



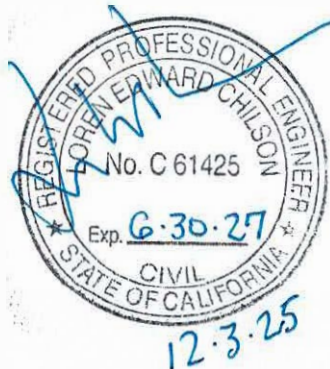
# TRANSPORTATION TECHNICAL STUDY FOR SKYLINE AGGREGATES

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## **EXECUTIVE SUMMARY**

### ***Project Description***

The proposed Skyline Aggregate project consists of reclaiming mined material from approximately 460 acres of the 640-acre project site. The project is generally located northeast of Skyline Road between State Highway 139 and Johnstonville Road in Lassen County, CA. As a part of this project, the property will be annexed to the City of Susanville.

The *Trip Generation Manual, 11th Edition* published by the Institute of Transportation Engineers (ITE) does not provide trip generation rates for the proposed land use. Therefore, trip generation was estimated based on peak day operation projections. To be conservative, the trip generation used in this study considers a 24-hour working day during the peak summer construction season. The proposed project is expected to generate fewer trips during typical non-peak seasons. It is estimated that ten percent of the total daily trips will occur within the peak hour. The proposed project is estimated to generate approximately 860 Daily, 86 AM peak hour, and 86 PM peak hour trips. Project trips primarily consist of truck trips generating approximately 800 Daily, 80 AM peak hour, and 80 PM peak hour trips. Employee (passenger vehicles) trips are estimated at 60 Daily, 6 AM peak hour, and 6 PM peak hour trips. All California legal truck types may use the project access point and are considered in the analysis.

### ***Existing Conditions***

The study intersections are anticipated to operate at acceptable levels of service (LOS “C” or better) under Existing and Existing Plus Project conditions. For the purpose of this analysis, Existing and “Opening Day” Conditions are considered the same.

### ***Future Year Conditions***

The study intersections are anticipated to operate at acceptable levels of service (LOS “C” or better) under Future and Future Plus Project conditions.

### ***Impact Analysis/California Environmental Quality Act (CEQA) Compliance***

The project impacts related to alternative modes of travel, public transit, and emergency access would be less-than-significant.

To reduce potential traffic hazards on Skyline Road from left and right turning vehicles generated by the project, the project should construct southbound left turn and northbound right turn lanes on Skyline Road at the project driveway with 200 feet of pocket/storage plus appropriate deceleration length (285 feet) for a total deceleration length of 485 feet. With the implementation of this mitigation measure, potential traffic hazards from project traffic on Skyline Road would be reduced to a less than significant level.

The project will construct the project access in compliance with Lassen County standards and the Lassen County Fire Safe Regulations to accommodate all California legal trucks and provide adequate emergency access. By compliance with Lassen County emergency access design standards, the project would have a less-than-significant impact related to emergency access.

It is reasonable to estimate that the project would not significantly increase vehicle miles traveled (VMT) by automobiles. Trucks are not subject to VMT thresholds per OPR guidance. Therefore, the project would have a less-than-significant impact on VMT.

### ***Mitigations***

Mitigation 1: Construct southbound left turn and northbound right turn lanes on Skyline Road at the project access point with 200 feet of pocket/storage plus appropriate deceleration length (285 feet) for a total deceleration length of 485 feet.

### **LIST OF FIGURES**

1. Project Location
2. Preliminary Site Plan
3. Existing Traffic Volumes, Lane Configurations & Controls
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- C. Existing Plus Project Conditions LOS Calculations
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## INTRODUCTION

This report presents the findings of a Transportation Technical Study completed to assess the potential impacts to the local roadway network and environment associated with development of the proposed Skyline Aggregate project in Lassen County, CA. This technical study has been prepared to document existing traffic conditions, quantify traffic volumes generated by the proposed project, analyze intersections for long-term planning purposes, identify potential impacts related to vehicle miles traveled (VMT) and other California Environmental Quality Act (CEQA) criteria, document findings, and make recommendations to mitigate impacts, if any are found. This report includes two primary study topics:

- ▶ Operations analysis for consistency with General Plan policies
- ▶ Evaluation of transportation impacts per CEQA criteria

### ***Project Description***

The proposed Skyline Aggregate project consists of reclaiming mined material from approximately 460 acres of the 640-acre project site. The project is generally located northeast of Skyline Road between State Highway 139 and Johnstonville Road in Lassen County, CA. As a part of this project, the property will be annexed to the City of Susanville.

Generally, the facility will operate from 6:00 AM until 6:00 PM, Monday through Saturday, with some operations on Sundays. During construction season, the site may operate 24 hours a day to meet construction demand and/or Caltrans requirements for nighttime work on the state highway system.

The project location is shown on **Figure 1** and the preliminary project site plan is shown on **Figure 2**.

## OPERATIONS ANALYSIS FOR GENERAL PLAN CONFORMANCE

### ***Study Intersections***

The following intersections are included in this study as shown on **Figure 1**, as they would be the most likely impacted:

- ▶ Highway 139 / Skyline Road
- ▶ Skyline Road / Project Driveway
- ▶ Johnstonville Road / Skyline Road

### ***Study Scenarios***

This study includes analysis of both the weekday AM and PM peak hours as these are the periods of time in which peak combined (background plus project) traffic is anticipated to occur. The proposed project is anticipated to begin operating in the Spring of 2025. Significant background traffic growth is not

anticipated within the immediate study area within the next two years. Therefore, “Opening Day” conditions are considered equal to the Existing Conditions analysis presented in this report.

The evaluated development scenarios are:

- ▶ Existing Conditions
- ▶ Future Year (20 year horizon) Conditions
- ▶ Existing Plus Project Conditions
- ▶ Future Year Plus Project Conditions

## ANALYSIS METHODOLOGY

Level of service (LOS) is a term commonly used by transportation practitioners to measure and describe the operational characteristics of intersections, roadway segments, and other facilities. This term equates seconds of delay per vehicle at intersections to letter grades “A” through “F” with “A” representing optimum conditions and “F” representing breakdown or over capacity flows.

### **Intersections**

The complete methodology for intersection level of service analysis is established in the *Highway Capacity Manual (HCM) 7<sup>th</sup> Edition*, published by the Transportation Research Board (TRB). **Table 1** presents the delay thresholds for each level of service grade at signalized and unsignalized intersections.

**Table 1: Level of Service Definition for Intersections**

| Level of Service | Brief Description  | Average Delay (seconds per vehicle) |                            |
|------------------|--|-------------------------------------|----------------------------|
|                  |  | Signalized Intersections            | Unsignalized Intersections |
| A                | Free flow conditions.  | < 10                                | < 10                       |
| B                | Stable conditions with some affect from other vehicles.        | 10 to 20                            | 10 to 15                   |
| C                | Stable conditions with significant affect from other vehicles. | 20 to 35                            | 15 to 25                   |
| D                | High density traffic conditions still with stable flow.        | 35 to 55                            | 25 to 35                   |
| E                | At or near capacity flows.                                     | 55 to 80                            | 35 to 50                   |
| F                | Over capacity conditions.                                      | > 80                                | > 50                       |

Source: Highway Capacity Manual (7<sup>th</sup> Edition), Chapters 18 through 21

Level of service calculations were performed for the study intersections using the PTV Vistro 2023 software package with analysis and results reported in accordance with *HCM 7<sup>th</sup> Edition* methodology.

### ***Level of Service Policy***

#### City of Susanville

The City of Susanville does not have any established Level of Service thresholds or criteria.

#### Lassen County

The *Lassen County General Plan (2000)* Circulation Element includes the following level of service policy:

*CE12 POLICY: No public highway or roadway should be allowed to fall to or exist for a substantial amount of time at or below a Level of Service rating of "E" (i.e., road at or near capacity; reduced speeds; extremely difficult to maneuver; some stoppages).*

Hence, LOS "D" was used as the level of service threshold for this project related to General Plan conformance review. However, with the implementation of SB 743, a level of service policy exceedance is not deemed an environmental impact.

## **EXISTING CONDITIONS**

### ***Roadway Facilities***

A brief description of the key roadways in the study area is provided below.

*Highway 139* is a primary thoroughfare in Susanville, CA and is classified as a "Minor Arterial" per the Caltrans Functional Classification System. Highway 139 is generally a two-lane roadway with one lane in each direction and separate turn lanes at major intersections. The posted speed limit in the project area is 55 mph.

*Skyline Road* is generally a two-lane beltline roadway that connects Highway 139 to Highway 36. It is classified as a "Minor Arterial" per the Caltrans Functional Classification System. The posted speed limit in the project area is 55 mph. Skyline Road is a Lassen County owned and maintained roadway.

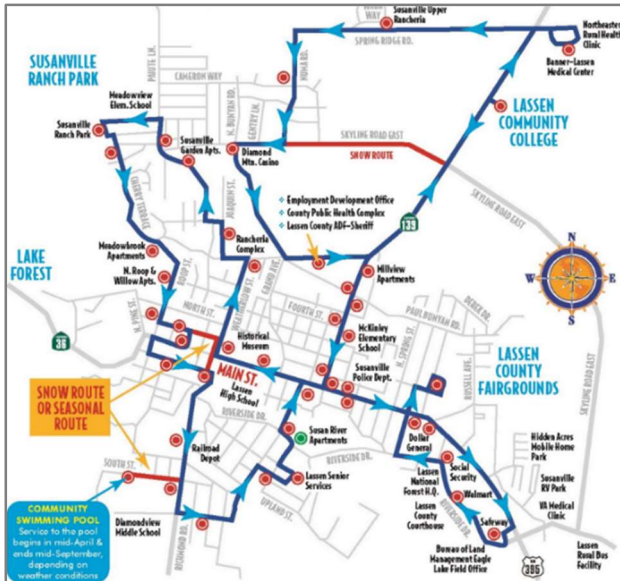
*Johnstonville Road* within the study area is generally a three-lane east-west roadway with one lane in each direction and a two-way left-turn lane (TWLTL). It has a posted speed limit of 35 mph near the Skyline Road intersection and is classified as a "Major Collector" per the Caltrans Functional Classification System.

### ***Bicycle & Pedestrian Facilities***

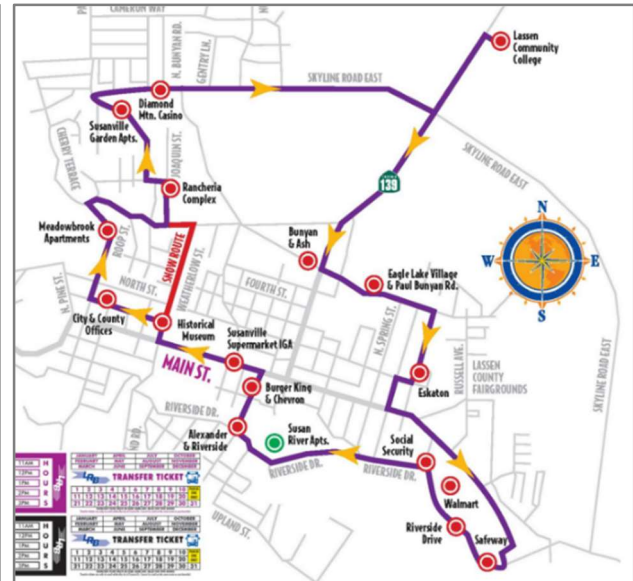
Sidewalks or bike lanes do not exist within the immediate project vicinity. Sidewalks exist only at the quadrants of the Highway 139 / Skyline Road and Johnstonville Road / Skyline Road intersections. The Skyline Multi-Use Path exists on the west side of Skyline Road between Highway 139 and Highway 36.

**Transit Facilities**

Lassen Rural Bus (LRB) operates fixed route bus service throughout Lassen County. Two routes, Susanville City Route and Susanville “Express” City Route, operate in Susanville as shown in **Exhibit 1** and **Exhibit 2**.



**Exhibit 1: Susanville City Route**



**Exhibit 2: Susanville “Express” City Route**

The Susanville City Route operates Monday through Friday from 7:00am to 6:52pm and Saturdays from 8:00am to 3:52pm. The Susanville “Express” City Route operates Monday through Friday from 10:37am to 4:00pm and travels in the opposite direction as the Susanville City Route.

Neither route operates along Skyline Road immediately adjacent to the project site. The nearest transit stops to the site are located at Lassen Community College and the Safeway on Main Street.

**Existing Traffic Volumes**

Existing AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hour traffic volumes were collected at the study intersections on May 24 and May 25, 2023 with Lassen County School District in regular session.

**Figure 3** shows the Existing AM and PM peak hour traffic volumes, lane configurations, and controls at the study intersections.

**Existing Intersection Level of Service Analysis**

Existing AM and PM peak hour intersection level of service analysis was performed for the study intersections using Vistro 2023 analysis software following HCM methodology. Time of day signal timing at the study intersections were obtained from traffic signal observations during the peak hour video

recordings. Pedestrian walk and clearance times were recorded during a site visit and incorporated in the analysis. **Table 2** presents the level of service results under Existing Conditions and the technical calculations are provided in **Appendix A**.

**Table 2: Existing Intersection Level of Service**

| ID | Intersection                  | Control | AM Peak            |      | PM Peak            |      |
|----|-------------------------------|---------|--------------------|------|--------------------|------|
|    |                               |         | Delay <sup>1</sup> | LOS  | Delay <sup>1</sup> | LOS  |
| 1  | Highway 139 / Skyline Rd      | Signal  |                    |      |                    |      |
|    | Overall                       |         | C                  | 25.0 | C                  | 22.1 |
| 3  | Skyline Rd / Johnstonville Rd | Signal  |                    |      |                    |      |
|    | Overall                       |         | C                  | 23.5 | C                  | 22.0 |

Notes: 1. Delay is reported in seconds per vehicle for the overall intersection for signalized intersections, and for the worst approach/movement for side street stop controlled intersections.

Source: Headway Transportation, 2024

As shown in the table, the study intersections operate at LOS “C” or better under Existing conditions.

## FUTURE YEAR CONDITIONS

### ***Future Year Traffic Volumes***

Future year (20-year horizon) background traffic volume forecasts were developed using historical traffic volume data obtained from the Caltrans Traffic Census Program online database. The nearby Caltrans count station on Highway 139 (Postmark 1.42 at Lassen College) indicates little to no growth between 2013 and 2021. However, to be conservative, a modest future year growth rate of 1% per year for 20 years was applied to the existing traffic volumes. **Figure 4** shows the projected Future Year intersection turning movement volumes, lane configurations, and controls at the study intersections.

### ***Future Year Intersection Level of Service Analysis***

Future AM and PM peak hour intersection level of service analysis was performed for the study intersections using Vistro 2023 analysis software following HCM methodology. **Table 3** shows the Future Year background conditions level of service results and the technical calculations are provided in **Appendix B**.

**Table 3: Future Year Intersection Level of Service (without Project)**

| ID | Intersection                  | Control | AM Peak            |     | PM Peak            |     |
|----|-------------------------------|---------|--------------------|-----|--------------------|-----|
|    |                               |         | Delay <sup>1</sup> | LOS | Delay <sup>1</sup> | LOS |
| 1  | Highway 139 / Skyline Rd      | Signal  |                    |     |                    |     |
|    | Overall                       |         | 26.1               | C   | 23.5               | C   |
| 3  | Skyline Rd / Johnstonville Rd | Signal  |                    |     |                    |     |
|    | Overall                       |         | 24.7               | C   | 23.4               | C   |

Notes: 1. Delay is reported in seconds per vehicle for the overall intersection for signalized intersections, and for the worst approach/movement for side street stop controlled intersections.

Source: Headway Transportation, 2024

As shown in the table, the study intersections are expected to operate at LOS “C” or better under Future Year conditions.

## PROJECT CONDITIONS

### *Project Description*

The proposed Skyline Aggregate project consists of reclaiming mined material from approximately 460 acres of the 640-acre project site. The project is generally located northeast of Skyline Road between State Highway 139 and Johnstonville Road in Lassen County, CA.

### *Project Access*

Access to the project site is provided via one main access on Skyline Road. The project should construct separate southbound left turn and northbound right turn lanes on Skyline Road at the project driveway for safety and circulation benefits. It is recommended that the project construct both turn lanes with 200 feet of pocket/storage plus appropriate deceleration length (285 feet) for a total deceleration length of 485 feet.

The project will construct the project access in compliance with Lassen County standards and the Lassen County Fire Safe Regulations to accommodate all California legal trucks and provide adequate emergency access. Based on Lassen County Code of Ordinances Chapter 9.16 Fire Hazards (9.16.190 Access, subsection (a)(4), one access road is proposed since the number of parcel(s) is less than four and would not warrant a second route. The parcel(s) are zoned for 20 acres or larger and the dead-end roadway would not exceed 5,280 feet meeting the requirements of Section 9.16.190 Access, subsection (d). Lassen County Code of Ordinances Chapter 9.16 Fire Hazards and Lassen County Code of Ordinances Chapter 16.32 Subdivisions provide design standards for Limited Access Roads. Construction of Limited Access Roads shall be in conformance with the standards for Road Section Number 5. The project access must be approved by Lassen County and designed to meet County’s road standards for emergency access. By compliance with Lassen County emergency access design standards, the project would have a less-than-significant impact related to emergency access.

AASHTO's A Policy on Geometric Design of Highways and Streets provides recommendations for intersection sight distance (ISD) triangles from the side streets along the mainline based on speed limits. Approximately 610' of sight line should be provided looking both north and south along Skyline Road for left turns out from stop (case B1) for the 55-mph posted speed.

The proposed project access will be constructed on the outside of the horizontal curve on Skyline Road. **Exhibit 3** shows the existing intersection sight lines from the approximate driveway location.



**Exhibit 3. Sight Lines from Driveway Approaches**

As shown in the exhibit, it is anticipated that the project access will have adequate sight lines of at least 610 feet on Skyline Road. The project should not construct structures or vegetation impeding intersection sight distance.

### ***Trip Generation***

The *Trip Generation Manual, 11<sup>th</sup> Edition* published by the Institute of Transportation Engineers (ITE) does not provide trip generation rates for the proposed land use. Therefore, trip generation was estimated based on peak day operation projections. To be conservative, the trip generation estimates used in this study consider a 24-hour working day during the peak summer construction season with shifts from 6 AM to 6 PM. In this case, it is anticipated that a higher number of truck trips would occur during the existing peak hours (approximately 7:30 – 8:30 AM and 4:00 – 5:00 PM) than employee trips. During the non-peak construction season, more employees could arrive and/or depart during the peak hours but truck trips would be much lower. It is estimated that ten percent of the total daily trips will occur within the peak hours. As presented, this analysis evaluates the worst-case condition during the peak construction season. All California legal truck types may use the project access point and are considered in the analysis. **Table 3** shows the Daily, AM peak hour, and PM peak hour trip generation estimates for the proposed project during peak activity.

**Table 3: Trip Generation Estimates**

| Land Use           | Size            | Trips |    |           |    |           |
|--------------------|-----------------|-------|----|-----------|----|-----------|
|                    |                 | Daily | AM | AM In/Out | PM | PM In/Out |
| Personnel          | 20 Employees    | 60    | 6  | 3 / 3     | 6  | 3 / 3     |
| Heavy Vehicles     | 400 Truck Loads | 800   | 80 | 40 / 40   | 80 | 40 / 40   |
| <b>Total Trips</b> |                 | 860   | 86 | 43 / 43   | 86 | 43 / 43   |

Source: Headway Transportation, 2024

As shown in the table, the proposed project is expected to generate approximately 860 Daily, 86 AM peak hour, and 86 PM peak hour trips at peak operating conditions (40 loads/hour).

***Trip Distribution***

The distribution of trips to the adjacent roadway network was determined based on existing traffic volumes, travel patterns, and anticipated truck routes to major highways. Note that travel patterns and distribution will vary throughout the year based on operational demand and major road work projects which vary from year to year.

Project trips were distributed as follows:

- ▶ 30% to/from the south toward Highway 36 via Skyline Road
- ▶ 25% to/from the north on Highway 139
- ▶ 25% to/from the east via Johnstonville Road
- ▶ 15% to/from the west via Highway 139 and Highway 36
- ▶ 5% to/from the southwest via Johnstonville Road

Figure 5 shows the project trip distribution and assignment.

**EXISTING PLUS PROJECT CONDITIONS**

***Existing Plus Project Traffic Volumes***

Project trips (Figure 5) were added to the Existing traffic volumes (Figure 3) to develop the Existing Plus Project conditions traffic volumes, shown on Figure 6.

***Existing Plus Project Intersection Level of Service Analysis***

Existing Plus Project AM and PM peak hour intersection level of service analysis was performed for the study intersections using Vistro 2023 analysis software following HCM methodology. For analysis purposes, a heavy vehicle percentage of 90% was used on movements to/from the project driveway to account for trucks and heavy vehicles. Table 4 shows the level of service results and the technical calculations are provided in Appendix C.

