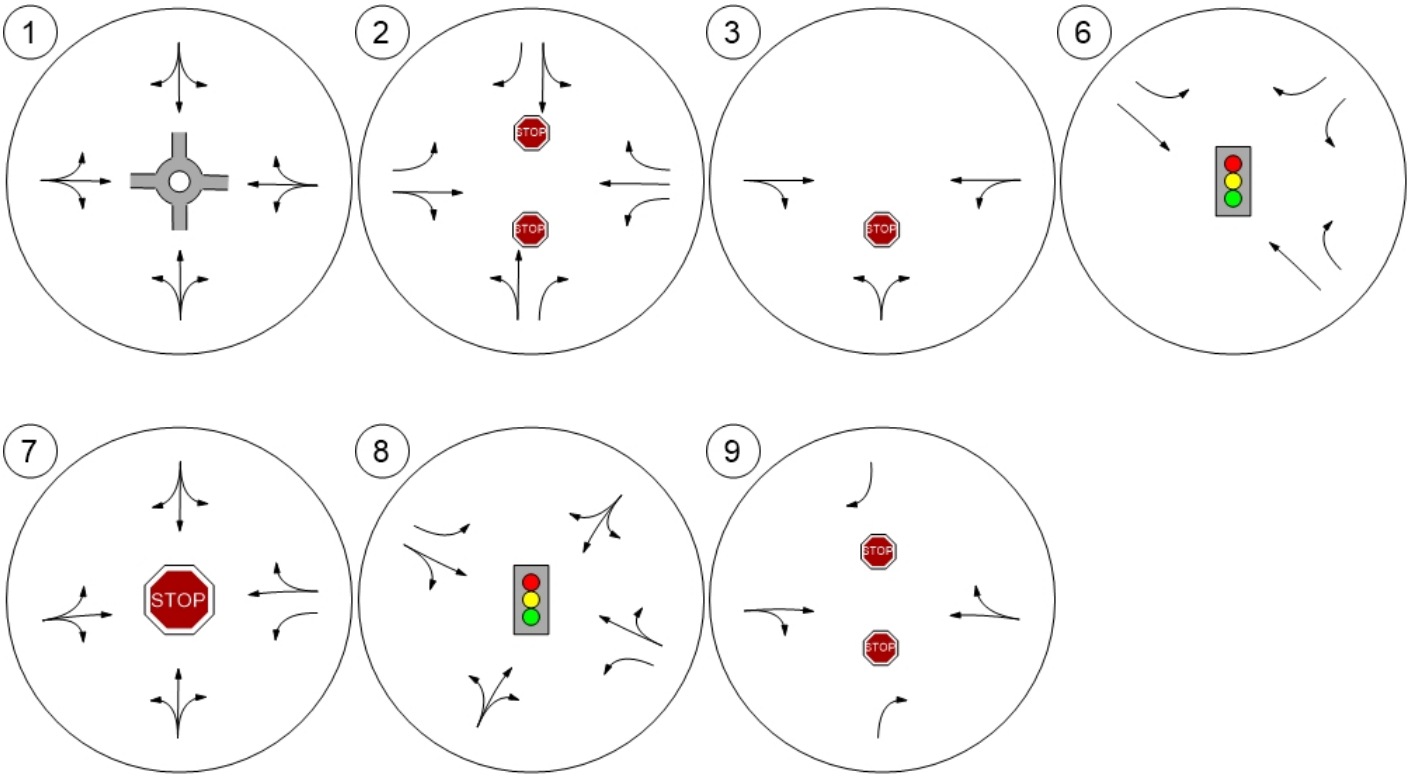
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	200	79	455	36	776	184	1730

Study Intersections



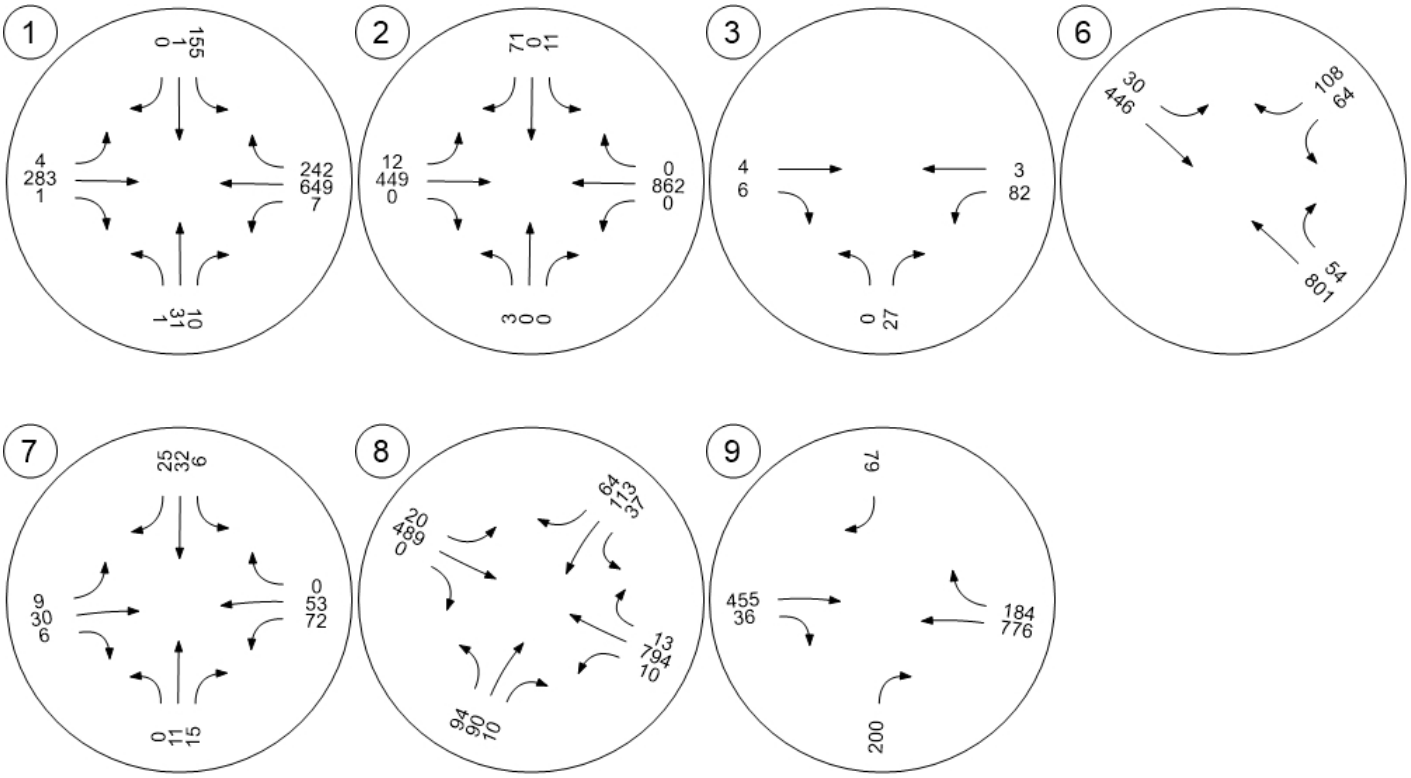
Lane Configuration and Traffic Control





Traffic Volume - Base Volume





Rio Vista Brann Ranch

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Report File: H:\...\2040 PM.pdf

Scenario 6 2040 PM
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	EB Thru		49.7	E
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.293	354.8	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.013	59.9	F
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	SB Right	0.683	13.8	B
7	Canright Rd & Province Path	All-way stop	HCM 7th Edition	EB Thru	1.675	228.7	F
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	0.889	37.9	D
9	SR12 & SR 84	Two-way stop	HCM 7th Edition	NB Right	1.595	310.8	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	49.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	6	9	17	313	4	1	10	791	6	7	470	249
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	38.00	12.00	0.00	100.00	12.00	16.00	0.00	17.00	15.00	21.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	9	17	313	4	1	10	791	6	7	470	249
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	3	5	87	1	0	3	220	2	2	131	69
Total Analysis Volume [veh/h]	7	10	19	348	4	1	11	879	7	8	522	277
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	1422			617			403			29		
Exiting Flow Rate [veh/h]	20			357			609			1436		
Demand Flow Rate [veh/h]	6	9	17	313	4	1	10	791	6	7	470	249
Adjusted Demand Flow Rate [veh/h]	7	10	19	348	4	1	11	879	7	8	522	277

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.85	0.89	0.86	0.85
Entry Flow Rate [veh/h]	43	396	1039	945
Capacity of Entry and Bypass Lanes [veh/h]	324	736	915	1340
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	277	657	790	1145
X, volume / capacity	0.13	0.54	1.14	0.71

Movement, Approach, & Intersection Results

Lane LOS	C	B	F	B
95th-Percentile Queue Length [veh]	0.44	3.21	26.22	6.25
95th-Percentile Queue Length [ft]	11.07	80.31	655.51	156.15
Approach Delay [s/veh]	15.62	14.35	97.17	13.80
Approach LOS	C	B	F	B
Intersection Delay [s/veh]	49.66			
Intersection LOS	E			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	354.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.293

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	3	0	0	0	0	36	264	712	6	13	455	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	50.00	0.00	0.00	0.00	0.00	31.00	6.00	18.00	0.00	0.00	15.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	0	0	0	36	264	712	6	13	455	25
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	0	0	11	83	223	2	4	142	8
Total Analysis Volume [veh/h]	4	0	0	0	0	45	330	890	8	16	569	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.29	0.00	0.00	0.00	0.00	0.10	0.34	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	354.77	212.20	15.50	165.06	121.50	13.46	10.72	0.00	0.00	9.81	0.00	0.00
Movement LOS	F	F	C	F	F	B	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.76	0.76	0.00	0.00	0.00	0.32	1.55	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	19.05	19.05	0.00	0.00	0.00	7.88	38.66	0.00	0.00	1.60	0.00	0.00
d_A, Approach Delay [s/veh]	354.77			13.46			2.88			0.25		
Approach LOS	F			B			A			A		
d_I, Intersection Delay [s/veh]	3.02											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	59.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	5	590	19	2	52	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	10.00	0.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	590	19	2	52	3
Peak Hour Factor	0.5600	0.5600	0.5600	0.5600	0.5600	0.5600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	263	8	1	23	1
Total Analysis Volume [veh/h]	9	1054	34	4	93	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	1.03	0.00	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	59.91	58.40	0.00	0.00	7.53	0.00
Movement LOS	F	F	A	A	A	A
95th-Percentile Queue Length [veh/ln]	22.53	22.53	0.00	0.00	0.19	0.19
95th-Percentile Queue Length [ft/ln]	563.27	563.27	0.00	0.00	4.66	4.66
d_A, Approach Delay [s/veh]	58.41		0.00		7.14	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	52.37					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	12	66	69	137	616	118
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	11.00	10.00	6.00	46.00	13.00	4.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	66	69	137	616	118
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	18	19	38	169	32
Total Analysis Volume [veh/h]	13	73	76	151	677	130
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	25	0	33	125	92	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	44	44	44	44	44	44
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	3	3	3	30	22	22
g / C, Green / Cycle	0.07	0.07	0.07	0.67	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.05	0.14	0.44	0.09
s, saturation flow rate [veh/h]	1487	1339	1551	1089	1534	1408
c, Capacity [veh/h]	110	99	107	729	760	697
d1, Uniform Delay [s]	19.24	20.17	20.28	2.82	10.15	6.25
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	10.06	8.36	0.14	3.89	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.74	0.71	0.21	0.89	0.19
d, Delay for Lane Group [s/veh]	19.71	30.23	28.63	2.96	14.04	6.38
Lane Group LOS	B	C	C	A	B	A
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.13	0.94	0.94	0.24	4.88	0.50
50th-Percentile Queue Length [ft/ln]	3.16	23.41	23.40	5.94	121.98	12.61
95th-Percentile Queue Length [veh/ln]	0.23	1.69	1.68	0.43	8.50	0.91
95th-Percentile Queue Length [ft/ln]	5.69	42.14	42.11	10.70	212.55	22.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.71	30.23	28.63	2.96	14.04	6.38
Movement LOS	B	C	C	A	B	A
d_A, Approach Delay [s/veh]	28.64		11.55		12.81	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	13.77					
Intersection LOS	B					
Intersection V/C	0.683					

Emissions

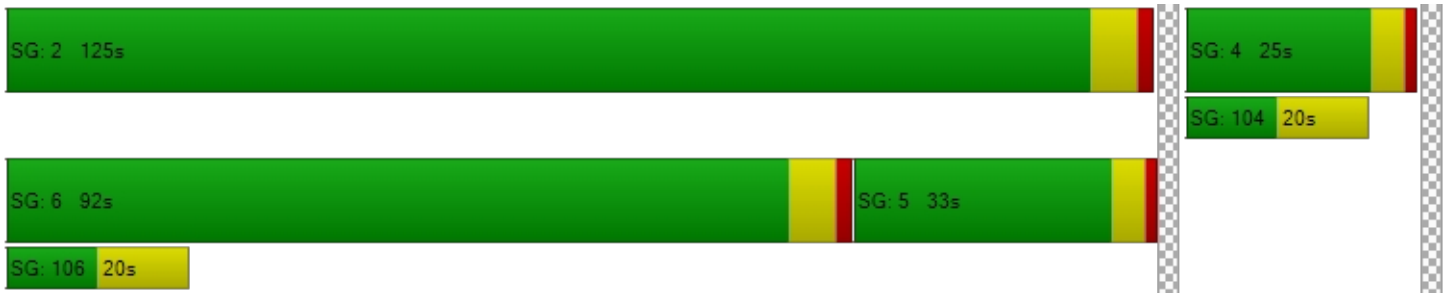
Vehicle Miles Traveled [mph]	0.87	4.91	19.94	39.62	1385.30	266.01
Stops [stops/h]	10.25	75.92	75.87	19.27	395.59	40.91
Fuel consumption [US gal/h]	0.14	1.07	1.68	1.83	61.15	11.35
CO [g/h]	10.12	74.85	117.65	127.82	4274.25	793.05
NOx [g/h]	1.97	14.56	22.89	24.87	831.61	154.30
VOC [g/h]	2.35	17.35	27.27	29.62	990.60	183.80

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	10.41	10.41	10.41
l_p,int, Pedestrian LOS Score for Intersectio	1.986	2.209	2.207
Crosswalk LOS	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	914	5328	3842
d_b, Bicycle Delay [s]	6.54	61.49	18.83
l_b,int, Bicycle LOS Score for Intersection	1.560	1.934	2.891
Bicycle LOS	A	A	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	All-way stop	Delay (sec / veh):	228.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.675

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	2	28	140	44	15	4	12	613	73	20	56	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	5.00	0.00	0.00	0.00	4.00	4.00	17.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	28	140	44	15	4	12	613	73	20	56	3
Peak Hour Factor	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	11	56	17	6	2	5	243	29	8	22	1
Total Analysis Volume [veh/h]	3	44	222	70	24	6	19	973	116	32	89	5
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	613	526	1108	489	535
Degree of Utilization, x	0.44	0.19	1.68	0.07	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.23	0.70	62.49	0.21	0.63
95th-Percentile Queue Length [ft]	55.76	17.41	1562.18	5.24	15.81
Approach Delay [s/veh]	13.39	11.46	325.37	10.79	
Approach LOS	B	B	F	B	
Intersection Delay [s/veh]	228.70				
Intersection LOS	F				

Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	37.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.889

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	152	80	18	86	149	50	13	169	1	69	664	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	1.00	3.00	0.00	38.00	0.00	3.00	10.00	13.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	152	80	18	86	149	50	13	169	1	69	664	35
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	22	5	24	41	14	4	46	0	19	182	10
Total Analysis Volume [veh/h]	167	88	20	95	164	55	14	186	1	76	730	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	5	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	71	71	71	71	71	71
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	20	20	2	32	5	35
g / C, Green / Cycle	0.28	0.28	0.02	0.45	0.07	0.49
(v / s)_i Volume / Saturation Flow Rate	0.28	0.21	0.01	0.16	0.05	0.49
s, saturation flow rate [veh/h]	999	1466	1629	1196	1590	1559
c, Capacity [veh/h]	361	476	37	532	107	764
d1, Uniform Delay [s]	25.64	23.30	34.41	13.02	32.61	18.21
k, delay calibration	0.38	0.20	0.04	0.04	0.04	0.42
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.94	2.87	2.37	0.15	3.19	31.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.66	0.38	0.35	0.71	1.00
d, Delay for Lane Group [s/veh]	36.59	26.17	36.78	13.17	35.81	49.35
Lane Group LOS	D	C	D	B	D	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.50	4.90	0.26	1.82	1.34	17.41
50th-Percentile Queue Length [ft/ln]	137.42	122.46	6.43	45.43	33.53	435.36
95th-Percentile Queue Length [veh/ln]	9.34	8.53	0.46	3.27	2.41	24.35
95th-Percentile Queue Length [ft/ln]	233.55	213.20	11.58	81.77	60.36	608.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.59	36.59	36.59	26.17	26.17	26.17	36.78	13.17	13.17	35.81	49.35	49.35
Movement LOS	D	D	D	C	C	C	D	B	B	D	D	D
d_A, Approach Delay [s/veh]	36.59			26.17			14.82			48.13		
Approach LOS	D			C			B			D		
d_I, Intersection Delay [s/veh]	37.87											
Intersection LOS	D											
Intersection V/C	0.889											

Emissions

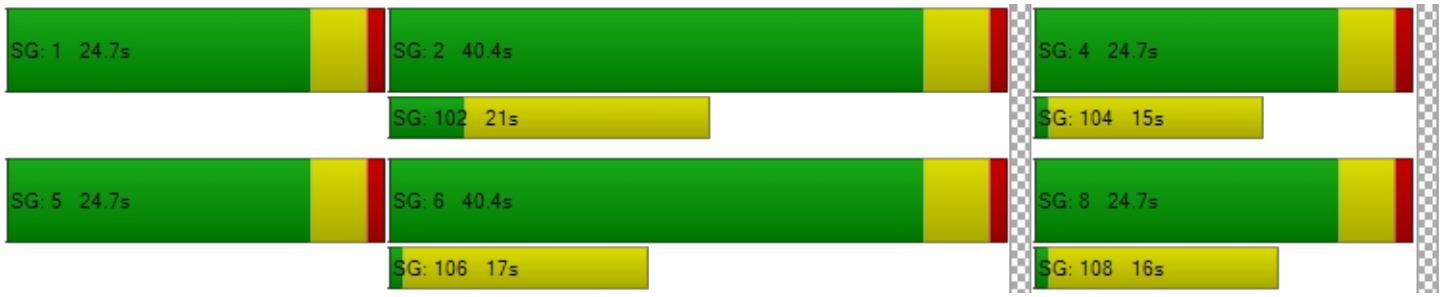
Vehicle Miles Traveled [mph]	13.19	21.23	28.65	382.65	32.64	329.87
Stops [stops/h]	277.41	247.20	12.99	91.71	67.69	878.84
Fuel consumption [US gal/h]	4.12	3.91	1.36	16.76	2.27	26.15
CO [g/h]	288.20	273.46	94.77	1171.53	158.78	1827.66
NOx [g/h]	56.07	53.21	18.44	227.94	30.89	355.60
VOC [g/h]	66.79	63.38	21.96	271.51	36.80	423.58

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.24	30.84	30.84	30.84
l_p,int, Pedestrian LOS Score for Intersectio	1.956	1.931	2.547	2.442
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	561	561	981	981
d_b, Bicycle Delay [s]	18.47	18.47	9.25	9.26
l_b,int, Bicycle LOS Score for Intersection	2.013	2.078	1.891	2.952
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Two-way stop	Delay (sec / veh):	310.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.595

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	486	0	0	101	0	848	22	0	682	170
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	2.00	2.00	18.00	16.00	2.00	10.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	486	0	0	101	0	848	22	0	682	170
Peak Hour Factor	1.0000	1.0000	0.9400	1.0000	1.0000	0.9400	1.0000	0.9400	0.9400	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	129	0	0	27	0	226	6	0	181	45
Total Analysis Volume [veh/h]	0	0	517	0	0	107	0	902	23	0	726	181
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	1.59	0.00	0.00	0.28	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	310.76	0.00	0.00	18.31	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS			F			C		A	A		A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	30.46	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	761.60	0.00	0.00	28.78	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	310.76			18.31			0.00			0.00		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	66.21											
Intersection LOS	F											

Rio Vista Brann Ranch

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Report File: H:\...\2040 PM.pdf

Scenario 6 2040 PM
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	6	9	17	313	4	1	10	791	6	7	470	249	1883

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	3	0	0	0	0	36	264	712	6	13	455	25	1514

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	5	590	19	2	52	3	671

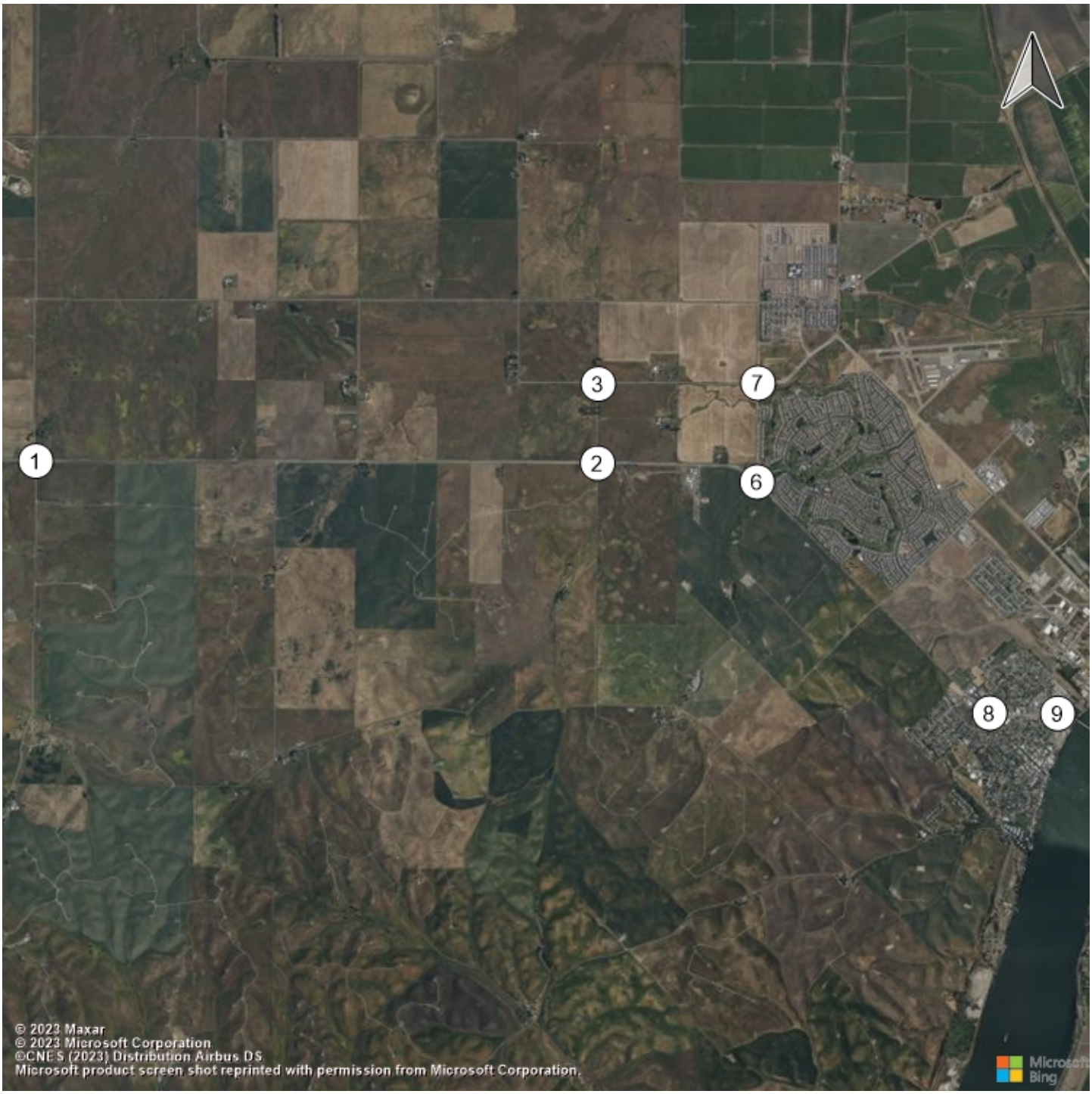
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	12	66	69	137	616	118	1018

