



# Ottawa Business Center

## TRAFFIC ANALYSIS

### CITY OF VICTORVILLE

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## **LIST OF ABBREVIATED TERMS**

|          |  |
|----------|--|
| (1)      | Reference  |
| ADT      | Average Daily Traffic                                |
| APN      | Assessor's Parcel Number                             |
| CA MUTCD | California Manual on Uniform Traffic Control Devices |
| Caltrans | California Department of Transportation              |
| CEQA     | California Environmental Quality Act                 |
| CMP      | Congestion Management Program                        |
| DIF      | Development Impact Fee                               |
| OYC      | Opening Year Cumulative                              |
| GHG      | Greenhouse Gas                                       |
| HCM      | Highway Capacity Manual                              |
| ITE      | Institute of Transportation Engineers                |
| LOS      | Level of Service                                     |
| NP       | Without Project                                      |
| OPR      | Office of Planning and Research                      |
| PCE      | Passenger Car Equivalents                            |
| PHF      | Peak Hour Factor                                     |
| Project  | Ottawa Business Center                               |
| RTP      | Regional Transportation Plan                         |
| RCTA     | Riverside County Transportation Authority            |
| SCS      | Sustainable Communities Strategy                     |
| sf       | Square Feet  |
| TA       | Traffic Analysis                                     |
| v/c      | Volume to Capacity                                   |
| VMT      | Vehicle Miles Traveled                               |
| vphgpl   | Vehicles per Hour Green per Lane                     |
| VVTA     | Victor Valley Transit Authority                      |
| WP       | With Project   |

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# 1 SUMMARY OF FINDINGS

This report presents the results of the traffic analysis (TA) for the proposed Ottawa Business Center (“Project”), which is located at the northeast corner of Hesperia Road and Ottawa Street in the City of Victorville. The Project’s location in relation to the surrounding area is shown on Exhibit 1-1.

The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with General Plan level of service goals and policies. This TA has been prepared in accordance with the City of Victorville’s General Guidelines For Conducting Traffic Studies and Determination of Intersection Level of Service and Improvement Needs (January 20, 2005) and the County of San Bernardino’s Transportation Impact Study (July 9, 2019). (1) (2) The City approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TA.

## 1.1 SUMMARY OF FINDINGS

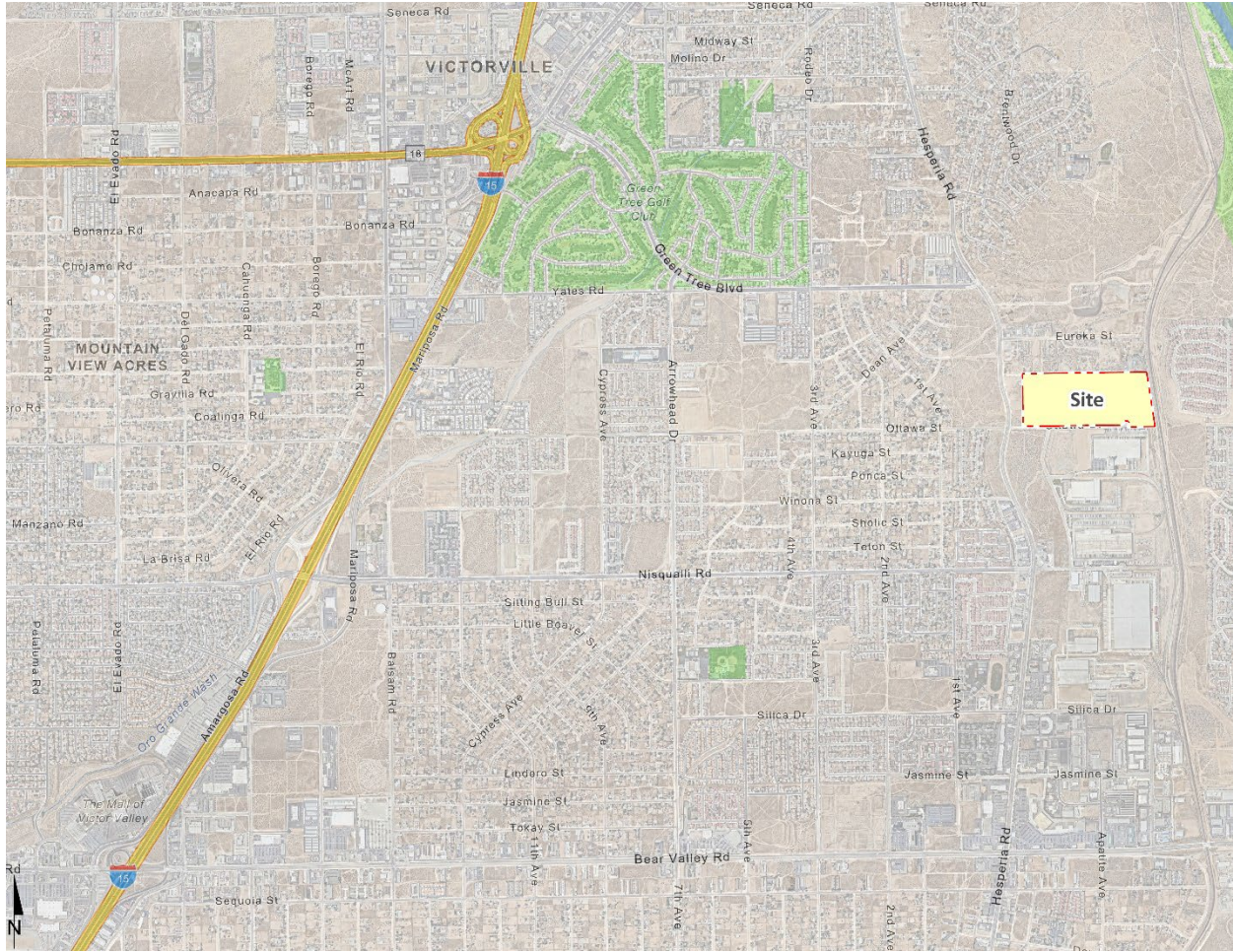
The Project is to construct the following improvements as design features in conjunction with development of the site:

- Project to install a stop control on the southbound approach (Project Driveway). Driveway to allow for full access for passenger cars and trucks.
- Project to install a stop control on the westbound approach (Project Driveway). Driveway to provide access for passenger cars and trucks.
- Project to install a traffic signal at the intersection of Hesperia Road and Ottawa Street. The Project shall also stripe a northbound left turn lane with a minimum of 100-feet of storage, a southbound left turn lane with a minimum of 200-feet of storage, and a westbound left turn lane with a minimum of 200-feet of storage. Project to construct a northbound right turn deceleration lane with a minimum of 100-feet of storage and a northbound acceleration lane north of Ottawa Street.
- Project to construct its ultimate half-section along Ottawa Street as an Arterial (84-foot right-of-way) from the western Project boundary to the eastern terminus of the roadway consistent with the City’s standards.

Additional details and intersection lane geometrics are provided in Section 1.6 *Recommendations* of this report.

The development of the proposed Project is not anticipated to require the construction of any off-site improvements, however, there are improvement needs identified at off-site intersections for future traffic analysis scenarios where the Project would contribute traffic (as measured by 50 or more peak hour trips). As such, the Project Applicant’s responsibility for the Project’s contributions towards off-site intersection deficiencies is fulfilled through payment of fair share or participation in the pre-existing fee programs that would be assigned to construction of the identified recommended improvements.

### EXHIBIT 1-1: LOCATION MAP



The Project Applicant would be required to pay requisite fair share contributions and fee payments consistent with the City's requirements (see Section 7 *Local and Regional Funding Mechanisms*).

## 1.2 PROJECT OVERVIEW

Exhibit 1-2 illustrates the preliminary Project site plan. The Project is proposed to consist of 200,000 square feet of high-cube cold storage warehouse use and 796,520 square feet of high-cube fulfillment center warehouse use. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024. Regional access to the Project site will be provided by the I-15 Freeway via Nisqualli Road.

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10<sup>th</sup> Edition, 2017) and the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) for the following land use codes: (3) (4)

- High-Cube Cold Storage Warehouse (ITE Land Use Code 157)
- High-Cube Fulfillment Center Warehouse (WSP)

The proposed Project is anticipated to generate 2,124 two-way daily trips with 119 AM peak hour trips and 154 PM peak hour trips (actual vehicles). The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

## 1.3 ANALYSIS SCENARIOS

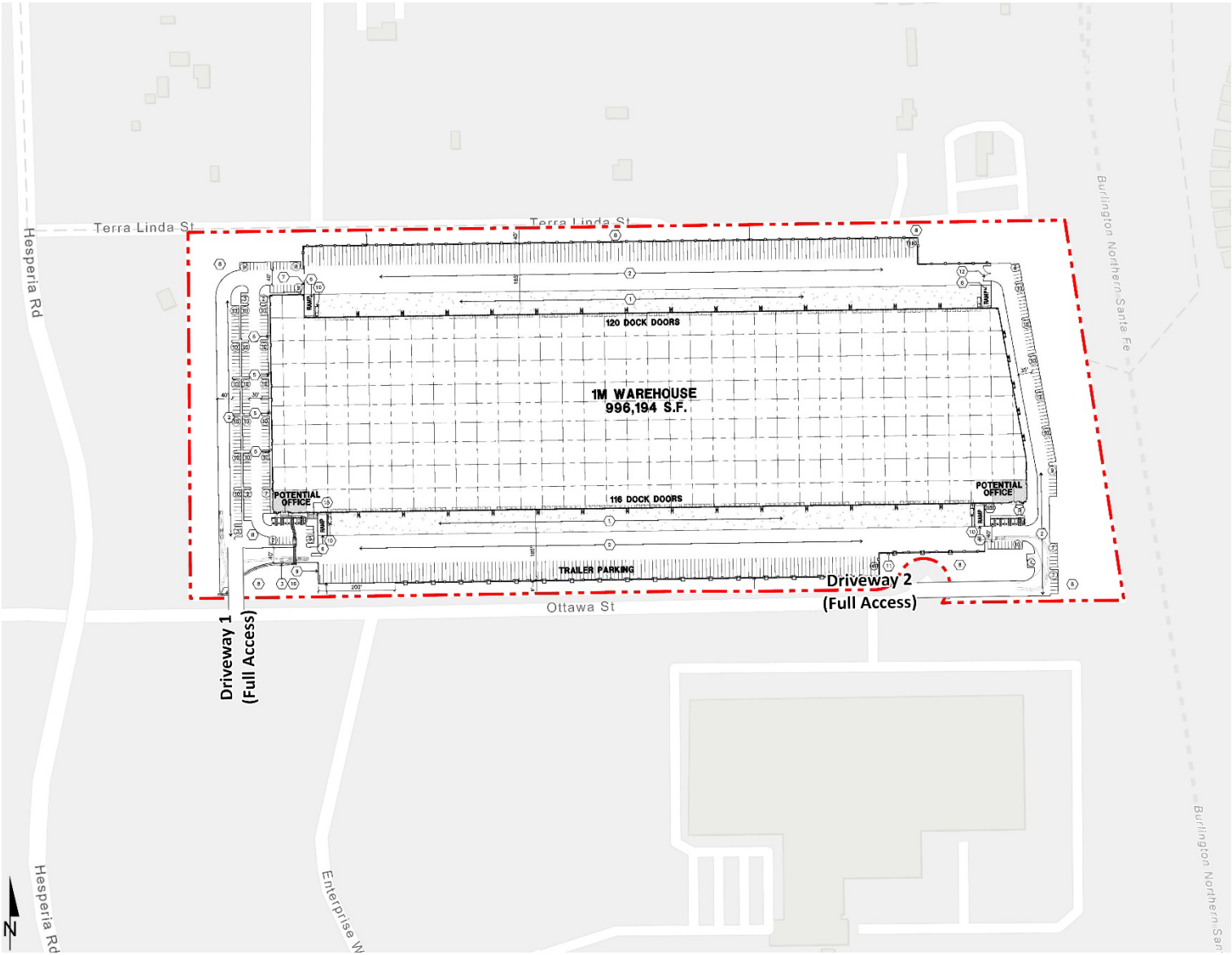
For the purposes of this TA, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2021)
- Opening Year Cumulative (2024) Without Project Conditions
- Opening Year Cumulative (2024) With Project Conditions
- Future Year (2034) Without Project Conditions
- Future Year (2034) With Project Conditions