**Table 4: Existing Plus Project Intersection Level of Service**

| ID | Intersection                  | Control          | AM Peak            |     | PM Peak            |     |
|----|-------------------------------|------------------|--------------------|-----|--------------------|-----|
|    |                               |                  | Delay <sup>1</sup> | LOS | Delay <sup>1</sup> | LOS |
| 1  | Highway 139 / Skyline Rd      | Signal           |                    |     |                    |     |
|    | Overall                       |                  | 26.0               | C   | 22.8               | C   |
| 2  | Skyline Rd / Project Access   | Side Street Stop |                    |     |                    |     |
|    | Southbound Left               |                  | 9.0                | A   | 8.8                | A   |
|    | Westbound Approach            |                  | 13.4               | B   | 12.6               | B   |
| 3  | Skyline Rd / Johnstonville Rd | Signal           |                    |     |                    |     |
|    | Overall                       |                  | 24.4               | C   | 23.2               | C   |

Notes: 1. Delay is reported in seconds per vehicle for the overall intersection for signalized intersections, and for the worst approach/movement for side street stop controlled intersections.

Source: Headway Transportation, 2024

As shown in the table, the study intersections are expected to operate at LOS “C” or better under Existing Plus Project conditions.

## FUTURE PLUS PROJECT CONDITIONS

### ***Future Year Plus Project Traffic Volumes***

Project trips (**Figure 5**) were added to the Future Year traffic volumes (**Figure 4**) to develop the Future Year Plus Project conditions traffic volumes, shown on **Figure 7**.

### ***Future Year Plus Project Intersection Level of Service Analysis***

Future Plus Project AM and PM peak hour intersection level of service analysis was performed for the study intersections using Vistro 2023 analysis software following HCM methodology. For analysis purposes, a heavy vehicle percentage of 90% was used on movements to/from the project driveway to account for trucks and heavy vehicles. **Table 5** shows the level of service results and the technical calculations are provided in **Appendix D**.

**Table 5: Future Year Plus Project Intersection Level of Service**

| ID | Intersection                  | Control          | AM Peak            |     | PM Peak            |     |
|----|-------------------------------|------------------|--------------------|-----|--------------------|-----|
|    |                               |                  | Delay <sup>1</sup> | LOS | Delay <sup>1</sup> | LOS |
| 1  | Highway 139 / Skyline Rd      | Signal           |                    |     |                    |     |
|    | Overall                       |                  | 27.1               | C   | 24.2               | C   |
| 2  | Skyline Rd / Project Dwy      | Side Street Stop |                    |     |                    |     |
|    | Southbound Left               |                  | 9.2                | A   | 8.9                | A   |
|    | Westbound Approach            |                  | 14.5               | B   | 13.4               | B   |
| 3  | Johnstonville Rd / Skyline Rd | Signal           |                    |     |                    |     |
|    | Overall                       |                  | 25.4               | C   | 24.4               | C   |

Notes: 1. Delay is reported in seconds per vehicle for the overall intersection for signalized intersections, and for the worst approach/movement for side street stop controlled intersections.

Source: Headway Transportation, 2024

As shown in the table, the study intersections are expected to operate at LOS “C” or better under Future Year Plus Project conditions.

**Traffic Signal Warrant Analysis**

A traffic signal warrant analysis was completed for the Skyline Road / Project driveway intersection based on nationally accepted standards outlined in the current edition of the California Manual on Uniform Traffic Control Devices (CA MUTCD). The following vehicular volume warrants (warrants 1-3) were evaluated:

- ▶ Warrant 1: Eight-Hour Vehicle Volume,
- ▶ Warrant 2: Four-Hour Vehicle Volume,
- ▶ Warrant 3: Peak-Hour

The remaining traffic signal warrants were deemed not applicable to this project. A signal may be justified if any one of the signal warrants are met. The vehicular volume signal warrant analysis was performed for the four distinct peak hours of traffic data in **Table 6**. To be conservative, the anticipated peak hour approach volume from the project driveway (minor street) was used for all four hours of available data.

**Table 6: Four-Hour Future Plus Project Traffic Projections**

| Hour           | Major Street Combined<br>(2 lanes in each direction) | Highest Minor Street Approach<br>(1 lane in each direction) |
|----------------|--|---|
| 7:00 - 8:00 AM | 422  | 43  |
| 8:00 - 9:00 AM | 389  | 43  |
| 4:00 - 5:00 PM | 502  | 43  |
| 5:00 - 6:00 PM | 443  | 43  |

Source: Headway Transportation, 2024

The proposed Skyline Road / Project Driveway configuration includes two lanes (one travel lane and one turn lane) on the major street approach and one travel lane on the minor street approach.

*Warrant 1, Eight-Hour Vehicular Volume*

*“The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:*

- A. *The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; or*
- B. *The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.*

*In applying each condition the major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.*

*If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 70 percent columns in Table 4C-1 may be used in place of the 100 percent columns.”*

Skyline Road (major street) has a posted speed limit greater than 40 mph, therefore, the 70% vehicular volumes columns in Table 4C-1 were used (highlighted in green).

**Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume**

| Number of lanes for moving traffic on each approach |              | Vehicles per hour on major street (total of both approaches) |                  |                  |                  | Vehicles per hour on higher-volume minor-street approach (one direction only) |                  |                  |                  |
|---|--------------|--|------------------|------------------|------------------|---|------------------|------------------|------------------|
| Major Street  | Minor Street | 100% <sup>a</sup>  | 80% <sup>b</sup> | 70% <sup>c</sup> | 56% <sup>d</sup> | 100% <sup>a</sup>   | 80% <sup>b</sup> | 70% <sup>c</sup> | 56% <sup>d</sup> |
| 1   | 1            | 500  | 400              | 350              | 280              | 150   | 120              | 105              | 84               |
| 2 or more   | 1            | 600  | 480              | 420              | 336              | 150   | 120              | 105              | 84               |
| 2 or more   | 2 or more    | 600  | 480              | 420              | 336              | 200   | 160              | 140              | 112              |
| 1   | 2 or more    | 500  | 400              | 350              | 280              | 200   | 160              | 140              | 112              |

| Number of lanes for moving traffic on each approach |              | Vehicles per hour on major street (total of both approaches) |                  |                  |                  | Vehicles per hour on higher-volume minor-street approach (one direction only) |                  |                  |                  |
|---|--------------|--|------------------|------------------|------------------|---|------------------|------------------|------------------|
| Major Street  | Minor Street | 100% <sup>a</sup>  | 80% <sup>b</sup> | 70% <sup>c</sup> | 56% <sup>d</sup> | 100% <sup>a</sup>   | 80% <sup>b</sup> | 70% <sup>c</sup> | 56% <sup>d</sup> |
| 1   | 1            | 750  | 600              | 525              | 420              | 75  | 60               | 53               | 42               |
| 2 or more   | 1            | 900  | 720              | 630              | 504              | 75  | 60               | 53               | 42               |
| 2 or more   | 2 or more    | 900  | 720              | 630              | 504              | 100   | 80               | 70               | 56               |
| 1   | 2 or more    | 750  | 600              | 525              | 420              | 100   | 80               | 70               | 56               |

All four hourly combinations of major street and minor street traffic volumes at the project driveway (**Table 6**) are below the 70% minimum volume thresholds in MUTCD Table 4C-1. It is not anticipated that any eight district hours of the day would meet the minimum volume thresholds since the four highest peak hours were all below the minimum volume thresholds.

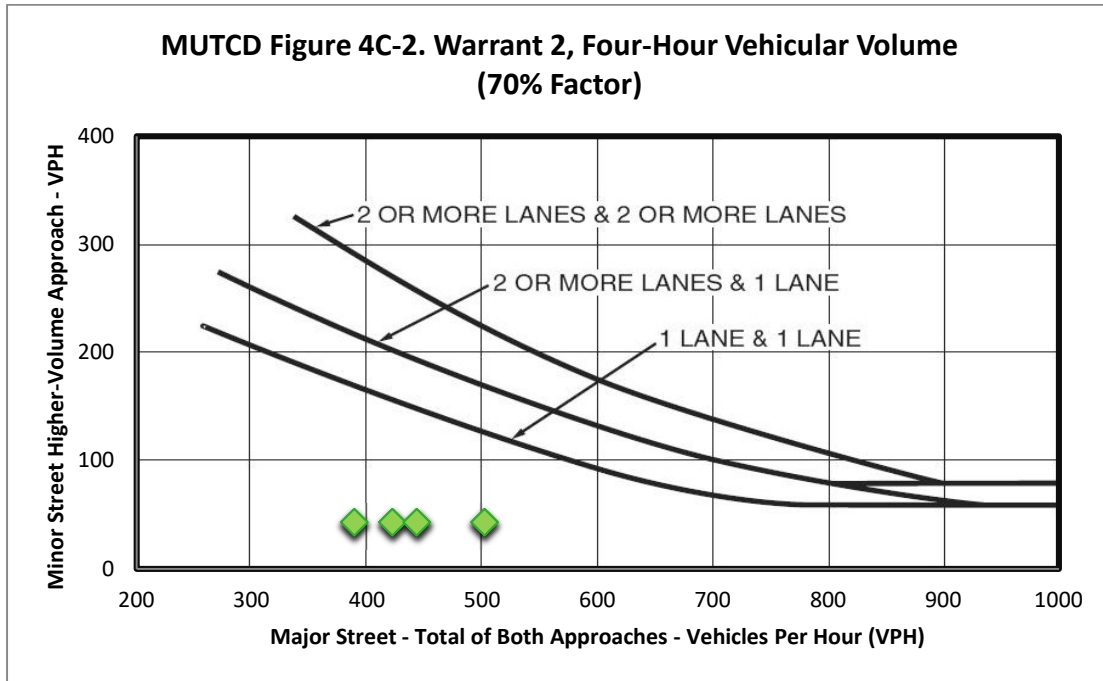
Conditions A and B are not met. Warrant 1 is NOT MET.

Warrant 2, Four-Hour Vehicular Volume

*“The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.*

*If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1.”*

The four-hour Future Plus Project traffic projections (**Table 6**) were plotted as points for each major/ minor street traffic combination on Figure 4C-2, for speeds greater than 40 mph.



As shown in the figure, none of the points (hours) fall above the 2 or more lanes & 1 lane curve.

Warrant 2 is NOT MET.

#### Warrant 3, Peak Hour

*“The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.*

*This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.”*

The proposed project is not an unusual case or a high-occupancy facility. The Future Plus Project peak hour traffic volumes are well below the peak hour thresholds for Warrant 3.

Warrant 3 is NOT MET.

None of the vehicular volume traffic signal warrants (Warrants 1-3) were met at the Skyline Road / Project Driveway intersection under Future Year Plus Project Conditions.

Therefore, a traffic signal is not warranted at the Skyline Road / Project Driveway intersection with the project due to the low combination of traffic volumes on both the major street and project driveway.

## CEQA IMPACT ANALYSIS

### ***Thresholds of Significance***

Based on CEQA guidelines, the project would create a significant transportation impact if it:

- ▶ Adversely affects existing or planned bicycle and pedestrian facilities or fails to adequately provide access for bicycle and walking travel modes
- ▶ Adversely affects public transit operations or fails to adequately provide access to transit services
- ▶ Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- ▶ Results in inadequate emergency access
- ▶ Creates vehicle miles traveled (VMT) per capita beyond the levels recommended by the California Office of Planning & Research (OPR) guidelines for the subject land use

### ***Alternative Transportation Mode Evaluation***

The project would not make any changes to existing multimodal facilities or conflict with multimodal transportation plans. The project access would not affect the existing multi-use path located on the west (opposite) side of Skyline Road. Therefore, the project would have a less-than-significant impact on alternative transportation modes.

### ***Public Transit Evaluation***

The project would not make any changes to existing public transit system or conflict with any public transit plans plan. The project is anticipated to have 20 or less employees, therefore, transit service to the site is not available, needed, or warranted. Therefore, the project would have a less-than-significant impact on public transit.

### ***Geometric Design Feature Evaluation***

Evaluation of the project site plan and the existing roadway network does not indicate any incompatible uses or introduced features significantly affecting safety. Trucks are expected and are appropriate on Minor Arterial roadway (Skyline Road). It is anticipated that the project access will have adequate sight lines of at least 610 feet on Skyline Road. The project will construct the project access in compliance with Lassen County standards and the Lassen County Fire Safe Regulations to accommodate all California legal trucks and provide adequate emergency access. The project should not construct structures or vegetation impeding intersection sight distance.

Overall safety and circulation could be improved by constructing separate southbound left turn and northbound right turn lanes on Skyline Road at the project driveway. Based on estimated left turn and

right turn volumes and the posted speed limit on Skyline Road (55 mph) at the project driveway, it is recommended that the project construct both turn lanes with 200 feet of pocket/storage plus appropriate deceleration length (285 feet) for a total deceleration length of 485 feet. To reduce potential traffic hazards on Skyline Road from left and right turning vehicles generated by the project, Mitigation Measure 1 should be implemented. With the implementation of Mitigation Measure 1, traffic hazards from project traffic on Skyline Road would be reduced to a less than significant level.

Mitigation 1: Construct southbound left turn and northbound right turn lanes on Skyline Road at the project driveway with 200 feet of pocket/storage plus appropriate deceleration length (285 feet) for a total deceleration length of 485 feet.

Level of significance after mitigation: Less than significant.

### ***Emergency Access Evaluation***

Access to the project site is provided via one main access on Skyline Road. The project will construct the project access in compliance with Lassen County standards and the Lassen County Fire Safe Regulations to accommodate all California legal trucks and provide adequate emergency access. Based on Lassen County Code of Ordinances Chapter 9.16 Fire Hazards (9.16.190 Access, subsection (a)(4), one access road is proposed since the number of parcel(s) is less than four and would not warrant a second route. The parcel(s) are zoned for 20 acres or larger and the dead-end roadway would not exceed 5,280 feet meeting the requirements of Section 9.16.190 Access, subsection (d). Lassen County Code of Ordinances Chapter 9.16 Fire Hazards and Lassen County Code of Ordinances Chapter 16.32 Subdivisions provide design standards for Limited Access Roads. Construction of Limited Access Roads shall be in conformance with the standards for Road Section Number 5. The project access must be approved by Lassen County and designed to meet County's road standards for emergency access. By compliance with Lassen County emergency access design standards, the project would have a less-than-significant impact related to emergency access.

### ***Vehicle Miles Traveled (VMT) Evaluation***

Per SB 743 criteria, as of July 1, 2020, the CEQA guidelines require the evaluation of "vehicle miles traveled" (VMT) as a key criterion to determine potentially significant transportation impacts. Although Lassen County does not currently have adopted VMT thresholds, the intent of SB 743 is to reduce VMT compared to current/existing levels. The *Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018*, published by the Governor's Office of Planning and Research (OPR) includes guidelines for implementation and states:

*"Of land use projects, residential, office, and retail projects tend to have the greatest influence on VMT. For that reason, OPR recommends the quantified thresholds described above [between no increase and a 15% reduction compared to existing levels] for purposes of analysis and mitigation.*

*Lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types.”*

*“Vehicle Types. Proposed Section 15064.3, subdivision (a), states, “For the purposes of this section, ‘vehicle miles traveled’ refers to the amount and distance of automobile travel attributable to a project.” Here, the term “automobile” refers to on-road passenger vehicles, specifically cars and light trucks.”*

*“Many local agencies have developed screening thresholds to indicate when detailed analysis is needed. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day<sup>19</sup> generally may be assumed to cause a less-than significant transportation impact.”*

The proposed project is not a residential, office, or retail project type which would typically have the greatest influence on VMT. Therefore, the proposed project’s VMT impact was analyzed on a qualitative basis. Per OPR guidance, the term “automobile” refers to on-road passenger vehicles, specifically cars and light trucks. Therefore, heavy vehicles are not included in, or subject to, VMT analysis. This interpretation and application of VMT analysis standards is consistent with the methodology presented in the *Delano to Pixley 6-Lane with Pavement Rehabilitation Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact* (Caltrans, September 2023). In the Delano to Pixley study, Caltrans estimated VMT based on passenger cars and light trucks only and removed heavy truck volumes from the calculations. Therefore, in this case, the added project VMT from the Skyline Aggregates project would generally be created by the 20 employees which would generate 60 Daily trips. A total of 60 Daily trips is well below the 110 trips per day “small project” threshold and would be anticipated to cause a less-than significant transportation impact on a VMT basis.

## CONCLUSIONS & RECOMMENDATIONS

The following is a list of key findings:

### Operations Analysis/General Plan Conformance

- ▶ The proposed Skyline Aggregate project consists of reclaiming mined material from approximately 460 acres of the 640-acre project site.
- ▶ It is estimated that the proposed project will generate approximately 860 Daily, 86 AM peak hour, and 86 PM peak hour trips on a peak day. Project trips primarily consist of truck trips generating approximately 800 Daily, 80 AM peak hour, and 80 PM peak hour trips. Employee (passenger vehicles) trips are estimated at 60 Daily, 6 AM peak hour, and 6 PM peak hour trips.

- ▶ The study intersections are anticipated to operate at acceptable levels of service (LOS “C” or better) under Existing and Existing Plus Project conditions. For the purpose of this analysis, Existing and “Opening Day” Conditions are considered equal.
- ▶ Under Future Year (20-year horizon) and Future Year Plus Project conditions, the study intersections are anticipated to operate at acceptable levels of service (LOS “C” or better).
- ▶ None of the vehicular volume traffic signal warrants (Warrants 1-3) were met at the Skyline Road / Project Driveway intersection under Future Year Plus Project Conditions. Therefore, a traffic signal is not warranted at the Skyline Road / Project Driveway intersection due to the low combination of traffic volumes on both the major street and project driveway.

#### Impact Analysis/CEQA Compliance

- ▶ The project impacts related to alternative modes of travel, public transit, and emergency access would be less-than-significant.
- ▶ To reduce potential traffic hazards on Skyline Road from left and right turning vehicles generated by the project, the project should construct southbound left turn and northbound right turn lanes on Skyline Road at the project driveway with 200 feet of pocket/storage plus appropriate deceleration length (285 feet) for a total deceleration length of 485 feet. With the implementation of this mitigation measure, potential traffic hazards from project traffic on Skyline Road would be reduced to a less than significant level.
- ▶ The project will construct the project access in compliance with Lassen County standards and the Lassen County Fire Safe Regulations to accommodate all California legal trucks and allow for adequate emergency access. The project access must be approved by Lassen County. By compliance with Lassen County emergency access design standards, the project would have a less-than-significant impact related to emergency access.
- ▶ It is reasonable to estimate that the project would not significantly increase vehicle miles traveled (VMT) by automobiles and therefore the project would have a less-than-significant impact on VMT. Truck traffic is considered exempt from the SB 743 VMT requirements.

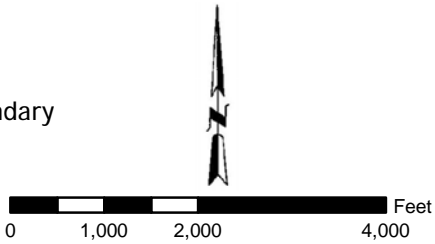
#### Mitigations

- ▶ Mitigation 1: Construct southbound left turn and northbound right turn lanes on Skyline Road at the project driveway with 200 feet of pocket/storage plus appropriate deceleration length (285 feet) for a total deceleration length of 485 feet.