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	2	28	140	44	15	4	12	613	73	20	56	3	1010

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	152	80	18	86	149	50	13	169	1	69	664	35	1486

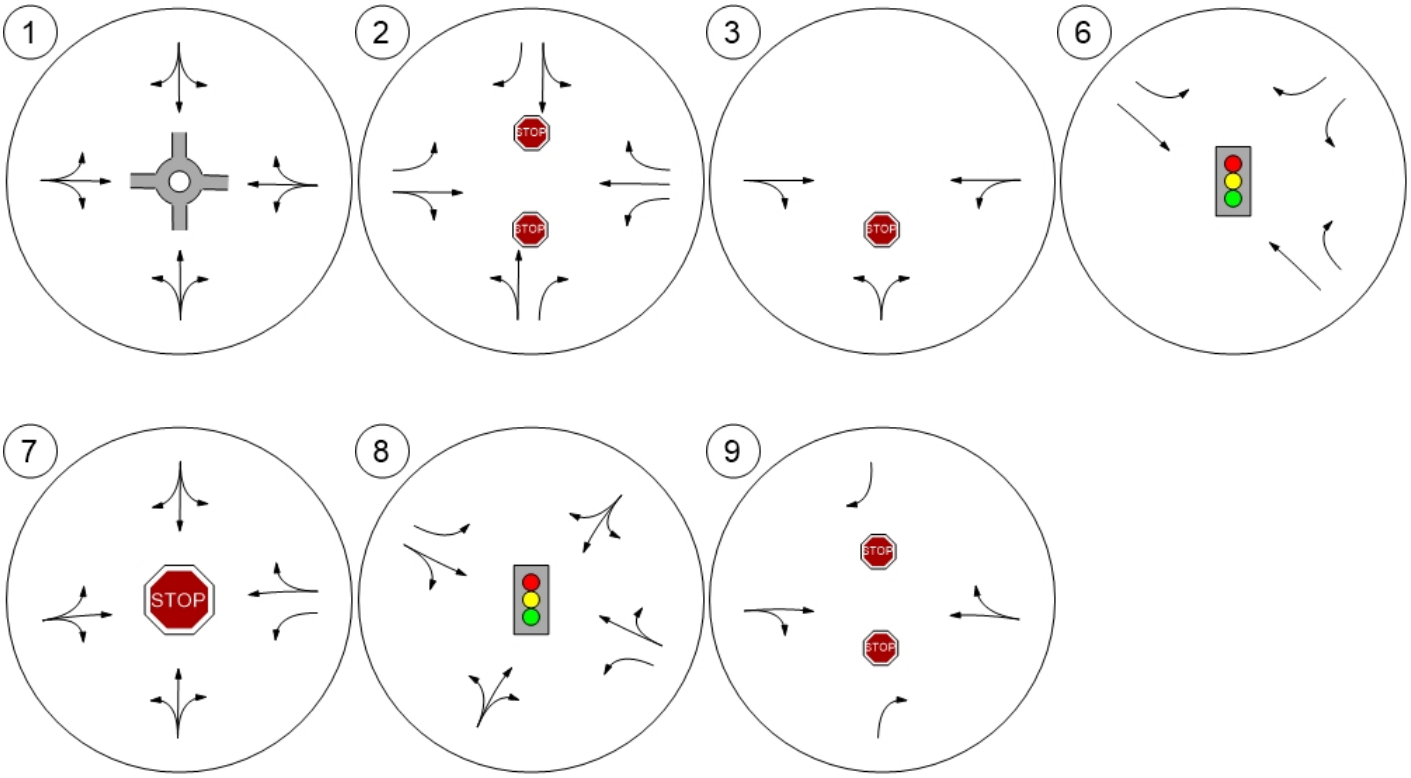
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	486	101	848	22	682	170	2309

Study Intersections



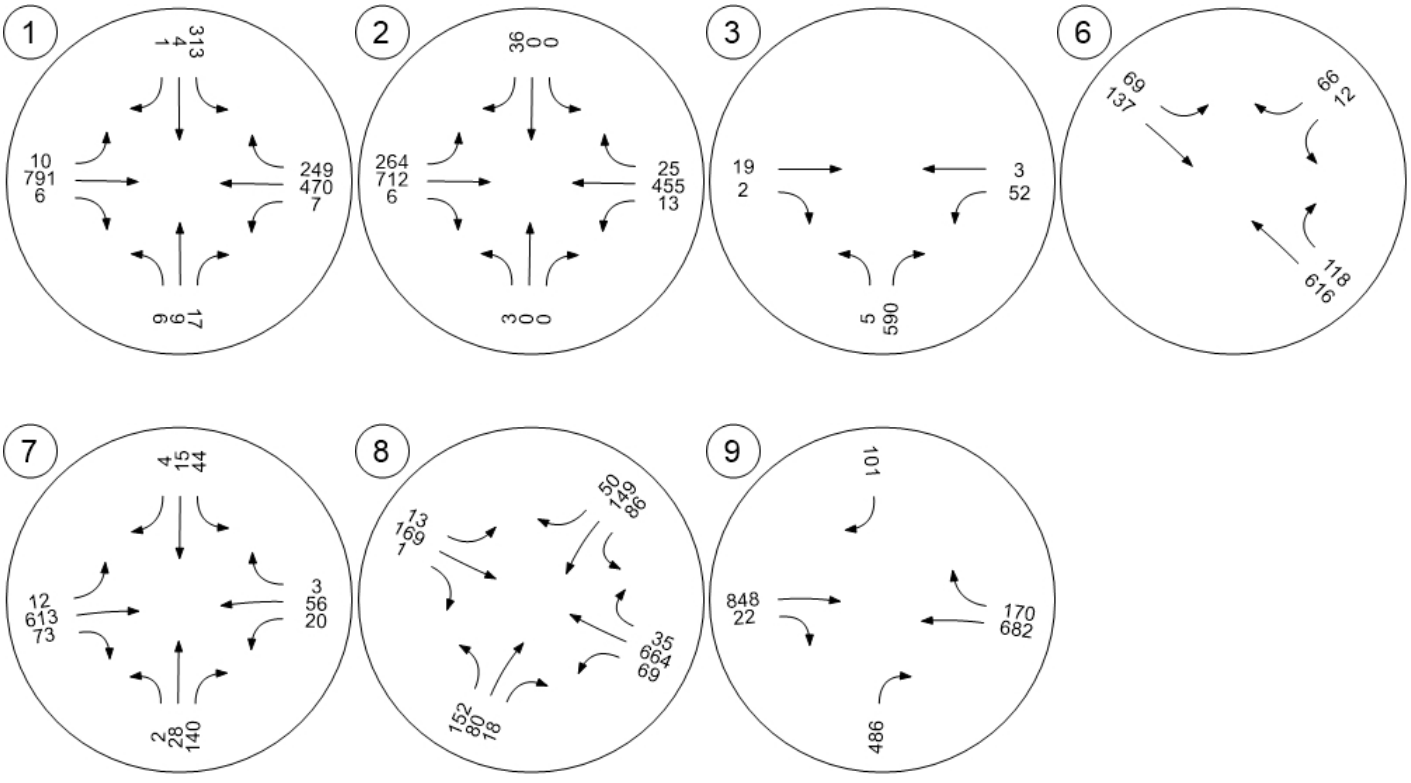
Lane Configuration and Traffic Control





Traffic Volume - Base Volume





Appendix F

Level of Service Calculation Sheets and Signal Warrants – Cumulative Plus Project Conditions

Rio Vista Brann Ranch

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Report File: H:\...\2040 Plus Project AM.pdf

Scenario 7 2040 Plus Project AM
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	WB Thru		121.5	F
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.122	171.1	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Right	0.032	8.4	A
4	SR 12 & Project Driveway	Signalized	HCM 7th Edition	WB Thru	0.000	1.0	A
5	McCormack Rd & Project Driveway	Two-way stop	HCM 7th Edition	NB Left	0.029	8.8	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	SB Left	1.303	182.2	F
7	Canright Rd & Province Path	All-way stop	HCM 7th Edition	SB Thru	0.585	13.4	B
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	1.086	119.2	F
9	SR12 & SR 84	Two-way stop	HCM 7th Edition	SB Right	0.491	29.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	121.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	1	31	10	155	1	0	4	283	1	7	649	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	75.00	0.00	13.00	0.00	0.00	100.00	22.00	100.00	67.00	28.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	10	0	0	0	91	0	0	222	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	31	10	165	1	0	4	374	1	7	871	271
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	3	49	0	0	1	110	0	2	256	80
Total Analysis Volume [veh/h]	1	36	12	194	1	0	5	440	1	8	1025	319
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1			
Circulating Flow Rate [veh/h]	766			1326			234			74			
Exiting Flow Rate [veh/h]	16			465			1313			768			
Demand Flow Rate [veh/h]	1	31	10	165	1	0	4	374	1	7	871	271	
Adjusted Demand Flow Rate [veh/h]	1	36	12	194	1	0	5	440	1	8	1025	319	

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.68	0.89	0.82	0.79
Entry Flow Rate [veh/h]	72	221	547	1717
Capacity of Entry and Bypass Lanes [veh/h]	632	357	1088	1280
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	432	316	887	1008
X, volume / capacity	0.11	0.62	0.50	1.34

Movement, Approach, & Intersection Results

Lane LOS	A	D	B	F
95th-Percentile Queue Length [veh]	0.38	3.85	2.88	52.64
95th-Percentile Queue Length [ft]	9.52	96.37	72.12	1316.07
Approach Delay [s/veh]	9.97	31.23	10.61	175.14
Approach LOS	A	D	B	F
Intersection Delay [s/veh]	121.50			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	171.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.122

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	3	0	0	11	0	71	12	449	0	0	862	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	12.00	0.00	17.00	0.00	0.00	29.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	101	0	0	251	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	0	11	0	71	12	550	0	0	1113	0
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	3	0	21	3	160	0	0	324	0
Total Analysis Volume [veh/h]	3	0	0	13	0	83	14	640	0	0	1294	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.00	0.00	0.28	0.00	0.44	0.03	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	171.12	82.18	12.52	109.10	89.96	38.18	11.81	0.00	0.00	8.77	0.00	0.00
Movement LOS	F	F	B	F	F	E	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.37	0.37	0.00	0.94	0.94	2.04	0.08	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.19	9.19	0.00	23.56	23.56	50.91	1.98	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	171.12			47.78			0.25			0.00		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	2.57											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	0	27	4	6	82	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	11.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	27	4	6	82	3
Peak Hour Factor	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	1	2	27	1
Total Analysis Volume [veh/h]	0	35	5	8	106	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.00	0.00	0.07	0.00
d_M, Delay for Movement [s/veh]	10.15	8.45	0.00	0.00	7.48	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.00	0.21	0.21
95th-Percentile Queue Length [ft/ln]	2.51	2.51	0.00	0.00	5.30	5.30
d_A, Approach Delay [s/veh]	8.45		0.00		7.21	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	6.89					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: SR 12 & Project Driveway

Control Type:	Signalized	Delay (sec / veh):	1.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project Driveway		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	425.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1200.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Project Driveway		SR 12		SR 12	
Base Volume Input [veh/h]	0	0	0	476	909	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	244	0	101	7	90
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	244	0	577	916	90
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	61	0	144	229	23
Total Analysis Volume [veh/h]	0	244	0	577	916	90
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	2	0	6	2	0
Auxiliary Signal Groups						
Maximum Green [s]	0	5	0	10	5	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	5	5	0
Pedestrian Clearance [s]	0	10	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	150	0	150	150	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	0	5	0	10	5	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No		No	No	
Maximum Recall		No		No	No	
Pedestrian Recall		No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	C	C	R
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	146	146	146	146
g / C, Green / Cycle	0.97	0.97	0.97	0.97
(v / s)_i Volume / Saturation Flow Rate	0.17	0.34	0.54	0.06
s, saturation flow rate [veh/h]	1431	1683	1683	1431
c, Capacity [veh/h]	1392	1638	1638	1392
d1, Uniform Delay [s]	0.06	0.08	0.12	0.06
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	0.60	1.38	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.35	0.56	0.06
d, Delay for Lane Group [s/veh]	0.34	0.68	1.50	0.15
Lane Group LOS	A	A	A	A
Critical Lane Group	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.11	0.27	0.63	0.03
50th-Percentile Queue Length [ft/ln]	2.65	6.78	15.75	0.86
95th-Percentile Queue Length [veh/ln]	0.19	0.49	1.13	0.06
95th-Percentile Queue Length [ft/ln]	4.78	12.21	28.34	1.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.34	0.00	0.68	1.50	0.15
Movement LOS		A		A	A	A
d_A, Approach Delay [s/veh]	0.34		0.68		1.38	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.02					
Intersection LOS	A					
Intersection V/C	0.000					

Emissions

Vehicle Miles Traveled [mph]	30.86	438.67	240.37	23.62
Stops [stops/h]	2.55	6.51	15.12	0.83
Fuel consumption [US gal/h]	1.30	18.17	10.26	0.98
CO [g/h]	90.97	1270.35	717.08	68.47
NOx [g/h]	17.70	247.16	139.52	13.32
VOC [g/h]	21.08	294.42	166.19	15.87

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	0.00	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.903	0.000	2.480
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1947	1947	1947
d_b, Bicycle Delay [s]	0.05	0.05	0.05
l_b,int, Bicycle LOS Score for Intersection	1.560	2.512	3.220
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: McCormack Rd & Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Project Driveway				McCormack Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway				McCormack Rd	
Base Volume Input [veh/h]	0	0	2	0	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	29	28	0	10	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	28	2	10	9	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	7	1	3	2	1
Total Analysis Volume [veh/h]	29	28	2	10	9	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	8.84	8.53	0.00	0.00	7.25	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	4.38	4.38	0.00	0.00	0.38	0.38
d_A, Approach Delay [s/veh]	8.69		0.00		5.93	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	7.01					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	182.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.303

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	64	108	30	446	801	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	6.00	4.00	18.00	28.00	11.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	355	7	101	0	90	62
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	419	115	131	446	891	116
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	33	37	127	253	33
Total Analysis Volume [veh/h]	476	131	149	507	1013	132
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	30	0	10	40	30	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	15	15	9	54	40	40
g / C, Green / Cycle	0.19	0.19	0.11	0.67	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.30	0.09	0.09	0.35	0.76	0.10
s, saturation flow rate [veh/h]	1577	1385	1577	1467	1332	1327
c, Capacity [veh/h]	295	259	180	984	663	661
d1, Uniform Delay [s]	32.59	29.27	34.73	6.64	20.13	11.23
k, delay calibration	0.50	0.11	0.11	0.20	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	291.29	1.53	9.18	0.78	245.18	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.61	0.51	0.83	0.52	1.53	0.20
d, Delay for Lane Group [s/veh]	323.88	30.79	43.91	7.42	265.32	11.37
Lane Group LOS	F	C	D	A	F	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	29.40	2.31	3.23	3.66	56.12	1.24
50th-Percentile Queue Length [ft/ln]	735.01	57.87	80.83	91.53	1403.00	31.11
95th-Percentile Queue Length [veh/ln]	46.37	4.17	5.82	6.59	88.05	2.24
95th-Percentile Queue Length [ft/ln]	1159.15	104.17	145.50	164.76	2201.24	56.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	323.88	30.79	43.91	7.42	265.32	11.37
Movement LOS	F	C	D	A	F	B
d_A, Approach Delay [s/veh]	260.63		15.71		236.04	
Approach LOS	F		B		F	
d_I, Intersection Delay [s/veh]	182.22					
Intersection LOS	F					
Intersection V/C	1.303					

Emissions

Vehicle Miles Traveled [mph]	29.20	8.04	39.10	133.05	2072.83	270.10
Stops [stops/h]	1318.97	103.85	145.05	164.26	2517.67	55.83
Fuel consumption [US gal/h]	39.86	1.73	3.74	7.15	153.92	11.73
CO [g/h]	2785.95	120.61	261.60	499.83	10759.33	820.15
NOx [g/h]	542.05	23.47	50.90	97.25	2093.38	159.57
VOC [g/h]	645.67	27.95	60.63	115.84	2493.58	190.08

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.34	27.34	27.34
l_p,int, Pedestrian LOS Score for Intersectio	2.219	2.515	2.622
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	830	581
d_b, Bicycle Delay [s]	18.81	13.73	20.21
l_b,int, Bicycle LOS Score for Intersection	1.560	2.642	3.449
Bicycle LOS	A	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	All-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.585

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	0	11	15	6	32	25	9	30	6	72	53	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	29.00	33.00	7.00	0.00	0.00	10.00	0.00	14.00	19.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	84	0	0	221	4	3	6	67	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	95	15	6	253	29	12	36	73	72	60	0
Peak Hour Factor	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	32	5	2	85	10	4	12	25	24	20	0
Total Analysis Volume [veh/h]	47	128	20	8	342	39	16	49	99	97	81	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	577	599	697	509	585	495	526
Degree of Utilization, x	0.34	0.58	0.06	0.03	0.25	0.20	0.15

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.49	3.77	0.18	0.10	1.00	0.72	0.54
95th-Percentile Queue Length [ft]	37.14	94.17	4.44	2.43	24.96	18.02	13.54
Approach Delay [s/veh]	12.39	15.96		10.84		11.31	
Approach LOS	B	C		B		B	
Intersection Delay [s/veh]	13.41						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	119.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.086

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	94	90	10	37	113	64	20	489	0	10	794	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	9.00	3.00	0.00	4.00	4.00	14.00	6.00	16.00	0.00	0.00	26.00	36.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	0	0	0	0	336	19	0	129	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	90	10	37	113	64	20	825	19	10	923	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	24	3	10	30	17	5	217	5	3	243	3
Total Analysis Volume [veh/h]	123	95	11	39	119	67	21	868	20	11	972	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	1	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	67	67	67	67	67	67
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	15	15	2	36	1	35
g / C, Green / Cycle	0.22	0.22	0.03	0.54	0.02	0.53
(v / s)_i Volume / Saturation Flow Rate	0.20	0.15	0.01	0.60	0.01	0.73
s, saturation flow rate [veh/h]	1153	1525	1551	1488	1629	1355
c, Capacity [veh/h]	340	403	47	799	29	711
d1, Uniform Delay [s]	25.08	23.53	31.78	15.43	32.38	15.85
k, delay calibration	0.12	0.04	0.04	0.50	0.04	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.51	0.45	2.41	66.70	2.94	182.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.56	0.44	1.11	0.38	1.39
d, Delay for Lane Group [s/veh]	27.59	23.98	34.19	82.13	35.32	198.30
Lane Group LOS	C	C	C	F	D	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.56	3.08	0.35	24.62	0.19	44.89
50th-Percentile Queue Length [ft/ln]	88.92	76.88	8.82	615.45	4.84	1122.20
95th-Percentile Queue Length [veh/ln]	6.40	5.54	0.63	35.45	0.35	69.07
95th-Percentile Queue Length [ft/ln]	160.06	138.39	15.87	886.19	8.70	1726.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.59	27.59	27.59	23.98	23.98	23.98	34.19	82.13	82.13	35.32	198.30	198.30
Movement LOS	C	C	C	C	C	C	C	F	F	D	F	F
d_A, Approach Delay [s/veh]	27.59			23.98			81.02			196.50		
Approach LOS	C			C			F			F		
d_I, Intersection Delay [s/veh]	119.18											
Intersection LOS	F											
Intersection V/C	1.086											

Emissions

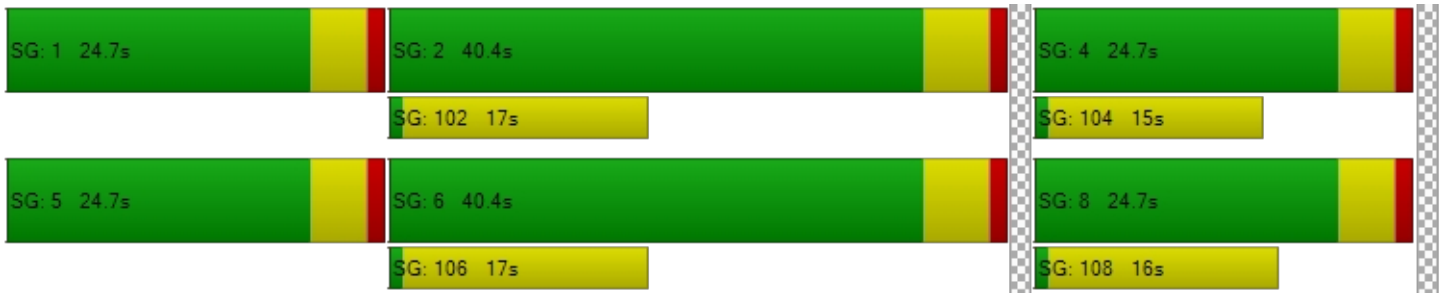
Vehicle Miles Traveled [mph]	10.98	15.22	42.97	1817.05	4.72	423.50
Stops [stops/h]	192.14	166.12	19.05	1329.84	10.45	2424.79
Fuel consumption [US gal/h]	2.80	2.64	2.02	96.99	0.33	70.61
CO [g/h]	195.68	184.69	141.22	6779.53	23.16	4935.85
NOx [g/h]	38.07	35.93	27.48	1319.05	4.51	960.34
VOC [g/h]	45.35	42.80	32.73	1571.22	5.37	1143.93

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.51	28.51	28.51	28.51
l_p,int, Pedestrian LOS Score for Intersectio	1.891	1.880	2.780	2.610
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	1050	1050
d_b, Bicycle Delay [s]	16.32	16.32	7.51	7.51
l_b,int, Bicycle LOS Score for Intersection	1.937	1.931	3.059	3.205
Bicycle LOS	A	A	C	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Two-way stop	Delay (sec / veh):	29.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.491

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	200	0	0	79	0	455	36	0	776	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	6.00	2.00	18.00	10.00	2.00	23.00	9.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	46	122	214	0	0	83	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	200	0	0	125	122	669	36	0	859	184
Peak Hour Factor	1.0000	1.0000	0.9200	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	54	0	0	34	31	182	10	0	233	50
Total Analysis Volume [veh/h]	0	0	217	0	0	136	122	727	39	0	934	200
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.54	0.00	0.00	0.49	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	23.68	0.00	0.00	29.92	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS			C			D		A	A		A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	3.06	0.00	0.00	2.53	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	76.54	0.00	0.00	63.28	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	23.68			29.92			0.00			0.00		
Approach LOS	C			D			A			A		
d_I, Intersection Delay [s/veh]	4.09											
Intersection LOS	D											

Rio Vista Brann Ranch

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Scenario 7 2040 Plus Project AM
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	1	31	10	165	1	0	4	374	1	7	871	271	1736