### 1.3.1 EXISTING (2021) CONDITIONS

Information for Existing (2021) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Due to the currently ongoing COVID-19 pandemic, schools and businesses within the study area were closed or operating at less than full capacity at the time this study was prepared. As such, a historic 2009 traffic count was utilized in conjunction with a 1.68% per year growth rate (compounded annually) to reflect 2021 conditions.

EXHIBIT 1-2: PRELIMINARY SITE PLAN



The growth rate is an average of the Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS, or SoCal Connect) population, household, and employment growth projections between 2016 and 2045. (5)

### **1.3.2 OPENING YEAR CUMULATIVE (2024) CONDITIONS**

The Opening Year Cumulative (OYC) conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth from Existing (2021) conditions of 6.12% is included for Opening Year Cumulative (2024) traffic. This list of cumulative development projects was compiled from information provided by the City of Victorville and is consistent with other recent studies in the study area.

### **1.3.3 FUTURE YEAR (2034) CONDITIONS**

The Future Year (2034) conditions analysis determines the potential longer-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth from Existing (2021) conditions of 29.36% is included for Future Year (2034) traffic. This list of cumulative development projects was compiled from information provided by the City of Victorville and is consistent with other recent studies in the study area.

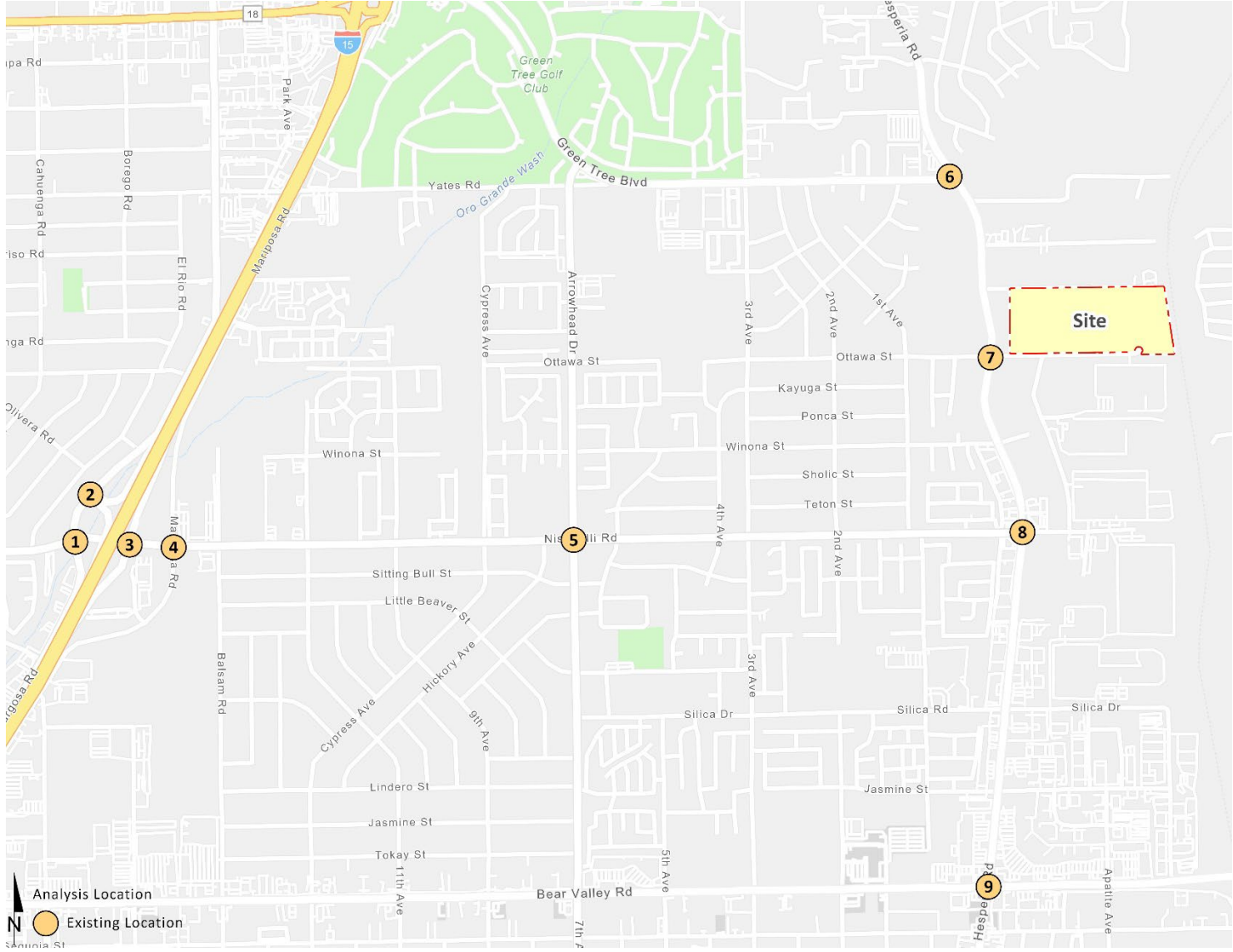
## **1.4 STUDY AREA**

To ensure that this TA satisfies the City of Victorville’s requirements, Urban Crossroads, Inc. prepared a TA scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology (see Appendix 1.1).

### **1.4.1 INTERSECTIONS**

The following 9 study area intersections shown on Exhibit 1-2 and listed on Table 1-1 were selected for this TA based on consultation with City of Victorville staff. The “50 peak hour trip” criterion generally represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely utilized tool for estimating a potential area of influence (i.e., study area).

EXHIBIT 1-3: STUDY AREA





**TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS**

| ID | Intersection                               | Jurisdiction          | CMP? |
|----|--|-----------------------|------|
| 1  | Amargosa Rd. & La Mesa Rd.                 | Victorville           | No   |
| 2  | Amargosa Rd. & I-15 SB Ramps               | Victorville, Caltrans | No   |
| 3  | I-15 NB Ramps & Nisqualli Rd.              | Victorville, Caltrans | No   |
| 4  | Mariposa Rd. & Nisqualli Rd.               | Victorville           | No   |