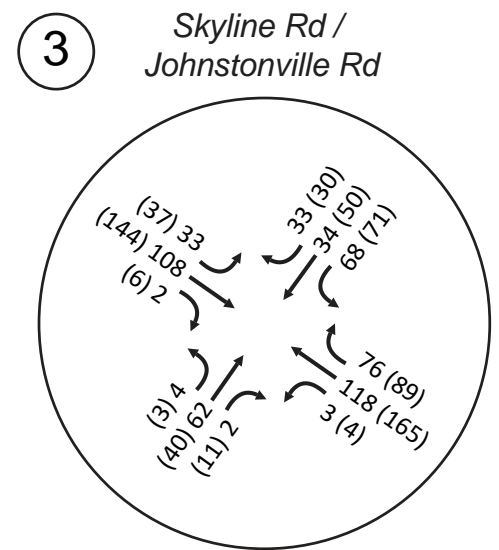
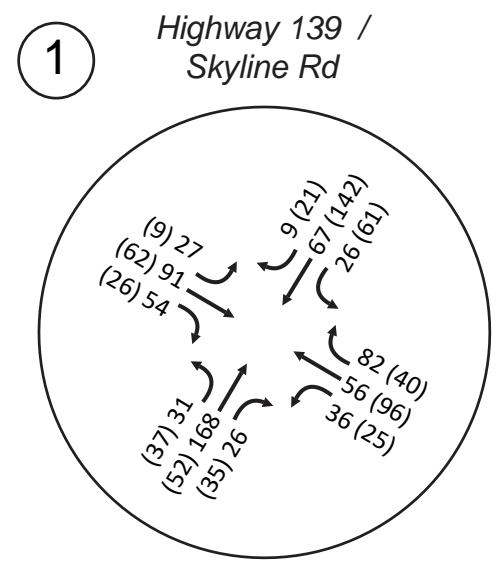
- Reclamation Boundary
- Approximate Parcel Boundary



SOURCE: DIGITALGLOBE 2018 AERIAL PHOTOGRAPH

FIGURE 16  
TRAVEL ROUTES  
SKYLINE AGGREGATES  
SUSANVILLE, CALIFORNIA

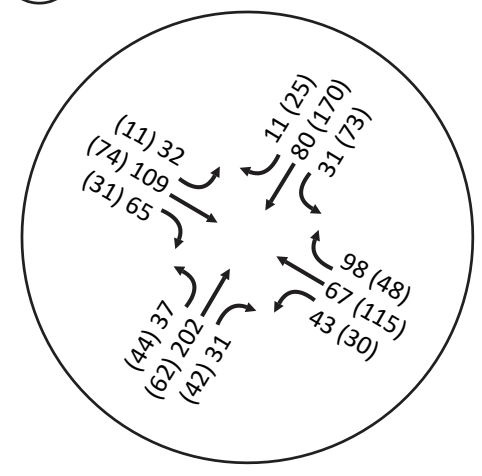
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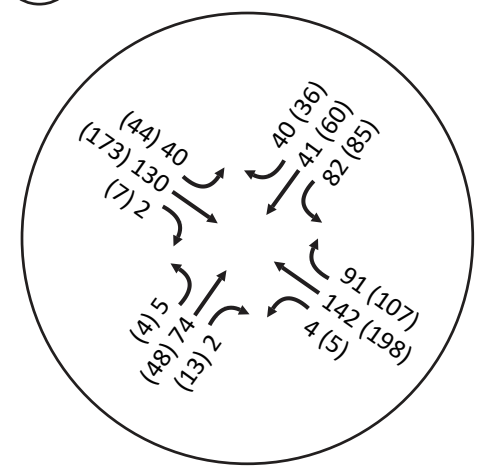
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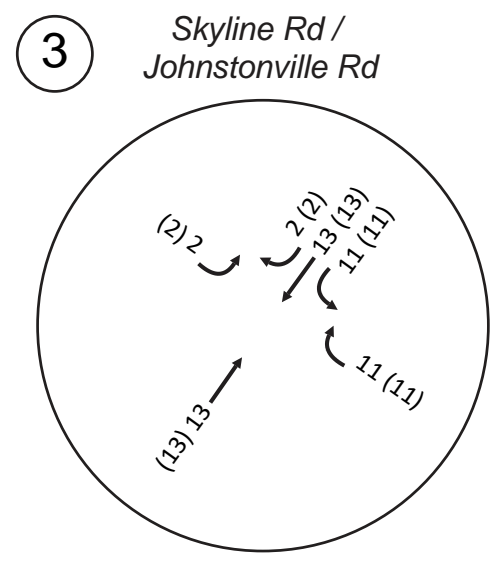
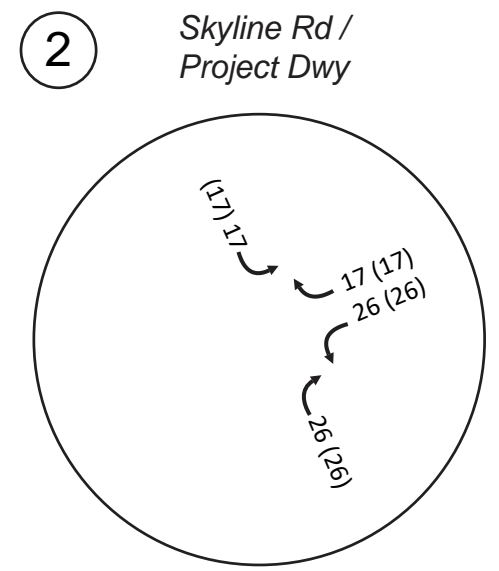
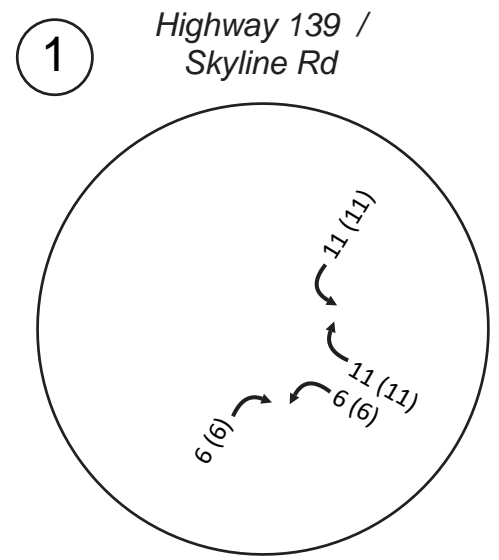
Highway 139 /  
Skyline Rd

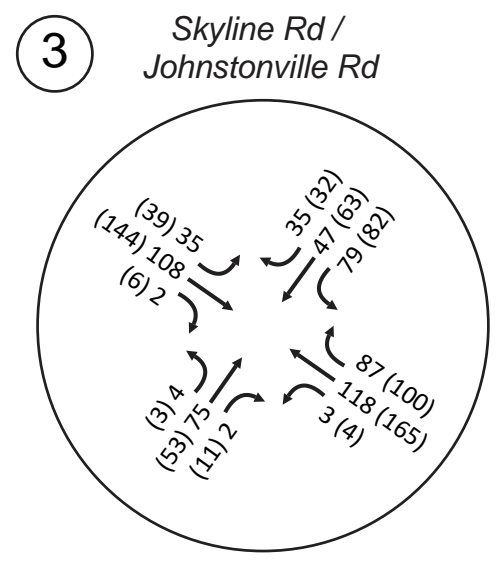
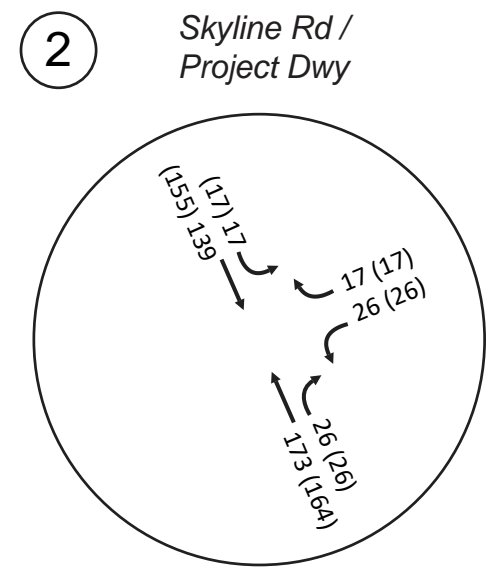
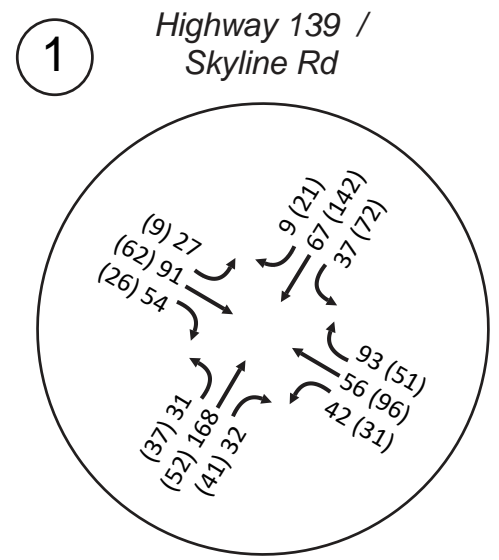


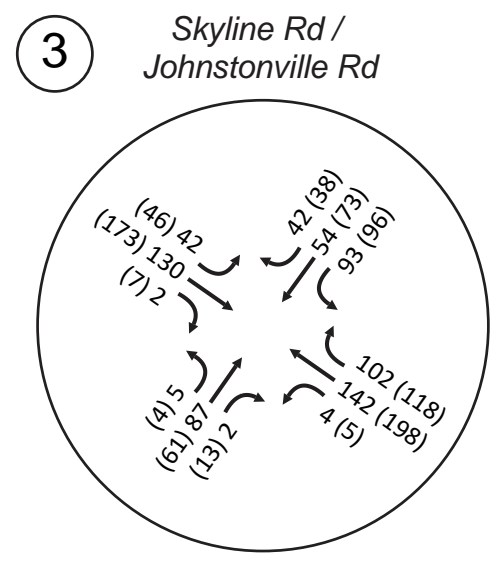
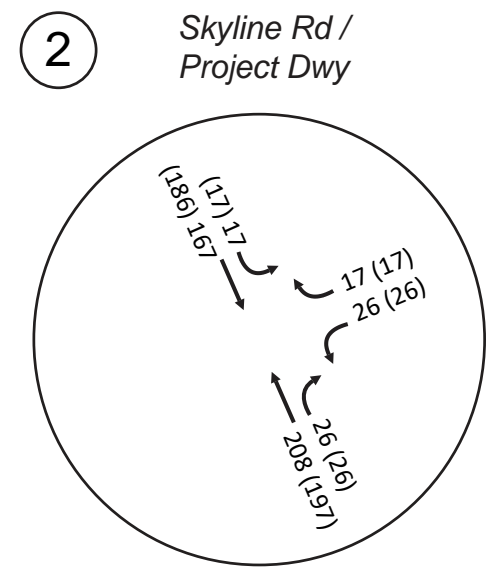
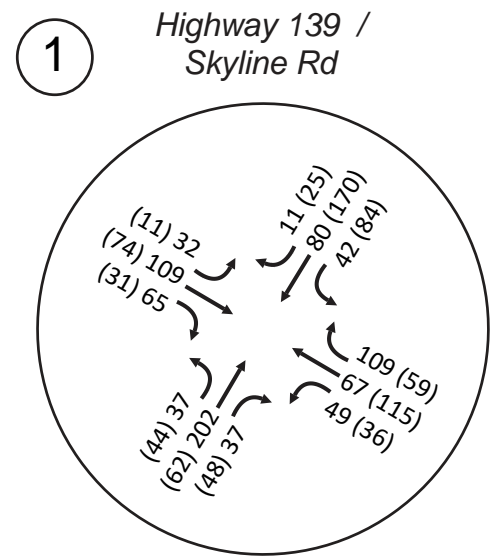
3

Skyline Rd /  
Johnstonville Rd









# Appendix A

## Existing LOS Calculations

**Intersection Level Of Service Report**  
**Intersection 1: Hwy 139 / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 25.0  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.236 |

**Intersection Setup**

| Name                         | Hwy 139    |        |        | Hwy 139    |        |        | Skyline Rd |        |        | Skyline 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 | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      |
| Entry Pocket Length [ft]     | 500.00     | 100.00 | 225.00 | 500.00     | 100.00 | 200.00 | 100.00     | 100.00 | 100.00 | 375.00     | 100.00 | 200.00 |
| 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]                  | 55.00      |        |        | 55.00      |        |        | 35.00      |        |        | 55.00      |        |        |
| Grade [%]                    | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        |
| Curb Present                 | No         |        |        | No         |        |        | No         |        |        | No         |        |        |
| Crosswalk                    | Yes        |        |        | Yes        |        |        | Yes        |        |        | Yes        |        |        |

**Volumes**

| Name  | Hwy 139 |        |        | Hwy 139 |        |        | Skyline Rd |        |        | Skyline Rd |        |        |
|---|---------|--------|--------|---------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h]                   | 31      | 168    | 26     | 26      | 67     | 9      | 27         | 91     | 54     | 36         | 56     | 82     |
| 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 [%]               | 3.00    | 3.00   | 3.00   | 3.00    | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   |
| 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      | 14     | 0       | 0      | 5      | 0          | 0      | 28     | 0          | 0      | 43     |
| Total Hourly Volume [veh/h]                 | 31      | 168    | 12     | 26      | 67     | 4      | 27         | 91     | 26     | 36         | 56     | 39     |
| 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]              | 10      | 57     | 4      | 9       | 23     | 1      | 9          | 31     | 9      | 12         | 19     | 13     |
| Total Analysis Volume [veh/h]               | 42      | 227    | 16     | 35      | 91     | 5      | 36         | 123    | 35     | 49         | 76     | 53     |
| 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       |        |        | 1       |        |        | 0          |        |        | 0          |        |        |

**Intersection Settings**

|                           |                                       |
|---------------------------|---------------------------------------|
| Located in CBD            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 30      | 0       | 18       | 37      | 0       | 14       | 28      | 0       | 14       | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 17      | 0       | 0        | 23      | 0       | 0        | 15      | 0       | 0        | 15      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 3     | 20    | 20    | 5     | 22    | 22    | 5     | 19    | 19    | 6     | 20    | 20    |
| g / C, Green / Cycle                    | 0.04  | 0.27  | 0.27  | 0.07  | 0.30  | 0.30  | 0.07  | 0.26  | 0.26  | 0.09  | 0.27  | 0.27  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.12  | 0.01  | 0.02  | 0.05  | 0.00  | 0.02  | 0.07  | 0.02  | 0.03  | 0.04  | 0.03  |
| s, saturation flow rate [veh/h]         | 1767  | 1855  | 1577  | 1767  | 1855  | 1543  | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  |
| c, Capacity [veh/h]                     | 71    | 493   | 419   | 125   | 549   | 457   | 127   | 477   | 406   | 154   | 505   | 429   |
| d1, Uniform Delay [s]                   | 35.45 | 23.08 | 20.47 | 33.09 | 19.57 | 18.66 | 33.01 | 22.18 | 21.18 | 32.20 | 20.74 | 20.58 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 7.68  | 0.67  | 0.04  | 1.21  | 0.14  | 0.01  | 1.20  | 0.28  | 0.09  | 1.18  | 0.14  | 0.13  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |        |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.59  | 0.46   | 0.04  | 0.28  | 0.17  | 0.01  | 0.28  | 0.26  | 0.09  | 0.32  | 0.15  | 0.12  |
| d, Delay for Lane Group [s/veh]       | 43.13 | 23.76  | 20.50 | 34.30 | 19.71 | 18.67 | 34.22 | 22.47 | 21.27 | 33.39 | 20.88 | 20.71 |
| Lane Group LOS                        | D     | C      | C     | C     | B     | B     | C     | C     | C     | C     | C     | C     |
| Critical Lane Group                   | No    | Yes    | No    | Yes   | No    | No    | No    | Yes   | No    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.84  | 3.00   | 0.19  | 0.59  | 1.04  | 0.05  | 0.64  | 1.66  | 0.45  | 0.81  | 0.90  | 0.62  |
| 50th-Percentile Queue Length [ft/ln]  | 20.95 | 75.10  | 4.66  | 14.73 | 25.95 | 1.36  | 15.96 | 41.57 | 11.30 | 20.15 | 22.50 | 15.62 |
| 95th-Percentile Queue Length [veh/ln] | 1.51  | 5.41   | 0.34  | 1.06  | 1.87  | 0.10  | 1.15  | 2.99  | 0.81  | 1.45  | 1.62  | 1.12  |
| 95th-Percentile Queue Length [ft/ln]  | 37.71 | 135.18 | 8.38  | 26.52 | 46.72 | 2.45  | 28.72 | 74.83 | 20.33 | 36.27 | 40.51 | 28.12 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 43.13 | 23.76 | 20.50 | 34.30 | 19.71 | 18.67 | 34.22 | 22.47 | 21.27 | 33.39 | 20.88 | 20.71 |
| Movement LOS                    | D     | C     | C     | C     | B     | B     | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 26.43 |       |       | 23.57 |       |       | 24.43 |       |       | 24.27 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 24.97 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.236 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 27.26 | 27.26 | 27.26 | 27.26 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.365 | 2.349 | 2.260 | 2.365 |
| 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]           | 641   | 828   | 587   | 587   |
| d_b, Bicycle Delay [s]                                   | 17.30 | 12.88 | 18.69 | 18.69 |
| I_b,int, Bicycle LOS Score for Intersection              | 2.053 | 1.784 | 1.926 | 1.924 |
| Bicycle LOS  | B     | A     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 3: Johnstonville Rd / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 23.5  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.199 |

**Intersection Setup**

| Name                         | Skyline Rd |        |       | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville 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 | 1          | 0      | 1     | 1          | 0      | 1      | 1                | 0      | 1      | 1                | 0      | 1      |
| Entry Pocket Length [ft]     | 250.00     | 100.00 | 50.00 | 450.00     | 100.00 | 100.00 | 200.00           | 100.00 | 100.00 | 300.00           | 100.00 | 200.00 |
| 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]                  | 55.00      |        |       | 55.00      |        |        | 35.00            |        |        | 35.00            |        |        |
| Grade [%]                    | 0.00       |        |       | 0.00       |        |        | 0.00             |        |        | 0.00             |        |        |
| Curb Present                 | No         |        |       | No         |        |        | No               |        |        | No               |        |        |
| Crosswalk                    | Yes        |        |       | Yes        |        |        | Yes              |        |        | Yes              |        |        |

**Volumes**

| Name  | Skyline Rd |        |        | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville Rd |        |        |
|---|------------|--------|--------|------------|--------|--------|------------------|--------|--------|------------------|--------|--------|
| Base Volume Input [veh/h]                   | 4          | 62     | 2      | 68         | 34     | 33     | 33               | 108    | 2      | 3                | 118    | 76     |
| 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 [%]               | 4.00       | 4.00   | 4.00   | 4.00       | 4.00   | 4.00   | 4.00             | 4.00   | 4.00   | 4.00             | 4.00   | 4.00   |
| 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      | 1      | 0          | 0      | 17     | 0                | 0      | 1      | 0                | 0      | 40     |
| Total Hourly Volume [veh/h]                 | 4          | 62     | 1      | 68         | 34     | 16     | 33               | 108    | 1      | 3                | 118    | 36     |
| Peak Hour Factor                            | 0.7800     | 0.7800 | 0.7800 | 0.7800     | 0.7800 | 0.7800 | 0.7800           | 0.7800 | 0.7800 | 0.7800           | 0.7800 | 0.7800 |
| 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          | 20     | 0      | 22         | 11     | 5      | 11               | 35     | 0      | 1                | 38     | 12     |
| Total Analysis Volume [veh/h]               | 5          | 79     | 1      | 87         | 44     | 21     | 42               | 138    | 1      | 4                | 151    | 46     |
| 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            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lag      | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 28      | 0       | 20       | 37      | 0       | 14       | 31      | 0       | 11       | 26      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 16      | 0       | 0        | 13      | 0       | 0        | 12      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 1     | 16    | 16    | 8     | 24    | 24    | 6     | 25    | 25    | 0     | 20    | 20    |
| g / C, Green / Cycle                    | 0.01  | 0.22  | 0.22  | 0.11  | 0.33  | 0.33  | 0.08  | 0.34  | 0.34  | 0.01  | 0.27  | 0.27  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.04  | 0.00  | 0.05  | 0.02  | 0.01  | 0.02  | 0.08  | 0.00  | 0.00  | 0.08  | 0.03  |
| s, saturation flow rate [veh/h]         | 1752  | 1840  | 1564  | 1752  | 1840  | 1564  | 1752  | 1840  | 1564  | 1752  | 1840  | 1564  |
| c, Capacity [veh/h]                     | 12    | 404   | 343   | 198   | 599   | 509   | 139   | 623   | 529   | 10    | 488   | 415   |
| d1, Uniform Delay [s]                   | 36.71 | 23.64 | 22.64 | 30.72 | 17.31 | 17.12 | 32.26 | 17.57 | 16.26 | 36.78 | 21.84 | 20.66 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 19.64 | 0.23  | 0.00  | 1.52  | 0.05  | 0.03  | 1.21  | 0.18  | 0.00  | 22.84 | 0.36  | 0.12  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.40  | 0.20  | 0.00  | 0.44  | 0.07  | 0.04  | 0.30  | 0.22  | 0.00  | 0.39  | 0.31  | 0.11  |
| d, Delay for Lane Group [s/veh]       | 56.35 | 23.87 | 22.64 | 32.25 | 17.36 | 17.16 | 33.47 | 17.75 | 16.26 | 59.62 | 22.20 | 20.78 |
| Lane Group LOS                        | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C     | C     |
| Critical Lane Group                   | No    | Yes   | No    | Yes   | No    | No    | Yes   | No    | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.15  | 1.02  | 0.01  | 1.39  | 0.45  | 0.21  | 0.73  | 1.60  | 0.01  | 0.13  | 2.02  | 0.58  |
| 50th-Percentile Queue Length [ft/ln]  | 3.75  | 25.54 | 0.31  | 34.68 | 11.34 | 5.37  | 18.22 | 39.94 | 0.27  | 3.35  | 50.60 | 14.57 |
| 95th-Percentile Queue Length [veh/ln] | 0.27  | 1.84  | 0.02  | 2.50  | 0.82  | 0.39  | 1.31  | 2.88  | 0.02  | 0.24  | 3.64  | 1.05  |
| 95th-Percentile Queue Length [ft/ln]  | 6.76  | 45.97 | 0.56  | 62.43 | 20.41 | 9.67  | 32.80 | 71.90 | 0.48  | 6.04  | 91.08 | 26.22 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 56.35 | 23.87 | 22.64 | 32.25 | 17.36 | 17.16 | 33.47 | 17.75 | 16.26 | 59.62 | 22.20 | 20.78 |
| Movement LOS                    | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C     | C     |
| d_A, Approach Delay [s/veh]     | 25.77 |       |       | 25.85 |       |       | 21.39 |       |       | 22.62 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 23.49 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.199 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 26.87 | 26.87 | 26.87 | 26.87 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.183 | 2.313 | 2.229 | 2.310 |
| 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]           | 594   | 837   | 675   | 540   |
| d_b, Bicycle Delay [s]                                   | 18.32 | 12.54 | 16.27 | 19.75 |
| I_b,int, Bicycle LOS Score for Intersection              | 1.702 | 1.838 | 1.860 | 1.957 |
| Bicycle LOS  | A     | A     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: Hwy 139 / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 22.1  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.170 |