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	3	0	0	11	0	71	12	550	0	0	1113	0	1760

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	0	27	4	6	82	3	122

ID	Intersection Name	Southbound	Eastbound	Westbound		Total Volume
		Right	Thru	Thru	Right	
4	SR 12 & Project Driveway	244	577	916	90	1827

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
5	McCormack Rd & Project Driveway	29	28	2	10	9	2	80

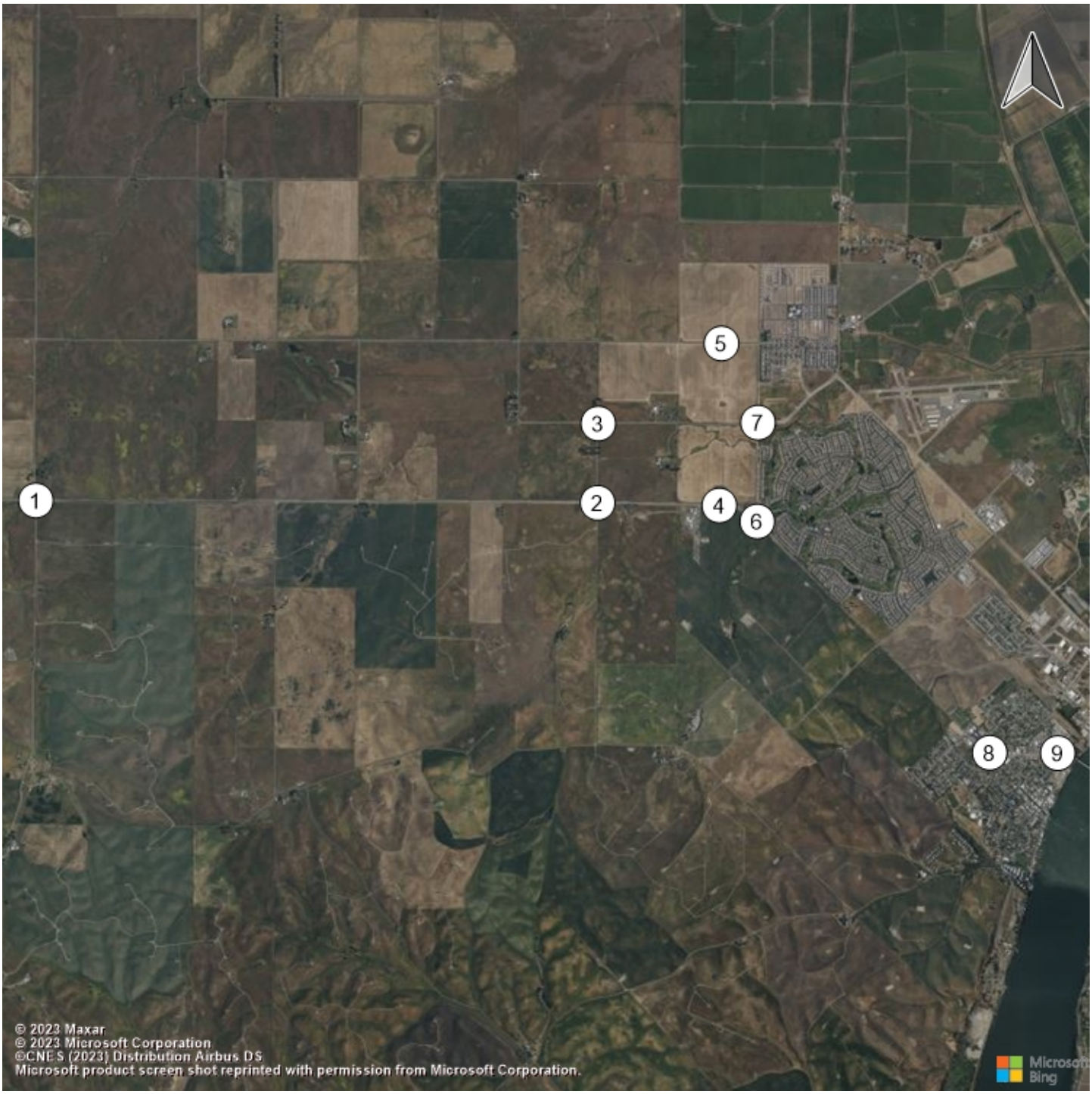
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	419	115	131	446	891	116	2118

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	35	95	15	6	253	29	12	36	73	72	60	0	686

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	117	90	10	37	113	64	20	825	19	10	923	13	2241

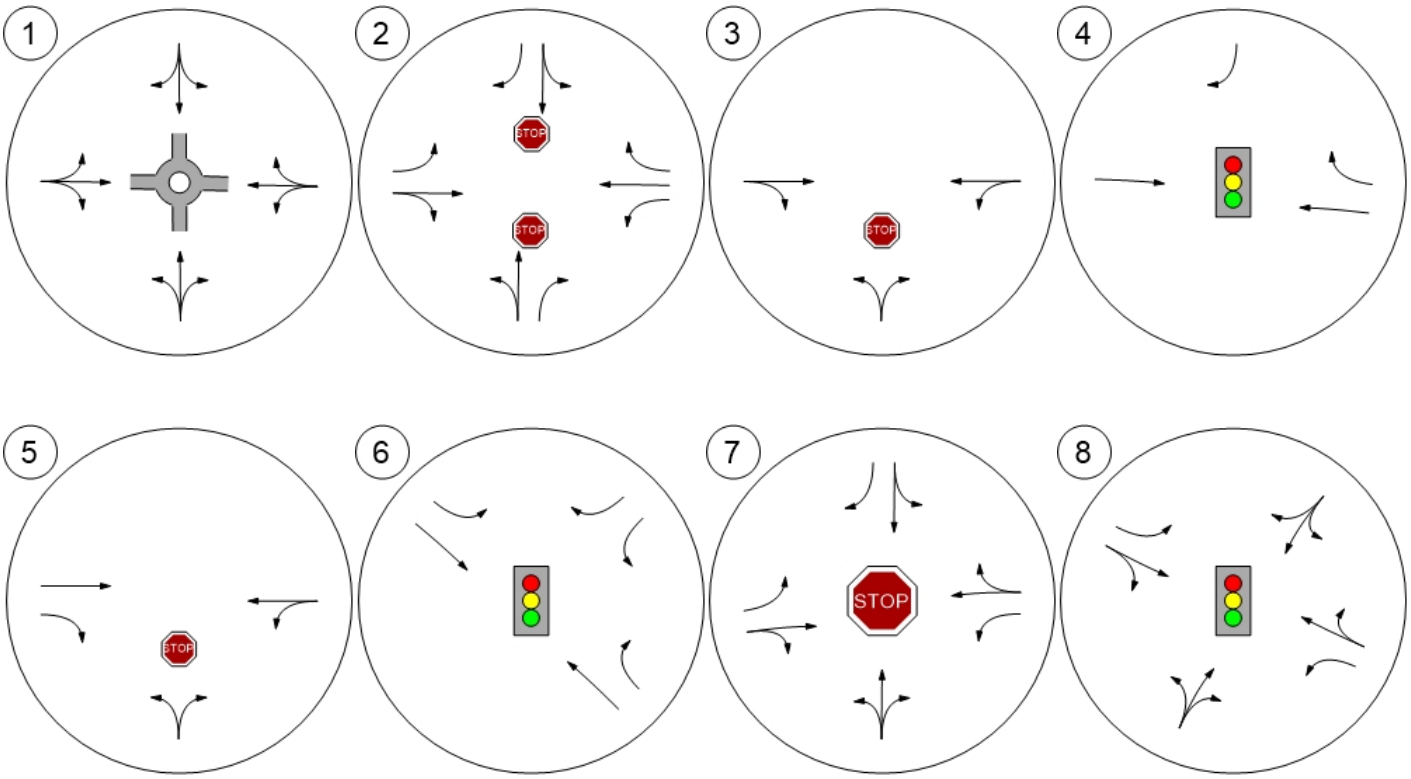
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	200	125	669	36	859	184	2073

Study Intersections



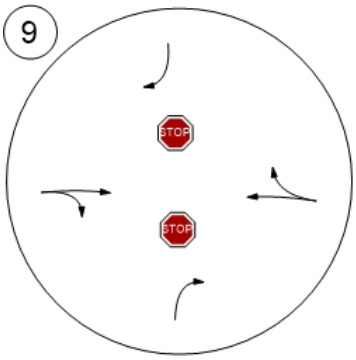
Lane Configuration and Traffic Control





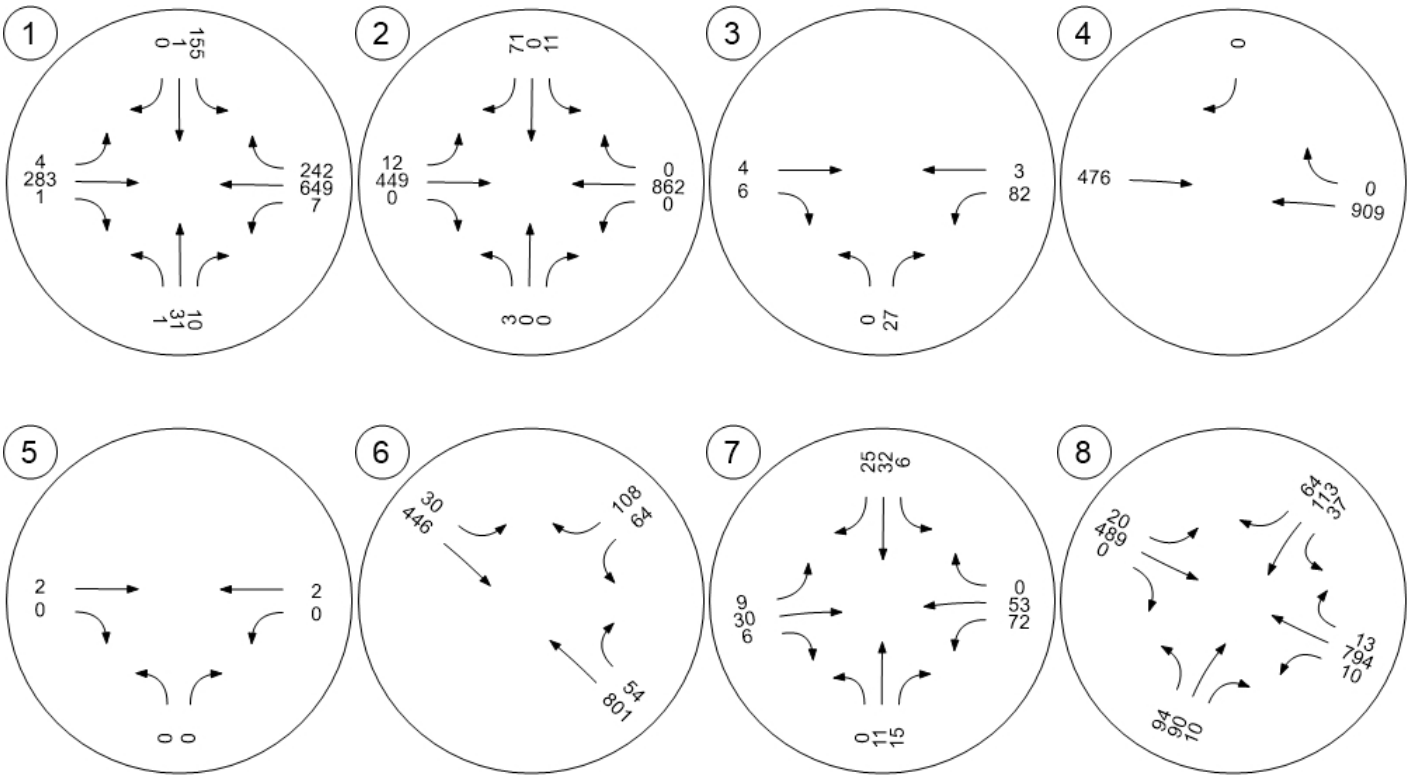
Lane Configuration and Traffic Control





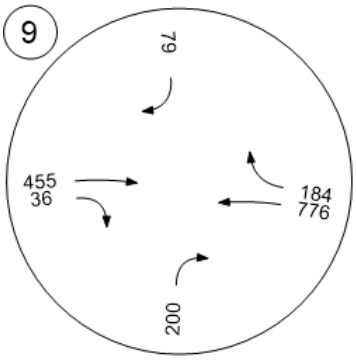
Traffic Volume - Base Volume





Traffic Volume - Base Volume





Rio Vista Brann Ranch

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Scenario 8 2040 Plus Project PM
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	EB Thru		130.6	F
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.896	1,358.6	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.013	59.9	F
4	SR 12 & Project Driveway	Signalized	HCM 7th Edition	EB Thru	0.000	0.8	A
5	McCormack Rd & Project Driveway	Two-way stop	HCM 7th Edition	NB Left	0.022	9.4	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	EB Left	1.169	143.6	F
7	Canright Rd & Province Path	All-way stop	HCM 7th Edition	EB Thru	1.687	194.6	F
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	1.202	147.3	F
9	SR12 & SR 84	Two-way stop	HCM 7th Edition	NB Right	1.949	471.7	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	130.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	6	9	17	313	4	1	10	791	6	7	470	249
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	38.00	12.00	0.00	100.00	12.00	16.00	0.00	17.00	15.00	21.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	32	0	0	0	237	0	0	146	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	9	17	345	4	1	10	1028	6	7	616	268
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	3	5	96	1	0	3	286	2	2	171	74
Total Analysis Volume [veh/h]	7	10	19	383	4	1	11	1142	7	8	684	298
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1			
Circulating Flow Rate [veh/h]	1766			803			442			29			
Exiting Flow Rate [veh/h]	20			383			796			1780			
Demand Flow Rate [veh/h]	6	9	17	345	4	1	10	1028	6	7	616	268	
Adjusted Demand Flow Rate [veh/h]	7	10	19	383	4	1	11	1142	7	8	684	298	

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.85	0.89	0.86	0.86
Entry Flow Rate [veh/h]	43	435	1344	1156
Capacity of Entry and Bypass Lanes [veh/h]	228	609	879	1340
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	195	544	759	1148
X, volume / capacity	0.19	0.71	1.53	0.86

Movement, Approach, & Intersection Results

Lane LOS	C	D	F	F
95th-Percentile Queue Length [veh]	0.66	5.78	57.71	11.81
95th-Percentile Queue Length [ft]	16.49	144.43	1442.73	295.15
Approach Delay [s/veh]	23.59	25.04	260.83	23.20
Approach LOS	C	D	F	F
Intersection Delay [s/veh]	130.58			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	1,358.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.896

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	3	0	0	0	0	36	264	712	6	13	455	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	50.00	0.00	0.00	0.00	0.00	31.00	6.00	18.00	0.00	0.00	15.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	269	0	0	165	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	0	0	0	36	264	981	6	13	620	25
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	0	0	11	83	307	2	4	194	8
Total Analysis Volume [veh/h]	4	0	0	0	0	45	330	1226	8	16	775	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.90	0.00	0.00	0.00	0.00	0.13	0.41	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	1358.60	854.98	21.46	447.24	295.76	16.60	12.60	0.00	0.00	11.48	0.00	0.00
Movement LOS	F	F	C	F	F	C	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	1.20	1.20	0.00	0.00	0.00	0.43	2.03	0.00	0.00	0.09	0.00	0.00
95th-Percentile Queue Length [ft/ln]	29.90	29.90	0.00	0.00	0.00	10.76	50.76	0.00	0.00	2.16	0.00	0.00
d_A, Approach Delay [s/veh]	1358.60			16.60			2.66			0.22		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	4.32											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	59.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name	Azevedo Rd		Canright Rd		Canright Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Azevedo Rd		Canright Rd		Canright Rd	
Base Volume Input [veh/h]	5	590	19	2	52	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	10.00	0.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	590	19	2	52	3
Peak Hour Factor	0.5600	0.5600	0.5600	0.5600	0.5600	0.5600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	263	8	1	23	1
Total Analysis Volume [veh/h]	9	1054	34	4	93	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	1.03	0.00	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	59.91	58.40	0.00	0.00	7.53	0.00
Movement LOS	F	F	A	A	A	A
95th-Percentile Queue Length [veh/ln]	22.53	22.53	0.00	0.00	0.19	0.19
95th-Percentile Queue Length [ft/ln]	563.27	563.27	0.00	0.00	4.66	4.66
d_A, Approach Delay [s/veh]	58.41		0.00		7.14	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	52.37					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 4: SR 12 & Project Driveway

Control Type:	Signalized	Delay (sec / veh):	0.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project Driveway		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	425.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1200.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Project Driveway		SR 12		SR 12	
Base Volume Input [veh/h]	0	0	0	566	159	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	160	0	269	5	261
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	160	0	835	164	261
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	40	0	209	41	65
Total Analysis Volume [veh/h]	0	160	0	835	164	261
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	2	0	6	2	0
Auxiliary Signal Groups						
Maximum Green [s]	0	5	0	10	5	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	5	5	0
Pedestrian Clearance [s]	0	10	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	150	0	150	150	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	0	5	0	10	5	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No		No	No	
Maximum Recall		No		No	No	
Pedestrian Recall		No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	C	C	R
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	146	146	146	146
g / C, Green / Cycle	0.97	0.97	0.97	0.97
(v / s)_i Volume / Saturation Flow Rate	0.11	0.50	0.10	0.18
s, saturation flow rate [veh/h]	1431	1683	1683	1431
c, Capacity [veh/h]	1392	1638	1638	1392
d1, Uniform Delay [s]	0.06	0.11	0.06	0.07
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	1.14	0.12	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.51	0.10	0.19
d, Delay for Lane Group [s/veh]	0.23	1.24	0.18	0.36
Lane Group LOS	A	A	A	A
Critical Lane Group	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.06	0.52	0.06	0.12
50th-Percentile Queue Length [ft/ln]	1.62	12.93	1.39	2.88
95th-Percentile Queue Length [veh/ln]	0.12	0.93	0.10	0.21
95th-Percentile Queue Length [ft/ln]	2.92	23.27	2.50	5.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.23	0.00	1.24	0.18	0.36
Movement LOS		A		A	A	A
d_A, Approach Delay [s/veh]	0.23		1.24		0.29	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.84					
Intersection LOS	A					
Intersection V/C	0.000					

Emissions

Vehicle Miles Traveled [mph]	20.24	634.81	43.04	68.49
Stops [stops/h]	1.56	12.41	1.33	2.77
Fuel consumption [US gal/h]	0.85	26.41	1.79	2.85
CO [g/h]	59.35	1846.25	124.78	199.50
NOx [g/h]	11.55	359.21	24.28	38.82
VOC [g/h]	13.76	427.89	28.92	46.24

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	0.00	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.946	0.000	2.375
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1947	1947	1947
d_b, Bicycle Delay [s]	0.05	0.05	0.05
l_b,int, Bicycle LOS Score for Intersection	1.560	2.937	2.261
Bicycle LOS	A	C	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: McCormack Rd & Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Project Driveway				McCormack Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway				McCormack Rd	
Base Volume Input [veh/h]	0	0	52	0	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	21.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	18	0	32	31	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	18	52	32	31	7
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	5	13	8	8	2
Total Analysis Volume [veh/h]	19	18	52	32	31	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	9.36	8.71	0.00	0.00	7.41	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	3.11	3.11	0.00	0.00	1.31	1.31
d_A, Approach Delay [s/veh]	9.04		0.00		6.05	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.55					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	143.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.169

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	12	66	69	137	616	118
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	11.00	10.00	6.00	46.00	13.00	4.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	231	5	269	0	261	116
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	71	338	137	877	234
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	20	93	38	241	64
Total Analysis Volume [veh/h]	267	78	371	151	964	257
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	25	0	26	55	29	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	86	86	86	86	86	86
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	15	15	15	60	40	40
g / C, Green / Cycle	0.17	0.17	0.17	0.69	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.18	0.06	0.24	0.14	0.63	0.18
s, saturation flow rate [veh/h]	1487	1339	1551	1089	1534	1408
c, Capacity [veh/h]	259	233	271	754	712	653
d1, Uniform Delay [s]	35.50	31.13	35.50	4.70	23.05	15.11
k, delay calibration	0.40	0.11	0.50	0.11	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	57.79	0.83	188.79	0.13	168.45	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.33	1.37	0.20	1.35	0.39
d, Delay for Lane Group [s/veh]	93.30	31.96	224.29	4.83	191.50	15.50
Lane Group LOS	F	C	F	A	F	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	9.46	1.45	19.71	0.81	46.49	3.19
50th-Percentile Queue Length [ft/ln]	236.44	36.25	492.79	20.18	1162.31	79.73
95th-Percentile Queue Length [veh/ln]	14.71	2.61	30.91	1.45	70.05	5.74
95th-Percentile Queue Length [ft/ln]	367.67	65.25	772.86	36.32	1751.19	143.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	93.30	31.96	224.29	4.83	191.50	15.50
Movement LOS	F	C	F	A	F	B
d_A, Approach Delay [s/veh]	79.43		160.81		154.46	
Approach LOS	E		F		F	
d_I, Intersection Delay [s/veh]	143.65					
Intersection LOS	F					
Intersection V/C	1.169					

Emissions

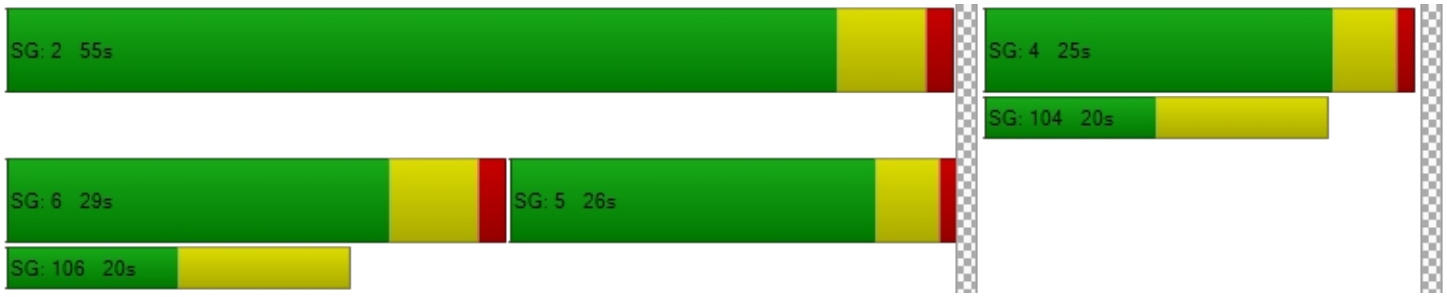
Vehicle Miles Traveled [mph]	16.38	4.79	97.36	39.62	1972.57	525.88
Stops [stops/h]	395.65	60.66	824.63	33.76	1944.97	133.42
Fuel consumption [US gal/h]	7.93	1.04	25.49	1.97	129.51	23.20
CO [g/h]	554.23	72.65	1782.05	137.44	9052.75	1621.43
NOx [g/h]	107.83	14.14	346.72	26.74	1761.34	315.47
VOC [g/h]	128.45	16.84	413.01	31.85	2098.06	375.78

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	30.17	30.17	30.17
l_p,int, Pedestrian LOS Score for Intersectio	2.250	2.442	2.467
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	472	1123	518
d_b, Bicycle Delay [s]	25.12	8.28	23.62
l_b,int, Bicycle LOS Score for Intersection	1.560	2.421	3.574
Bicycle LOS	A	B	D

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	All-way stop	Delay (sec / veh):	194.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.687