| 5  | Seventh Ave./Arrowhead Dr. & Nisqualli Rd. | Victorville           | No   |
| 6  | Hesperia Rd. & Green Tree Bl.              | Victorville           | No   |
| 7  | Hesperia Rd. & Ottawa St.                  | Victorville           | No   |
| 8  | Hesperia Rd. & Nisqualli Rd.               | Victorville           | No   |
| 9  | Hesperia Rd. & Bear Valley Rd.             | Victorville, Hesperia | No   |

The intent of the Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. There are no study area intersections identified as a County of San Bernardino CMP location.

### 1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 3 *Area Conditions*, Section 5 *Opening Year Cumulative (2024) Traffic Conditions*, and Section 6 *Future Year (2034) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Table 1-3.

**TABLE 1-3: SUMMARY OF INTERSECTION LEVEL OF SERVICE BY ANALYSIS SCENARIO**

| # | Intersection                               | Existing (2021) |    | OYC (2024) NP |    | OYC (2024) WP |    | 2034 NP |    | 2034 WP |    |
|---|--|-----------------|----|---------------|----|---------------|----|---------|----|---------|----|
|   |  | AM              | PM | AM            | PM | AM            | PM | AM      | PM | AM      | PM |
| 1 | Amargosa Rd. & La Mesa Rd.                 | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |
| 2 | Amargosa Rd. & I-15 SB Ramps               | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |
| 3 | I-15 NB Ramps & Nisqualli Rd.              | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |
| 4 | Mariposa Rd. & Nisqualli Rd.               | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |
| 5 | Seventh Ave./Arrowhead Dr. & Nisqualli Rd. | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |
| 6 | Hesperia Rd. & Green Tree Bl.              | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |
| 7 | Hesperia Rd. & Ottawa St.                  | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |
| 8 | Hesperia Rd. & Nisqualli Rd.               | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |
| 9 | Hesperia Rd. & Bear Valley Rd.             | ●               | ●  | ●             | ●  | ●             | ●  | ●       | ●  | ●       | ●  |

● = A - D   ● = E   ● = F

### 1.5.1 EXISTING (2021) CONDITIONS

#### *Intersections*

The following study area intersection currently operates at an unacceptable LOS during one or more peak hours under Existing (2021) traffic conditions:

- Hesperia Road & Bear Valley Road (#9) – LOS E PM peak hour only

#### *Queues*

The study area movements currently operate without queuing issues during the weekday AM and weekday PM peak 95<sup>th</sup> percentile traffic flows for Existing (2021) traffic conditions.