**Intersection Setup**

| Name                         | Hwy 139    |        |        | Hwy 139    |        |        | Skyline Rd |        |        | Skyline 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 | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      |
| Entry Pocket Length [ft]     | 500.00     | 100.00 | 225.00 | 500.00     | 100.00 | 200.00 | 100.00     | 100.00 | 100.00 | 375.00     | 100.00 | 200.00 |
| 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]                  | 55.00      |        |        | 55.00      |        |        | 35.00      |        |        | 55.00      |        |        |
| Grade [%]                    | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        |
| Curb Present                 | No         |        |        | No         |        |        | No         |        |        | No         |        |        |
| Crosswalk                    | Yes        |        |        | Yes        |        |        | Yes        |        |        | Yes        |        |        |

**Volumes**

| Name  | Hwy 139 |        |        | Hwy 139 |        |        | Skyline Rd |        |        | Skyline Rd |        |        |
|---|---------|--------|--------|---------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h]                   | 37      | 52     | 35     | 61      | 142    | 21     | 9          | 62     | 26     | 25         | 96     | 40     |
| 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   | 2.00   | 2.00    | 2.00   | 2.00   | 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 | 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      | 18     | 0       | 0      | 11     | 0          | 0      | 14     | 0          | 0      | 21     |
| Total Hourly Volume [veh/h]                 | 37      | 52     | 17     | 61      | 142    | 10     | 9          | 62     | 12     | 25         | 96     | 19     |
| 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]              | 10      | 14     | 5      | 17      | 39     | 3      | 3          | 17     | 3      | 7          | 27     | 5      |
| Total Analysis Volume [veh/h]               | 41      | 58     | 19     | 68      | 158    | 11     | 10         | 69     | 13     | 28         | 107    | 21     |
| 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            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       | 10       | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 18       | 28      | 0       | 26       | 36      | 0       | 6        | 30      | 0       | 14       | 35      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 23      | 0       | 0        | 17      | 0       | 0        | 17      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 66    | 66    | 66    | 66    | 66    | 66    | 66    | 66    | 66    | 66    | 66    | 66    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 3     | 15    | 15    | 7     | 20    | 20    | 1     | 16    | 16    | 4     | 19    | 19    |
| g / C, Green / Cycle                    | 0.04  | 0.23  | 0.23  | 0.11  | 0.30  | 0.30  | 0.01  | 0.24  | 0.24  | 0.06  | 0.29  | 0.29  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.03  | 0.01  | 0.04  | 0.08  | 0.01  | 0.01  | 0.04  | 0.01  | 0.02  | 0.06  | 0.01  |
| s, saturation flow rate [veh/h]         | 1781  | 1870  | 1589  | 1781  | 1870  | 1589  | 1781  | 1870  | 1589  | 1781  | 1870  | 1589  |
| c, Capacity [veh/h]                     | 72    | 431   | 367   | 194   | 559   | 475   | 23    | 443   | 376   | 110   | 534   | 454   |
| d1, Uniform Delay [s]                   | 31.24 | 20.26 | 19.87 | 27.38 | 17.81 | 16.42 | 32.48 | 20.05 | 19.47 | 29.65 | 17.95 | 17.15 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 6.78  | 0.14  | 0.06  | 1.08  | 0.27  | 0.02  | 11.91 | 0.16  | 0.04  | 1.20  | 0.18  | 0.04  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.57  | 0.13  | 0.05  | 0.35  | 0.28  | 0.02  | 0.43  | 0.16  | 0.03  | 0.25  | 0.20  | 0.05  |
| d, Delay for Lane Group [s/veh]       | 38.02 | 20.40 | 19.92 | 28.46 | 18.08 | 16.44 | 44.39 | 20.21 | 19.51 | 30.86 | 18.14 | 17.19 |
| Lane Group LOS                        | D     | C     | B     | C     | B     | B     | D     | C     | B     | C     | B     | B     |
| Critical Lane Group                   | Yes   | No    | No    | No    | Yes   | No    | Yes   | No    | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.71  | 0.62  | 0.20  | 0.93  | 1.57  | 0.10  | 0.23  | 0.80  | 0.15  | 0.41  | 1.06  | 0.20  |
| 50th-Percentile Queue Length [ft/ln]  | 17.68 | 15.56 | 5.01  | 23.28 | 39.31 | 2.52  | 5.71  | 20.04 | 3.67  | 10.32 | 26.52 | 4.98  |
| 95th-Percentile Queue Length [veh/ln] | 1.27  | 1.12  | 0.36  | 1.68  | 2.83  | 0.18  | 0.41  | 1.44  | 0.26  | 0.74  | 1.91  | 0.36  |
| 95th-Percentile Queue Length [ft/ln]  | 31.82 | 28.00 | 9.02  | 41.91 | 70.75 | 4.53  | 10.27 | 36.07 | 6.61  | 18.57 | 47.73 | 8.96  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 38.02 | 20.40 | 19.92 | 28.46 | 18.08 | 16.44 | 44.39 | 20.21 | 19.51 | 30.86 | 18.14 | 17.19 |
| Movement LOS                    | D     | C     | B     | C     | B     | B     | D     | C     | B     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 26.44 |       |       | 20.98 |       |       | 22.74 |       |       | 20.29 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.14 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.170 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 22.97 | 22.97 | 22.97 | 22.97 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.296 | 2.290 | 2.212 | 2.301 |
| 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]           | 665   | 907   | 726   | 877   |
| d_b, Bicycle Delay [s]                                   | 14.72 | 9.87  | 13.42 | 10.42 |
| I_b,int, Bicycle LOS Score for Intersection              | 1.784 | 1.969 | 1.735 | 1.852 |
| Bicycle LOS  | A     | A     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 3: Johnstonville Rd / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 22.0  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.203 |

**Intersection Setup**

| Name                         | Skyline Rd |        |       | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville 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 | 1          | 0      | 1     | 1          | 0      | 1      | 1                | 0      | 1      | 1                | 0      | 1      |
| Entry Pocket Length [ft]     | 250.00     | 100.00 | 50.00 | 450.00     | 100.00 | 100.00 | 200.00           | 100.00 | 100.00 | 300.00           | 100.00 | 200.00 |
| 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]                  | 55.00      |        |       | 55.00      |        |        | 35.00            |        |        | 35.00            |        |        |
| Grade [%]                    | 0.00       |        |       | 0.00       |        |        | 0.00             |        |        | 0.00             |        |        |
| Curb Present                 | No         |        |       | No         |        |        | No               |        |        | No               |        |        |
| Crosswalk                    | Yes        |        |       | Yes        |        |        | Yes              |        |        | Yes              |        |        |

**Volumes**

| Name  | Skyline Rd |        |        | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville Rd |        |        |
|---|------------|--------|--------|------------|--------|--------|------------------|--------|--------|------------------|--------|--------|
| Base Volume Input [veh/h]                   | 3          | 40     | 11     | 71         | 50     | 30     | 37               | 144    | 6      | 4                | 165    | 89     |
| 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   | 2.00   | 2.00       | 2.00   | 2.00   | 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 | 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      | 6      | 0          | 0      | 16     | 0                | 0      | 3      | 0                | 0      | 46     |
| Total Hourly Volume [veh/h]                 | 3          | 40     | 5      | 71         | 50     | 14     | 37               | 144    | 3      | 4                | 165    | 43     |
| Peak Hour Factor                            | 0.8400     | 0.8400 | 0.8400 | 0.8400     | 0.8400 | 0.8400 | 0.8400           | 0.8400 | 0.8400 | 0.8400           | 0.8400 | 0.8400 |
| 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          | 12     | 1      | 21         | 15     | 4      | 11               | 43     | 1      | 1                | 49     | 13     |
| Total Analysis Volume [veh/h]               | 4          | 48     | 6      | 85         | 60     | 17     | 44               | 171    | 4      | 5                | 196    | 51     |
| 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          |        |        | 1          |        |        | 0                |        |        | 1                |        |        |
| v_di, Inbound Pedestrian Volume crossing m  | 0          |        |        | 1          |        |        | 0                |        |        | 1                |        |        |
| 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          |        |        | 1                |        |        | 0                |        |        |

**Intersection Settings**

|                           |                                       |
|---------------------------|---------------------------------------|
| Located in CBD            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 95                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lag      | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 33      | 0       | 18       | 40      | 0       | 16       | 33      | 0       | 11       | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 16      | 0       | 0        | 13      | 0       | 0        | 12      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 0     | 13    | 13    | 8     | 21    | 21    | 6     | 25    | 25    | 0     | 20    | 20    |
| g / C, Green / Cycle                    | 0.01  | 0.19  | 0.19  | 0.11  | 0.29  | 0.29  | 0.08  | 0.35  | 0.35  | 0.01  | 0.28  | 0.28  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.03  | 0.00  | 0.05  | 0.03  | 0.01  | 0.02  | 0.09  | 0.00  | 0.00  | 0.10  | 0.03  |
| s, saturation flow rate [veh/h]         | 1781  | 1870  | 1589  | 1781  | 1870  | 1589  | 1781  | 1870  | 1556  | 1781  | 1870  | 1584  |
| c, Capacity [veh/h]                     | 10    | 348   | 295   | 205   | 552   | 469   | 147   | 663   | 552   | 12    | 522   | 442   |
| d1, Uniform Delay [s]                   | 35.25 | 24.19 | 23.66 | 29.25 | 18.25 | 17.85 | 30.70 | 16.30 | 14.84 | 35.17 | 20.64 | 19.09 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 23.90 | 0.18  | 0.03  | 1.34  | 0.09  | 0.03  | 1.13  | 0.20  | 0.01  | 20.24 | 0.45  | 0.11  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |        |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| X, volume / capacity                  | 0.40  | 0.14  | 0.02  | 0.41  | 0.11  | 0.04  | 0.30  | 0.26  | 0.01  | 0.41  | 0.38   | 0.12  |
| d, Delay for Lane Group [s/veh]       | 59.15 | 24.37 | 23.69 | 30.59 | 18.33 | 17.88 | 31.83 | 16.50 | 14.85 | 55.42 | 21.08  | 19.20 |
| Lane Group LOS                        | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C      | B     |
| Critical Lane Group                   | No    | Yes   | No    | Yes   | No    | No    | Yes   | No    | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.13  | 0.61  | 0.07  | 1.28  | 0.63  | 0.17  | 0.72  | 1.85  | 0.04  | 0.15  | 2.50   | 0.60  |
| 50th-Percentile Queue Length [ft/ln]  | 3.22  | 15.27 | 1.87  | 31.90 | 15.66 | 4.35  | 18.07 | 46.17 | 0.98  | 3.79  | 62.39  | 14.98 |
| 95th-Percentile Queue Length [veh/ln] | 0.23  | 1.10  | 0.13  | 2.30  | 1.13  | 0.31  | 1.30  | 3.32  | 0.07  | 0.27  | 4.49   | 1.08  |
| 95th-Percentile Queue Length [ft/ln]  | 5.80  | 27.49 | 3.37  | 57.42 | 28.18 | 7.83  | 32.52 | 83.11 | 1.77  | 6.83  | 112.29 | 26.96 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 59.15 | 24.37 | 23.69 | 30.59 | 18.33 | 17.88 | 31.83 | 16.50 | 14.85 | 55.42 | 21.08 | 19.20 |
| Movement LOS                    | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C     | B     |
| d_A, Approach Delay [s/veh]     | 26.70 |       |       | 24.72 |       |       | 19.55 |       |       | 21.38 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | B     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.03 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.203 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |          |       |         |
|--|-------|----------|-------|---------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0     | 11.0  | 11.0    |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 1559.15  | 0.00  | 1559.15 |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 13525.01 | 0.00  | 0.00    |
| d_p, Pedestrian Delay [s]                                | 25.36 | 25.36    | 25.36 | 25.36   |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.187 | 2.305    | 2.252 | 2.344   |
| 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]           | 760   | 957      | 760   | 620     |
| d_b, Bicycle Delay [s]                                   | 13.64 | 9.65     | 13.65 | 16.92   |
| I_b,int, Bicycle LOS Score for Intersection              | 1.665 | 1.853    | 1.926 | 2.051   |
| Bicycle LOS  | A     | A        | A     | B       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



# Appendix B

## Future Year LOS Calculations

**Intersection Level Of Service Report**  
**Intersection 1: Hwy 139 / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 26.1  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.283 |

**Intersection Setup**

| Name                         | Hwy 139    |        |        | Hwy 139    |        |        | Skyline Rd |        |        | Skyline 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 | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      |
| Entry Pocket Length [ft]     | 500.00     | 100.00 | 225.00 | 500.00     | 100.00 | 200.00 | 100.00     | 100.00 | 100.00 | 375.00     | 100.00 | 200.00 |
| 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]                  | 55.00      |        |        | 55.00      |        |        | 35.00      |        |        | 55.00      |        |        |
| Grade [%]                    | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        |
| Curb Present                 | No         |        |        | No         |        |        | No         |        |        | No         |        |        |
| Crosswalk                    | Yes        |        |        | Yes        |        |        | Yes        |        |        | Yes        |        |        |

**Volumes**

| Name  | Hwy 139 |        |        | Hwy 139 |        |        | Skyline Rd |        |        | Skyline Rd |        |        |
|---|---------|--------|--------|---------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h]                   | 31      | 168    | 26     | 26      | 67     | 9      | 27         | 91     | 54     | 36         | 56     | 82     |
| 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 [%]               | 3.00    | 3.00   | 3.00   | 3.00    | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   |
| Proportion of CAVs [%]                      | 0.00    |        |        |         |        |        |            |        |        |            |        |        |
| Growth Factor                               | 1.2000  | 1.2000 | 1.2000 | 1.2000  | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 |
| 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      | 16     | 0       | 0      | 6      | 0          | 0      | 34     | 0          | 0      | 51     |
| Total Hourly Volume [veh/h]                 | 37      | 202    | 15     | 31      | 80     | 5      | 32         | 109    | 31     | 43         | 67     | 47     |
| 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]              | 13      | 68     | 5      | 10      | 27     | 2      | 11         | 37     | 10     | 15         | 23     | 16     |
| Total Analysis Volume [veh/h]               | 50      | 273    | 20     | 42      | 108    | 7      | 43         | 147    | 42     | 58         | 91     | 64     |
| 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       |        |        | 1       |        |        | 0          |        |        | 0          |        |        |

**Intersection Settings**

|                           |                                       |
|---------------------------|---------------------------------------|
| Located in CBD            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 30      | 0       | 18       | 37      | 0       | 14       | 28      | 0       | 14       | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 17      | 0       | 0        | 23      | 0       | 0        | 15      | 0       | 0        | 15      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 3     | 20    | 20    | 6     | 23    | 23    | 6     | 20    | 20    | 7     | 21    | 21    |
| g / C, Green / Cycle                    | 0.04  | 0.26  | 0.26  | 0.08  | 0.29  | 0.29  | 0.08  | 0.26  | 0.26  | 0.09  | 0.27  | 0.27  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.15  | 0.01  | 0.02  | 0.06  | 0.00  | 0.02  | 0.08  | 0.03  | 0.03  | 0.05  | 0.04  |
| s, saturation flow rate [veh/h]         | 1767  | 1855  | 1577  | 1767  | 1855  | 1543  | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  |
| c, Capacity [veh/h]                     | 77    | 482   | 410   | 139   | 547   | 455   | 141   | 475   | 403   | 166   | 501   | 426   |
| d1, Uniform Delay [s]                   | 36.22 | 24.71 | 21.34 | 33.48 | 20.32 | 19.23 | 33.42 | 23.15 | 21.90 | 32.68 | 21.57 | 21.38 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 8.70  | 1.04  | 0.05  | 1.21  | 0.17  | 0.01  | 1.21  | 0.37  | 0.11  | 1.26  | 0.17  | 0.16  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |        |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.65  | 0.57   | 0.05  | 0.30  | 0.20  | 0.02  | 0.31  | 0.31  | 0.10  | 0.35  | 0.18  | 0.15  |
| d, Delay for Lane Group [s/veh]       | 44.92 | 25.75  | 21.39 | 34.69 | 20.50 | 19.24 | 34.63 | 23.52 | 22.01 | 33.94 | 21.75 | 21.55 |
| Lane Group LOS                        | D     | C      | C     | C     | C     | B     | C     | C     | C     | C     | C     | C     |
| Critical Lane Group                   | No    | Yes    | No    | Yes   | No    | No    | No    | Yes   | No    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh/ln] | 1.03  | 3.91   | 0.24  | 0.72  | 1.29  | 0.08  | 0.78  | 2.09  | 0.56  | 0.98  | 1.13  | 0.79  |
| 50th-Percentile Queue Length [ft/ln]  | 25.76 | 97.64  | 6.10  | 18.00 | 32.27 | 1.98  | 19.41 | 52.15 | 14.08 | 24.43 | 28.23 | 19.74 |
| 95th-Percentile Queue Length [veh/ln] | 1.85  | 7.03   | 0.44  | 1.30  | 2.32  | 0.14  | 1.40  | 3.75  | 1.01  | 1.76  | 2.03  | 1.42  |
| 95th-Percentile Queue Length [ft/ln]  | 46.37 | 175.75 | 10.97 | 32.41 | 58.09 | 3.56  | 34.93 | 93.87 | 25.35 | 43.97 | 50.81 | 35.53 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 44.92 | 25.75 | 21.39 | 34.69 | 20.50 | 19.24 | 34.63 | 23.52 | 22.01 | 33.94 | 21.75 | 21.55 |
| Movement LOS                    | D     | C     | C     | C     | C     | B     | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 28.29 |       |       | 24.24 |       |       | 25.31 |       |       | 25.01 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 26.15 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.283 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 28.20 | 28.20 | 28.20 | 28.20 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.414 | 2.396 | 2.290 | 2.413 |
| 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]           | 625   | 807   | 573   | 573   |
| d_b, Bicycle Delay [s]                                   | 18.16 | 13.67 | 19.56 | 19.56 |
| I_b,int, Bicycle LOS Score for Intersection              | 2.152 | 1.829 | 1.999 | 1.995 |
| Bicycle LOS  | B     | A     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 3: Johnstonville Rd / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 24.7  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.240 |

**Intersection Setup**

| Name                         | Skyline Rd |        |       | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville 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 | 1          | 0      | 1     | 1          | 0      | 1      | 1                | 0      | 1      | 1                | 0      | 1      |
| Entry Pocket Length [ft]     | 250.00     | 100.00 | 50.00 | 450.00     | 100.00 | 100.00 | 200.00           | 100.00 | 100.00 | 300.00           | 100.00 | 200.00 |
| 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]                  | 55.00      |        |       | 55.00      |        |        | 35.00            |        |        | 35.00            |        |        |
| Grade [%]                    | 0.00       |        |       | 0.00       |        |        | 0.00             |        |        | 0.00             |        |        |
| Curb Present                 | No         |        |       | No         |        |        | No               |        |        | No               |        |        |
| Crosswalk                    | Yes        |        |       | Yes        |        |        | Yes              |        |        | Yes              |        |        |