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	2	28	140	44	15	4	12	613	73	20	56	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	5.00	0.00	0.00	0.00	4.00	4.00	17.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	106	227	0	0	135	11	9	16	67	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	255	140	44	150	15	21	629	140	20	75	3
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	69	38	12	41	4	6	171	38	5	20	1
Total Analysis Volume [veh/h]	117	277	152	48	163	16	23	684	152	22	82	3
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	546	440	489	461	836	386	413
Degree of Utilization, x	1.09	0.48	0.03	0.05	1.69	0.06	0.21

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	17.56	2.54	0.10	0.16	48.96	0.18	0.76
95th-Percentile Queue Length [ft]	438.97	63.59	2.53	3.93	1224.08	4.51	19.08
Approach Delay [s/veh]	94.81	17.67		327.38		13.44	
Approach LOS	F	C		F		B	
Intersection Delay [s/veh]	194.61						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	147.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.202

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	152	80	18	86	149	50	13	169	1	69	664	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	1.00	3.00	0.00	38.00	0.00	3.00	10.00	13.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	0	0	0	0	0	220	11	0	365	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	164	80	18	86	149	50	13	389	12	69	1029	35
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	22	5	24	41	14	4	107	3	19	283	10
Total Analysis Volume [veh/h]	180	88	20	95	164	55	14	427	13	76	1131	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	5	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	71	71	71	71	71	71
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	20	20	2	32	5	35
g / C, Green / Cycle	0.28	0.28	0.02	0.45	0.07	0.49
(v / s)_i Volume / Saturation Flow Rate	0.30	0.21	0.01	0.37	0.05	0.75
s, saturation flow rate [veh/h]	976	1479	1629	1190	1590	1565
c, Capacity [veh/h]	355	480	37	530	107	767
d1, Uniform Delay [s]	26.44	23.28	34.42	17.43	32.62	18.21
k, delay calibration	0.43	0.19	0.04	0.21	0.04	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.91	2.72	2.37	6.49	3.19	242.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.65	0.38	0.83	0.71	1.52
d, Delay for Lane Group [s/veh]	42.35	26.00	36.78	23.92	35.81	260.68
Lane Group LOS	D	C	D	C	D	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.28	4.87	0.26	6.61	1.34	62.51
50th-Percentile Queue Length [ft/ln]	156.98	121.86	6.43	165.24	33.53	1562.71
95th-Percentile Queue Length [veh/ln]	10.39	8.50	0.46	10.83	2.41	97.16
95th-Percentile Queue Length [ft/ln]	259.71	212.38	11.58	270.65	60.36	2428.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.35	42.35	42.35	26.00	26.00	26.00	36.78	23.92	23.92	35.81	260.68	260.68
Movement LOS	D	D	D	C	C	C	D	C	C	D	F	F
d_A, Approach Delay [s/veh]	42.35			26.00			24.31			246.95		
Approach LOS	D			C			C			F		
d_I, Intersection Delay [s/veh]	147.26											
Intersection LOS	F											
Intersection V/C	1.202											

Emissions

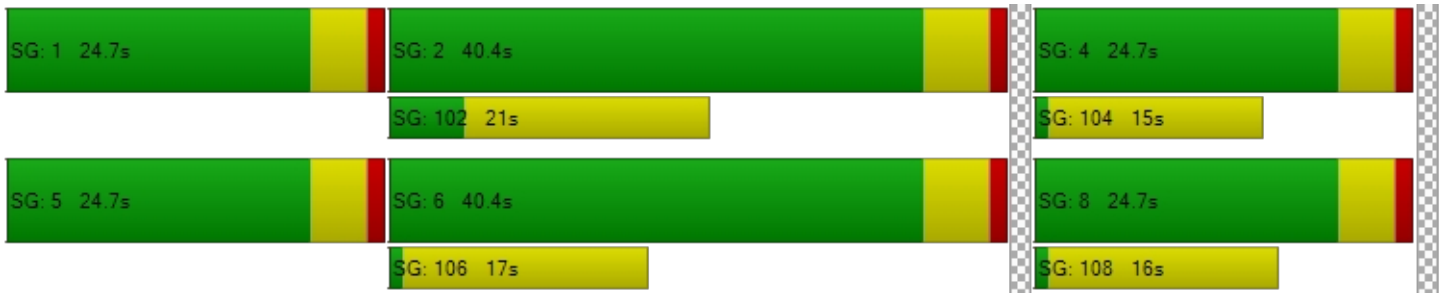
Vehicle Miles Traveled [mph]	13.81	21.23	28.65	900.34	32.64	502.11
Stops [stops/h]	316.83	245.95	12.99	333.51	67.68	3154.03
Fuel consumption [US gal/h]	4.80	3.89	1.36	41.05	2.27	100.10
CO [g/h]	335.58	272.23	94.77	2869.25	158.78	6996.82
NOx [g/h]	65.29	52.97	18.44	558.25	30.89	1361.33
VOC [g/h]	77.77	63.09	21.96	664.98	36.80	1621.58

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.24	30.85	30.85	30.85
l_p,int, Pedestrian LOS Score for Intersectio	1.968	1.931	2.783	2.651
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	561	561	981	981
d_b, Bicycle Delay [s]	18.48	18.48	9.26	9.26
l_b,int, Bicycle LOS Score for Intersection	2.035	2.078	2.309	3.614
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Two-way stop	Delay (sec / veh):	471.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.949

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	486	0	0	101	0	848	22	0	682	170
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	2.00	2.00	18.00	16.00	2.00	10.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	132	80	140	0	0	233	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	486	0	0	233	80	988	22	0	915	170
Peak Hour Factor	1.0000	1.0000	0.9400	1.0000	1.0000	0.9400	1.0000	0.9400	0.9400	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	129	0	0	62	20	263	6	0	243	45
Total Analysis Volume [veh/h]	0	0	517	0	0	248	80	1051	23	0	973	181
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	1.95	0.00	0.00	0.92	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	471.73	0.00	0.00	75.55	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS			F			F		A	A		A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	36.74	0.00	0.00	8.31	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	918.46	0.00	0.00	207.78	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	471.73			75.55			0.00			0.00		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	87.75											
Intersection LOS	F											

Rio Vista Brann Ranch

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Scenario 8 2040 Plus Project PM
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	6	9	17	345	4	1	10	1028	6	7	616	268	2317

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	3	0	0	0	0	36	264	981	6	13	620	25	1948

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	5	590	19	2	52	3	671

ID	Intersection Name	Southbound	Eastbound	Westbound		Total Volume
		Right	Thru	Thru	Right	
4	SR 12 & Project Driveway	160	835	164	261	1420

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
5	McCormack Rd & Project Driveway	19	18	52	32	31	7	159

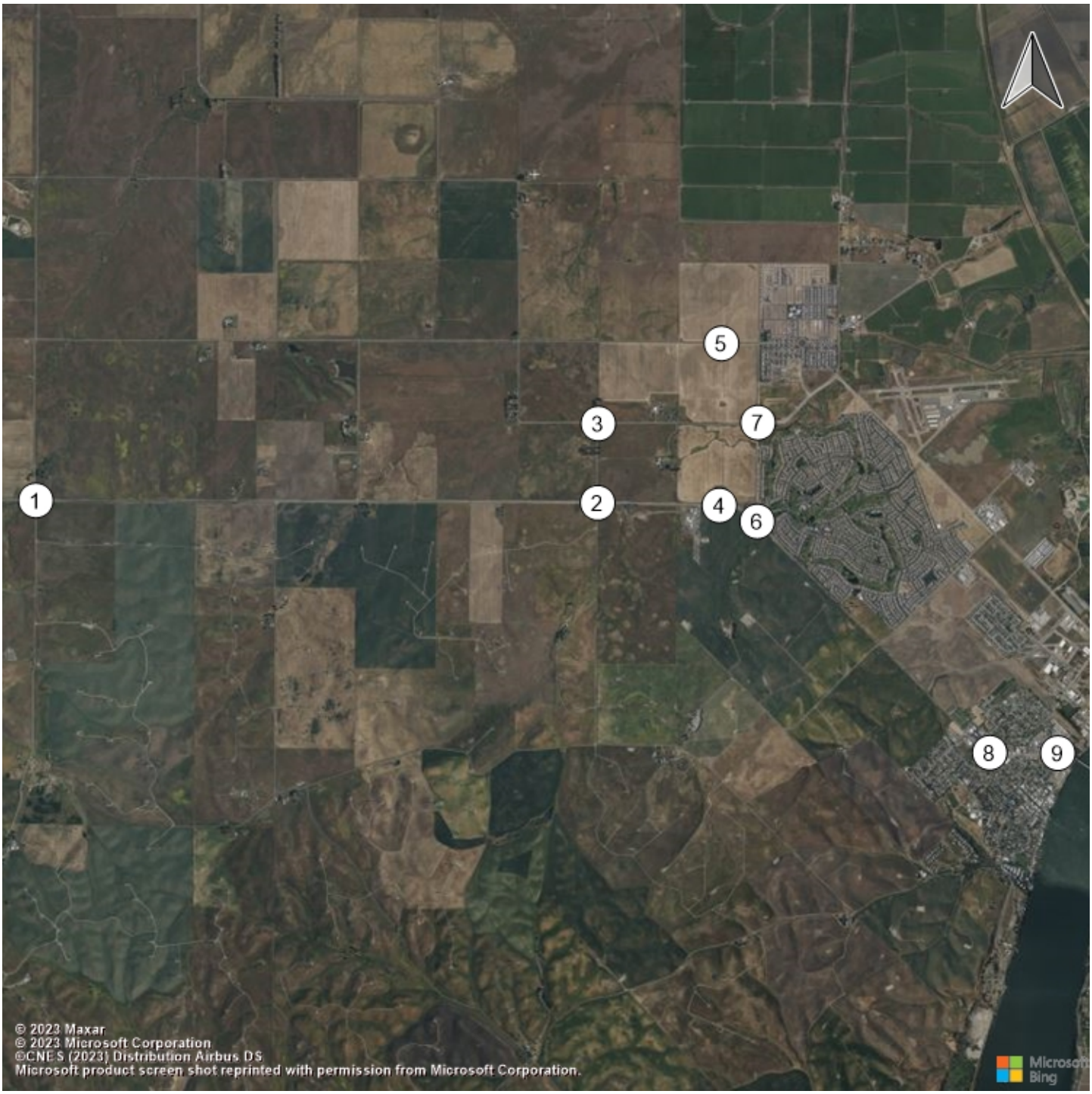
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	243	71	338	137	877	234	1900

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	108	255	140	44	150	15	21	629	140	20	75	3	1600

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	164	80	18	86	149	50	13	389	12	69	1029	35	2094

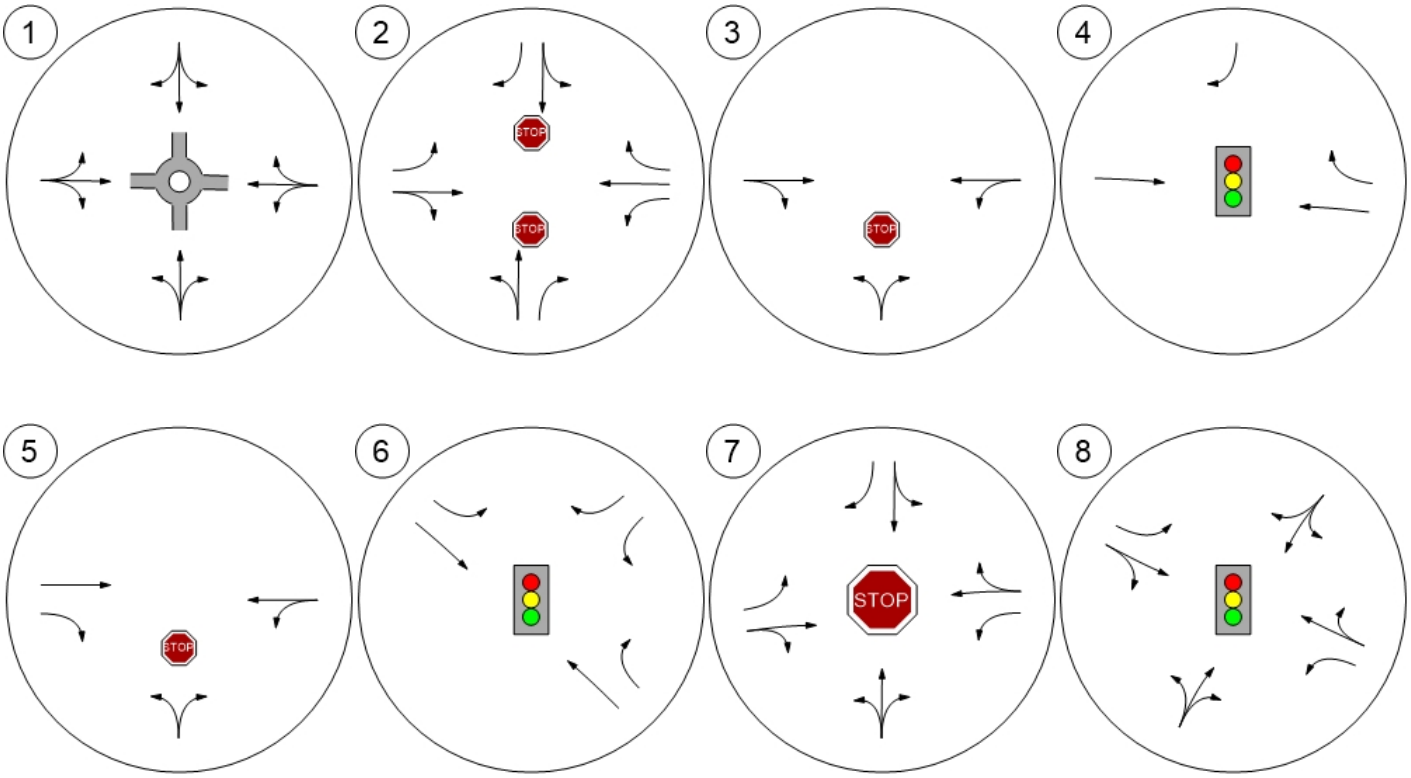
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	486	233	988	22	915	170	2814

Study Intersections



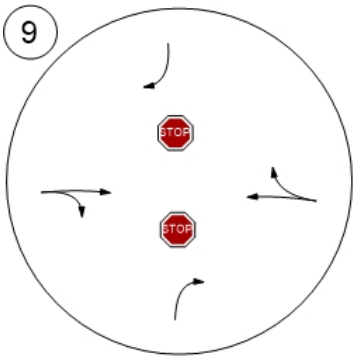
Lane Configuration and Traffic Control





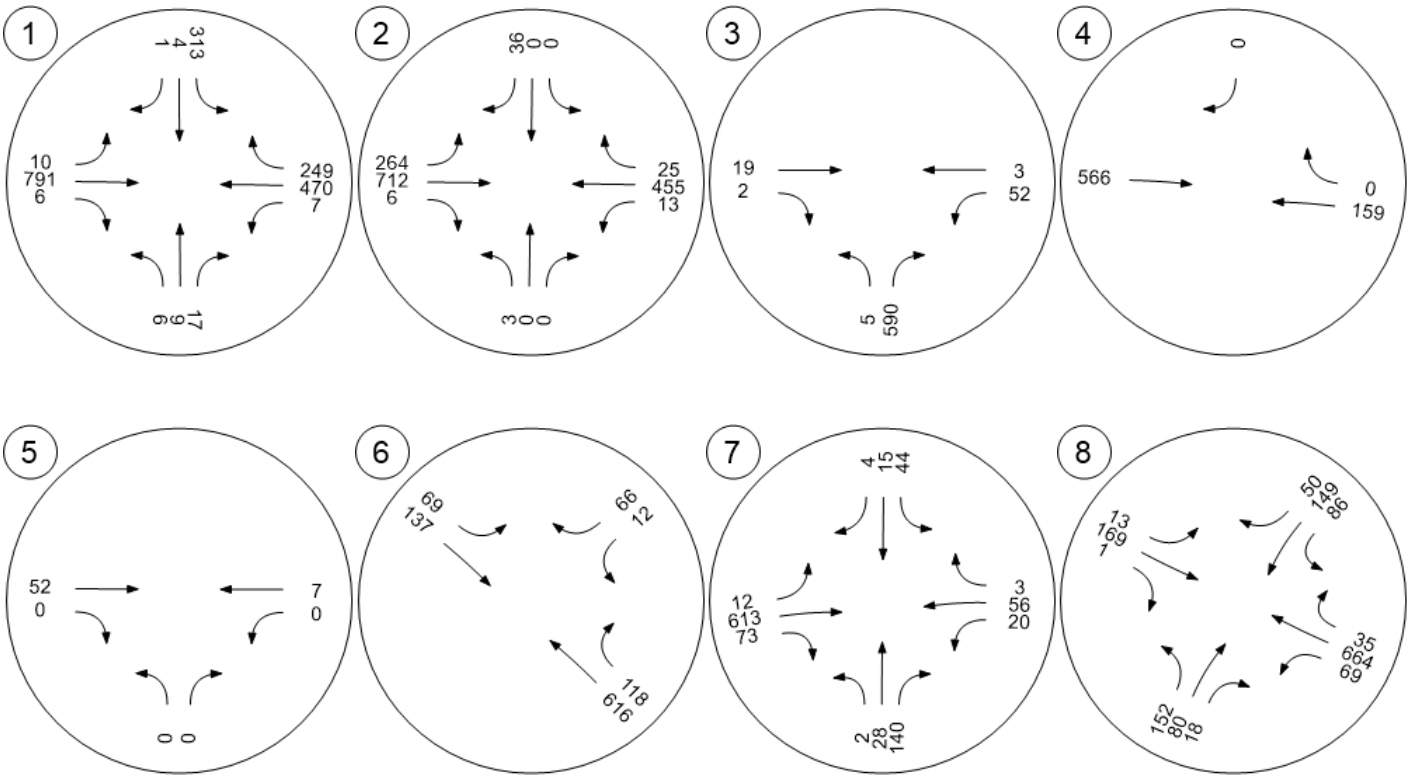
Lane Configuration and Traffic Control





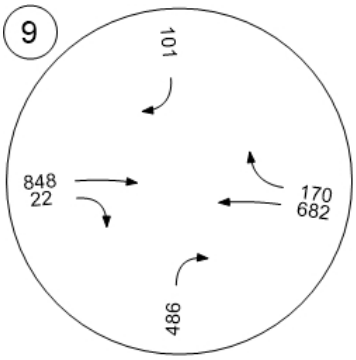
Traffic Volume - Base Volume





Traffic Volume - Base Volume





Rio Vista Brann Ranch

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Report File: H:\...\2040 Plus Project AM_mitigation.pdf

Scenario 10 2040 Plus Project AM Mitigation
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	WB Thru		121.5	F
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.122	171.1	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	WB Thru	0.005	9.6	A
4	SR 12 & Project Driveway	Signalized	HCM 7th Edition	WB Thru	0.000	1.0	A
5	McCormack Rd & Project Driveway	Two-way stop	HCM 7th Edition	NB Left	0.029	8.8	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	SB Right	0.797	31.2	C
7	Canright Rd & Province Path	Signalized	HCM 7th Edition	WB Left	0.336	24.8	C
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	1.086	119.2	F
9	SR12 & SR 84	Signalized	HCM 7th Edition	NB Right	1.035	49.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	121.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	1	31	10	155	1	0	4	283	1	7	649	242
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	75.00	0.00	13.00	0.00	0.00	100.00	22.00	100.00	67.00	28.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	10	0	0	0	91	0	0	222	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	31	10	165	1	0	4	374	1	7	871	271
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	3	49	0	0	1	110	0	2	256	80
Total Analysis Volume [veh/h]	1	36	12	194	1	0	5	440	1	8	1025	319
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	766			1326			234			74		
Exiting Flow Rate [veh/h]	16			465			1313			768		
Demand Flow Rate [veh/h]	1	31	10	165	1	0	4	374	1	7	871	271
Adjusted Demand Flow Rate [veh/h]	1	36	12	194	1	0	5	440	1	8	1025	319

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.68	0.89	0.82	0.79
Entry Flow Rate [veh/h]	72	221	547	1717
Capacity of Entry and Bypass Lanes [veh/h]	632	357	1088	1280
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	432	316	887	1008
X, volume / capacity	0.11	0.62	0.50	1.34

Movement, Approach, & Intersection Results

Lane LOS	A	D	B	F
95th-Percentile Queue Length [veh]	0.38	3.85	2.88	52.64
95th-Percentile Queue Length [ft]	9.52	96.37	72.12	1316.07
Approach Delay [s/veh]	9.97	31.23	10.61	175.14
Approach LOS	A	D	B	F
Intersection Delay [s/veh]	121.50			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	171.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.122

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	3	0	0	11	0	71	12	449	0	0	862	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	12.00	0.00	17.00	0.00	0.00	29.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	101	0	0	251	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	0	11	0	71	12	550	0	0	1113	0
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	3	0	21	3	160	0	0	324	0
Total Analysis Volume [veh/h]	3	0	0	13	0	83	14	640	0	0	1294	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.00	0.00	0.28	0.00	0.44	0.03	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	171.12	82.18	12.52	109.10	89.96	38.18	11.81	0.00	0.00	8.77	0.00	0.00
Movement LOS	F	F	B	F	F	E	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.37	0.37	0.00	0.94	0.94	2.04	0.08	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.19	9.19	0.00	23.56	23.56	50.91	1.98	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	171.12			47.78			0.25			0.00		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	2.57											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Azevedo Rd						Canright Rd			Canright Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd						Canright Rd			Canright Rd		
Base Volume Input [veh/h]	0	0	27	0	0	0	0	4	6	82	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	11.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	27	0	0	0	0	4	6	82	3	0
Peak Hour Factor	0.7700	1.0000	0.7700	1.0000	1.0000	1.0000	1.0000	0.7700	0.7700	0.7700	0.7700	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	0	0	0	0	1	2	27	1	0
Total Analysis Volume [veh/h]	0	0	35	0	0	0	0	5	8	106	4	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.11	0.00	0.00
d_M, Delay for Movement [s/veh]	7.20	0.00	0.00	7.28	0.00	0.00	0.00	9.23	8.35	9.28	9.58	0.00
Movement LOS	A		A	A	A	A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.39	0.39	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	9.79	9.79	0.00
d_A, Approach Delay [s/veh]	0.00			2.43			8.69			9.29		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.18											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 4: SR 12 & Project Driveway

Control Type:	Signalized	Delay (sec / veh):	1.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project Driveway		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	425.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1200.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Project Driveway		SR 12		SR 12	
Base Volume Input [veh/h]	0	0	0	476	909	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	244	0	101	7	90
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	244	0	577	916	90
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	61	0	144	229	23
Total Analysis Volume [veh/h]	0	244	0	577	916	90
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	2	0	6	2	0
Auxiliary Signal Groups						
Maximum Green [s]	0	5	0	10	5	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	5	5	0
Pedestrian Clearance [s]	0	10	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	150	0	150	150	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	0	5	0	10	5	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No		No	No	
Maximum Recall		No		No	No	
Pedestrian Recall		No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	C	C	R
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	146	146	146	146
g / C, Green / Cycle	0.97	0.97	0.97	0.97
(v / s)_i Volume / Saturation Flow Rate	0.17	0.34	0.54	0.06
s, saturation flow rate [veh/h]	1431	1683	1683	1431
c, Capacity [veh/h]	1392	1638	1638	1392
d1, Uniform Delay [s]	0.06	0.08	0.12	0.06
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	0.60	1.38	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.35	0.56	0.06
d, Delay for Lane Group [s/veh]	0.34	0.68	1.50	0.15
Lane Group LOS	A	A	A	A
Critical Lane Group	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.11	0.27	0.63	0.03
50th-Percentile Queue Length [ft/ln]	2.65	6.78	15.75	0.86
95th-Percentile Queue Length [veh/ln]	0.19	0.49	1.13	0.06
95th-Percentile Queue Length [ft/ln]	4.78	12.21	28.34	1.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.34	0.00	0.68	1.50	0.15
Movement LOS		A		A	A	A
d_A, Approach Delay [s/veh]	0.34		0.68		1.38	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.02					
Intersection LOS	A					
Intersection V/C	0.000					