### 1.5.2 OPENING YEAR CUMULATIVE (2024) CONDITIONS

#### *Intersections*

The following study area intersections are anticipated to operate at an unacceptable LOS during one or more peak hours under Opening Year Cumulative (2024) Without Project traffic conditions:

- Seventh Avenue/Arrowhead Drive & Nisqualli Road (#5) – LOS E PM peak hour only
- Hesperia Road & Nisqualli Road (#8) – LOS E PM peak hour only
- Hesperia Road & Bear Valley Road (#9) – LOS E PM peak hour only

There are no additional study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic under Opening Year Cumulative (2024) With Project traffic conditions. The Project is proposed to install a traffic signal at the intersection of Hesperia Road and Ottawa Street. This location is anticipated to operate at an acceptable LOS under With Project traffic conditions with the installation of a traffic signal.

#### *Queues*

The study area movements are anticipated to operate without queuing issues during the weekday AM and weekday PM peak 95<sup>th</sup> percentile traffic flows for Opening Year Cumulative (2024) traffic conditions. Similarly, there are no queuing issues anticipated with the addition of Project traffic.

### 1.5.3 FUTURE YEAR (2034) CONDITIONS

#### *Intersections*

The following study area intersections are anticipated to operate at an unacceptable LOS during one or more peak hours under Future Year (2034) Without Project traffic conditions:

- Amargosa Road & La Mesa Road (#1) – LOS E PM peak hour only
- Mariposa Road & Nisqualli Road (#4) – LOS E PM peak hour only
- Seventh Avenue/Arrowhead Drive & Nisqualli Road (#5) – LOS F PM peak hour only
- Hesperia Road & Ottawa Street (#7) – LOS F PM peak hour only
- Hesperia Road & Nisqualli Road (#8) – LOS F PM peak hour only
- Hesperia Road & Bear Valley Road (#9) – LOS E AM peak hour; LOS F PM peak hour

There are no additional study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic under Future Year (2034) With Project traffic conditions. The Project is proposed to install a traffic signal at the intersection of Hesperia Road and Ottawa Street, as such, this location is anticipated to operate at an acceptable LOS under With Project traffic conditions with the installation of a traffic signal.

#### *Queues*

The study area movements are anticipated to operate without queuing issues during the weekday AM and weekday PM peak 95<sup>th</sup> percentile traffic flows for Future Year (2034) traffic conditions.

## 1.6 RECOMMENDATIONS

### 1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the improvements needed to accommodate site access. The site adjacent recommendations are shown on Exhibit 1-4. The site adjacent queuing analysis results for the site adjacent study area intersections are provided in Appendix 1.2.

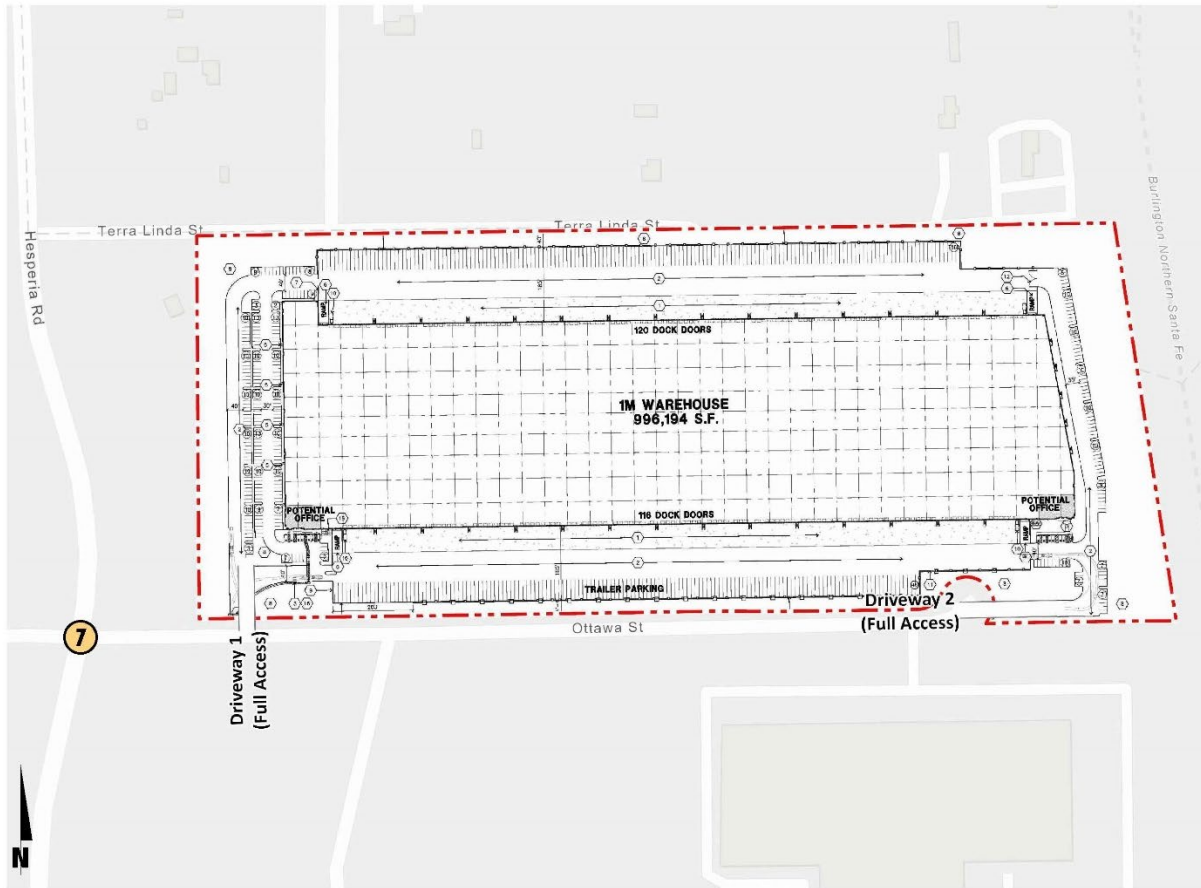
**Recommendation 1 – Project Driveway 1 & Ottawa Street** – The following improvements are necessary to accommodate site access:

- Project to install driveway stop control on the southbound approach (Project Driveway) and aprons per City standard for industrial driveways.

**Recommendation 2 – Hesperia Road & Ottawa Street (#7)** – The following improvements are necessary to accommodate existing traffic with the addition of project traffic:

- Project to install a traffic signal with protected left turn phasing for the northbound and southbound left turns, stripe a northbound left turn lane with a minimum of 100-feet of storage, stripe a southbound left turn lane with a minimum of 200-feet of storage, and stripe a westbound left turn lane with a minimum of 200-feet storage.

**EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS**



| 7 | Hesperia Rd. & Ottawa St. | Dwy. 1 & Ottawa St. | Dwy. 2 & Ottawa St. |
|---|---------------------------|---------------------|---------------------|
|   |                           |                     |                     |

- = New Traffic Signal
- = Stop Sign Improvement
- = Existing Lane
- = Lane Improvement
- 100'** = Recommended Turn Pocket Length

- Project to construct a northbound right turn deceleration lane with a minimum of 100-feet of storage and a northbound acceleration lane, north of Ottawa Street.

**Recommendation 3 – Ottawa Street** – Ottawa Street is an east-west street located along the Project’s southern boundary. The Project is to construct the ultimate half-section of Ottawa Street as an Arterial (84-foot right-of-way) along the Project’s frontage between the western Project boundary and the eastern terminus of the roadway consistent with City standards.

### 1.6.2 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the cumulative deficiencies are summarized in Table 1-4. For those improvements listed in Table 1-4 and not constructed as part of the Project, the Project Applicant’s responsibility for the Project’s contributions towards deficient intersections is fulfilled through payment of fees or fair share that would be assigned to construction of the identified recommended improvements.

## 1.7 TRUCK ACCESS AND CIRCULATION

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at the Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-5). As shown on Exhibit 1-5, the following curb radius change is necessary in order to accommodate the ingress and egress of heavy trucks:

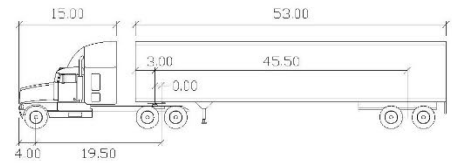
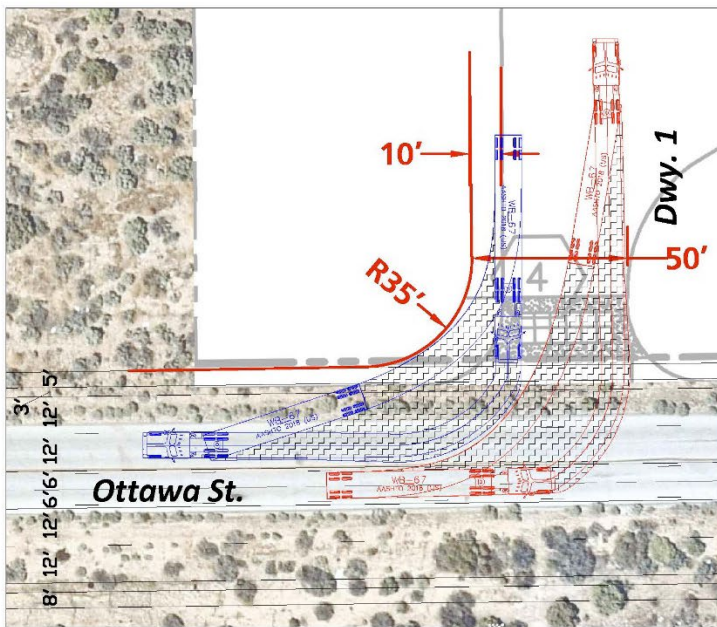
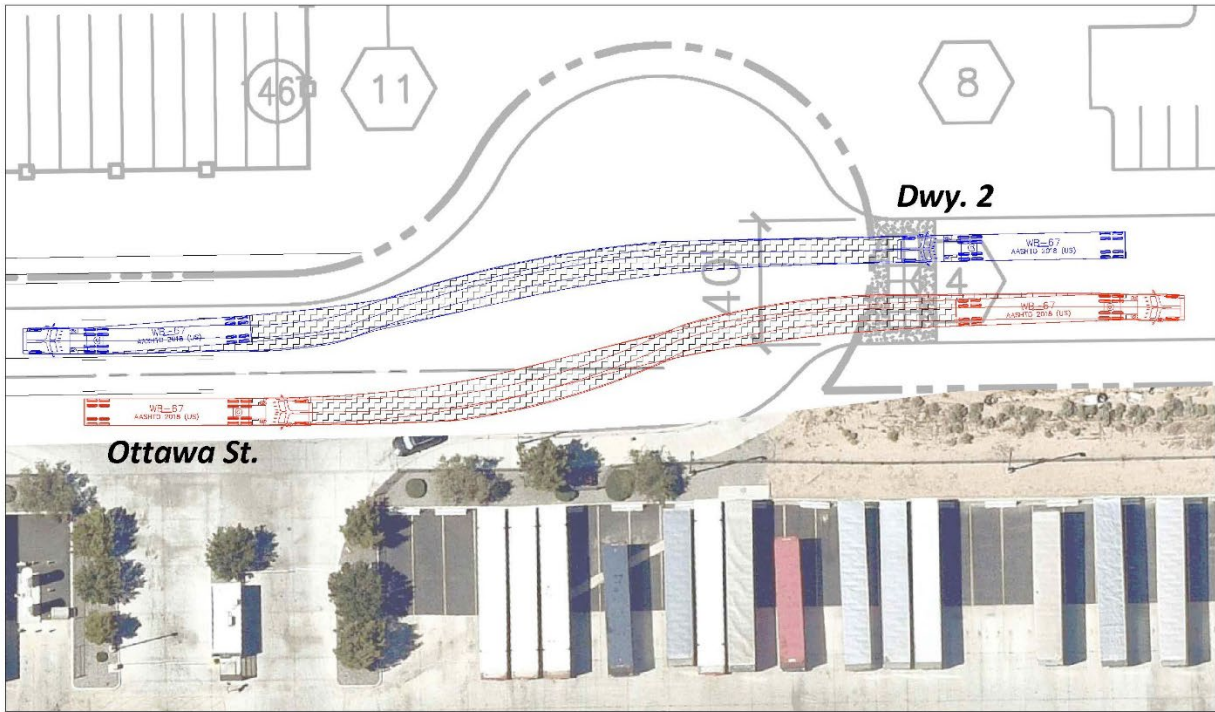
- Driveway 1 on Ottawa Street should be modified to provide a 35-foot radius on the northwest curb. In addition, the driveway should be widened by 10 feet to accommodate a 50-foot-wide driveway.

## 1.8 SIGHT DISTANCE

Per the request of the City, intersection sight distance has been evaluated for Hesperia Road & Ottawa Street. As defined by the California Department of Transportation (Caltrans) Highway Design Manual, sight distance is the continuous length of highway ahead visible to the driver.

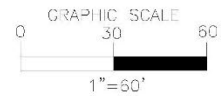
At unsignalized intersections, corner sight distance must provide a substantially clear line of sight between the driver of the vehicle waiting on the minor road and the driver of an approaching vehicle. For the purposes of this analysis, a 7 ½ second criterion has been applied to the outside travel lanes in either direction to provide the most conservative sight distance. The 7 ½ second criterion allows waiting vehicles to either cross all lanes of through traffic by turning left or cross the near lanes by turning right without requiring through traffic to radically alter their speed. It should be noted, the Project is proposing to install a traffic signal at this location as part of the Project design features.

EXHIBIT 1-5: TRUCK ACCESS



WB-67

|               | feet  |                    |      |
|---------------|-------|--------------------|------|
| Tractor Width | 16.00 | Lock to Lock Time  | 16.0 |
| Trailer Width | 8.50  | Steering Angle     | 28.4 |
| Tractor Track | 8.00  | Articulating Angle | 75.0 |
| Trailer Track | 8.50  |                    |      |



**TABLE 1-4: SUMMARY OF IMPROVEMENTS AND ROUGH ORDER OF MAGNITUDE COSTS**

| #   | Intersection Location        | Jurisdiction | Analysis Scenarios   |                                 | Improvements included in Fee Program? <sup>1</sup> | Project Responsibility <sup>2</sup> | Total Cost <sup>3</sup> | Fair Share % <sup>4</sup> | Estimated Fair Share Cost |
|---|------------------------------|--------------|--|---------------------------------|--|-------------------------------------|-------------------------|---------------------------|---------------------------|
|   |                              |              | Opening Year Cumulative (2024) With Project  | Future Year (2034) With Project |  |                                     |                         |                           |                           |
| 8   | Hesperia Rd. & Nisqualli Rd. | Victorville  | Restripe to allow for a left turn lane, two through lanes, and a right turn lane on the southbound approach. | Same                            | No   | Fair Share                          | \$42,750                | 28.4%                     | \$12,153                  |
|   |                              |              |  |                                 |  |                                     | <b>\$42,750</b>         |                           | <b>\$12,153</b>           |
| <b>Total Costs for Improvements</b>                                     |                              |              |  |                                 |  |                                     | <b>\$42,750</b>         |                           | <b>\$12,153</b>           |
| <b>Total Project Fair Share Contribution to Victorville<sup>5</sup></b> |                              |              |  |                                 |  |                                     |                         |                           | <b>\$12,153</b>           |

<sup>1</sup> Improvements included in the City of Victorville DIF program or SBCTA DIF program.