**Volumes**

| Name  | Skyline Rd                |        |        | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville Rd |        |        |
|---|---------------------------|--------|--------|------------|--------|--------|------------------|--------|--------|------------------|--------|--------|
|   | Base Volume Input [veh/h] | 4      | 62     | 2          | 68     | 34     | 33               | 33     | 108    | 2                | 3      | 118    |
| 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 [%]               | 4.00                      | 4.00   | 4.00   | 4.00       | 4.00   | 4.00   | 4.00             | 4.00   | 4.00   | 4.00             | 4.00   | 4.00   |
| Proportion of CAVs [%]                      | 0.00                      |        |        |            |        |        |                  |        |        |                  |        |        |
| Growth Factor                               | 1.2000                    | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 | 1.2000           | 1.2000 | 1.2000 | 1.2000           | 1.2000 | 1.2000 |
| 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      | 1      | 0          | 0      | 21     | 0                | 0      | 1      | 0                | 0      | 47     |
| Total Hourly Volume [veh/h]                 | 5                         | 74     | 1      | 82         | 41     | 19     | 40               | 130    | 1      | 4                | 142    | 44     |
| Peak Hour Factor                            | 0.7800                    | 0.7800 | 0.7800 | 0.7800     | 0.7800 | 0.7800 | 0.7800           | 0.7800 | 0.7800 | 0.7800           | 0.7800 | 0.7800 |
| 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                         | 24     | 0      | 26         | 13     | 6      | 13               | 42     | 0      | 1                | 46     | 14     |
| Total Analysis Volume [veh/h]               | 6                         | 95     | 1      | 105        | 53     | 24     | 51               | 167    | 1      | 5                | 182    | 56     |
| 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            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lag      | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 28      | 0       | 20       | 37      | 0       | 14       | 31      | 0       | 11       | 26      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 16      | 0       | 0        | 13      | 0       | 0        | 12      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 1     | 18    | 18    | 9     | 26    | 26    | 7     | 26    | 26    | 1     | 20    | 20    |
| g / C, Green / Cycle                    | 0.01  | 0.23  | 0.23  | 0.12  | 0.34  | 0.34  | 0.09  | 0.34  | 0.34  | 0.01  | 0.26  | 0.26  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.05  | 0.00  | 0.06  | 0.03  | 0.02  | 0.03  | 0.09  | 0.00  | 0.00  | 0.10  | 0.04  |
| s, saturation flow rate [veh/h]         | 1752  | 1840  | 1564  | 1752  | 1840  | 1564  | 1752  | 1840  | 1564  | 1752  | 1840  | 1564  |
| c, Capacity [veh/h]                     | 15    | 419   | 356   | 205   | 618   | 525   | 154   | 621   | 528   | 13    | 474   | 403   |
| d1, Uniform Delay [s]                   | 38.14 | 24.32 | 23.07 | 32.09 | 17.56 | 17.32 | 33.16 | 18.67 | 16.98 | 38.21 | 23.67 | 22.12 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 15.55 | 0.27  | 0.00  | 1.98  | 0.06  | 0.04  | 1.25  | 0.23  | 0.00  | 17.30 | 0.51  | 0.16  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |        |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| X, volume / capacity                  | 0.39  | 0.23  | 0.00  | 0.51  | 0.09  | 0.05  | 0.33  | 0.27  | 0.00  | 0.38  | 0.38   | 0.14  |
| d, Delay for Lane Group [s/veh]       | 53.69 | 24.59 | 23.08 | 34.07 | 17.62 | 17.35 | 34.41 | 18.90 | 16.98 | 55.51 | 24.18  | 22.28 |
| Lane Group LOS                        | D     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C      | C     |
| Critical Lane Group                   | No    | Yes   | No    | Yes   | No    | No    | Yes   | No    | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.17  | 1.29  | 0.01  | 1.78  | 0.57  | 0.25  | 0.92  | 2.07  | 0.01  | 0.15  | 2.65   | 0.76  |
| 50th-Percentile Queue Length [ft/ln]  | 4.24  | 32.19 | 0.32  | 44.45 | 14.19 | 6.35  | 22.94 | 51.86 | 0.28  | 3.85  | 66.28  | 19.01 |
| 95th-Percentile Queue Length [veh/ln] | 0.31  | 2.32  | 0.02  | 3.20  | 1.02  | 0.46  | 1.65  | 3.73  | 0.02  | 0.28  | 4.77   | 1.37  |
| 95th-Percentile Queue Length [ft/ln]  | 7.64  | 57.94 | 0.58  | 80.02 | 25.54 | 11.44 | 41.30 | 93.35 | 0.51  | 6.93  | 119.31 | 34.22 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 53.69 | 24.59 | 23.08 | 34.07 | 17.62 | 17.35 | 34.41 | 18.90 | 16.98 | 55.51 | 24.18 | 22.28 |
| Movement LOS                    | D     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C     | C     |
| d_A, Approach Delay [s/veh]     | 26.28 |       |       | 27.07 |       |       | 22.50 |       |       | 24.39 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 24.75 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.240 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 28.36 | 28.36 | 28.36 | 28.36 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.197 | 2.354 | 2.253 | 2.350 |
| 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]           | 570   | 804   | 648   | 518   |
| d_b, Bicycle Delay [s]                                   | 19.71 | 13.80 | 17.63 | 21.17 |
| I_b,int, Bicycle LOS Score for Intersection              | 1.730 | 1.895 | 1.923 | 2.038 |
| Bicycle LOS  | A     | A     | A     | B     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: Hwy 139 / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 23.5  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.204 |

**Intersection Setup**

| Name                         | Hwy 139    |        |        | Hwy 139    |        |        | Skyline Rd |        |        | Skyline 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 | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      |
| Entry Pocket Length [ft]     | 500.00     | 100.00 | 225.00 | 500.00     | 100.00 | 200.00 | 100.00     | 100.00 | 100.00 | 375.00     | 100.00 | 200.00 |
| 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]                  | 55.00      |        |        | 55.00      |        |        | 35.00      |        |        | 55.00      |        |        |
| Grade [%]                    | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        |
| Curb Present                 | No         |        |        | No         |        |        | No         |        |        | No         |        |        |
| Crosswalk                    | Yes        |        |        | Yes        |        |        | Yes        |        |        | Yes        |        |        |

**Volumes**

| Name  | Hwy 139 |        |        | Hwy 139 |        |        | Skyline Rd |        |        | Skyline Rd |        |        |
|---|---------|--------|--------|---------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h]                   | 37      | 52     | 35     | 61      | 142    | 21     | 9          | 62     | 26     | 25         | 96     | 40     |
| 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   | 2.00   | 2.00    | 2.00   | 2.00   | 2.00       | 2.00   | 2.00   | 2.00       | 2.00   | 2.00   |
| Proportion of CAVs [%]                      | 0.00    |        |        |         |        |        |            |        |        |            |        |        |
| Growth Factor                               | 1.2000  | 1.2000 | 1.2000 | 1.2000  | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 |
| 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      | 22     | 0       | 0      | 13     | 0          | 0      | 16     | 0          | 0      | 25     |
| Total Hourly Volume [veh/h]                 | 44      | 62     | 20     | 73      | 170    | 12     | 11         | 74     | 15     | 30         | 115    | 23     |
| 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]              | 12      | 17     | 6      | 20      | 47     | 3      | 3          | 21     | 4      | 8          | 32     | 6      |
| Total Analysis Volume [veh/h]               | 49      | 69     | 22     | 81      | 189    | 13     | 12         | 82     | 17     | 33         | 128    | 26     |
| 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            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       | 10       | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 18       | 28      | 0       | 26       | 36      | 0       | 6        | 30      | 0       | 14       | 35      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 23      | 0       | 0        | 17      | 0       | 0        | 17      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    | 71    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 3     | 17    | 17    | 8     | 22    | 22    | 1     | 17    | 17    | 5     | 21    | 21    |
| g / C, Green / Cycle                    | 0.04  | 0.24  | 0.24  | 0.11  | 0.31  | 0.31  | 0.02  | 0.24  | 0.24  | 0.07  | 0.30  | 0.30  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.04  | 0.01  | 0.05  | 0.10  | 0.01  | 0.01  | 0.04  | 0.01  | 0.02  | 0.07  | 0.02  |
| s, saturation flow rate [veh/h]         | 1781  | 1870  | 1589  | 1781  | 1870  | 1589  | 1781  | 1870  | 1589  | 1781  | 1870  | 1589  |
| c, Capacity [veh/h]                     | 79    | 443   | 376   | 202   | 572   | 486   | 28    | 455   | 387   | 122   | 554   | 471   |
| d1, Uniform Delay [s]                   | 33.36 | 21.49 | 20.99 | 29.26 | 19.05 | 17.26 | 34.67 | 21.28 | 20.57 | 31.40 | 18.88 | 17.88 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 7.60  | 0.16  | 0.06  | 1.28  | 0.34  | 0.02  | 10.37 | 0.19  | 0.05  | 1.17  | 0.21  | 0.05  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.62  | 0.16  | 0.06  | 0.40  | 0.33  | 0.03  | 0.43  | 0.18  | 0.04  | 0.27  | 0.23  | 0.06  |
| d, Delay for Lane Group [s/veh]       | 40.96 | 21.65 | 21.05 | 30.54 | 19.38 | 17.29 | 45.05 | 21.47 | 20.62 | 32.57 | 19.09 | 17.93 |
| Lane Group LOS                        | D     | C     | C     | C     | B     | B     | D     | C     | C     | C     | B     | B     |
| Critical Lane Group                   | Yes   | No    | No    | No    | Yes   | No    | Yes   | No    | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.91  | 0.81  | 0.25  | 1.21  | 2.08  | 0.13  | 0.28  | 1.03  | 0.21  | 0.52  | 1.38  | 0.27  |
| 50th-Percentile Queue Length [ft/ln]  | 22.81 | 20.21 | 6.30  | 30.29 | 52.02 | 3.23  | 6.90  | 25.85 | 5.19  | 13.03 | 34.57 | 6.65  |
| 95th-Percentile Queue Length [veh/ln] | 1.64  | 1.45  | 0.45  | 2.18  | 3.75  | 0.23  | 0.50  | 1.86  | 0.37  | 0.94  | 2.49  | 0.48  |
| 95th-Percentile Queue Length [ft/ln]  | 41.06 | 36.37 | 11.35 | 54.52 | 93.64 | 5.82  | 12.43 | 46.54 | 9.33  | 23.45 | 62.23 | 11.97 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 40.96 | 21.65 | 21.05 | 30.54 | 19.38 | 17.29 | 45.05 | 21.47 | 20.62 | 32.57 | 19.09 | 17.93 |
| Movement LOS                    | D     | C     | C     | C     | B     | B     | D     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 28.31 |       |       | 22.48 |       |       | 23.89 |       |       | 21.31 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 23.53 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.204 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 25.28 | 25.28 | 25.28 | 25.28 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.336 | 2.328 | 2.235 | 2.341 |
| 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]           | 621   | 847   | 678   | 819   |
| d_b, Bicycle Delay [s]                                   | 16.84 | 11.77 | 15.49 | 12.36 |
| I_b,int, Bicycle LOS Score for Intersection              | 1.827 | 2.048 | 1.769 | 1.909 |
| Bicycle LOS  | A     | B     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 3: Johnstonville Rd / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 23.4  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.243 |

**Intersection Setup**

| Name                         | Skyline Rd |        |       | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville 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 | 1          | 0      | 1     | 1          | 0      | 1      | 1                | 0      | 1      | 1                | 0      | 1      |
| Entry Pocket Length [ft]     | 250.00     | 100.00 | 50.00 | 450.00     | 100.00 | 100.00 | 200.00           | 100.00 | 100.00 | 300.00           | 100.00 | 200.00 |
| 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]                  | 55.00      |        |       | 55.00      |        |        | 35.00            |        |        | 35.00            |        |        |
| Grade [%]                    | 0.00       |        |       | 0.00       |        |        | 0.00             |        |        | 0.00             |        |        |
| Curb Present                 | No         |        |       | No         |        |        | No               |        |        | No               |        |        |
| Crosswalk                    | Yes        |        |       | Yes        |        |        | Yes              |        |        | Yes              |        |        |

**Volumes**

| Name  | Skyline Rd |        |        | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville Rd |        |        |
|---|------------|--------|--------|------------|--------|--------|------------------|--------|--------|------------------|--------|--------|
|   |            |        |        |            |        |        |                  |        |        |                  |        |        |
| Base Volume Input [veh/h]                   | 3          | 40     | 11     | 71         | 50     | 30     | 37               | 144    | 6      | 4                | 165    | 89     |
| 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   | 2.00   | 2.00       | 2.00   | 2.00   | 2.00             | 2.00   | 2.00   | 2.00             | 2.00   | 2.00   |
| Proportion of CAVs [%]                      | 0.00       |        |        |            |        |        |                  |        |        |                  |        |        |
| Growth Factor                               | 1.2000     | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 | 1.2000           | 1.2000 | 1.2000 | 1.2000           | 1.2000 | 1.2000 |
| 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      | 7      | 0          | 0      | 19     | 0                | 0      | 4      | 0                | 0      | 56     |
| Total Hourly Volume [veh/h]                 | 4          | 48     | 6      | 85         | 60     | 17     | 44               | 173    | 3      | 5                | 198    | 51     |
| Peak Hour Factor                            | 0.8400     | 0.8400 | 0.8400 | 0.8400     | 0.8400 | 0.8400 | 0.8400           | 0.8400 | 0.8400 | 0.8400           | 0.8400 | 0.8400 |
| 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          | 14     | 2      | 25         | 18     | 5      | 13               | 51     | 1      | 1                | 59     | 15     |
| Total Analysis Volume [veh/h]               | 5          | 57     | 7      | 101        | 71     | 20     | 52               | 206    | 4      | 6                | 236    | 61     |
| 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          |        |        | 1          |        |        | 0                |        |        | 1                |        |        |
| v_di, Inbound Pedestrian Volume crossing m  | 0          |        |        | 1          |        |        | 0                |        |        | 1                |        |        |
| 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          |        |        | 1                |        |        | 0                |        |        |

**Intersection Settings**

|                           |                                       |
|---------------------------|---------------------------------------|
| Located in CBD            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 95                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lag      | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 33      | 0       | 18       | 40      | 0       | 16       | 33      | 0       | 11       | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 16      | 0       | 0        | 13      | 0       | 0        | 12      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 1     | 15    | 15    | 9     | 23    | 23    | 7     | 26    | 26    | 1     | 20    | 20    |
| g / C, Green / Cycle                    | 0.01  | 0.20  | 0.20  | 0.12  | 0.31  | 0.31  | 0.09  | 0.35  | 0.35  | 0.01  | 0.27  | 0.27  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.03  | 0.00  | 0.06  | 0.04  | 0.01  | 0.03  | 0.11  | 0.00  | 0.00  | 0.13  | 0.04  |
| s, saturation flow rate [veh/h]         | 1781  | 1870  | 1589  | 1781  | 1870  | 1589  | 1781  | 1870  | 1556  | 1781  | 1870  | 1584  |
| c, Capacity [veh/h]                     | 13    | 373   | 317   | 211   | 582   | 494   | 160   | 655   | 545   | 15    | 503   | 426   |
| d1, Uniform Delay [s]                   | 36.70 | 24.54 | 23.90 | 30.56 | 18.32 | 17.85 | 31.69 | 17.61 | 15.71 | 36.63 | 22.70 | 20.63 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 18.88 | 0.19  | 0.03  | 1.67  | 0.09  | 0.03  | 1.17  | 0.27  | 0.01  | 16.67 | 0.68  | 0.15  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |        |       |       |        |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity                  | 0.40  | 0.15  | 0.02  | 0.48  | 0.12  | 0.04  | 0.33  | 0.31   | 0.01  | 0.40  | 0.47   | 0.14  |
| d, Delay for Lane Group [s/veh]       | 55.58 | 24.73 | 23.93 | 32.23 | 18.41 | 17.88 | 32.86 | 17.88  | 15.71 | 53.30 | 23.38  | 20.78 |
| Lane Group LOS                        | E     | C     | C     | C     | B     | B     | C     | B      | B     | D     | C      | C     |
| Critical Lane Group                   | No    | Yes   | No    | Yes   | No    | No    | Yes   | No     | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.15  | 0.75  | 0.09  | 1.61  | 0.77  | 0.21  | 0.89  | 2.42   | 0.04  | 0.17  | 3.32   | 0.77  |
| 50th-Percentile Queue Length [ft/ln]  | 3.71  | 18.82 | 2.25  | 40.25 | 19.14 | 5.26  | 22.23 | 60.58  | 1.05  | 4.33  | 82.90  | 19.36 |
| 95th-Percentile Queue Length [veh/ln] | 0.27  | 1.35  | 0.16  | 2.90  | 1.38  | 0.38  | 1.60  | 4.36   | 0.08  | 0.31  | 5.97   | 1.39  |
| 95th-Percentile Queue Length [ft/ln]  | 6.68  | 33.87 | 4.06  | 72.45 | 34.45 | 9.48  | 40.02 | 109.05 | 1.89  | 7.79  | 149.23 | 34.85 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 55.58 | 24.73 | 23.93 | 32.23 | 18.41 | 17.88 | 32.86 | 17.88 | 15.71 | 53.30 | 23.38 | 20.78 |
| Movement LOS                    | E     | C     | C     | C     | B     | B     | C     | B     | B     | D     | C     | C     |
| d_A, Approach Delay [s/veh]     | 26.89 |       |       | 25.63 |       |       | 20.82 |       |       | 23.45 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 23.41 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.243 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |          |       |         |
|--|-------|----------|-------|---------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0     | 11.0  | 11.0    |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 1558.21  | 0.00  | 1558.21 |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 12841.89 | 0.00  | 0.00    |
| d_p, Pedestrian Delay [s]                                | 26.86 | 26.86    | 26.86 | 26.86   |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.202 | 2.343    | 2.281 | 2.393   |
| 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]           | 729   | 918      | 729   | 594     |
| d_b, Bicycle Delay [s]                                   | 14.97 | 10.85    | 14.97 | 18.31   |
| I_b,int, Bicycle LOS Score for Intersection              | 1.685 | 1.908    | 1.999 | 2.152   |
| Bicycle LOS  | A     | A        | A     | B       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Appendix C**  
**Existing Plus Project**  
**LOS Calculations**

**Intersection Level Of Service Report**  
**Intersection 1: Hwy 139 / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 26.0  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.251 |

**Intersection Setup**

| Name                         | Hwy 139    |        |        | Hwy 139    |        |        | Skyline Rd |        |        | Skyline 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 | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      |
| Entry Pocket Length [ft]     | 500.00     | 100.00 | 225.00 | 500.00     | 100.00 | 200.00 | 100.00     | 100.00 | 100.00 | 375.00     | 100.00 | 200.00 |
| 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]                  | 55.00      |        |        | 55.00      |        |        | 35.00      |        |        | 55.00      |        |        |
| Grade [%]                    | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        |
| Curb Present                 | No         |        |        | No         |        |        | No         |        |        | No         |        |        |
| Crosswalk                    | Yes        |        |        | Yes        |        |        | Yes        |        |        | Yes        |        |        |

**Volumes**

| Name  | Hwy 139 |        |        | Hwy 139 |        |        | Skyline Rd |        |        | Skyline Rd |        |        |
|---|---------|--------|--------|---------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h]                   | 31      | 168    | 26     | 26      | 67     | 9      | 27         | 91     | 54     | 36         | 56     | 82     |
| 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 [%]               | 4.00    | 4.00   | 4.00   | 4.00    | 4.00   | 4.00   | 4.00       | 4.00   | 4.00   | 4.00       | 4.00   | 4.00   |
| 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      | 6      | 11      | 0      | 0      | 0          | 0      | 0      | 6          | 0      | 11     |
| 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      | 17     | 0       | 0      | 5      | 0          | 0      | 28     | 0          | 0      | 48     |
| Total Hourly Volume [veh/h]                 | 31      | 168    | 15     | 37      | 67     | 4      | 27         | 91     | 26     | 42         | 56     | 45     |
| 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]              | 10      | 57     | 5      | 13      | 23     | 1      | 9          | 31     | 9      | 14         | 19     | 15     |
| Total Analysis Volume [veh/h]               | 42      | 227    | 20     | 50      | 91     | 5      | 36         | 123    | 35     | 57         | 76     | 61     |
| 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       |        |        | 1       |        |        | 0          |        |        | 0          |        |        |