Emissions

Vehicle Miles Traveled [mph]	30.86	438.67	240.37	23.62
Stops [stops/h]	2.55	6.51	15.12	0.83
Fuel consumption [US gal/h]	1.30	18.17	10.26	0.98
CO [g/h]	90.97	1270.35	717.08	68.47
NOx [g/h]	17.70	247.16	139.52	13.32
VOC [g/h]	21.08	294.42	166.19	15.87

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	0.00	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.903	0.000	2.542
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1947	1947	1947
d_b, Bicycle Delay [s]	0.05	0.05	0.05
l_b,int, Bicycle LOS Score for Intersection	1.560	2.512	3.220
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: McCormack Rd & Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Project Driveway				McCormack Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway				McCormack Rd	
Base Volume Input [veh/h]	0	0	2	0	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	29	28	0	10	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	28	2	10	9	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	7	1	3	2	1
Total Analysis Volume [veh/h]	29	28	2	10	9	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	8.84	8.53	0.00	0.00	7.25	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	4.38	4.38	0.00	0.00	0.38	0.38
d_A, Approach Delay [s/veh]	8.69		0.00		5.93	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	7.01					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	31.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.797

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	1	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	700.00	0.00	500.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	64	108	30	446	801	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	6.00	4.00	18.00	28.00	11.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	355	7	101	0	90	62
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	419	115	131	446	891	116
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	33	37	127	253	33
Total Analysis Volume [veh/h]	476	131	149	507	1013	132
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	35	0	12	85	73	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	15	15	5	44	34	34
g / C, Green / Cycle	0.21	0.21	0.08	0.62	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.20	0.20	0.05	0.35	0.43	0.45
s, saturation flow rate [veh/h]	1577	1472	3063	1467	1332	1280
c, Capacity [veh/h]	336	314	231	917	643	618
d1, Uniform Delay [s]	27.21	27.23	31.64	7.56	16.51	17.03
k, delay calibration	0.34	0.34	0.11	0.14	0.25	0.27
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	26.64	28.49	3.02	0.69	9.40	13.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.94	0.65	0.55	0.89	0.93
d, Delay for Lane Group [s/veh]	53.85	55.72	34.66	8.25	25.91	30.89
Lane Group LOS	D	E	C	A	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	7.37	7.06	1.29	3.62	8.93	9.86
50th-Percentile Queue Length [ft/ln]	184.31	176.50	32.15	90.58	223.33	246.56
95th-Percentile Queue Length [veh/ln]	11.83	11.42	2.31	6.52	13.83	15.01
95th-Percentile Queue Length [ft/ln]	295.63	285.44	57.87	163.05	345.87	375.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.50	55.72	34.66	8.25	28.07	30.89
Movement LOS	D	E	C	A	C	C
d_A, Approach Delay [s/veh]	54.76		14.25		28.40	
Approach LOS	D		B		C	
d_I, Intersection Delay [s/veh]	31.19					
Intersection LOS	C					
Intersection V/C	0.797					

Emissions

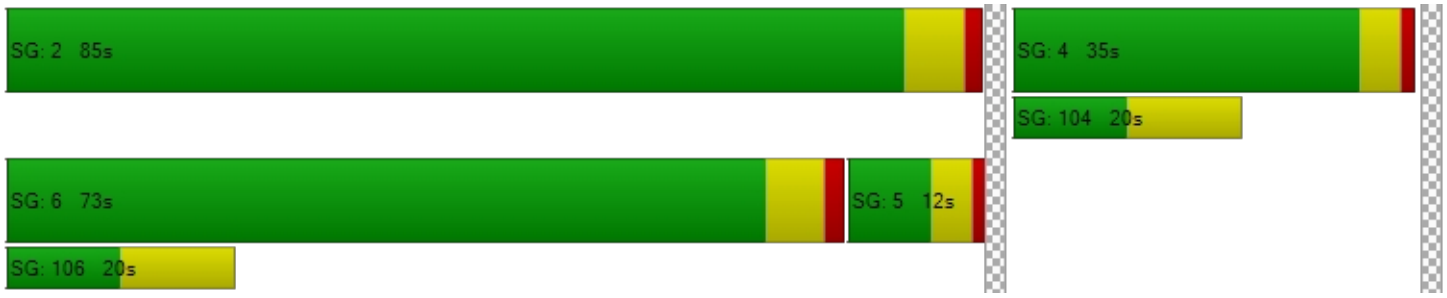
Vehicle Miles Traveled [mph]	19.23	18.01	39.10	133.05	1171.47	1171.47
Stops [stops/h]	377.30	361.32	131.62	185.44	457.19	504.74
Fuel consumption [US gal/h]	6.31	6.07	3.39	7.35	53.77	54.61
CO [g/h]	441.18	423.98	236.80	514.00	3758.48	3817.39
NOx [g/h]	85.84	82.49	46.07	100.01	731.26	742.73
VOC [g/h]	102.25	98.26	54.88	119.12	871.06	884.72

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.56	22.56	22.56
l_p,int, Pedestrian LOS Score for Intersectio	2.455	2.633	2.632
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	862	2226	1885
d_b, Bicycle Delay [s]	11.40	0.45	0.12
l_b,int, Bicycle LOS Score for Intersection	2.561	2.642	2.504
Bicycle LOS	B	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	Signalized	Delay (sec / veh):	24.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.336

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	0	11	15	6	32	25	9	30	6	72	53	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	29.00	33.00	7.00	0.00	0.00	10.00	0.00	14.00	19.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	84	0	0	221	4	3	6	67	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	95	15	6	253	29	12	36	73	72	60	0
Peak Hour Factor	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	32	5	2	85	10	4	12	25	24	20	0
Total Analysis Volume [veh/h]	47	128	20	8	342	39	16	49	99	97	81	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	97	0	0	97	0	0	53	0	0	53	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R	L	C	L	C
C, Cycle Length [s]	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	93	93	93	49	49	49	49
g / C, Green / Cycle	0.62	0.62	0.62	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.16	0.22	0.03	0.01	0.11	0.10	0.06
s, saturation flow rate [veh/h]	1241	1608	1454	1204	1409	1008	1453
c, Capacity [veh/h]	799	1022	901	378	460	284	475
d1, Uniform Delay [s]	13.58	13.83	11.13	40.11	38.00	48.66	36.01
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	0.92	0.09	0.21	1.84	3.25	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.34	0.04	0.04	0.32	0.34	0.17
d, Delay for Lane Group [s/veh]	14.30	14.74	11.22	40.32	39.84	51.90	36.79
Lane Group LOS	B	B	B	D	D	D	D
Critical Lane Group	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.02	6.05	0.54	0.47	4.40	3.37	2.26
50th-Percentile Queue Length [ft/ln]	75.44	151.14	13.54	11.65	109.96	84.28	56.55
95th-Percentile Queue Length [veh/ln]	5.43	10.08	0.97	0.84	7.84	6.07	4.07
95th-Percentile Queue Length [ft/ln]	135.80	251.95	24.37	20.98	195.95	151.70	101.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.30	14.30	14.30	14.74	14.74	11.22	40.32	39.84	39.84	51.90	36.79	36.79
Movement LOS	B	B	B	B	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	14.30			14.39			39.89			45.03		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	24.77											
Intersection LOS	C											
Intersection V/C	0.336											

Emissions

Vehicle Miles Traveled [mph]	42.86	99.53	11.09	1.97	18.26	9.73	8.12
Stops [stops/h]	72.43	145.09	13.00	11.19	105.56	80.90	54.28
Fuel consumption [US gal/h]	2.73	5.95	0.62	0.27	2.53	1.87	1.24
CO [g/h]	190.98	415.83	43.16	19.17	177.16	130.85	86.73
NOx [g/h]	37.16	80.91	8.40	3.73	34.47	25.46	16.87
VOC [g/h]	44.26	96.37	10.00	4.44	41.06	30.33	20.10

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	66.27	66.27	66.27
l_p,int, Pedestrian LOS Score for Intersectio	2.236	2.162	2.140	2.060
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1240	1240	653	653
d_b, Bicycle Delay [s]	10.83	10.83	34.00	34.00
l_b,int, Bicycle LOS Score for Intersection	1.881	2.201	1.830	1.853
Bicycle LOS	A	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	119.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.086

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	94	90	10	37	113	64	20	489	0	10	794	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	9.00	3.00	0.00	4.00	4.00	14.00	6.00	16.00	0.00	0.00	26.00	36.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	0	0	0	0	336	19	0	129	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	90	10	37	113	64	20	825	19	10	923	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	24	3	10	30	17	5	217	5	3	243	3
Total Analysis Volume [veh/h]	123	95	11	39	119	67	21	868	20	11	972	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	1	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	6	0	0	6	0	6	12	0	6	12	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	67	67	67	67	67	67
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	15	15	2	36	1	35
g / C, Green / Cycle	0.22	0.22	0.03	0.54	0.02	0.53
(v / s)_i Volume / Saturation Flow Rate	0.20	0.15	0.01	0.60	0.01	0.73
s, saturation flow rate [veh/h]	1153	1525	1551	1488	1629	1355
c, Capacity [veh/h]	340	403	47	799	29	711
d1, Uniform Delay [s]	25.08	23.53	31.78	15.43	32.38	15.85
k, delay calibration	0.12	0.04	0.04	0.50	0.04	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.51	0.45	2.41	66.70	2.94	182.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.56	0.44	1.11	0.38	1.39
d, Delay for Lane Group [s/veh]	27.59	23.98	34.19	82.13	35.32	198.30
Lane Group LOS	C	C	C	F	D	F
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.56	3.08	0.35	24.62	0.19	44.89
50th-Percentile Queue Length [ft/ln]	88.92	76.88	8.82	615.45	4.84	1122.20
95th-Percentile Queue Length [veh/ln]	6.40	5.54	0.63	35.45	0.35	69.07
95th-Percentile Queue Length [ft/ln]	160.06	138.39	15.87	886.19	8.70	1726.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.59	27.59	27.59	23.98	23.98	23.98	34.19	82.13	82.13	35.32	198.30	198.30
Movement LOS	C	C	C	C	C	C	C	F	F	D	F	F
d_A, Approach Delay [s/veh]	27.59			23.98			81.02			196.50		
Approach LOS	C			C			F			F		
d_I, Intersection Delay [s/veh]	119.18											
Intersection LOS	F											
Intersection V/C	1.086											

Emissions

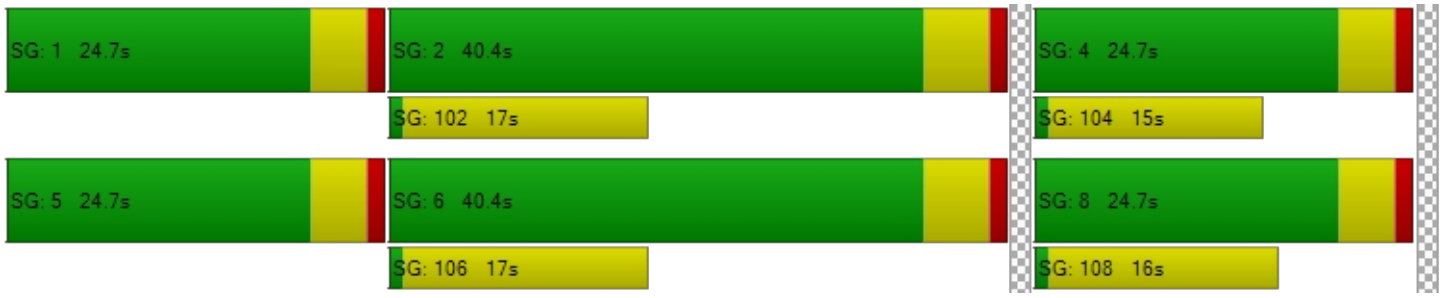
Vehicle Miles Traveled [mph]	10.98	15.22	42.97	1817.05	4.72	423.50
Stops [stops/h]	192.14	166.12	19.05	1329.84	10.45	2424.79
Fuel consumption [US gal/h]	2.80	2.64	2.02	96.99	0.33	70.61
CO [g/h]	195.68	184.69	141.22	6779.53	23.16	4935.85
NOx [g/h]	38.07	35.93	27.48	1319.05	4.51	960.34
VOC [g/h]	45.35	42.80	32.73	1571.22	5.37	1143.93

Other Modes

g_Walk,mi, Effective Walk Time [s]	5.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.51	28.51	28.51	28.51
l_p,int, Pedestrian LOS Score for Intersectio	1.891	1.880	2.780	2.610
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	1050	1050
d_b, Bicycle Delay [s]	16.32	16.32	7.51	7.51
l_b,int, Bicycle LOS Score for Intersection	1.937	1.931	3.059	3.205
Bicycle LOS	A	A	C	C

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Signalized	Delay (sec / veh):	49.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.035

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	200	0	0	79	0	455	36	0	776	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	6.00	2.00	18.00	10.00	2.00	23.00	9.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	46	122	214	0	0	83	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	200	0	0	125	122	669	36	0	859	184
Peak Hour Factor	1.0000	1.0000	0.9200	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	54	0	0	34	31	182	10	0	233	50
Total Analysis Volume [veh/h]	0	0	217	0	0	136	122	727	39	0	934	200
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	4	0	0	8	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	0	5	0	0	5	0	10	0	0	10	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	0	5	0	0	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No		No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	0	27	0	0	27	0	123	0	0	123	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	5	0	10	0	0	10	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall			No			No		No			No	
Maximum Recall			No			No		No			No	
Pedestrian Recall			No			No		No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	R	C	C
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	23	119	119
g / C, Green / Cycle	0.15	0.15	0.79	0.79
(v / s)_i Volume / Saturation Flow Rate	0.16	0.10	0.53	0.84
s, saturation flow rate [veh/h]	1373	1385	1454	1357
c, Capacity [veh/h]	211	212	1153	1077
d1, Uniform Delay [s]	63.50	59.62	6.77	15.50
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	70.24	13.91	3.03	42.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	0.64	0.66	1.05
d, Delay for Lane Group [s/veh]	133.74	73.53	9.80	58.10
Lane Group LOS	F	E	A	F
Critical Lane Group	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	12.16	5.71	10.24	42.57
50th-Percentile Queue Length [ft/ln]	304.09	142.65	256.05	1064.31
95th-Percentile Queue Length [veh/ln]	18.15	9.62	15.49	55.97
95th-Percentile Queue Length [ft/ln]	453.67	240.59	387.26	1399.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	133.74	0.00	0.00	73.53	0.00	9.80	9.80	0.00	58.10	58.10
Movement LOS			F			E		A	A		E	E
d_A, Approach Delay [s/veh]	133.74			73.53			9.80			58.10		
Approach LOS	F			E			A			E		
d_I, Intersection Delay [s/veh]	49.89											
Intersection LOS	D											
Intersection V/C	1.035											

Emissions

Vehicle Miles Traveled [mph]	16.67	7.21	329.01	169.57
Stops [stops/h]	291.93	136.94	245.81	1021.74
Fuel consumption [US gal/h]	8.20	3.09	16.43	26.03
CO [g/h]	573.46	215.88	1148.42	1819.56
NOx [g/h]	111.57	42.00	223.44	354.02
VOC [g/h]	132.91	50.03	266.16	421.70

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	66.27	66.27	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.865	1.904	2.635	2.753
Crosswalk LOS	A	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	307	307	1587	1587
d_b, Bicycle Delay [s]	53.76	53.76	3.20	3.20
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.824	3.431
Bicycle LOS	A	A	C	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Rio Vista Brann Ranch

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Scenario 10 2040 Plus Project AM Mitigation
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	1	31	10	165	1	0	4	374	1	7	871	271	1736

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	3	0	0	11	0	71	12	550	0	0	1113	0	1760

ID	Intersection Name	Northbound		Southbound			Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	0	27	0	0	0	4	6	82	3	122

ID	Intersection Name	Southbound	Eastbound	Westbound		Total Volume
		Right	Thru	Thru	Right	
4	SR 12 & Project Driveway	244	577	916	90	1827

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
5	McCormack Rd & Project Driveway	29	28	2	10	9	2	80

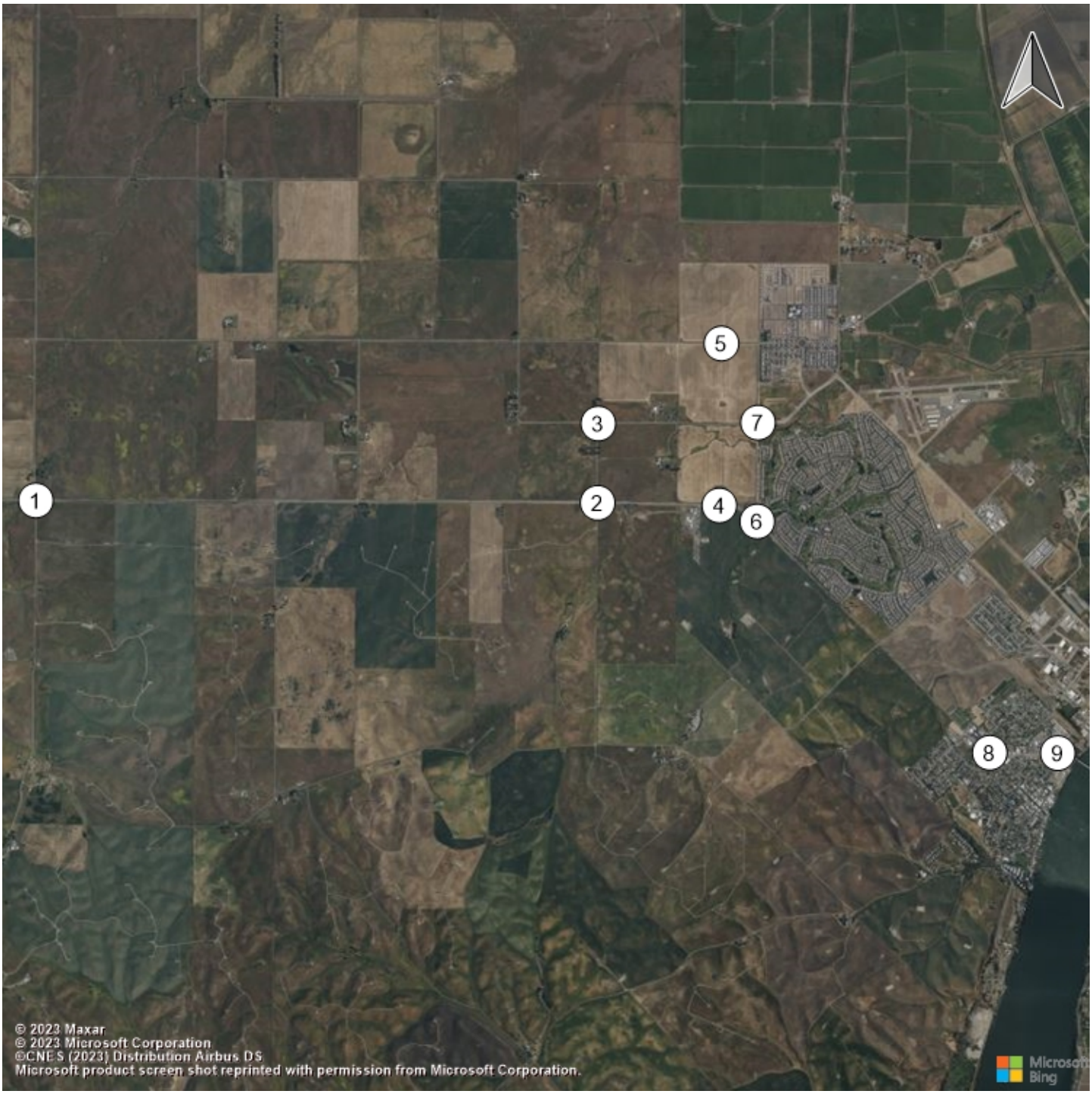
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	419	115	131	446	891	116	2118

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	35	95	15	6	253	29	12	36	73	72	60	0	686

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	117	90	10	37	113	64	20	825	19	10	923	13	2241

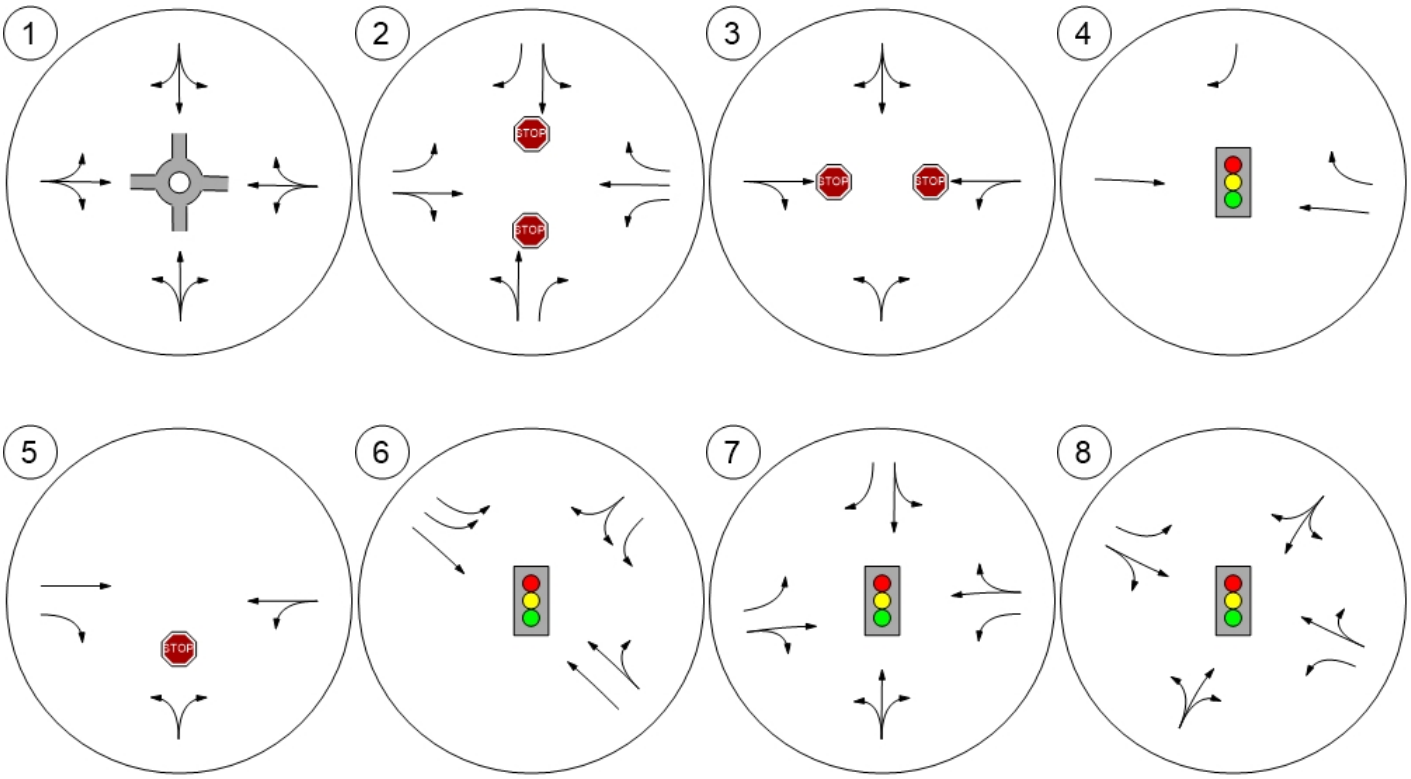
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	200	125	669	36	859	184	2073

Study Intersections



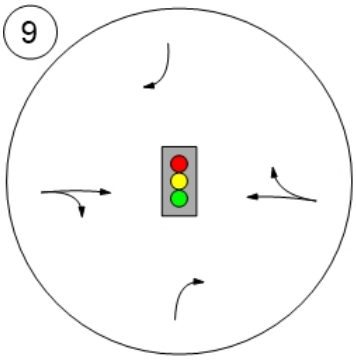
Lane Configuration and Traffic Control





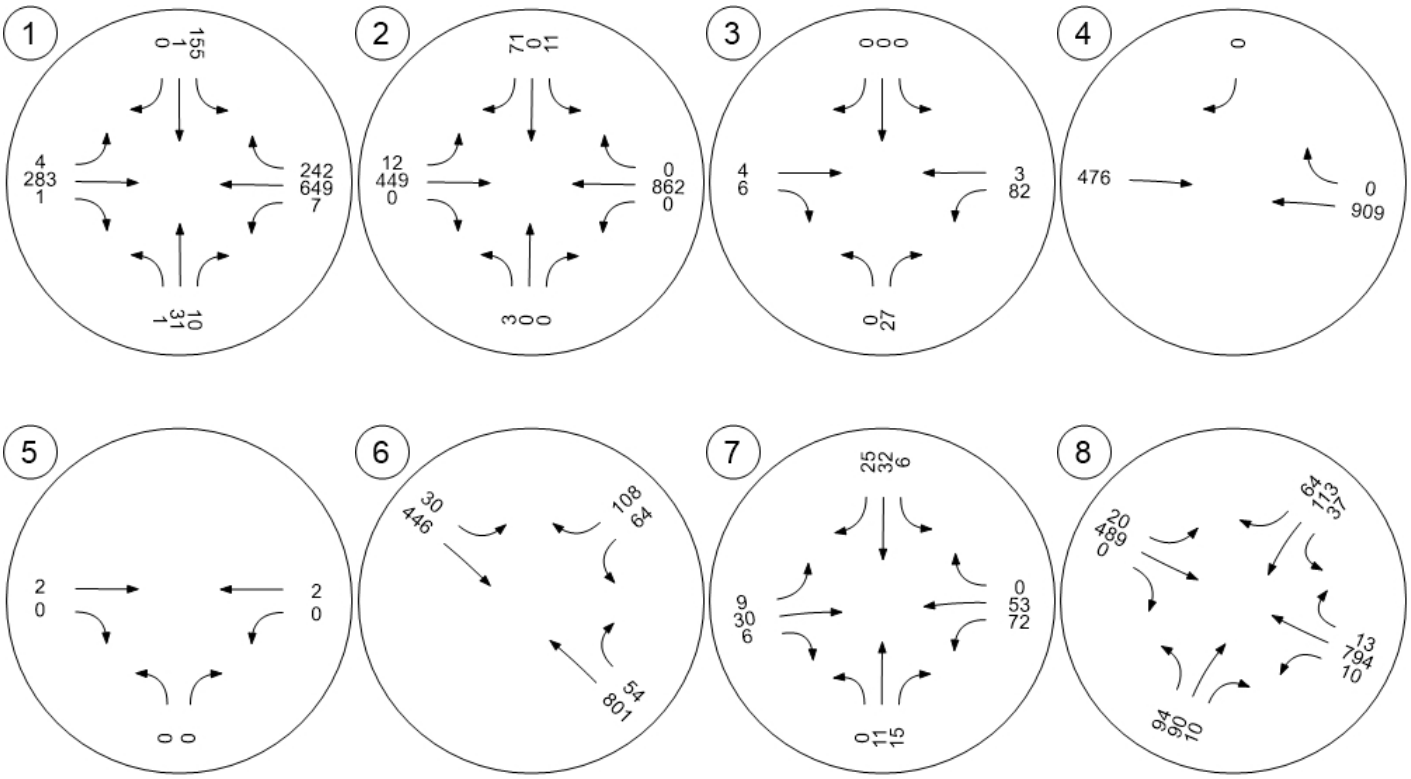
Lane Configuration and Traffic Control





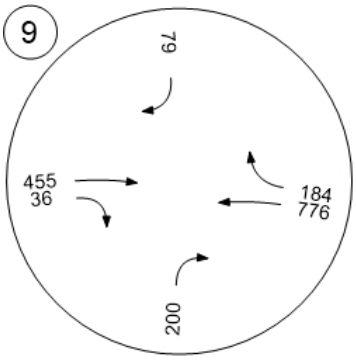
Traffic Volume - Base Volume





Traffic Volume - Base Volume





Rio Vista Brann Ranch

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Scenario 9 9 2040 Plus Project PM Mitigation
8/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 12 & SR 113	Roundabout	HCM 7th Edition	EB Thru		130.6	F
2	SR 12 & Azevedo Rd	Two-way stop	HCM 7th Edition	NB Left	0.896	1,358.6	F
3	Canright Rd & Azevedo Rd	Two-way stop	HCM 7th Edition	EB Thru	0.162	25.3	D
4	SR 12 & Project Driveway	Signalized	HCM 7th Edition	EB Thru	0.000	0.8	A
5	McCormack Rd & Project Driveway	Two-way stop	HCM 7th Edition	NB Left	0.022	9.4	A
6	SR 12 & Summerset Rd	Signalized	HCM 7th Edition	SB Right	0.767	26.6	C
7	Canright Rd & Province Path	Signalized	HCM 7th Edition	NB Thru	0.909	34.3	C
8	SR 12 & Hillside Terrace	Signalized	HCM 7th Edition	WB Thru	0.995	87.9	F
9	SR12 & SR 84	Signalized	HCM 7th Edition	NB Right	1.185	123.6	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: SR 12 & SR 113

Control Type:	Roundabout	Delay (sec / veh):	130.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes		

Intersection Setup

Name	SR 113			SR 113			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 113			SR 113			SR 12			SR 12		
Base Volume Input [veh/h]	6	9	17	313	4	1	10	791	6	7	470	249
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	38.00	12.00	0.00	100.00	12.00	16.00	0.00	17.00	15.00	21.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	32	0	0	0	237	0	0	146	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	9	17	345	4	1	10	1028	6	7	616	268
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	3	5	96	1	0	3	286	2	2	171	74
Total Analysis Volume [veh/h]	7	10	19	383	4	1	11	1142	7	8	684	298
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	1766			803			442			29		
Exiting Flow Rate [veh/h]	20			383			796			1780		
Demand Flow Rate [veh/h]	6	9	17	345	4	1	10	1028	6	7	616	268
Adjusted Demand Flow Rate [veh/h]	7	10	19	383	4	1	11	1142	7	8	684	298

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.85	0.89	0.86	0.86
Entry Flow Rate [veh/h]	43	435	1344	1156
Capacity of Entry and Bypass Lanes [veh/h]	228	609	879	1340
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	195	544	759	1148
X, volume / capacity	0.19	0.71	1.53	0.86

Movement, Approach, & Intersection Results

Lane LOS	C	D	F	F
95th-Percentile Queue Length [veh]	0.66	5.78	57.71	11.81
95th-Percentile Queue Length [ft]	16.49	144.43	1442.73	295.15
Approach Delay [s/veh]	23.59	25.04	260.83	23.20
Approach LOS	C	D	F	F
Intersection Delay [s/veh]	130.58			
Intersection LOS	F			

Intersection Level Of Service Report
Intersection 2: SR 12 & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	1,358.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.896

Intersection Setup

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	50.00	295.00	100.00	100.00	295.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd			Azevedo Rd			SR 12			SR 12		
Base Volume Input [veh/h]	3	0	0	0	0	36	264	712	6	13	455	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	50.00	0.00	0.00	0.00	0.00	31.00	6.00	18.00	0.00	0.00	15.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	269	0	0	165	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	0	0	0	36	264	981	6	13	620	25
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	0	0	11	83	307	2	4	194	8
Total Analysis Volume [veh/h]	4	0	0	0	0	45	330	1226	8	16	775	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.90	0.00	0.00	0.00	0.00	0.13	0.41	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	1358.60	854.98	21.46	447.24	295.76	16.60	12.60	0.00	0.00	11.48	0.00	0.00
Movement LOS	F	F	C	F	F	C	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	1.20	1.20	0.00	0.00	0.00	0.43	2.03	0.00	0.00	0.09	0.00	0.00
95th-Percentile Queue Length [ft/ln]	29.90	29.90	0.00	0.00	0.00	10.76	50.76	0.00	0.00	2.16	0.00	0.00
d_A, Approach Delay [s/veh]	1358.60			16.60			2.66			0.22		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	4.32											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Canright Rd & Azevedo Rd

Control Type:	Two-way stop	Delay (sec / veh):	25.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.162

Intersection Setup

Name	Azevedo Rd						Canright Rd			Canright Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Azevedo Rd						Canright Rd			Canright Rd		
Base Volume Input [veh/h]	5	0	590	0	0	0	0	19	2	52	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	5.00	2.00	2.00	2.00	2.00	10.00	0.00	12.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	590	0	0	0	0	19	2	52	3	0
Peak Hour Factor	0.5600	1.0000	0.5600	1.0000	1.0000	1.0000	1.0000	0.5600	0.5600	0.5600	0.5600	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	263	0	0	0	0	8	1	23	1	0
Total Analysis Volume [veh/h]	9	0	1054	0	0	0	0	34	4	93	5	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.16	0.00	0.27	0.01	0.00
d_M, Delay for Movement [s/veh]	7.21	0.00	0.00	10.45	0.00	0.00	0.00	25.30	11.41	19.35	17.13	0.00
Movement LOS	A		A	B	A	A		D	B	C	C	
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.58	0.58	1.13	1.13	0.00
95th-Percentile Queue Length [ft/ln]	0.45	0.00	0.45	0.00	0.00	0.00	0.00	14.58	14.58	28.15	28.15	0.00
d_A, Approach Delay [s/veh]	0.06			3.48			23.84			19.23		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	2.38											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 4: SR 12 & Project Driveway

Control Type:	Signalized	Delay (sec / veh):	0.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project Driveway		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	425.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1200.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name	Project Driveway		SR 12		SR 12	
Base Volume Input [veh/h]	0	0	0	566	159	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	160	0	269	5	261
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	160	0	835	164	261
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	40	0	209	41	65
Total Analysis Volume [veh/h]	0	160	0	835	164	261
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	2	0	6	2	0
Auxiliary Signal Groups						
Maximum Green [s]	0	5	0	10	5	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	5	5	0
Pedestrian Clearance [s]	0	10	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No		No	No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	150	0	150	150	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	0	5	0	10	5	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No		No	No	
Maximum Recall		No		No	No	
Pedestrian Recall		No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	C	C	R
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	146	146	146	146
g / C, Green / Cycle	0.97	0.97	0.97	0.97
(v / s)_i Volume / Saturation Flow Rate	0.11	0.50	0.10	0.18
s, saturation flow rate [veh/h]	1431	1683	1683	1431
c, Capacity [veh/h]	1392	1638	1638	1392
d1, Uniform Delay [s]	0.06	0.11	0.06	0.07
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	1.14	0.12	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.51	0.10	0.19
d, Delay for Lane Group [s/veh]	0.23	1.24	0.18	0.36
Lane Group LOS	A	A	A	A
Critical Lane Group	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.06	0.52	0.06	0.12
50th-Percentile Queue Length [ft/ln]	1.62	12.93	1.39	2.88
95th-Percentile Queue Length [veh/ln]	0.12	0.93	0.10	0.21
95th-Percentile Queue Length [ft/ln]	2.92	23.27	2.50	5.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.23	0.00	1.24	0.18	0.36
Movement LOS		A		A	A	A
d_A, Approach Delay [s/veh]	0.23		1.24		0.29	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.84					
Intersection LOS	A					
Intersection V/C	0.000					

Emissions

Vehicle Miles Traveled [mph]	20.24	634.81	43.04	68.49
Stops [stops/h]	1.56	12.41	1.33	2.77
Fuel consumption [US gal/h]	0.85	26.41	1.79	2.85
CO [g/h]	59.35	1846.25	124.78	199.50
NOx [g/h]	11.55	359.21	24.28	38.82
VOC [g/h]	13.76	427.89	28.92	46.24

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	0.00	66.27
l_p,int, Pedestrian LOS Score for Intersectio	1.946	0.000	2.464
Crosswalk LOS	A	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1947	1947	1947
d_b, Bicycle Delay [s]	0.05	0.05	0.05
l_b,int, Bicycle LOS Score for Intersection	1.560	2.937	2.261
Bicycle LOS	A	C	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: McCormack Rd & Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Project Driveway				McCormack Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project Driveway				McCormack Rd	
Base Volume Input [veh/h]	0	0	52	0	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	21.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	18	0	32	31	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	18	52	32	31	7
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	5	13	8	8	2
Total Analysis Volume [veh/h]	19	18	52	32	31	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	9.36	8.71	0.00	0.00	7.41	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	3.11	3.11	0.00	0.00	1.31	1.31
d_A, Approach Delay [s/veh]	9.04		0.00		6.05	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.55					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: SR 12 & Summerset Rd

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.767

Intersection Setup

Name	Summerset Rd		SR 12		SR 12	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	700.00	100.00	100.00	620.00
No. of Lanes in Exit Pocket	0	0	0	1	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	700.00	0.00	500.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Summerset Rd		SR 12		SR 12	
Base Volume Input [veh/h]	12	66	69	137	616	118
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	11.00	10.00	6.00	46.00	13.00	4.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	231	5	269	0	261	116
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	71	338	137	877	234
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	20	93	38	241	64
Total Analysis Volume [veh/h]	267	78	371	151	964	257
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	15	0	15	40	40	0
Amber [s]	3.7	0.0	3.7	5.2	5.2	0.0
All red [s]	1.0	0.0	1.0	1.5	1.5	0.0
Walk [s]	10	0	0	10	10	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	0.0	2.7	4.7	4.7	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	25	0	11	45	34	0
Lead / Lag	Lag	-	Lag	-	-	-
Minimum Green [s]	5	0	5	10	10	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.70	6.70	6.70
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	4.70	4.70	4.70
g_i, Effective Green Time [s]	11	11	11	49	33	33
g / C, Green / Cycle	0.15	0.15	0.15	0.69	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.12	0.12	0.12	0.14	0.40	0.43
s, saturation flow rate [veh/h]	1487	1421	3013	1089	1534	1428
c, Capacity [veh/h]	222	213	467	750	717	668
d1, Uniform Delay [s]	28.97	28.99	28.77	3.97	16.62	17.48
k, delay calibration	0.11	0.11	0.11	0.11	0.21	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.22	6.61	3.13	0.13	5.53	10.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.79	0.80	0.20	0.85	0.91
d, Delay for Lane Group [s/veh]	35.19	35.60	31.90	4.10	22.15	28.45
Lane Group LOS	D	D	C	A	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.13	3.03	3.09	0.59	8.75	10.08
50th-Percentile Queue Length [ft/ln]	78.35	75.76	77.34	14.74	218.75	251.97
95th-Percentile Queue Length [veh/ln]	5.64	5.45	5.57	1.06	13.60	15.29
95th-Percentile Queue Length [ft/ln]	141.03	136.37	139.22	26.54	340.03	382.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.33	35.60	31.90	4.10	24.46	28.45
Movement LOS	D	D	C	A	C	C
d_A, Approach Delay [s/veh]	35.39		23.86		25.30	
Approach LOS	D		C		C	
d_I, Intersection Delay [s/veh]	26.61					
Intersection LOS	C					
Intersection V/C	0.767					

Emissions

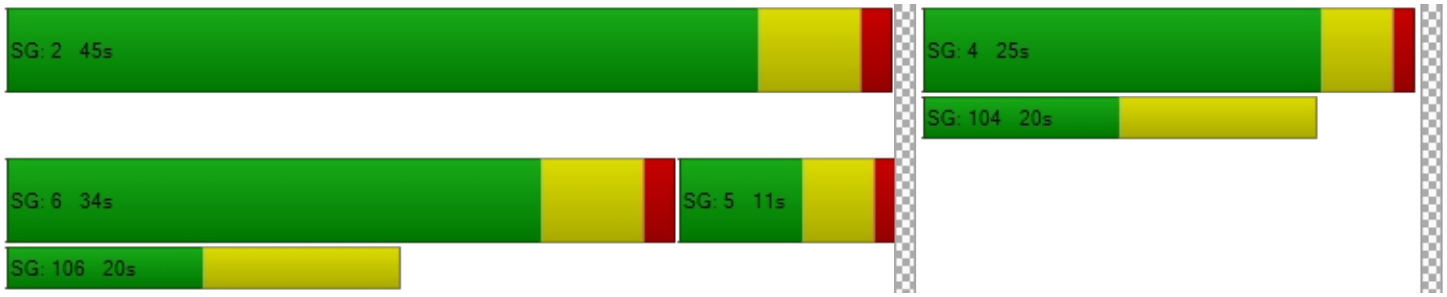
Vehicle Miles Traveled [mph]	10.80	10.36	97.36	39.62	1249.22	1249.22
Stops [stops/h]	160.07	154.78	316.03	30.12	446.93	514.79
Fuel consumption [US gal/h]	2.59	2.51	8.16	1.92	56.65	57.81
CO [g/h]	181.02	175.15	570.53	134.46	3959.65	4040.58
NOx [g/h]	35.22	34.08	111.00	26.16	770.40	786.15
VOC [g/h]	41.95	40.59	132.23	31.16	917.69	936.44

Other Modes

g_Walk,mi, Effective Walk Time [s]	14.0	14.0	14.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.63	22.63	22.63
l_p,int, Pedestrian LOS Score for Intersectio	2.472	2.587	2.513
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	576	1087	775
d_b, Bicycle Delay [s]	17.86	7.35	13.23
l_b,int, Bicycle LOS Score for Intersection	2.129	2.421	2.567
Bicycle LOS	B	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Canright Rd & Province Path

Control Type:	Signalized	Delay (sec / veh):	34.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.909

Intersection Setup

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Province Path			Province Path			Canright Rd			Liberty Island Rd		
Base Volume Input [veh/h]	2	28	140	44	15	4	12	613	73	20	56	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	5.00	0.00	0.00	0.00	4.00	4.00	17.00	12.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	106	227	0	0	135	11	9	16	67	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	255	140	44	150	15	21	629	140	20	75	3
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	69	38	12	41	4	6	171	38	5	20	1
Total Analysis Volume [veh/h]	117	277	152	48	163	16	23	684	152	22	82	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	39	0	0	39	0	0	51	0	0	51	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	35	35	35	47	47	47	47
g / C, Green / Cycle	0.39	0.39	0.39	0.52	0.52	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.38	0.16	0.01	0.02	0.47	0.04	0.05
s, saturation flow rate [veh/h]	1440	1281	1580	1333	1783	578	1709
c, Capacity [veh/h]	608	547	614	713	931	125	893
d1, Uniform Delay [s]	28.43	18.91	16.97	12.62	19.34	39.76	10.81
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.49	2.05	0.08	0.08	13.21	3.04	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.39	0.03	0.03	0.90	0.18	0.10
d, Delay for Lane Group [s/veh]	46.92	20.95	17.05	12.71	32.56	42.80	11.02
Lane Group LOS	D	C	B	B	C	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	14.23	3.25	0.21	0.26	17.68	0.57	0.86
50th-Percentile Queue Length [ft/ln]	355.73	81.33	5.34	6.41	441.99	14.17	21.58
95th-Percentile Queue Length [veh/ln]	20.42	5.86	0.38	0.46	24.58	1.02	1.55
95th-Percentile Queue Length [ft/ln]	510.39	146.39	9.61	11.53	614.38	25.51	38.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.92	46.92	46.92	20.95	20.95	17.05	12.71	32.56	32.56	42.80	11.02	11.02
Movement LOS	D	D	D	C	C	B	B	C	C	D	B	B
d_A, Approach Delay [s/veh]	46.92			20.68			32.02			17.56		
Approach LOS	D			C			C			B		
d_I, Intersection Delay [s/veh]	34.33											
Intersection LOS	C											
Intersection V/C	0.909											

Emissions

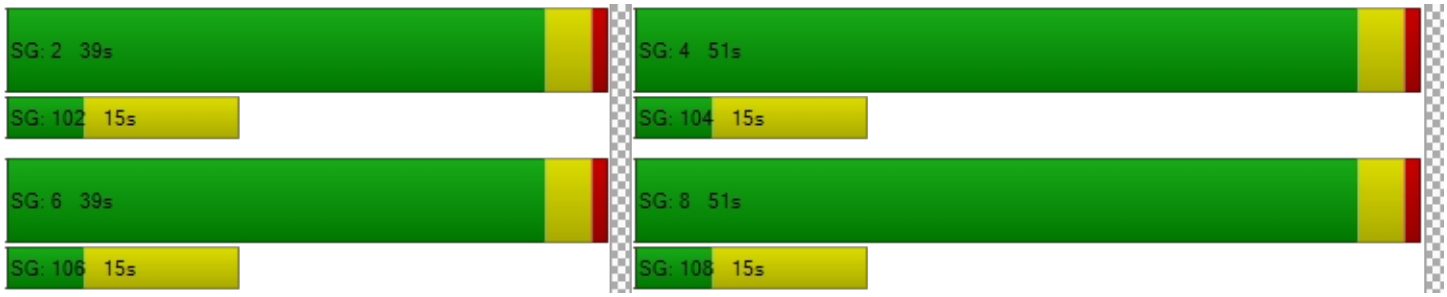
Vehicle Miles Traveled [mph]	120.02	60.00	4.55	2.84	103.12	2.21	8.53
Stops [stops/h]	569.17	130.12	8.55	10.25	707.18	22.68	34.52
Fuel consumption [US gal/h]	13.30	4.09	0.29	0.23	13.69	0.41	0.73
CO [g/h]	929.55	285.80	20.27	16.28	956.96	28.50	51.19
NOx [g/h]	180.86	55.61	3.94	3.17	186.19	5.55	9.96
VOC [g/h]	215.43	66.24	4.70	3.77	221.79	6.61	11.86

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.178	2.147	2.457	2.332
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	1044	1044
d_b, Bicycle Delay [s]	16.81	16.82	10.27	10.27
l_b,int, Bicycle LOS Score for Intersection	2.461	1.934	2.977	1.736
Bicycle LOS	B	A	C	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: SR 12 & Hillside Terrace

Control Type:	Signalized	Delay (sec / veh):	87.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.995