**Intersection Settings**

|                           |                                       |
|---------------------------|---------------------------------------|
| Located in CBD            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 30      | 0       | 18       | 37      | 0       | 14       | 28      | 0       | 14       | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 17      | 0       | 0        | 23      | 0       | 0        | 15      | 0       | 0        | 15      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    | 77    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 3     | 20    | 20    | 7     | 24    | 24    | 5     | 19    | 19    | 7     | 21    | 21    |
| g / C, Green / Cycle                    | 0.04  | 0.26  | 0.26  | 0.09  | 0.31  | 0.31  | 0.07  | 0.25  | 0.25  | 0.09  | 0.27  | 0.27  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.12  | 0.01  | 0.03  | 0.05  | 0.00  | 0.02  | 0.07  | 0.02  | 0.03  | 0.04  | 0.04  |
| s, saturation flow rate [veh/h]         | 1752  | 1840  | 1564  | 1752  | 1840  | 1531  | 1752  | 1840  | 1564  | 1752  | 1840  | 1564  |
| c, Capacity [veh/h]                     | 69    | 476   | 404   | 152   | 562   | 468   | 125   | 462   | 393   | 163   | 502   | 426   |
| d1, Uniform Delay [s]                   | 36.49 | 24.21 | 21.50 | 33.15 | 19.58 | 18.67 | 34.01 | 23.21 | 22.15 | 32.84 | 21.31 | 21.25 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 8.21  | 0.74  | 0.05  | 1.25  | 0.13  | 0.01  | 1.26  | 0.31  | 0.10  | 1.28  | 0.14  | 0.15  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |        |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.61  | 0.48   | 0.05  | 0.33  | 0.16  | 0.01  | 0.29  | 0.27  | 0.09  | 0.35  | 0.15  | 0.14  |
| d, Delay for Lane Group [s/veh]       | 44.69 | 24.96  | 21.55 | 34.40 | 19.72 | 18.68 | 35.26 | 23.52 | 22.25 | 34.12 | 21.44 | 21.41 |
| Lane Group LOS                        | D     | C      | C     | C     | B     | B     | D     | C     | C     | C     | C     | C     |
| Critical Lane Group                   | No    | Yes    | No    | Yes   | No    | No    | No    | Yes   | No    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.87  | 3.16   | 0.25  | 0.85  | 1.06  | 0.06  | 0.66  | 1.74  | 0.47  | 0.97  | 0.93  | 0.75  |
| 50th-Percentile Queue Length [ft/ln]  | 21.75 | 79.12  | 6.14  | 21.31 | 26.46 | 1.39  | 16.51 | 43.53 | 11.82 | 24.14 | 23.35 | 18.76 |
| 95th-Percentile Queue Length [veh/ln] | 1.57  | 5.70   | 0.44  | 1.53  | 1.90  | 0.10  | 1.19  | 3.13  | 0.85  | 1.74  | 1.68  | 1.35  |
| 95th-Percentile Queue Length [ft/ln]  | 39.15 | 142.42 | 11.05 | 38.36 | 47.62 | 2.50  | 29.71 | 78.36 | 21.28 | 43.45 | 42.03 | 33.77 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 44.69 | 24.96 | 21.55 | 34.40 | 19.72 | 18.68 | 35.26 | 23.52 | 22.25 | 34.12 | 21.44 | 21.41 |
| Movement LOS                    | D     | C     | C     | C     | B     | B     | D     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 27.59 |       |       | 24.71 |       |       | 25.47 |       |       | 25.16 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 26.01 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.251 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 28.31 | 28.31 | 28.31 | 28.31 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.378 | 2.363 | 2.262 | 2.393 |
| 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]           | 623   | 805   | 571   | 571   |
| d_b, Bicycle Delay [s]                                   | 18.26 | 13.76 | 19.66 | 19.66 |
| I_b,int, Bicycle LOS Score for Intersection              | 2.065 | 1.809 | 1.926 | 1.959 |
| Bicycle LOS  | B     | A     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report  
Intersection 2: Skyline Rd / Project Dwy**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Two-way stop    | Delay (sec / veh):        | 14.5  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | B     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.081 |

**Intersection Setup**

| Name                         | Skyline Rd |        | Skyline Rd |        | Project Dwy |        |
|------------------------------|------------|--------|------------|--------|-------------|--------|
| Approach                     | Northbound |        | Southbound |        | Westbound   |        |
| Lane Configuration           | ↕↔         |        | ↔↕         |        | ↔           |        |
| Turning Movement             | Thru       | Right  | Left       | Thru   | Left        | 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           | 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]                  | 55.00      |        | 55.00      |        | 25.00       |        |
| Grade [%]                    | 0.00       |        | 0.00       |        | 0.00        |        |
| Crosswalk                    | Yes        |        | Yes        |        | Yes         |        |

**Volumes**

| Name                                    | Skyline Rd |        | Skyline Rd |        | Project Dwy |        |
|---|------------|--------|------------|--------|-------------|--------|
| Base Volume Input [veh/h]               | 173        | 0      | 0          | 139    | 0           | 0      |
| Base Volume Adjustment Factor           | 1.0000     | 1.0000 | 1.0000     | 1.0000 | 1.0000      | 1.0000 |
| Heavy Vehicles Percentage [%]           | 4.00       | 90.00  | 90.00      | 4.00   | 90.00       | 90.00  |
| 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          | 26     | 17         | 0      | 26          | 17     |
| 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]             | 173        | 26     | 17         | 139    | 26          | 17     |
| Peak Hour Factor                        | 0.7600     | 0.7600 | 0.7600     | 0.7600 | 0.7600      | 0.7600 |
| Other Adjustment Factor                 | 1.0000     | 1.0000 | 1.0000     | 1.0000 | 1.0000      | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 57         | 9      | 6          | 46     | 9           | 6      |
| Total Analysis Volume [veh/h]           | 228        | 34     | 22         | 183    | 34          | 22     |
| Pedestrian Volume [ped/h]               | 0          |        | 0          |        | 0           |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| 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 | 0.00 | 0.02 | 0.00 | 0.08  | 0.03  |
| d_M, Delay for Movement [s/veh]       | 0.00 | 0.00 | 8.98 | 0.00 | 14.53 | 11.64 |
| Movement LOS                          | A    | A    | A    | A    | B     | B     |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.07 | 0.00 | 0.39  | 0.39  |
| 95th-Percentile Queue Length [ft/ln]  | 0.00 | 0.00 | 1.82 | 0.00 | 9.73  | 9.73  |
| d_A, Approach Delay [s/veh]           | 0.00 |      | 0.96 |      | 13.40 |       |
| Approach LOS                          | A    |      | A    |      | B     |       |
| d_I, Intersection Delay [s/veh]       | 1.81 |      |      |      |       |       |
| Intersection LOS                      | B    |      |      |      |       |       |

**Intersection Level Of Service Report**  
**Intersection 3: Johnstonville Rd / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 24.4  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.219 |

**Intersection Setup**

| Name                         | Skyline Rd |        |       | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville 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 | 1          | 0      | 1     | 1          | 0      | 1      | 1                | 0      | 1      | 1                | 0      | 1      |
| Entry Pocket Length [ft]     | 250.00     | 100.00 | 50.00 | 450.00     | 100.00 | 100.00 | 200.00           | 100.00 | 100.00 | 300.00           | 100.00 | 200.00 |
| 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]                  | 55.00      |        |       | 55.00      |        |        | 35.00            |        |        | 35.00            |        |        |
| Grade [%]                    | 0.00       |        |       | 0.00       |        |        | 0.00             |        |        | 0.00             |        |        |
| Curb Present                 | No         |        |       | No         |        |        | No               |        |        | No               |        |        |
| Crosswalk                    | Yes        |        |       | Yes        |        |        | Yes              |        |        | Yes              |        |        |

**Volumes**

| Name  | Skyline Rd |        |        | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville Rd |        |        |
|---|------------|--------|--------|------------|--------|--------|------------------|--------|--------|------------------|--------|--------|
|   |            |        |        |            |        |        |                  |        |        |                  |        |        |
| Base Volume Input [veh/h]                   | 4          | 62     | 2      | 68         | 34     | 33     | 33               | 108    | 2      | 3                | 118    | 76     |
| 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 [%]               | 5.00       | 5.00   | 5.00   | 5.00       | 5.00   | 5.00   | 5.00             | 5.00   | 5.00   | 5.00             | 5.00   | 5.00   |
| 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          | 13     | 0      | 11         | 13     | 2      | 2                | 0      | 0      | 0                | 0      | 11     |
| 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      | 1      | 0          | 0      | 18     | 0                | 0      | 1      | 0                | 0      | 45     |
| Total Hourly Volume [veh/h]                 | 4          | 75     | 1      | 79         | 47     | 17     | 35               | 108    | 1      | 3                | 118    | 42     |
| Peak Hour Factor                            | 0.7800     | 0.7800 | 0.7800 | 0.7800     | 0.7800 | 0.7800 | 0.7800           | 0.7800 | 0.7800 | 0.7800           | 0.7800 | 0.7800 |
| 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          | 24     | 0      | 25         | 15     | 5      | 11               | 35     | 0      | 1                | 38     | 13     |
| Total Analysis Volume [veh/h]               | 5          | 96     | 1      | 101        | 60     | 22     | 45               | 138    | 1      | 4                | 151    | 54     |
| 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            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lag      | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 28      | 0       | 20       | 37      | 0       | 14       | 31      | 0       | 11       | 26      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 16      | 0       | 0        | 13      | 0       | 0        | 12      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 1     | 18    | 18    | 9     | 26    | 26    | 6     | 26    | 26    | 0     | 20    | 20    |
| g / C, Green / Cycle                    | 0.01  | 0.23  | 0.23  | 0.12  | 0.34  | 0.34  | 0.08  | 0.33  | 0.33  | 0.01  | 0.26  | 0.26  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.05  | 0.00  | 0.06  | 0.03  | 0.01  | 0.03  | 0.08  | 0.00  | 0.00  | 0.08  | 0.03  |
| s, saturation flow rate [veh/h]         | 1738  | 1825  | 1551  | 1738  | 1825  | 1551  | 1738  | 1825  | 1551  | 1738  | 1825  | 1551  |
| c, Capacity [veh/h]                     | 13    | 420   | 357   | 202   | 619   | 526   | 143   | 610   | 518   | 11    | 471   | 400   |
| d1, Uniform Delay [s]                   | 37.86 | 23.97 | 22.73 | 31.76 | 17.31 | 16.98 | 33.15 | 18.38 | 17.01 | 37.93 | 22.99 | 21.85 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 17.56 | 0.27  | 0.00  | 1.90  | 0.07  | 0.03  | 1.25  | 0.19  | 0.00  | 19.92 | 0.39  | 0.15  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.38  | 0.23  | 0.00  | 0.50  | 0.10  | 0.04  | 0.32  | 0.23  | 0.00  | 0.37  | 0.32  | 0.13  |
| d, Delay for Lane Group [s/veh]       | 55.42 | 24.25 | 22.73 | 33.65 | 17.37 | 17.01 | 34.40 | 18.57 | 17.01 | 57.86 | 23.38 | 22.00 |
| Lane Group LOS                        | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C     | C     |
| Critical Lane Group                   | No    | Yes   | No    | Yes   | No    | No    | Yes   | No    | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.15  | 1.28  | 0.01  | 1.69  | 0.63  | 0.23  | 0.81  | 1.68  | 0.01  | 0.13  | 2.13  | 0.72  |
| 50th-Percentile Queue Length [ft/ln]  | 3.72  | 32.04 | 0.32  | 42.18 | 15.82 | 5.71  | 20.17 | 41.92 | 0.28  | 3.29  | 53.24 | 18.08 |
| 95th-Percentile Queue Length [veh/ln] | 0.27  | 2.31  | 0.02  | 3.04  | 1.14  | 0.41  | 1.45  | 3.02  | 0.02  | 0.24  | 3.83  | 1.30  |
| 95th-Percentile Queue Length [ft/ln]  | 6.70  | 57.68 | 0.57  | 75.93 | 28.48 | 10.27 | 36.30 | 75.46 | 0.51  | 5.93  | 95.83 | 32.55 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 55.42 | 24.25 | 22.73 | 33.65 | 17.37 | 17.01 | 34.40 | 18.57 | 17.01 | 57.86 | 23.38 | 22.00 |
| Movement LOS                    | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C     | C     |
| d_A, Approach Delay [s/veh]     | 25.76 |       |       | 26.31 |       |       | 22.43 |       |       | 23.68 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 24.37 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.219 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 28.00 | 28.00 | 28.00 | 28.00 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.199 | 2.345 | 2.232 | 2.327 |
| 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]           | 576   | 811   | 654   | 523   |
| d_b, Bicycle Delay [s]                                   | 19.38 | 13.50 | 17.30 | 20.83 |
| I_b,int, Bicycle LOS Score for Intersection              | 1.730 | 1.891 | 1.865 | 1.979 |
| Bicycle LOS  | A     | A     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: Hwy 139 / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 22.8  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.172 |

**Intersection Setup**

| Name                         | Hwy 139    |        |        | Hwy 139    |        |        | Skyline Rd |        |        | Skyline 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 | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      |
| Entry Pocket Length [ft]     | 500.00     | 100.00 | 225.00 | 500.00     | 100.00 | 200.00 | 100.00     | 100.00 | 100.00 | 375.00     | 100.00 | 200.00 |
| 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]                  | 55.00      |        |        | 55.00      |        |        | 35.00      |        |        | 55.00      |        |        |
| Grade [%]                    | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        |
| Curb Present                 | No         |        |        | No         |        |        | No         |        |        | No         |        |        |
| Crosswalk                    | Yes        |        |        | Yes        |        |        | Yes        |        |        | Yes        |        |        |

**Volumes**

| Name  | Hwy 139 |        |        | Hwy 139 |        |        | Skyline Rd |        |        | Skyline Rd |        |        |
|---|---------|--------|--------|---------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h]                   | 37      | 52     | 35     | 61      | 142    | 21     | 9          | 62     | 26     | 25         | 96     | 40     |
| 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 [%]               | 3.00    | 3.00   | 3.00   | 3.00    | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   |
| 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      | 6      | 11      | 0      | 0      | 0          | 0      | 0      | 6          | 0      | 11     |
| 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      | 21     | 0       | 0      | 11     | 0          | 0      | 14     | 0          | 0      | 27     |
| Total Hourly Volume [veh/h]                 | 37      | 52     | 20     | 72      | 142    | 10     | 9          | 62     | 12     | 31         | 96     | 24     |
| 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]              | 10      | 14     | 6      | 20      | 39     | 3      | 3          | 17     | 3      | 9          | 27     | 7      |
| Total Analysis Volume [veh/h]               | 41      | 58     | 22     | 80      | 158    | 11     | 10         | 69     | 13     | 34         | 107    | 27     |
| 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            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       | 10       | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 18       | 28      | 0       | 26       | 36      | 0       | 6        | 30      | 0       | 14       | 35      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 23      | 0       | 0        | 17      | 0       | 0        | 17      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 68    | 68    | 68    | 68    | 68    | 68    | 68    | 68    | 68    | 68    | 68    | 68    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 3     | 16    | 16    | 8     | 21    | 21    | 1     | 16    | 16    | 5     | 20    | 20    |
| g / C, Green / Cycle                    | 0.04  | 0.23  | 0.23  | 0.12  | 0.31  | 0.31  | 0.01  | 0.23  | 0.23  | 0.07  | 0.29  | 0.29  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.03  | 0.01  | 0.05  | 0.09  | 0.01  | 0.01  | 0.04  | 0.01  | 0.02  | 0.06  | 0.02  |
| s, saturation flow rate [veh/h]         | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  |
| c, Capacity [veh/h]                     | 71    | 427   | 363   | 204   | 567   | 482   | 23    | 431   | 367   | 125   | 538   | 457   |
| d1, Uniform Delay [s]                   | 32.22 | 20.89 | 20.52 | 28.01 | 18.02 | 16.60 | 33.47 | 20.90 | 20.29 | 30.09 | 18.27 | 17.52 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 7.21  | 0.14  | 0.07  | 1.23  | 0.27  | 0.02  | 12.32 | 0.17  | 0.04  | 1.16  | 0.18  | 0.05  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.58  | 0.14  | 0.06  | 0.39  | 0.28  | 0.02  | 0.43  | 0.16  | 0.04  | 0.27  | 0.20  | 0.06  |
| d, Delay for Lane Group [s/veh]       | 39.43 | 21.03 | 20.59 | 29.25 | 18.28 | 16.62 | 45.79 | 21.07 | 20.33 | 31.26 | 18.45 | 17.57 |
| Lane Group LOS                        | D     | C     | C     | C     | B     | B     | D     | C     | C     | C     | B     | B     |
| Critical Lane Group                   | Yes   | No    | No    | No    | Yes   | No    | Yes   | No    | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.74  | 0.65  | 0.24  | 1.14  | 1.62  | 0.10  | 0.24  | 0.84  | 0.15  | 0.51  | 1.10  | 0.27  |
| 50th-Percentile Queue Length [ft/ln]  | 18.41 | 16.22 | 6.06  | 28.41 | 40.48 | 2.59  | 5.89  | 20.97 | 3.84  | 12.78 | 27.42 | 6.64  |
| 95th-Percentile Queue Length [veh/ln] | 1.33  | 1.17  | 0.44  | 2.05  | 2.91  | 0.19  | 0.42  | 1.51  | 0.28  | 0.92  | 1.97  | 0.48  |
| 95th-Percentile Queue Length [ft/ln]  | 33.13 | 29.20 | 10.91 | 51.14 | 72.86 | 4.67  | 10.60 | 37.75 | 6.91  | 23.00 | 49.36 | 11.95 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 39.43 | 21.03 | 20.59 | 29.25 | 18.28 | 16.62 | 45.79 | 21.07 | 20.33 | 31.26 | 18.45 | 17.57 |
| Movement LOS                    | D     | C     | C     | C     | B     | B     | D     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 27.19 |       |       | 21.73 |       |       | 23.65 |       |       | 20.90 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.84 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.172 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 23.96 | 23.96 | 23.96 | 23.96 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.307 | 2.302 | 2.214 | 2.327 |
| 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]           | 646   | 880   | 704   | 851   |
| d_b, Bicycle Delay [s]                                   | 15.63 | 10.68 | 14.30 | 11.24 |
| I_b,int, Bicycle LOS Score for Intersection              | 1.794 | 1.989 | 1.735 | 1.881 |
| Bicycle LOS  | A     | A     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report  
Intersection 2: Skyline Rd / Project Dwy**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Two-way stop    | Delay (sec / veh):        | 13.6  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | B     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.066 |

**Intersection Setup**

| Name                         | Skyline Rd |        | Skyline Rd |        | Project Dwy |        |
|------------------------------|------------|--------|------------|--------|-------------|--------|
| Approach                     | Northbound |        | Southbound |        | Westbound   |        |
| Lane Configuration           | ↕↔         |        | ↔↕         |        | ↔           |        |
| Turning Movement             | Thru       | Right  | Left       | Thru   | Left        | 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           | 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]                  | 55.00      |        | 55.00      |        | 25.00       |        |
| Grade [%]                    | 0.00       |        | 0.00       |        | 0.00        |        |
| Crosswalk                    | Yes        |        | Yes        |        | Yes         |        |

**Volumes**

| Name                                    | Skyline Rd |        | Skyline Rd |        | Project Dwy |        |
|---|------------|--------|------------|--------|-------------|--------|
| Base Volume Input [veh/h]               | 164        | 0      | 0          | 155    | 0           | 0      |
| Base Volume Adjustment Factor           | 1.0000     | 1.0000 | 1.0000     | 1.0000 | 1.0000      | 1.0000 |
| Heavy Vehicles Percentage [%]           | 2.00       | 90.00  | 90.00      | 2.00   | 90.00       | 90.00  |
| 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          | 26     | 17         | 0      | 26          | 17     |
| 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]             | 164        | 26     | 17         | 155    | 26          | 17     |
| 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]          | 47         | 7      | 5          | 44     | 7           | 5      |
| Total Analysis Volume [veh/h]           | 186        | 30     | 19         | 176    | 30          | 19     |
| Pedestrian Volume [ped/h]               | 0          |        | 0          |        | 0           |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| 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 | 0.00 | 0.02 | 0.00 | 0.07  | 0.03  |
| d_M, Delay for Movement [s/veh]       | 0.00 | 0.00 | 8.79 | 0.00 | 13.57 | 11.05 |
| Movement LOS                          | A    | A    | A    | A    | B     | B     |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.06 | 0.00 | 0.31  | 0.31  |
| 95th-Percentile Queue Length [ft/ln]  | 0.00 | 0.00 | 1.50 | 0.00 | 7.72  | 7.72  |
| d_A, Approach Delay [s/veh]           | 0.00 |      | 0.86 |      | 12.60 |       |
| Approach LOS                          | A    |      | A    |      | B     |       |
| d_I, Intersection Delay [s/veh]       | 1.70 |      |      |      |       |       |
| Intersection LOS                      | B    |      |      |      |       |       |

**Intersection Level Of Service Report**  
**Intersection 3: Johnstonville Rd / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 23.2  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.221 |

**Intersection Setup**

| Name                         | Skyline Rd |        |       | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville 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 | 1          | 0      | 1     | 1          | 0      | 1      | 1                | 0      | 1      | 1                | 0      | 1      |
| Entry Pocket Length [ft]     | 250.00     | 100.00 | 50.00 | 450.00     | 100.00 | 100.00 | 200.00           | 100.00 | 100.00 | 300.00           | 100.00 | 200.00 |
| 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]                  | 55.00      |        |       | 55.00      |        |        | 35.00            |        |        | 35.00            |        |        |
| Grade [%]                    | 0.00       |        |       | 0.00       |        |        | 0.00             |        |        | 0.00             |        |        |
| Curb Present                 | No         |        |       | No         |        |        | No               |        |        | No               |        |        |
| Crosswalk                    | Yes        |        |       | Yes        |        |        | Yes              |        |        | Yes              |        |        |