Intersection Setup

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hillside Terrace			Hillside Terrace			SR 12			SR 12		
Base Volume Input [veh/h]	152	80	18	86	149	50	13	169	1	69	664	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	1.00	3.00	0.00	38.00	0.00	3.00	10.00	13.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	0	0	0	0	0	220	11	0	365	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	164	80	18	86	149	50	13	389	12	69	1029	35
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	22	5	23	40	14	4	106	3	19	280	10
Total Analysis Volume [veh/h]	178	87	20	93	162	54	14	423	13	75	1118	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	9.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	20	0	0	20	0	20	35	0	20	35	0
Amber [s]	0.0	3.7	0.0	0.0	3.7	0.0	3.7	4.4	0.0	3.7	4.4	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	1	0	0	1	0	0	5	0	0	1	0
Pedestrian Clearance [s]	0	15	0	0	14	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.7	0.0	0.0	2.7	0.0	2.7	3.4	0.0	2.7	3.4	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	22	0	0	20	0	10	35	0	38	63	0
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	66	66	66	66	66	66
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	5.40	4.70	5.40
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	3.40	2.70	3.40
g_i, Effective Green Time [s]	15	15	1	24	12	35
g / C, Green / Cycle	0.23	0.23	0.02	0.36	0.19	0.53
(v / s)_i Volume / Saturation Flow Rate	0.27	0.19	0.01	0.33	0.04	0.66
s, saturation flow rate [veh/h]	1073	1653	1810	1323	1767	1738
c, Capacity [veh/h]	336	453	33	477	327	917
d1, Uniform Delay [s]	26.56	23.96	32.22	20.25	23.01	15.69
k, delay calibration	0.33	0.14	0.11	0.16	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.75	2.43	8.19	10.34	0.35	126.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.68	0.42	0.91	0.23	1.26
d, Delay for Lane Group [s/veh]	42.31	26.39	40.41	30.59	23.36	141.99
Lane Group LOS	D	C	D	C	C	F
Critical Lane Group	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.86	4.58	0.29	7.16	0.98	43.44
50th-Percentile Queue Length [ft/ln]	146.55	114.44	7.26	179.05	24.53	1085.89
95th-Percentile Queue Length [veh/ln]	9.83	8.09	0.52	11.55	1.77	63.91
95th-Percentile Queue Length [ft/ln]	245.82	202.16	13.07	288.77	44.15	1597.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.31	42.31	42.31	26.39	26.39	26.39	40.41	30.59	30.59	23.36	141.99	141.99
Movement LOS	D	D	D	C	C	C	D	C	C	C	F	F
d_A, Approach Delay [s/veh]	42.31			26.39			30.89			134.76		
Approach LOS	D			C			C			F		
d_I, Intersection Delay [s/veh]	87.92											
Intersection LOS	F											
Intersection V/C	0.995											

Emissions

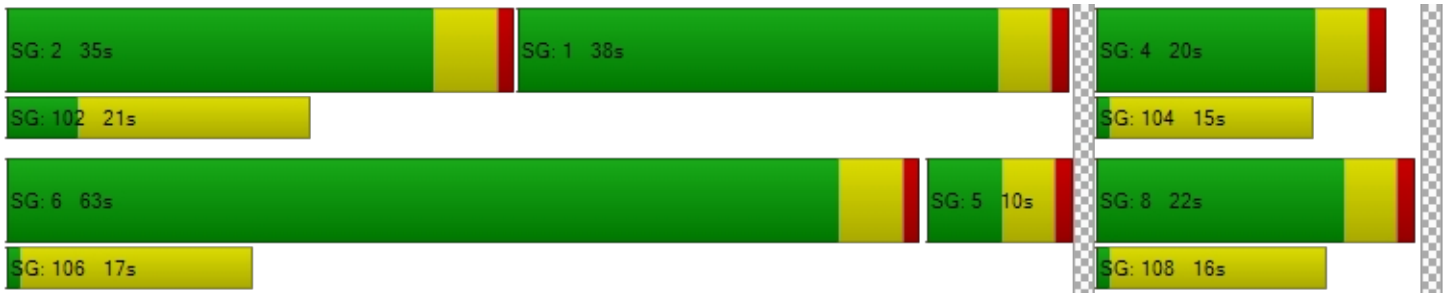
Vehicle Miles Traveled [mph]	13.67	20.90	28.65	892.16	32.21	496.52
Stops [stops/h]	318.25	248.52	15.77	388.81	53.26	2358.08
Fuel consumption [US gal/h]	4.77	3.89	1.38	41.59	1.98	66.87
CO [g/h]	333.75	272.12	96.57	2907.07	138.19	4673.98
NOx [g/h]	64.94	52.94	18.79	565.61	26.89	909.39
VOC [g/h]	77.35	63.07	22.38	673.74	32.03	1083.24

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	5.0	5.0	5.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.77	28.34	28.34	28.34
l_p,int, Pedestrian LOS Score for Intersectio	1.962	1.925	2.770	2.638
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	522	461	893	1737
d_b, Bicycle Delay [s]	18.11	19.62	10.16	0.57
l_b,int, Bicycle LOS Score for Intersection	2.030	2.069	2.302	3.591
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: SR12 & SR 84

Control Type:	Signalized	Delay (sec / veh):	123.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.185

Intersection Setup

Name	SR 84			SR 84			SR 12			SR 12		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SR 84			SR 84			SR 12			SR 12		
Base Volume Input [veh/h]	0	0	486	0	0	101	0	848	22	0	682	170
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	2.00	2.00	2.00	2.00	18.00	16.00	2.00	10.00	7.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	132	80	140	0	0	233	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	486	0	0	233	80	988	22	0	915	170
Peak Hour Factor	1.0000	1.0000	0.9400	1.0000	1.0000	0.9400	1.0000	0.9400	0.9400	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	129	0	0	62	20	263	6	0	243	45
Total Analysis Volume [veh/h]	0	0	517	0	0	248	80	1051	23	0	973	181
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	0	4	0	0	8	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	0	5	0	0	5	0	10	0	0	10	0
Amber [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	0	5	0	0	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No		No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	0	52	0	0	52	0	98	0	0	98	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	5	0	0	5	0	10	0	0	10	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall			No			No		No			No	
Maximum Recall			No			No		No			No	
Pedestrian Recall			No			No		No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	R	R	C	C
C, Cycle Length [s]	150	150	150	150
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	48	48	94	94
g / C, Green / Cycle	0.32	0.32	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.38	0.18	0.73	0.75
s, saturation flow rate [veh/h]	1344	1400	1461	1532
c, Capacity [veh/h]	430	448	916	960
d1, Uniform Delay [s]	50.50	41.95	28.00	28.00
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	111.26	4.86	89.37	100.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.20	0.55	1.17	1.20
d, Delay for Lane Group [s/veh]	161.76	46.81	117.37	128.79
Lane Group LOS	F	D	F	F
Critical Lane Group	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	29.23	8.24	53.81	59.48
50th-Percentile Queue Length [ft/ln]	730.77	206.00	1345.37	1487.08
95th-Percentile Queue Length [veh/ln]	42.61	12.95	74.95	83.56
95th-Percentile Queue Length [ft/ln]	1065.13	323.70	1873.79	2089.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	161.76	0.00	0.00	46.81	0.00	117.37	117.37	0.00	128.79	128.79
Movement LOS			F			D		F	F		F	F
d_A, Approach Delay [s/veh]	161.76			46.81			117.37			128.79		
Approach LOS	F			D			F			F		
d_I, Intersection Delay [s/veh]	123.59											
Intersection LOS	F											
Intersection V/C	1.185											

Emissions

Vehicle Miles Traveled [mph]	39.71	13.16	461.30	172.56
Stops [stops/h]	701.54	197.76	1291.56	1427.59
Fuel consumption [US gal/h]	22.53	4.00	51.77	45.23
CO [g/h]	1574.58	279.36	3618.93	3161.58
NOx [g/h]	306.36	54.35	704.11	615.13
VOC [g/h]	364.92	64.74	838.72	732.73

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	66.27	66.27	66.27	66.27
l_p,int, Pedestrian LOS Score for Intersectio	2.004	1.949	2.859	3.067
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	640	1253	1253
d_b, Bicycle Delay [s]	34.70	34.70	10.45	10.45
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	3.332	3.464
Bicycle LOS	A	A	C	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Rio Vista Brann Ranch

Vistro File: H:\...\29055 Rio Vista Brann Ranch.vistro
Report File: H:\...\2040 Plus Project PM_mitigation.pdf

Scenario 9 9 2040 Plus Project PM Mitigation
8/29/2024

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SR 12 & SR 113	6	9	17	345	4	1	10	1028	6	7	616	268	2317

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	SR 12 & Azevedo Rd	3	0	0	0	0	36	264	981	6	13	620	25	1948

ID	Intersection Name	Northbound		Southbound			Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Right	Thru	Right	Left	Thru	
3	Canright Rd & Azevedo Rd	5	590	0	0	0	19	2	52	3	671

ID	Intersection Name	Southbound	Eastbound	Westbound		Total Volume
		Right	Thru	Thru	Right	
4	SR 12 & Project Driveway	160	835	164	261	1420

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
5	McCormack Rd & Project Driveway	19	18	52	32	31	7	159

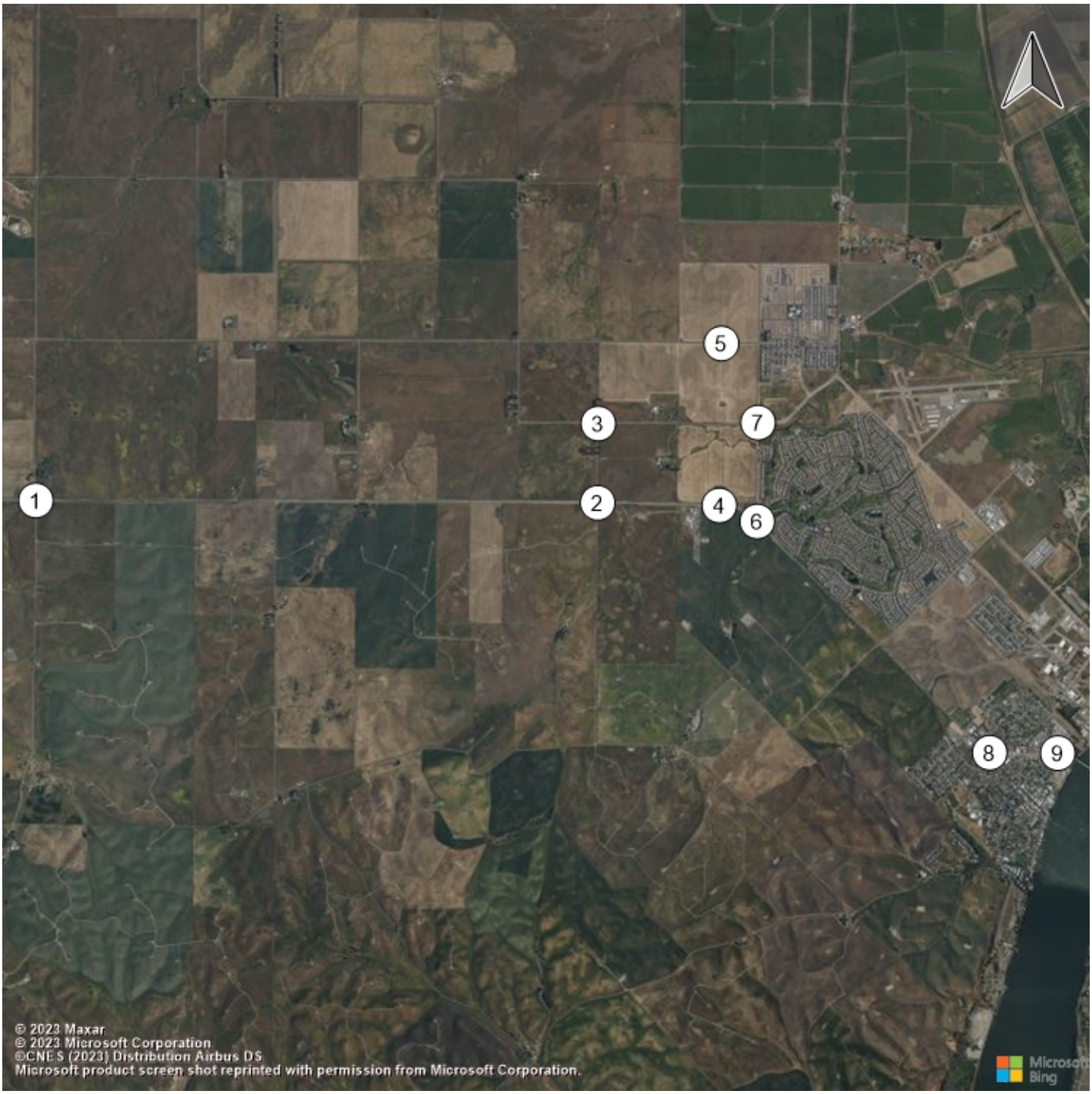
ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
6	SR 12 & Summerset Rd	243	71	338	137	877	234	1900

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	Canright Rd & Province Path	108	255	140	44	150	15	21	629	140	20	75	3	1600

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	SR 12 & Hillside Terrace	164	80	18	86	149	50	13	389	12	69	1029	35	2094

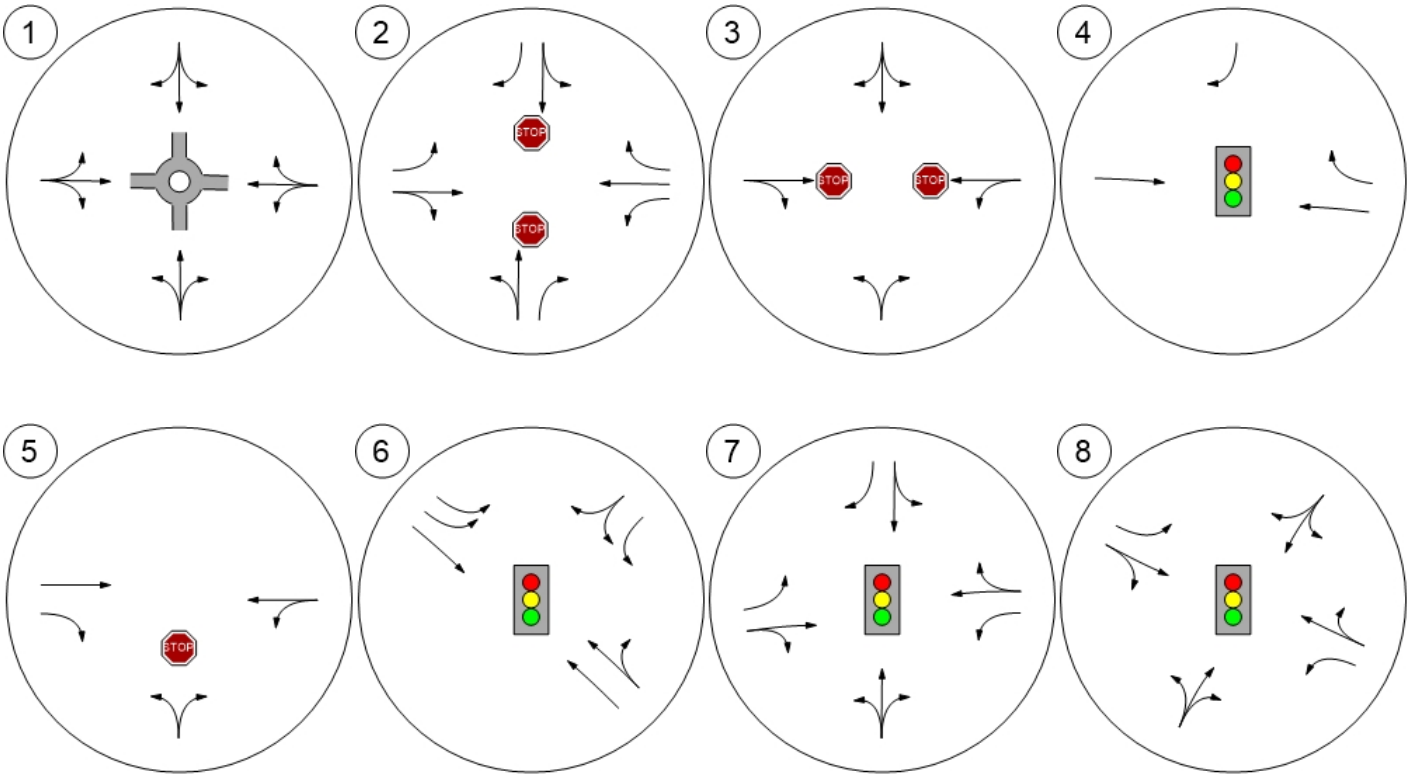
ID	Intersection Name	Northbound	Southbound	Eastbound		Westbound		Total Volume
		Right	Right	Thru	Right	Thru	Right	
9	SR12 & SR 84	486	233	988	22	915	170	2814

Study Intersections



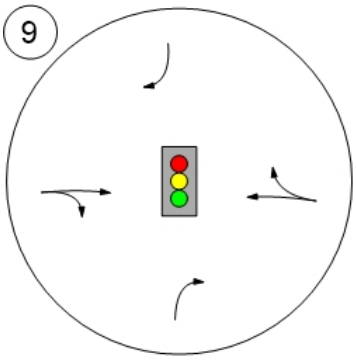
Lane Configuration and Traffic Control





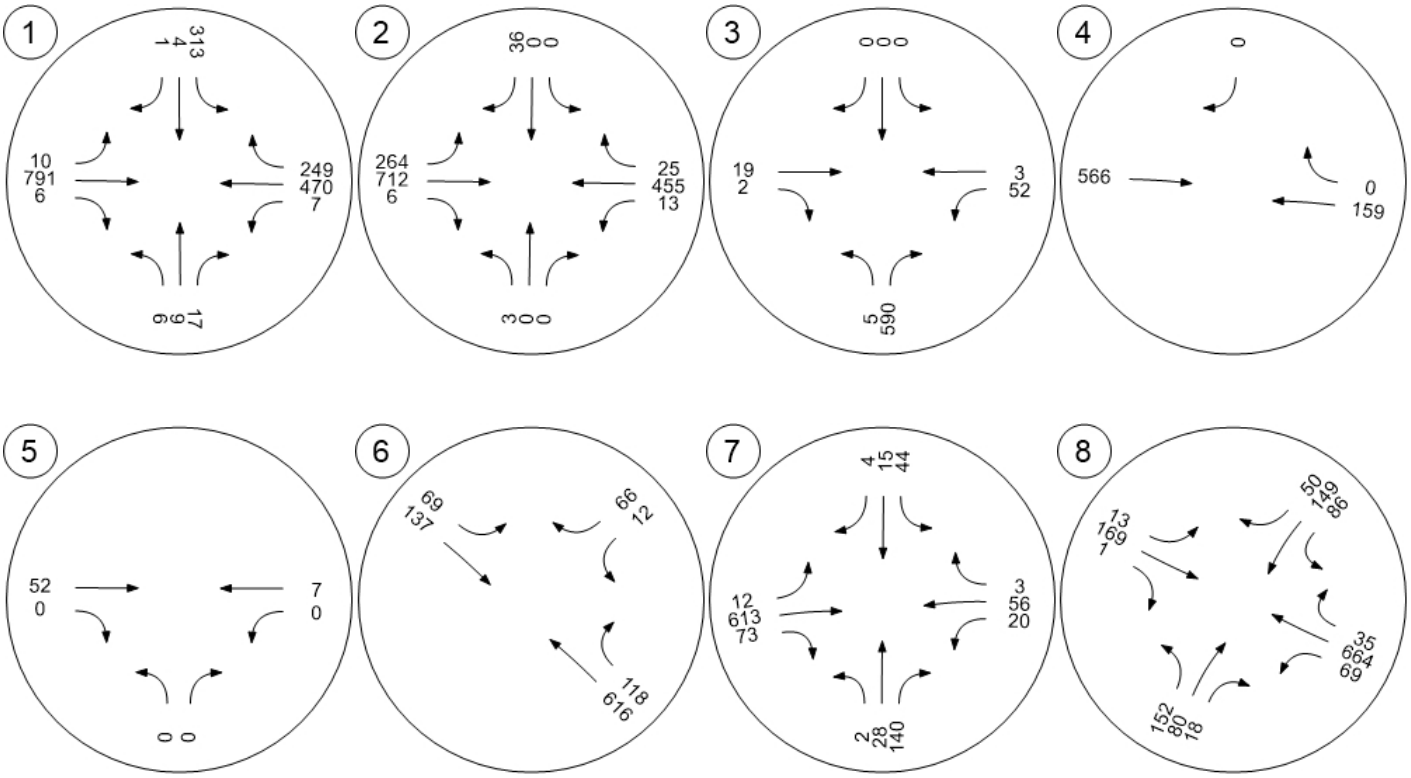
Lane Configuration and Traffic Control





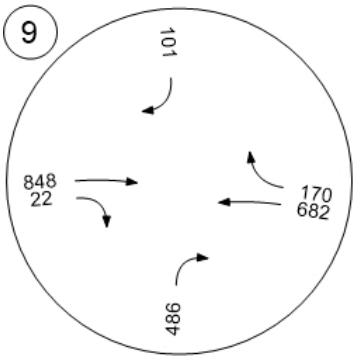
Traffic Volume - Base Volume





Traffic Volume - Base Volume





Signal Warrants Report For Intersection 2: SR 12 & Azevedo Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	1113	562	82	3
2	1080	545	80	3
3	1057	534	78	3
4	991	500	73	3
5	879	444	65	2
6	868	438	64	2
7	857	433	63	2
8	779	393	57	2
9	768	388	57	2
10	757	382	56	2
11	657	332	48	2
12	612	309	45	2
13	601	303	44	2
14	445	225	33	1
15	445	225	33	1
16	312	157	23	1
17	178	90	13	0
18	178	90	13	0
19	100	51	7	0
20	56	28	4	0
21	33	17	2	0
22	11	6	1	0
23	11	6	1	0
24	11	6	1	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1675	2	82	No	No	No	No	No	Yes	Yes	Yes	No	No
2	3	1625	2	80	No	No	No	No	No	Yes	Yes	Yes	No	No
3	3	1591	2	78	No	No	No	No	No	No	Yes	Yes	No	No
4	3	1491	2	73	No	No	No	No	No	No	Yes	Yes	No	No
5	3	1323	2	65	No	No	No	No	No	No	No	Yes	No	No
6	3	1306	2	64	No	No	No	No	No	No	No	Yes	No	No
7	3	1290	2	63	No	No	No	No	No	No	No	Yes	No	No
8	3	1172	2	57	No	No	No	No	No	No	No	Yes	No	No
9	3	1156	2	57	No	No	No	No	No	No	No	Yes	No	No
10	3	1139	2	56	No	No	No	No	No	No	No	Yes	No	No
11	3	989	2	48	No	No	No	No	No	No	No	No	No	No
12	3	921	2	45	No	No	No	No	No	No	No	No	No	No
13	3	904	2	44	No	No	No	No	No	No	No	No	No	No
14	3	670	2	33	No	No	No	No	No	No	No	No	No	No
15	3	670	2	33	No	No	No	No	No	No	No	No	No	No
16	3	469	2	23	No	No	No	No	No	No	No	No	No	No
17	3	268	2	13	No	No	No	No	No	No	No	No	No	No
18	3	268	2	13	No	No	No	No	No	No	No	No	No	No
19	3	151	2	7	No	No	No	No	No	No	No	No	No	No
20	3	84	2	4	No	No	No	No	No	No	No	No	No	No
21	3	50	2	2	No	No	No	No	No	No	No	No	No	No
22	3	17	2	1	No	No	No	No	No	No	No	No	No	No
23	3	17	2	1	No	No	No	No	No	No	No	No	No	No
24	3	17	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	2	4	10	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	47.8	171.1
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:05	0:08
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	82	3
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1760	1760
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 3: Canright Rd & Azevedo Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	85	10	27
2	82	10	26
3	81	10	26
4	76	9	24
5	67	8	21
6	66	8	21
7	65	8	21
8	59	7	19
9	59	7	19
10	58	7	18
11	50	6	16
12	47	6	15
13	46	5	15
14	34	4	11
15	34	4	11
16	24	3	8
17	14	2	4
18	14	2	4
19	8	1	2
20	4	1	1
21	3	0	1
22	1	0	0
23	1	0	0
24	1	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	95	1	27	No	No	No	No	No	No	No	No	No	No
2	1	92	1	26	No	No	No	No	No	No	No	No	No	No
3	1	91	1	26	No	No	No	No	No	No	No	No	No	No
4	1	85	1	24	No	No	No	No	No	No	No	No	No	No
5	1	75	1	21	No	No	No	No	No	No	No	No	No	No
6	1	74	1	21	No	No	No	No	No	No	No	No	No	No
7	1	73	1	21	No	No	No	No	No	No	No	No	No	No
8	1	66	1	19	No	No	No	No	No	No	No	No	No	No
9	1	66	1	19	No	No	No	No	No	No	No	No	No	No
10	1	65	1	18	No	No	No	No	No	No	No	No	No	No
11	1	56	1	16	No	No	No	No	No	No	No	No	No	No
12	1	53	1	15	No	No	No	No	No	No	No	No	No	No
13	1	51	1	15	No	No	No	No	No	No	No	No	No	No
14	1	38	1	11	No	No	No	No	No	No	No	No	No	No
15	1	38	1	11	No	No	No	No	No	No	No	No	No	No
16	1	27	1	8	No	No	No	No	No	No	No	No	No	No
17	1	16	1	4	No	No	No	No	No	No	No	No	No	No
18	1	16	1	4	No	No	No	No	No	No	No	No	No	No
19	1	9	1	2	No	No	No	No	No	No	No	No	No	No
20	1	5	1	1	No	No	No	No	No	No	No	No	No	No
21	1	3	1	1	No	No	No	No	No	No	No	No	No	No
22	1	1	1	0	No	No	No	No	No	No	No	No	No	No
23	1	1	1	0	No	No	No	No	No	No	No	No	No	No
24	1	1	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	27
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	122
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 4: SR 12 & Project Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	1006	577	244
2	976	560	237
3	956	548	232
4	895	514	217
5	795	456	193
6	785	450	190
7	775	444	188
8	704	404	171
9	694	398	168
10	684	392	166
11	594	340	144
12	553	317	134
13	543	312	132
14	402	231	98
15	402	231	98
16	282	162	68
17	161	92	39
18	161	92	39
19	91	52	22
20	50	29	12
21	30	17	7
22	10	6	2
23	10	6	2
24	10	6	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1583	1	244	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2	1536	1	237	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2	1504	1	232	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2	1409	1	217	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	2	1251	1	193	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	2	1235	1	190	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
7	2	1219	1	188	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
8	2	1108	1	171	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
9	2	1092	1	168	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
10	2	1076	1	166	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
11	2	934	1	144	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
12	2	870	1	134	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
13	2	855	1	132	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
14	2	633	1	98	No	No	No	Yes	No	No	Yes	Yes	No	No
15	2	633	1	98	No	No	No	Yes	No	No	Yes	Yes	No	No
16	2	444	1	68	No	No	No	No	No	No	No	No	No	No
17	2	253	1	39	No	No	No	No	No	No	No	No	No	No
18	2	253	1	39	No	No	No	No	No	No	No	No	No	No
19	2	143	1	22	No	No	No	No	No	No	No	No	No	No
20	2	79	1	12	No	No	No	No	No	No	No	No	No	No
21	2	47	1	7	No	No	No	No	No	No	No	No	No	No
22	2	16	1	2	No	No	No	No	No	No	No	No	No	No
23	2	16	1	2	No	No	No	No	No	No	No	No	No	No
24	2	16	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					10	13	13	15	11	13	15	15	10	4

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	41.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	2:48
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	244
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1827
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 5: McCormack Rd & Project Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	11	12	57
2	11	12	55
3	10	11	54
4	10	11	51
5	9	9	45
6	9	9	44
7	8	9	44
8	8	8	40
9	8	8	39
10	7	8	39
11	6	7	34
12	6	7	31
13	6	6	31
14	4	5	23
15	4	5	23
16	3	3	16
17	2	2	9
18	2	2	9
19	1	1	5
20	1	1	3
21	0	0	2
22	0	0	1
23	0	0	1
24	0	0	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	23	1	57	No	No	No	No	No	No	No	No	No	No
2	2	23	1	55	No	No	No	No	No	No	No	No	No	No
3	2	21	1	54	No	No	No	No	No	No	No	No	No	No
4	2	21	1	51	No	No	No	No	No	No	No	No	No	No
5	2	18	1	45	No	No	No	No	No	No	No	No	No	No
6	2	18	1	44	No	No	No	No	No	No	No	No	No	No
7	2	17	1	44	No	No	No	No	No	No	No	No	No	No
8	2	16	1	40	No	No	No	No	No	No	No	No	No	No
9	2	16	1	39	No	No	No	No	No	No	No	No	No	No
10	2	15	1	39	No	No	No	No	No	No	No	No	No	No
11	2	13	1	34	No	No	No	No	No	No	No	No	No	No
12	2	13	1	31	No	No	No	No	No	No	No	No	No	No
13	2	12	1	31	No	No	No	No	No	No	No	No	No	No
14	2	9	1	23	No	No	No	No	No	No	No	No	No	No
15	2	9	1	23	No	No	No	No	No	No	No	No	No	No
16	2	6	1	16	No	No	No	No	No	No	No	No	No	No
17	2	4	1	9	No	No	No	No	No	No	No	No	No	No
18	2	4	1	9	No	No	No	No	No	No	No	No	No	No
19	2	2	1	5	No	No	No	No	No	No	No	No	No	No
20	2	2	1	3	No	No	No	No	No	No	No	No	No	No
21	2	0	1	2	No	No	No	No	No	No	No	No	No	No
22	2	0	1	1	No	No	No	No	No	No	No	No	No	No
23	2	0	1	1	No	No	No	No	No	No	No	No	No	No
24	2	0	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:08
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	57
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	80
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 7: Canright Rd & Province Path

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	288	145	132	121
2	279	141	128	117
3	274	138	125	115
4	256	129	117	108
5	228	115	104	96
6	225	113	103	94
7	222	112	102	93
8	202	102	92	85
9	199	100	91	83
10	196	99	90	82
11	170	86	78	71
12	158	80	73	67
13	156	78	71	65
14	115	58	53	48
15	115	58	53	48
16	81	41	37	34
17	46	23	21	19
18	46	23	21	19
19	26	13	12	11
20	14	7	7	6
21	9	4	4	4
22	3	1	1	1
23	3	1	1	1
24	3	1	1	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	433	2	132	No	No	No	Yes	No	No	No	No	No	No
2	2	420	2	128	No	No	No	Yes	No	No	No	No	No	No
3	2	412	2	125	No	No	No	Yes	No	No	No	No	No	No
4	2	385	2	117	No	No	No	Yes	No	No	No	No	No	No
5	2	343	2	104	No	No	No	No	No	No	No	No	No	No
6	2	338	2	103	No	No	No	No	No	No	No	No	No	No
7	2	334	2	102	No	No	No	No	No	No	No	No	No	No
8	2	304	2	92	No	No	No	No	No	No	No	No	No	No
9	2	299	2	91	No	No	No	No	No	No	No	No	No	No
10	2	295	2	90	No	No	No	No	No	No	No	No	No	No
11	2	256	2	78	No	No	No	No	No	No	No	No	No	No
12	2	238	2	73	No	No	No	No	No	No	No	No	No	No
13	2	234	2	71	No	No	No	No	No	No	No	No	No	No
14	2	173	2	53	No	No	No	No	No	No	No	No	No	No
15	2	173	2	53	No	No	No	No	No	No	No	No	No	No
16	2	122	2	37	No	No	No	No	No	No	No	No	No	No
17	2	69	2	21	No	No	No	No	No	No	No	No	No	No
18	2	69	2	21	No	No	No	No	No	No	No	No	No	No
19	2	39	2	12	No	No	No	No	No	No	No	No	No	No
20	2	21	2	7	No	No	No	No	No	No	No	No	No	No
21	2	13	2	4	No	No	No	No	No	No	No	No	No	No
22	2	4	2	1	No	No	No	No	No	No	No	No	No	No
23	2	4	2	1	No	No	No	No	No	No	No	No	No	No
24	2	4	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	4	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.3	10.8
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:24	0:21
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	132	121
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	686	686
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 9: SR12 & SR 84

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	1043	705	125	200
2	1012	684	121	194
3	991	670	119	190
4	928	627	111	178
5	824	557	99	158
6	814	550	98	156
7	803	543	96	154
8	730	493	88	140
9	720	486	86	138
10	709	479	85	136
11	615	416	74	118
12	574	388	69	110
13	563	381	68	108
14	417	282	50	80
15	417	282	50	80
16	292	197	35	56
17	167	113	20	32
18	167	113	20	32
19	94	63	11	18
20	52	35	6	10
21	31	21	4	6
22	10	7	1	2
23	10	7	1	2
24	10	7	1	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	1748	1	200	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	1	1696	1	194	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	1	1661	1	190	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	1	1555	1	178	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	1	1381	1	158	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	1	1364	1	156	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
7	1	1346	1	154	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
8	1	1223	1	140	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
9	1	1206	1	138	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
10	1	1188	1	136	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
11	1	1031	1	118	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
12	1	962	1	110	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
13	1	944	1	108	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
14	1	699	1	80	No	No	No	No	No	Yes	Yes	Yes	No	No
15	1	699	1	80	No	No	No	No	No	Yes	Yes	Yes	No	No
16	1	489	1	56	No	No	No	No	No	No	No	Yes	No	No
17	1	280	1	32	No	No	No	No	No	No	No	No	No	No
18	1	280	1	32	No	No	No	No	No	No	No	No	No	No
19	1	157	1	18	No	No	No	No	No	No	No	No	No	No
20	1	87	1	10	No	No	No	No	No	No	No	No	No	No
21	1	52	1	6	No	No	No	No	No	No	No	No	No	No
22	1	17	1	2	No	No	No	No	No	No	No	No	No	No
23	1	17	1	2	No	No	No	No	No	No	No	No	No	No
24	1	17	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					7	10	13	13	13	15	15	16	12	4

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	29.9	23.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:02	1:18
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	125	200
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	2073	2073
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 2: SR 12 & Azevedo Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	658	1251	36	3
2	638	1213	35	3
3	625	1188	34	3
4	586	1113	32	3
5	520	988	28	2
6	513	976	28	2
7	507	963	28	2
8	461	876	25	2
9	454	863	25	2
10	447	851	24	2
11	388	738	21	2
12	362	688	20	2
13	355	676	19	2
14	263	500	14	1
15	263	500	14	1
16	184	350	10	1
17	105	200	6	0
18	105	200	6	0
19	59	113	3	0
20	33	63	2	0
21	20	38	1	0
22	7	13	0	0
23	7	13	0	0
24	7	13	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1909	2	36	No	No	No	No	No	No	No	No	No	No
2	3	1851	2	35	No	No	No	No	No	No	No	No	No	No
3	3	1813	2	34	No	No	No	No	No	No	No	No	No	No
4	3	1699	2	32	No	No	No	No	No	No	No	No	No	No
5	3	1508	2	28	No	No	No	No	No	No	No	No	No	No
6	3	1489	2	28	No	No	No	No	No	No	No	No	No	No
7	3	1470	2	28	No	No	No	No	No	No	No	No	No	No
8	3	1337	2	25	No	No	No	No	No	No	No	No	No	No
9	3	1317	2	25	No	No	No	No	No	No	No	No	No	No
10	3	1298	2	24	No	No	No	No	No	No	No	No	No	No
11	3	1126	2	21	No	No	No	No	No	No	No	No	No	No
12	3	1050	2	20	No	No	No	No	No	No	No	No	No	No
13	3	1031	2	19	No	No	No	No	No	No	No	No	No	No
14	3	763	2	14	No	No	No	No	No	No	No	No	No	No
15	3	763	2	14	No	No	No	No	No	No	No	No	No	No
16	3	534	2	10	No	No	No	No	No	No	No	No	No	No
17	3	305	2	6	No	No	No	No	No	No	No	No	No	No
18	3	305	2	6	No	No	No	No	No	No	No	No	No	No
19	3	172	2	3	No	No	No	No	No	No	No	No	No	No
20	3	96	2	2	No	No	No	No	No	No	No	No	No	No
21	3	58	2	1	No	No	No	No	No	No	No	No	No	No
22	3	20	2	0	No	No	No	No	No	No	No	No	No	No
23	3	20	2	0	No	No	No	No	No	No	No	No	No	No
24	3	20	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	16.6	1358.6
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:09	1:07
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	36	3
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1948	1948
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 3: Canright Rd & Azevedo Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	55	21	595
2	53	20	577
3	52	20	565
4	49	19	530
5	43	17	470
6	43	16	464
7	42	16	458
8	39	15	417
9	38	14	411
10	37	14	405
11	32	12	351
12	30	12	327
13	30	11	321
14	22	8	238
15	22	8	238
16	15	6	167
17	9	3	95
18	9	3	95
19	5	2	54
20	3	1	30
21	2	1	18
22	1	0	6
23	1	0	6
24	1	0	6

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	76	1	595	No	No	No	No	No	No	No	No	Yes	Yes
2	1	73	1	577	No	No	No	No	No	No	No	No	Yes	Yes
3	1	72	1	565	No	No	No	No	No	No	No	No	Yes	Yes
4	1	68	1	530	No	No	No	No	No	No	No	No	Yes	Yes
5	1	60	1	470	No	No	No	No	No	No	No	No	Yes	Yes
6	1	59	1	464	No	No	No	No	No	No	No	No	Yes	Yes
7	1	58	1	458	No	No	No	No	No	No	No	No	Yes	No
8	1	54	1	417	No	No	No	No	No	No	No	No	Yes	No
9	1	52	1	411	No	No	No	No	No	No	No	No	Yes	No
10	1	51	1	405	No	No	No	No	No	No	No	No	Yes	No
11	1	44	1	351	No	No	No	No	No	No	No	No	Yes	No
12	1	42	1	327	No	No	No	No	No	No	No	No	Yes	No
13	1	41	1	321	No	No	No	No	No	No	No	No	Yes	No
14	1	30	1	238	No	No	No	No	No	No	No	No	No	No
15	1	30	1	238	No	No	No	No	No	No	No	No	No	No
16	1	21	1	167	No	No	No	No	No	No	No	No	No	No
17	1	12	1	95	No	No	No	No	No	No	No	No	No	No
18	1	12	1	95	No	No	No	No	No	No	No	No	No	No
19	1	7	1	54	No	No	No	No	No	No	No	No	No	No
20	1	4	1	30	No	No	No	No	No	No	No	No	No	No
21	1	3	1	18	No	No	No	No	No	No	No	No	No	No
22	1	1	1	6	No	No	No	No	No	No	No	No	No	No
23	1	1	1	6	No	No	No	No	No	No	No	No	No	No
24	1	1	1	6	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	13	6

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	58.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	9:39
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	595
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	671
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

Signal Warrants Report For Intersection 4: SR 12 & Project Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	425	835	160
2	412	810	155
3	404	793	152
4	378	743	142
5	336	660	126
6	332	651	125
7	327	643	123
8	298	585	112
9	293	576	110
10	289	568	109
11	251	493	94
12	234	459	88
13	230	451	86
14	170	334	64
15	170	334	64
16	119	234	45
17	68	134	26
18	68	134	26
19	38	75	14
20	21	42	8
21	13	25	5
22	4	8	2
23	4	8	2
24	4	8	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1260	1	160	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	2	1222	1	155	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	2	1197	1	152	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	2	1121	1	142	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	2	996	1	126	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
6	2	983	1	125	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
7	2	970	1	123	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
8	2	883	1	112	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
9	2	869	1	110	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
10	2	857	1	109	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
11	2	744	1	94	No	No	No	Yes	No	Yes	Yes	Yes	No	No
12	2	693	1	88	No	No	No	Yes	No	No	Yes	Yes	No	No
13	2	681	1	86	No	No	No	Yes	No	No	Yes	Yes	No	No
14	2	504	1	64	No	No	No	No	No	No	No	Yes	No	No
15	2	504	1	64	No	No	No	No	No	No	No	Yes	No	No
16	2	353	1	45	No	No	No	No	No	No	No	No	No	No
17	2	202	1	26	No	No	No	No	No	No	No	No	No	No
18	2	202	1	26	No	No	No	No	No	No	No	No	No	No
19	2	113	1	14	No	No	No	No	No	No	No	No	No	No
20	2	63	1	8	No	No	No	No	No	No	No	No	No	No
21	2	38	1	5	No	No	No	No	No	No	No	No	No	No
22	2	12	1	2	No	No	No	No	No	No	No	No	No	No
23	2	12	1	2	No	No	No	No	No	No	No	No	No	No
24	2	12	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					3	7	10	13	7	11	13	15	4	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:26
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	160
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1420
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 5: McCormack Rd & Project Driveway

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	38	84	37
2	37	81	36
3	36	80	35
4	34	75	33
5	30	66	29
6	30	66	29
7	29	65	28
8	27	59	26
9	26	58	26
10	26	57	25
11	22	50	22
12	21	46	20
13	21	45	20
14	15	34	15
15	15	34	15
16	11	24	10
17	6	13	6
18	6	13	6
19	3	8	3
20	2	4	2
21	1	3	1
22	0	1	0
23	0	1	0
24	0	1	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	122	1	37	No	No	No	No	No	No	No	No	No	No
2	2	118	1	36	No	No	No	No	No	No	No	No	No	No
3	2	116	1	35	No	No	No	No	No	No	No	No	No	No
4	2	109	1	33	No	No	No	No	No	No	No	No	No	No
5	2	96	1	29	No	No	No	No	No	No	No	No	No	No
6	2	96	1	29	No	No	No	No	No	No	No	No	No	No
7	2	94	1	28	No	No	No	No	No	No	No	No	No	No
8	2	86	1	26	No	No	No	No	No	No	No	No	No	No
9	2	84	1	26	No	No	No	No	No	No	No	No	No	No
10	2	83	1	25	No	No	No	No	No	No	No	No	No	No
11	2	72	1	22	No	No	No	No	No	No	No	No	No	No
12	2	67	1	20	No	No	No	No	No	No	No	No	No	No
13	2	66	1	20	No	No	No	No	No	No	No	No	No	No
14	2	49	1	15	No	No	No	No	No	No	No	No	No	No
15	2	49	1	15	No	No	No	No	No	No	No	No	No	No
16	2	35	1	10	No	No	No	No	No	No	No	No	No	No
17	2	19	1	6	No	No	No	No	No	No	No	No	No	No
18	2	19	1	6	No	No	No	No	No	No	No	No	No	No
19	2	11	1	3	No	No	No	No	No	No	No	No	No	No
20	2	6	1	2	No	No	No	No	No	No	No	No	No	No
21	2	4	1	1	No	No	No	No	No	No	No	No	No	No
22	2	1	1	0	No	No	No	No	No	No	No	No	No	No
23	2	1	1	0	No	No	No	No	No	No	No	No	No	No
24	2	1	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	9
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	37
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	159
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 7: Canright Rd & Province Path

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	209	503	98	790
2	203	488	95	766
3	199	478	93	751
4	186	448	87	703
5	165	397	77	624
6	163	392	76	616
7	161	387	75	608
8	146	352	69	553
9	144	347	68	545
10	142	342	67	537
11	123	297	58	466
12	115	277	54	435
13	113	272	53	427
14	84	201	39	316
15	84	201	39	316
16	59	141	27	221
17	33	80	16	126
18	33	80	16	126
19	19	45	9	71
20	10	25	5	40
21	6	15	3	24
22	2	5	1	8
23	2	5	1	8
24	2	5	1	8

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	712	2	790	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
2	2	691	2	766	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
3	2	677	2	751	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
4	2	634	2	703	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
5	2	562	2	624	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
6	2	555	2	616	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
7	2	548	2	608	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
8	2	498	2	553	No	Yes	Yes	Yes	No	No	No	No	Yes	No
9	2	491	2	545	No	Yes	Yes	Yes	No	No	No	No	Yes	No
10	2	484	2	537	No	Yes	Yes	Yes	No	No	No	No	Yes	No
11	2	420	2	466	No	No	Yes	Yes	No	No	No	No	Yes	No
12	2	392	2	435	No	No	No	Yes	No	No	No	No	No	No
13	2	385	2	427	No	No	No	Yes	No	No	No	No	No	No
14	2	285	2	316	No	No	No	No	No	No	No	No	No	No
15	2	285	2	316	No	No	No	No	No	No	No	No	No	No
16	2	200	2	221	No	No	No	No	No	No	No	No	No	No
17	2	113	2	126	No	No	No	No	No	No	No	No	No	No
18	2	113	2	126	No	No	No	No	No	No	No	No	No	No
19	2	64	2	71	No	No	No	No	No	No	No	No	No	No
20	2	35	2	40	No	No	No	No	No	No	No	No	No	No
21	2	21	2	24	No	No	No	No	No	No	No	No	No	No
22	2	7	2	8	No	No	No	No	No	No	No	No	No	No
23	2	7	2	8	No	No	No	No	No	No	No	No	No	No
24	2	7	2	8	No	No	No	No	No	No	No	No	No	No
Hours Met					4	10	11	13	0	0	4	7	11	7

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.4	327.4
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:21	71:50
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	98	790
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1600	1600
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	Yes
Warrant Met for Intersection	**Yes**	

Signal Warrants Report For Intersection 9: SR12 & SR 84

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	1085	1010	233	486
2	1052	980	226	471
3	1031	960	221	462
4	966	899	207	433
5	857	798	184	384
6	846	788	182	379
7	835	778	179	374
8	760	707	163	340
9	749	697	161	335
10	738	687	158	330
11	640	596	137	287
12	597	556	128	267
13	586	545	126	262
14	434	404	93	194
15	434	404	93	194
16	304	283	65	136
17	174	162	37	78
18	174	162	37	78
19	98	91	21	44
20	54	51	12	24
21	33	30	7	15
22	11	10	2	5
23	11	10	2	5
24	11	10	2	5

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	2095	1	486	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	1	2032	1	471	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	1	1991	1	462	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	1	1865	1	433	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	1	1655	1	384	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	1	1634	1	379	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	1	1613	1	374	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	1	1467	1	340	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	1	1446	1	335	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	1	1425	1	330	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	1	1236	1	287	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	1	1153	1	267	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	1	1131	1	262	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	1	838	1	194	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
15	1	838	1	194	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
16	1	587	1	136	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No
17	1	336	1	78	No	No	No	No	No	No	No	No	No	No
18	1	336	1	78	No	No	No	No	No	No	No	No	No	No
19	1	189	1	44	No	No	No	No	No	No	No	No	No	No
20	1	105	1	24	No	No	No	No	No	No	No	No	No	No
21	1	63	1	15	No	No	No	No	No	No	No	No	No	No
22	1	21	1	5	No	No	No	No	No	No	No	No	No	No
23	1	21	1	5	No	No	No	No	No	No	No	No	No	No
24	1	21	1	5	No	No	No	No	No	No	No	No	No	No
Hours Met					15	16	16	16	15	15	16	16	15	13

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	75.6	471.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	4:53	63:41
Delay Condition Met	Yes	Yes
Volume on Minor Street Approach During Same Hour	233	486
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	2814	2814
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	Yes	Yes
Warrant Met for Intersection	**Yes**	