**Volumes**

| Name  | Skyline Rd |        |        | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville Rd |        |        |
|---|------------|--------|--------|------------|--------|--------|------------------|--------|--------|------------------|--------|--------|
|   |            |        |        |            |        |        |                  |        |        |                  |        |        |
| Base Volume Input [veh/h]                   | 3          | 40     | 11     | 71         | 50     | 30     | 37               | 144    | 6      | 4                | 165    | 89     |
| 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 [%]               | 3.00       | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   | 3.00             | 3.00   | 3.00   | 3.00             | 3.00   | 3.00   |
| 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          | 13     | 0      | 11         | 13     | 2      | 2                | 0      | 0      | 0                | 0      | 11     |
| 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      | 6      | 0          | 0      | 17     | 0                | 0      | 3      | 0                | 0      | 52     |
| Total Hourly Volume [veh/h]                 | 3          | 53     | 5      | 82         | 63     | 15     | 39               | 144    | 3      | 4                | 165    | 48     |
| Peak Hour Factor                            | 0.8400     | 0.8400 | 0.8400 | 0.8400     | 0.8400 | 0.8400 | 0.8400           | 0.8400 | 0.8400 | 0.8400           | 0.8400 | 0.8400 |
| 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          | 16     | 1      | 24         | 19     | 4      | 12               | 43     | 1      | 1                | 49     | 14     |
| Total Analysis Volume [veh/h]               | 4          | 63     | 6      | 98         | 75     | 18     | 46               | 171    | 4      | 5                | 196    | 57     |
| 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          |        |        | 1          |        |        | 0                |        |        | 1                |        |        |
| v_di, Inbound Pedestrian Volume crossing m  | 0          |        |        | 1          |        |        | 0                |        |        | 1                |        |        |
| 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          |        |        | 1                |        |        | 0                |        |        |

**Intersection Settings**

|                           |                                       |
|---------------------------|---------------------------------------|
| Located in CBD            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 95                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lag      | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 33      | 0       | 18       | 40      | 0       | 16       | 33      | 0       | 11       | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 16      | 0       | 0        | 13      | 0       | 0        | 12      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    | 74    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 0     | 15    | 15    | 9     | 24    | 24    | 6     | 26    | 26    | 1     | 20    | 20    |
| g / C, Green / Cycle                    | 0.01  | 0.21  | 0.21  | 0.12  | 0.32  | 0.32  | 0.08  | 0.35  | 0.35  | 0.01  | 0.27  | 0.27  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.03  | 0.00  | 0.06  | 0.04  | 0.01  | 0.03  | 0.09  | 0.00  | 0.00  | 0.11  | 0.04  |
| s, saturation flow rate [veh/h]         | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  | 1767  | 1855  | 1543  | 1767  | 1855  | 1571  |
| c, Capacity [veh/h]                     | 10    | 383   | 326   | 208   | 591   | 502   | 148   | 640   | 533   | 13    | 498   | 422   |
| d1, Uniform Delay [s]                   | 36.73 | 24.17 | 23.44 | 30.56 | 17.95 | 17.42 | 31.97 | 17.52 | 15.95 | 36.66 | 22.19 | 20.59 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 22.39 | 0.20  | 0.02  | 1.65  | 0.10  | 0.03  | 1.18  | 0.22  | 0.01  | 19.25 | 0.51  | 0.14  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |        |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| X, volume / capacity                  | 0.39  | 0.16  | 0.02  | 0.47  | 0.13  | 0.04  | 0.31  | 0.27  | 0.01  | 0.40  | 0.39   | 0.14  |
| d, Delay for Lane Group [s/veh]       | 59.13 | 24.37 | 23.46 | 32.21 | 18.05 | 17.45 | 33.15 | 17.74 | 15.95 | 55.91 | 22.69  | 20.73 |
| Lane Group LOS                        | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C      | C     |
| Critical Lane Group                   | No    | Yes   | No    | Yes   | No    | No    | Yes   | No    | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.13  | 0.82  | 0.08  | 1.56  | 0.80  | 0.19  | 0.79  | 1.99  | 0.04  | 0.15  | 2.68   | 0.72  |
| 50th-Percentile Queue Length [ft/ln]  | 3.24  | 20.59 | 1.90  | 39.02 | 19.94 | 4.65  | 19.80 | 49.72 | 1.06  | 3.84  | 67.06  | 18.04 |
| 95th-Percentile Queue Length [veh/ln] | 0.23  | 1.48  | 0.14  | 2.81  | 1.44  | 0.34  | 1.43  | 3.58  | 0.08  | 0.28  | 4.83   | 1.30  |
| 95th-Percentile Queue Length [ft/ln]  | 5.83  | 37.06 | 3.43  | 70.23 | 35.88 | 8.38  | 35.63 | 89.49 | 1.90  | 6.92  | 120.70 | 32.48 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 59.13 | 24.37 | 23.46 | 32.21 | 18.05 | 17.45 | 33.15 | 17.74 | 15.95 | 55.91 | 22.69 | 20.73 |
| Movement LOS                    | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C     | C     |
| d_A, Approach Delay [s/veh]     | 26.20 |       |       | 25.26 |       |       | 20.92 |       |       | 22.90 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 23.24 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.221 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |          |       |         |
|--|-------|----------|-------|---------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0     | 11.0  | 11.0    |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 1558.24  | 0.00  | 1558.24 |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 12897.31 | 0.00  | 0.00    |
| d_p, Pedestrian Delay [s]                                | 26.82 | 26.82    | 26.82 | 26.82   |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.203 | 2.335    | 2.255 | 2.362   |
| 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]           | 730   | 919      | 730   | 595     |
| d_b, Bicycle Delay [s]                                   | 14.93 | 10.82    | 14.94 | 18.28   |
| I_b,int, Bicycle LOS Score for Intersection              | 1.690 | 1.903    | 1.929 | 2.071   |
| Bicycle LOS  | A     | A        | A     | B       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Appendix D**  
**Future Year Plus Project**  
**LOS Calculations**

**Intersection Level Of Service Report**  
**Intersection 1: Hwy 139 / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 27.1  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.298 |

**Intersection Setup**

| Name                         | Hwy 139    |        |        | Hwy 139    |        |        | Skyline Rd |        |        | Skyline 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 | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      |
| Entry Pocket Length [ft]     | 500.00     | 100.00 | 225.00 | 500.00     | 100.00 | 200.00 | 100.00     | 100.00 | 100.00 | 375.00     | 100.00 | 200.00 |
| 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]                  | 55.00      |        |        | 55.00      |        |        | 35.00      |        |        | 55.00      |        |        |
| Grade [%]                    | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        |
| Curb Present                 | No         |        |        | No         |        |        | No         |        |        | No         |        |        |
| Crosswalk                    | Yes        |        |        | Yes        |        |        | Yes        |        |        | Yes        |        |        |

**Volumes**

| Name  | Hwy 139 |        |        | Hwy 139 |        |        | Skyline Rd |        |        | Skyline Rd |        |        |
|---|---------|--------|--------|---------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h]                   | 31      | 168    | 26     | 26      | 67     | 9      | 27         | 91     | 54     | 36         | 56     | 82     |
| 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 [%]               | 4.00    | 4.00   | 4.00   | 4.00    | 4.00   | 4.00   | 4.00       | 4.00   | 4.00   | 4.00       | 4.00   | 4.00   |
| Proportion of CAVs [%]                      | 0.00    |        |        |         |        |        |            |        |        |            |        |        |
| Growth Factor                               | 1.2000  | 1.2000 | 1.2000 | 1.2000  | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 |
| In-Process Volume [veh/h]                   | 0       | 0      | 0      | 0       | 0      | 0      | 0          | 0      | 0      | 0          | 0      | 0      |
| Site-Generated Trips [veh/h]                | 0       | 0      | 6      | 11      | 0      | 0      | 0          | 0      | 0      | 6          | 0      | 11     |
| 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      | 19     | 0       | 0      | 6      | 0          | 0      | 34     | 0          | 0      | 57     |
| Total Hourly Volume [veh/h]                 | 37      | 202    | 18     | 42      | 80     | 5      | 32         | 109    | 31     | 49         | 67     | 52     |
| 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]              | 13      | 68     | 6      | 14      | 27     | 2      | 11         | 37     | 10     | 17         | 23     | 18     |
| Total Analysis Volume [veh/h]               | 50      | 273    | 24     | 57      | 108    | 7      | 43         | 147    | 42     | 66         | 91     | 70     |
| 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       |        |        | 1       |        |        | 0          |        |        | 0          |        |        |

**Intersection Settings**

|                           |                                       |
|---------------------------|---------------------------------------|
| Located in CBD            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 30      | 0       | 18       | 37      | 0       | 14       | 28      | 0       | 14       | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 17      | 0       | 0        | 23      | 0       | 0        | 15      | 0       | 0        | 15      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 3     | 20    | 20    | 7     | 24    | 24    | 6     | 20    | 20    | 8     | 21    | 21    |
| g / C, Green / Cycle                    | 0.04  | 0.25  | 0.25  | 0.09  | 0.30  | 0.30  | 0.08  | 0.25  | 0.25  | 0.10  | 0.27  | 0.27  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.15  | 0.02  | 0.03  | 0.06  | 0.00  | 0.02  | 0.08  | 0.03  | 0.04  | 0.05  | 0.04  |
| s, saturation flow rate [veh/h]         | 1752  | 1840  | 1564  | 1752  | 1840  | 1531  | 1752  | 1840  | 1564  | 1752  | 1840  | 1564  |
| c, Capacity [veh/h]                     | 76    | 468   | 398   | 161   | 558   | 464   | 138   | 461   | 392   | 172   | 497   | 422   |
| d1, Uniform Delay [s]                   | 37.09 | 25.69 | 22.22 | 33.55 | 20.32 | 19.21 | 34.24 | 24.03 | 22.72 | 33.25 | 22.07 | 21.96 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 9.32  | 1.16  | 0.06  | 1.32  | 0.17  | 0.01  | 1.27  | 0.39  | 0.12  | 1.39  | 0.18  | 0.18  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |        |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.66  | 0.58   | 0.06  | 0.35  | 0.19  | 0.02  | 0.31  | 0.32  | 0.11  | 0.38  | 0.18  | 0.17  |
| d, Delay for Lane Group [s/veh]       | 46.40 | 26.85  | 22.29 | 34.87 | 20.48 | 19.22 | 35.51 | 24.43 | 22.84 | 34.65 | 22.25 | 22.15 |
| Lane Group LOS                        | D     | C      | C     | C     | C     | B     | D     | C     | C     | C     | C     | C     |
| Critical Lane Group                   | No    | Yes    | No    | Yes   | No    | No    | No    | Yes   | No    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh/ln] | 1.06  | 4.08   | 0.31  | 0.99  | 1.31  | 0.08  | 0.80  | 2.17  | 0.58  | 1.14  | 1.16  | 0.89  |
| 50th-Percentile Queue Length [ft/ln]  | 26.62 | 101.92 | 7.64  | 24.76 | 32.75 | 2.01  | 19.96 | 54.16 | 14.61 | 28.53 | 29.10 | 22.35 |
| 95th-Percentile Queue Length [veh/ln] | 1.92  | 7.34   | 0.55  | 1.78  | 2.36  | 0.14  | 1.44  | 3.90  | 1.05  | 2.05  | 2.10  | 1.61  |
| 95th-Percentile Queue Length [ft/ln]  | 47.91 | 183.46 | 13.75 | 44.57 | 58.94 | 3.62  | 35.92 | 97.48 | 26.30 | 51.36 | 52.38 | 40.22 |

**Movement, Approach, & Intersection Results**

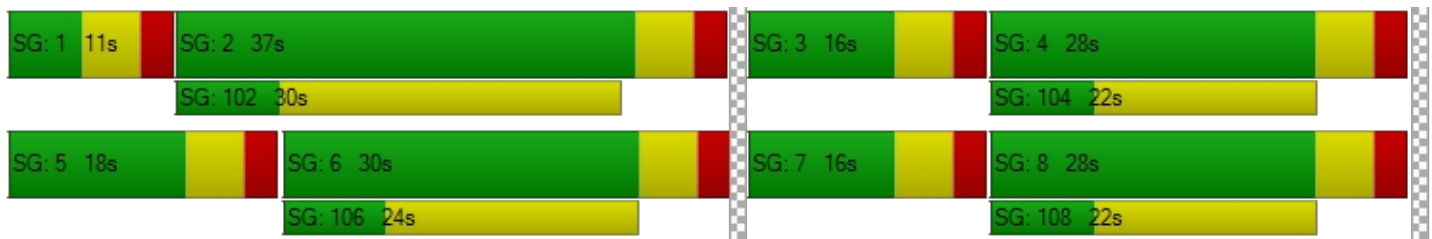
|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 46.40 | 26.85 | 22.29 | 34.87 | 20.48 | 19.22 | 35.51 | 24.43 | 22.84 | 34.65 | 22.25 | 22.15 |
| Movement LOS                    | D     | C     | C     | C     | C     | B     | D     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 29.35 |       |       | 25.20 |       |       | 26.20 |       |       | 25.82 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 27.05 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.298 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 29.06 | 29.06 | 29.06 | 29.06 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.426 | 2.410 | 2.291 | 2.442 |
| 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]           | 611   | 789   | 560   | 560   |
| d_b, Bicycle Delay [s]                                   | 18.95 | 14.41 | 20.37 | 20.37 |
| I_b,int, Bicycle LOS Score for Intersection              | 2.164 | 1.853 | 1.999 | 2.028 |
| Bicycle LOS  | B     | A     | A     | B     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report  
Intersection 2: Skyline Rd / Project Dwy**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Two-way stop    | Delay (sec / veh):        | 15.9  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.092 |

**Intersection Setup**

| Name                         | Skyline Rd |        | Skyline Rd |        | Project Dwy |        |
|------------------------------|------------|--------|------------|--------|-------------|--------|
| Approach                     | Northbound |        | Southbound |        | Westbound   |        |
| Lane Configuration           | ↑↑         |        | ↑↑         |        | ↑           |        |
| Turning Movement             | Thru       | Right  | Left       | Thru   | Left        | 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           | 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]                  | 55.00      |        | 55.00      |        | 25.00       |        |
| Grade [%]                    | 0.00       |        | 0.00       |        | 0.00        |        |
| Crosswalk                    | Yes        |        | Yes        |        | Yes         |        |

**Volumes**

| Name                                    | Skyline Rd |        | Skyline Rd |        | Project Dwy |        |
|---|------------|--------|------------|--------|-------------|--------|
| Base Volume Input [veh/h]               | 173        | 0      | 0          | 139    | 0           | 0      |
| Base Volume Adjustment Factor           | 1.0000     | 1.0000 | 1.0000     | 1.0000 | 1.0000      | 1.0000 |
| Heavy Vehicles Percentage [%]           | 4.00       | 90.00  | 90.00      | 4.00   | 90.00       | 90.00  |
| Growth Factor                           | 1.2000     | 1.2000 | 1.2000     | 1.2000 | 1.2000      | 1.2000 |
| In-Process Volume [veh/h]               | 0          | 0      | 0          | 0      | 0           | 0      |
| Site-Generated Trips [veh/h]            | 0          | 26     | 17         | 0      | 26          | 17     |
| 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]             | 208        | 26     | 17         | 167    | 26          | 17     |
| Peak Hour Factor                        | 0.7600     | 0.7600 | 0.7600     | 0.7600 | 0.7600      | 0.7600 |
| Other Adjustment Factor                 | 1.0000     | 1.0000 | 1.0000     | 1.0000 | 1.0000      | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 68         | 9      | 6          | 55     | 9           | 6      |
| Total Analysis Volume [veh/h]           | 274        | 34     | 22         | 220    | 34          | 22     |
| Pedestrian Volume [ped/h]               | 0          |        | 0          |        | 0           |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| 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 | 0.00 | 0.02 | 0.00 | 0.09  | 0.04  |
| d_M, Delay for Movement [s/veh]       | 0.00 | 0.00 | 9.17 | 0.00 | 15.92 | 12.28 |
| Movement LOS                          | A    | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.08 | 0.00 | 0.44  | 0.44  |
| 95th-Percentile Queue Length [ft/ln]  | 0.00 | 0.00 | 1.91 | 0.00 | 10.97 | 10.97 |
| d_A, Approach Delay [s/veh]           | 0.00 |      | 0.83 |      | 14.49 |       |
| Approach LOS                          | A    |      | A    |      | B     |       |
| d_I, Intersection Delay [s/veh]       | 1.67 |      |      |      |       |       |
| Intersection LOS                      | C    |      |      |      |       |       |

**Intersection Level Of Service Report**  
**Intersection 3: Johnstonville Rd / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 25.4  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.261 |

**Intersection Setup**

| Name                         | Skyline Rd |        |       | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville 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 | 1          | 0      | 1     | 1          | 0      | 1      | 1                | 0      | 1      | 1                | 0      | 1      |
| Entry Pocket Length [ft]     | 250.00     | 100.00 | 50.00 | 450.00     | 100.00 | 100.00 | 200.00           | 100.00 | 100.00 | 300.00           | 100.00 | 200.00 |
| 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]                  | 55.00      |        |       | 55.00      |        |        | 35.00            |        |        | 35.00            |        |        |
| Grade [%]                    | 0.00       |        |       | 0.00       |        |        | 0.00             |        |        | 0.00             |        |        |
| Curb Present                 | No         |        |       | No         |        |        | No               |        |        | No               |        |        |
| Crosswalk                    | Yes        |        |       | Yes        |        |        | Yes              |        |        | Yes              |        |        |

**Volumes**

| Name  | Skyline Rd |        |        | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville Rd |        |        |
|---|------------|--------|--------|------------|--------|--------|------------------|--------|--------|------------------|--------|--------|
| Base Volume Input [veh/h]                   | 4          | 62     | 2      | 68         | 34     | 33     | 33               | 108    | 2      | 3                | 118    | 76     |
| 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 [%]               | 5.00       | 5.00   | 5.00   | 5.00       | 5.00   | 5.00   | 5.00             | 5.00   | 5.00   | 5.00             | 5.00   | 5.00   |
| Proportion of CAVs [%]                      | 0.00       |        |        |            |        |        |                  |        |        |                  |        |        |
| Growth Factor                               | 1.2000     | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 | 1.2000           | 1.2000 | 1.2000 | 1.2000           | 1.2000 | 1.2000 |
| In-Process Volume [veh/h]                   | 0          | 0      | 0      | 0          | 0      | 0      | 0                | 0      | 0      | 0                | 0      | 0      |
| Site-Generated Trips [veh/h]                | 0          | 13     | 0      | 11         | 13     | 2      | 2                | 0      | 0      | 0                | 0      | 11     |
| 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      | 1      | 0          | 0      | 22     | 0                | 0      | 1      | 0                | 0      | 53     |
| Total Hourly Volume [veh/h]                 | 5          | 87     | 1      | 93         | 54     | 20     | 42               | 130    | 1      | 4                | 142    | 49     |
| Peak Hour Factor                            | 0.7800     | 0.7800 | 0.7800 | 0.7800     | 0.7800 | 0.7800 | 0.7800           | 0.7800 | 0.7800 | 0.7800           | 0.7800 | 0.7800 |
| 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          | 28     | 0      | 30         | 17     | 6      | 13               | 42     | 0      | 1                | 46     | 16     |
| Total Analysis Volume [veh/h]               | 6          | 112    | 1      | 119        | 69     | 26     | 54               | 167    | 1      | 5                | 182    | 63     |
| 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            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lag      | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 28      | 0       | 20       | 37      | 0       | 14       | 31      | 0       | 11       | 26      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 16      | 0       | 0        | 13      | 0       | 0        | 12      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    | 79    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 1     | 18    | 18    | 9     | 27    | 27    | 7     | 26    | 26    | 1     | 20    | 20    |
| g / C, Green / Cycle                    | 0.01  | 0.23  | 0.23  | 0.12  | 0.34  | 0.34  | 0.09  | 0.34  | 0.34  | 0.01  | 0.25  | 0.25  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.06  | 0.00  | 0.07  | 0.04  | 0.02  | 0.03  | 0.09  | 0.00  | 0.00  | 0.10  | 0.04  |
| s, saturation flow rate [veh/h]         | 1738  | 1825  | 1551  | 1738  | 1825  | 1551  | 1738  | 1825  | 1551  | 1738  | 1825  | 1551  |
| c, Capacity [veh/h]                     | 15    | 427   | 363   | 206   | 628   | 534   | 155   | 612   | 520   | 13    | 462   | 393   |
| d1, Uniform Delay [s]                   | 38.83 | 24.60 | 23.11 | 32.85 | 17.61 | 17.23 | 33.70 | 19.16 | 17.42 | 38.91 | 24.40 | 22.90 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 16.04 | 0.32  | 0.00  | 2.55  | 0.08  | 0.04  | 1.33  | 0.24  | 0.00  | 17.84 | 0.55  | 0.19  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |        |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| X, volume / capacity                  | 0.40  | 0.26  | 0.00  | 0.58  | 0.11  | 0.05  | 0.35  | 0.27  | 0.00  | 0.39  | 0.39   | 0.16  |
| d, Delay for Lane Group [s/veh]       | 54.88 | 24.93 | 23.11 | 35.40 | 17.69 | 17.27 | 35.02 | 19.40 | 17.42 | 56.75 | 24.95  | 23.09 |
| Lane Group LOS                        | D     | C     | C     | D     | B     | B     | D     | B     | B     | E     | C      | C     |
| Critical Lane Group                   | No    | Yes   | No    | Yes   | No    | No    | Yes   | No    | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.17  | 1.55  | 0.01  | 2.09  | 0.75  | 0.28  | 0.99  | 2.14  | 0.01  | 0.16  | 2.74   | 0.89  |
| 50th-Percentile Queue Length [ft/ln]  | 4.34  | 38.85 | 0.33  | 52.27 | 18.80 | 6.95  | 24.81 | 53.39 | 0.29  | 3.93  | 68.39  | 22.16 |
| 95th-Percentile Queue Length [veh/ln] | 0.31  | 2.80  | 0.02  | 3.76  | 1.35  | 0.50  | 1.79  | 3.84  | 0.02  | 0.28  | 4.92   | 1.60  |
| 95th-Percentile Queue Length [ft/ln]  | 7.80  | 69.93 | 0.59  | 94.09 | 33.84 | 12.51 | 44.65 | 96.10 | 0.52  | 7.07  | 123.10 | 39.89 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 54.88 | 24.93 | 23.11 | 35.40 | 17.69 | 17.27 | 35.02 | 19.40 | 17.42 | 56.75 | 24.95 | 23.09 |
| Movement LOS                    | D     | C     | C     | D     | B     | B     | D     | B     | B     | E     | C     | C     |
| d_A, Approach Delay [s/veh]     | 26.42 |       |       | 27.48 |       |       | 23.19 |       |       | 25.12 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 25.41 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.261 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 29.06 | 29.06 | 29.06 | 29.06 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.213 | 2.386 | 2.255 | 2.367 |
| 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]           | 560   | 789   | 636   | 509   |
| d_b, Bicycle Delay [s]                                   | 20.37 | 14.41 | 18.27 | 21.84 |
| I_b,int, Bicycle LOS Score for Intersection              | 1.758 | 1.949 | 1.928 | 2.060 |
| Bicycle LOS  | A     | A     | A     | B     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: Hwy 139 / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 24.2  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.205 |

**Intersection Setup**

| Name                         | Hwy 139    |        |        | Hwy 139    |        |        | Skyline Rd |        |        | Skyline 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 | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      | 1          | 0      | 1      |
| Entry Pocket Length [ft]     | 500.00     | 100.00 | 225.00 | 500.00     | 100.00 | 200.00 | 100.00     | 100.00 | 100.00 | 375.00     | 100.00 | 200.00 |
| 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]                  | 55.00      |        |        | 55.00      |        |        | 35.00      |        |        | 55.00      |        |        |
| Grade [%]                    | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        | 0.00       |        |        |
| Curb Present                 | No         |        |        | No         |        |        | No         |        |        | No         |        |        |
| Crosswalk                    | Yes        |        |        | Yes        |        |        | Yes        |        |        | Yes        |        |        |

**Volumes**

| Name  | Hwy 139 |        |        | Hwy 139 |        |        | Skyline Rd |        |        | Skyline Rd |        |        |
|---|---------|--------|--------|---------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h]                   | 37      | 52     | 35     | 61      | 142    | 21     | 9          | 62     | 26     | 25         | 96     | 40     |
| 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 [%]               | 3.00    | 3.00   | 3.00   | 3.00    | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   |
| Proportion of CAVs [%]                      | 0.00    |        |        |         |        |        |            |        |        |            |        |        |
| Growth Factor                               | 1.2000  | 1.2000 | 1.2000 | 1.2000  | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 |
| In-Process Volume [veh/h]                   | 0       | 0      | 0      | 0       | 0      | 0      | 0          | 0      | 0      | 0          | 0      | 0      |
| Site-Generated Trips [veh/h]                | 0       | 0      | 6      | 11      | 0      | 0      | 0          | 0      | 0      | 6          | 0      | 11     |
| 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      | 25     | 0       | 0      | 13     | 0          | 0      | 16     | 0          | 0      | 31     |
| Total Hourly Volume [veh/h]                 | 44      | 62     | 23     | 84      | 170    | 12     | 11         | 74     | 15     | 36         | 115    | 28     |
| 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]              | 12      | 17     | 6      | 23      | 47     | 3      | 3          | 21     | 4      | 10         | 32     | 8      |
| Total Analysis Volume [veh/h]               | 49      | 69     | 26     | 93      | 189    | 13     | 12         | 82     | 17     | 40         | 128    | 31     |
| 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            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 90                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       | 10       | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 18       | 28      | 0       | 26       | 36      | 0       | 6        | 30      | 0       | 14       | 35      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 23      | 0       | 0        | 17      | 0       | 0        | 17      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 73    | 73    | 73    | 73    | 73    | 73    | 73    | 73    | 73    | 73    | 73    | 73    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 3     | 17    | 17    | 9     | 22    | 22    | 1     | 17    | 17    | 6     | 22    | 22    |
| g / C, Green / Cycle                    | 0.04  | 0.24  | 0.24  | 0.12  | 0.31  | 0.31  | 0.02  | 0.24  | 0.24  | 0.08  | 0.30  | 0.30  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.04  | 0.02  | 0.05  | 0.10  | 0.01  | 0.01  | 0.04  | 0.01  | 0.02  | 0.07  | 0.02  |
| s, saturation flow rate [veh/h]         | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  |
| c, Capacity [veh/h]                     | 78    | 438   | 373   | 207   | 575   | 488   | 27    | 444   | 377   | 137   | 559   | 475   |
| d1, Uniform Delay [s]                   | 34.21 | 22.05 | 21.58 | 29.93 | 19.31 | 17.49 | 35.53 | 22.05 | 21.30 | 31.70 | 19.10 | 18.13 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 8.12  | 0.17  | 0.08  | 1.51  | 0.33  | 0.02  | 10.73 | 0.20  | 0.05  | 1.17  | 0.21  | 0.06  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity                  | 0.63  | 0.16  | 0.07  | 0.45  | 0.33  | 0.03  | 0.44  | 0.18  | 0.05  | 0.29  | 0.23  | 0.07  |
| d, Delay for Lane Group [s/veh]       | 42.34 | 22.21 | 21.66 | 31.44 | 19.64 | 17.51 | 46.26 | 22.25 | 21.35 | 32.87 | 19.30 | 18.19 |
| Lane Group LOS                        | D     | C     | C     | C     | B     | B     | D     | C     | C     | C     | B     | B     |
| Critical Lane Group                   | Yes   | No    | No    | No    | Yes   | No    | Yes   | No    | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.94  | 0.84  | 0.31  | 1.44  | 2.14  | 0.13  | 0.28  | 1.07  | 0.22  | 0.64  | 1.42  | 0.33  |
| 50th-Percentile Queue Length [ft/ln]  | 23.62 | 20.90 | 7.73  | 36.00 | 53.42 | 3.32  | 7.09  | 26.85 | 5.38  | 16.04 | 35.44 | 8.15  |
| 95th-Percentile Queue Length [veh/ln] | 1.70  | 1.50  | 0.56  | 2.59  | 3.85  | 0.24  | 0.51  | 1.93  | 0.39  | 1.15  | 2.55  | 0.59  |
| 95th-Percentile Queue Length [ft/ln]  | 42.51 | 37.62 | 13.91 | 64.80 | 96.15 | 5.97  | 12.77 | 48.33 | 9.69  | 28.87 | 63.79 | 14.68 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 42.34 | 22.21 | 21.66 | 31.44 | 19.64 | 17.51 | 46.26 | 22.25 | 21.35 | 32.87 | 19.30 | 18.19 |
| Movement LOS                    | D     | C     | C     | C     | B     | B     | D     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 28.96 |       |       | 23.27 |       |       | 24.71 |       |       | 21.86 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 24.20 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.205 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0  | 11.0  | 11.0  |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 0.00  | 0.00  | 0.00  |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 0.00  | 0.00  | 0.00  |
| d_p, Pedestrian Delay [s]                                | 26.13 | 26.13 | 26.13 | 26.13 |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.347 | 2.339 | 2.236 | 2.367 |
| 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]           | 606   | 826   | 661   | 799   |
| d_b, Bicycle Delay [s]                                   | 17.63 | 12.50 | 16.27 | 13.09 |
| I_b,int, Bicycle LOS Score for Intersection              | 1.838 | 2.068 | 1.769 | 1.939 |
| Bicycle LOS  | A     | B     | A     | A     |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 2: Skyline Rd / Project Dwy**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Two-way stop    | Delay (sec / veh):        | 14.6  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | B     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.073 |

**Intersection Setup**

| Name                         | Skyline Rd |        | Skyline Rd |        | Project Dwy |        |
|------------------------------|------------|--------|------------|--------|-------------|--------|
| Approach                     | Northbound |        | Southbound |        | Westbound   |        |
| Lane Configuration           | ↕↔         |        | ↔↕         |        | ↔           |        |
| Turning Movement             | Thru       | Right  | Left       | Thru   | Left        | 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           | 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]                  | 55.00      |        | 55.00      |        | 25.00       |        |
| Grade [%]                    | 0.00       |        | 0.00       |        | 0.00        |        |
| Crosswalk                    | Yes        |        | Yes        |        | Yes         |        |

**Volumes**

| Name                                    | Skyline Rd |        | Skyline Rd |        | Project Dwy |        |
|---|------------|--------|------------|--------|-------------|--------|
| Base Volume Input [veh/h]               | 164        | 0      | 0          | 155    | 0           | 0      |
| Base Volume Adjustment Factor           | 1.0000     | 1.0000 | 1.0000     | 1.0000 | 1.0000      | 1.0000 |
| Heavy Vehicles Percentage [%]           | 2.00       | 90.00  | 90.00      | 2.00   | 90.00       | 90.00  |
| Growth Factor                           | 1.2000     | 1.2000 | 1.2000     | 1.2000 | 1.2000      | 1.2000 |
| In-Process Volume [veh/h]               | 0          | 0      | 0          | 0      | 0           | 0      |
| Site-Generated Trips [veh/h]            | 0          | 26     | 17         | 0      | 26          | 17     |
| 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]             | 197        | 26     | 17         | 186    | 26          | 17     |
| 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]          | 56         | 7      | 5          | 53     | 7           | 5      |
| Total Analysis Volume [veh/h]           | 224        | 30     | 19         | 211    | 30          | 19     |
| Pedestrian Volume [ped/h]               | 0          |        | 0          |        | 0           |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| 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 | 0.00 | 0.02 | 0.00 | 0.07  | 0.03  |
| d_M, Delay for Movement [s/veh]       | 0.00 | 0.00 | 8.94 | 0.00 | 14.63 | 11.50 |
| Movement LOS                          | A    | A    | A    | A    | B     | B     |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.06 | 0.00 | 0.34  | 0.34  |
| 95th-Percentile Queue Length [ft/ln]  | 0.00 | 0.00 | 1.56 | 0.00 | 8.54  | 8.54  |
| d_A, Approach Delay [s/veh]           | 0.00 |      | 0.74 |      | 13.42 |       |
| Approach LOS                          | A    |      | A    |      | B     |       |
| d_I, Intersection Delay [s/veh]       | 1.55 |      |      |      |       |       |
| Intersection LOS                      | B    |      |      |      |       |       |

**Intersection Level Of Service Report**  
**Intersection 3: Johnstonville Rd / Skyline Rd**

|                  |                 |                           |       |
|------------------|-----------------|---------------------------|-------|
| Control Type:    | Signalized      | Delay (sec / veh):        | 24.4  |
| Analysis Method: | HCM 7th Edition | Level Of Service:         | C     |
| Analysis Period: | 15 minutes      | Volume to Capacity (v/c): | 0.262 |

**Intersection Setup**

| Name                         | Skyline Rd |        |       | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville 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 | 1          | 0      | 1     | 1          | 0      | 1      | 1                | 0      | 1      | 1                | 0      | 1      |
| Entry Pocket Length [ft]     | 250.00     | 100.00 | 50.00 | 450.00     | 100.00 | 100.00 | 200.00           | 100.00 | 100.00 | 300.00           | 100.00 | 200.00 |
| 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]                  | 55.00      |        |       | 55.00      |        |        | 35.00            |        |        | 35.00            |        |        |
| Grade [%]                    | 0.00       |        |       | 0.00       |        |        | 0.00             |        |        | 0.00             |        |        |
| Curb Present                 | No         |        |       | No         |        |        | No               |        |        | No               |        |        |
| Crosswalk                    | Yes        |        |       | Yes        |        |        | Yes              |        |        | Yes              |        |        |

**Volumes**

| Name  | Skyline Rd |        |        | Skyline Rd |        |        | Johnstonville Rd |        |        | Johnstonville Rd |        |        |
|---|------------|--------|--------|------------|--------|--------|------------------|--------|--------|------------------|--------|--------|
|   |            |        |        |            |        |        |                  |        |        |                  |        |        |
| Base Volume Input [veh/h]                   | 3          | 40     | 11     | 71         | 50     | 30     | 37               | 144    | 6      | 4                | 165    | 89     |
| 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 [%]               | 3.00       | 3.00   | 3.00   | 3.00       | 3.00   | 3.00   | 3.00             | 3.00   | 3.00   | 3.00             | 3.00   | 3.00   |
| Proportion of CAVs [%]                      | 0.00       |        |        |            |        |        |                  |        |        |                  |        |        |
| Growth Factor                               | 1.2000     | 1.2000 | 1.2000 | 1.2000     | 1.2000 | 1.2000 | 1.2000           | 1.2000 | 1.2000 | 1.2000           | 1.2000 | 1.2000 |
| In-Process Volume [veh/h]                   | 0          | 0      | 0      | 0          | 0      | 0      | 0                | 0      | 0      | 0                | 0      | 0      |
| Site-Generated Trips [veh/h]                | 0          | 13     | 0      | 11         | 13     | 2      | 2                | 0      | 0      | 0                | 0      | 11     |
| 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      | 7      | 0          | 0      | 20     | 0                | 0      | 4      | 0                | 0      | 61     |
| Total Hourly Volume [veh/h]                 | 4          | 61     | 6      | 96         | 73     | 18     | 46               | 173    | 3      | 5                | 198    | 57     |
| Peak Hour Factor                            | 0.8400     | 0.8400 | 0.8400 | 0.8400     | 0.8400 | 0.8400 | 0.8400           | 0.8400 | 0.8400 | 0.8400           | 0.8400 | 0.8400 |
| 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          | 18     | 2      | 29         | 22     | 5      | 14               | 51     | 1      | 1                | 59     | 17     |
| Total Analysis Volume [veh/h]               | 5          | 73     | 7      | 114        | 87     | 21     | 55               | 206    | 4      | 6                | 236    | 68     |
| 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          |        |        | 1          |        |        | 0                |        |        | 1                |        |        |
| v_di, Inbound Pedestrian Volume crossing m  | 0          |        |        | 1          |        |        | 0                |        |        | 1                |        |        |
| 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          |        |        | 1                |        |        | 0                |        |        |

**Intersection Settings**

|                           |                                       |
|---------------------------|---------------------------------------|
| Located in CBD            | No                                    |
| Signal Coordination Group | -                                     |
| Cycle Length [s]          | 95                                    |
| 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]             | 0.00                                  |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal Group                 | 1        | 6       | 0       | 5        | 2       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lag      | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 20      | 0       | 10       | 20      | 0       | 10       | 20      | 0       | 5        | 20      | 0       |
| Maximum Green [s]            | 30       | 50      | 0       | 30       | 50      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| All red [s]                  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Split [s]                    | 11       | 33      | 0       | 18       | 40      | 0       | 16       | 33      | 0       | 11       | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       | 0        | 7       | 0       |
| Pedestrian Clearance [s]     | 0        | 15      | 0       | 0        | 16      | 0       | 0        | 13      | 0       | 0        | 12      | 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]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     | 4.0      | 4.0     | 0.0     |
| Minimum Recall               | No       | Yes     |         | No       | Yes     |         | No       | No      |         | No       | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No       | No      |         | No       | No      |         |
| 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    |

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s]                     | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    | 76    |
| L, Total Lost Time per Cycle [s]        | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  | 6.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| g_i, Effective Green Time [s]           | 1     | 16    | 16    | 9     | 25    | 25    | 7     | 26    | 26    | 1     | 20    | 20    |
| g / C, Green / Cycle                    | 0.01  | 0.21  | 0.21  | 0.12  | 0.33  | 0.33  | 0.09  | 0.34  | 0.34  | 0.01  | 0.26  | 0.26  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.04  | 0.00  | 0.06  | 0.05  | 0.01  | 0.03  | 0.11  | 0.00  | 0.00  | 0.13  | 0.04  |
| s, saturation flow rate [veh/h]         | 1767  | 1855  | 1577  | 1767  | 1855  | 1577  | 1767  | 1855  | 1543  | 1767  | 1855  | 1571  |
| c, Capacity [veh/h]                     | 12    | 399   | 339   | 211   | 608   | 517   | 161   | 637   | 530   | 15    | 484   | 410   |
| d1, Uniform Delay [s]                   | 37.86 | 24.56 | 23.70 | 31.72 | 18.16 | 17.54 | 32.66 | 18.56 | 16.54 | 37.79 | 23.96 | 21.86 |
| k, delay calibration                    | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, 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  |
| d2, Incremental Delay [s]               | 19.50 | 0.22  | 0.02  | 2.13  | 0.11  | 0.03  | 1.25  | 0.29  | 0.01  | 17.23 | 0.76  | 0.19  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 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  | 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  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                       |       |       |       |       |       |       |       |        |       |       |        |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity                  | 0.40  | 0.18  | 0.02  | 0.54  | 0.14  | 0.04  | 0.34  | 0.32   | 0.01  | 0.41  | 0.49   | 0.17  |
| d, Delay for Lane Group [s/veh]       | 57.36 | 24.78 | 23.72 | 33.85 | 18.27 | 17.58 | 33.91 | 18.85  | 16.55 | 55.02 | 24.73  | 22.05 |
| Lane Group LOS                        | E     | C     | C     | C     | B     | B     | C     | B      | B     | E     | C      | C     |
| Critical Lane Group                   | No    | Yes   | No    | Yes   | No    | No    | Yes   | No     | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh/ln] | 0.15  | 0.99  | 0.09  | 1.91  | 0.96  | 0.22  | 0.98  | 2.56   | 0.04  | 0.18  | 3.50   | 0.92  |
| 50th-Percentile Queue Length [ft/ln]  | 3.83  | 24.65 | 2.28  | 47.85 | 23.88 | 5.58  | 24.39 | 64.00  | 1.11  | 4.46  | 87.59  | 22.88 |
| 95th-Percentile Queue Length [veh/ln] | 0.28  | 1.78  | 0.16  | 3.45  | 1.72  | 0.40  | 1.76  | 4.61   | 0.08  | 0.32  | 6.31   | 1.65  |
| 95th-Percentile Queue Length [ft/ln]  | 6.89  | 44.38 | 4.11  | 86.13 | 42.98 | 10.04 | 43.91 | 115.20 | 1.99  | 8.02  | 157.67 | 41.19 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 57.36 | 24.78 | 23.72 | 33.85 | 18.27 | 17.58 | 33.91 | 18.85 | 16.55 | 55.02 | 24.73 | 22.05 |
| Movement LOS                    | E     | C     | C     | C     | B     | B     | C     | B     | B     | E     | C     | C     |
| d_A, Approach Delay [s/veh]     | 26.61 |       |       | 26.21 |       |       | 21.94 |       |       | 24.73 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 24.44 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.262 |       |       |       |       |       |       |       |       |       |       |       |

**Other Modes**

|  |       |          |       |         |
|--|-------|----------|-------|---------|
| g_Walk,mi, Effective Walk Time [s]                       | 11.0  | 11.0     | 11.0  | 11.0    |
| M_corner, Corner Circulation Area [ft <sup>2</sup> /ped] | 0.00  | 1557.49  | 0.00  | 1557.49 |
| M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]  | 0.00  | 12355.43 | 0.00  | 0.00    |
| d_p, Pedestrian Delay [s]                                | 28.02 | 28.02    | 28.02 | 28.02   |
| I_p,int, Pedestrian LOS Score for Intersectio            | 2.218 | 2.373    | 2.284 | 2.409   |
| 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]           | 706   | 889      | 706   | 575     |
| d_b, Bicycle Delay [s]                                   | 16.00 | 11.79    | 16.00 | 19.39   |
| I_b,int, Bicycle LOS Score for Intersection              | 1.711 | 1.959    | 2.003 | 2.172   |
| Bicycle LOS  | A     | A        | B     | B       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