<sup>2</sup> Identifies the Project's responsibility to construct an improvement or contribute fair share or fee payment towards the implementation of the improvements shown.

<sup>3</sup> Costs have been estimated using the data provided in Appendix G of the San Bernardino County CMP (2016 Update) for preliminary construction costs. Appendix G costs escalated by a factor of 1.71 to reflect 2021 conditions, except for Traffic Signals.

<sup>4</sup> Program improvements constructed may be eligible for fee credit, at discretion of City. See Table 7-1 for Fair Share Calculations.

<sup>5</sup> Total project fair share contribution consists of the improvements which are not already included in the City of Victorville's DIF for those intersections wholly or partially within the City of Victorville.

Adequate visibility for vehicular and pedestrian traffic can be provided at the intersection by limiting sight obstructions within the limited use area. Any landscaping/hardscape within the limited use area should not exceed 30-inches (2.5-feet) in height. The limited use area should be kept clear of any landscaping or any other obstructions that may impede the visibility of the driver, including on-street parking. Minimum corner sight distance for the Project driveways is illustrated on Exhibit 1-6.

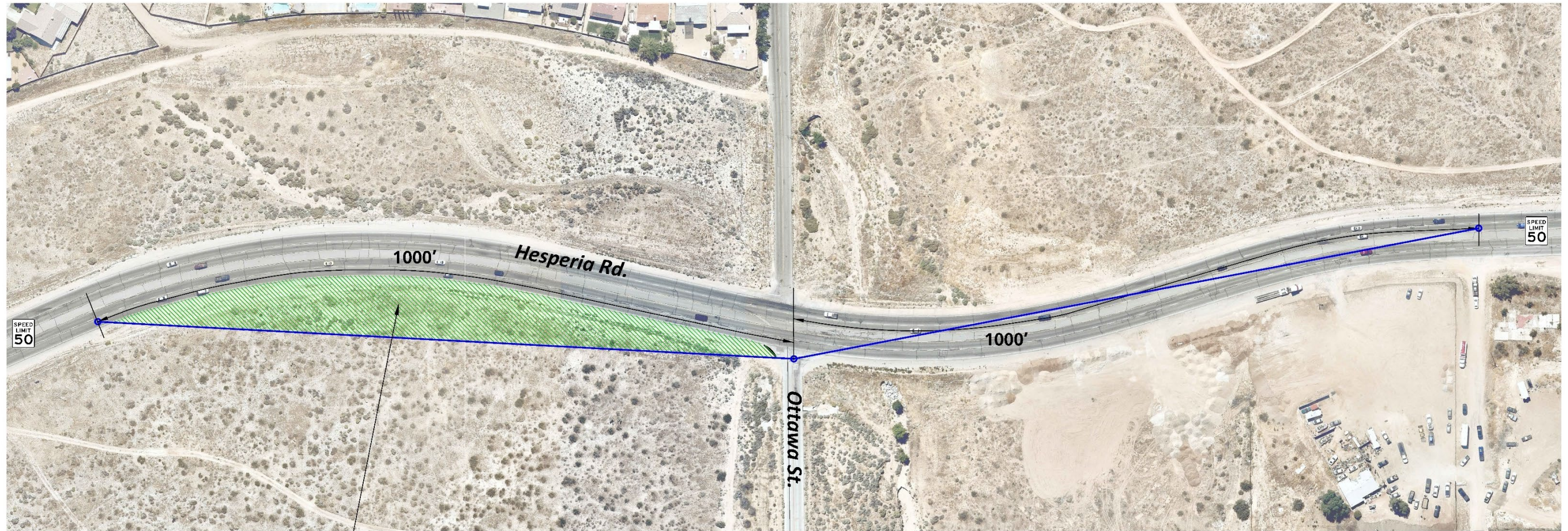
## **1.9 CONCEPT STRIPING PLANS**

At the request of the City, a concept striping plan has been created for the intersection of Hesperia Road & Ottawa Street to illustrate the proposed acceleration and deceleration lanes along Hesperia Road. The concept striping plan is shown in Exhibit 1-7. As shown on Exhibit 1-7, a 435-foot deceleration lane and a 300-foot acceleration lane are recommended along northbound Hesperia Road.

A concept striping plan has also been prepared for the intersection of Hesperia Road & Nisqualli Road to demonstrate the recommended intersection improvements. As shown on Exhibit 1-8, the median nose on the west leg and the stop bar for the inside eastbound left turn lane should be modified to provide sufficient space to accommodate the wide turning radius of heavy trucks. It should be noted, there is a proposed 9-foot offset for the southbound through lanes to the receiving lanes. This is consistent with the existing 9-foot offset for the westbound through lanes. Given the improvements to this intersection require restriping of the southbound approach, an offset for the southbound through lanes, and modification of the existing median and stop bar on the west leg, alternative signal timing improvements have also been recommended at this location. For a detailed discussion on the recommended intersection improvements, see Section 6.5 *Project Deficiencies and Recommended Improvements*.



EXHIBIT 1-6: INTERSECTION SIGHT DISTANCE AT HESPERIA ROAD AND OTTAWA STREET



Limited use area per  
AASHTO Guidelines

EXHIBIT 1-7: CONCEPT STRIPING AND ACCELERATION/DECELERATION LANES AT HESPERIA ROAD AND OTTAWA STREET

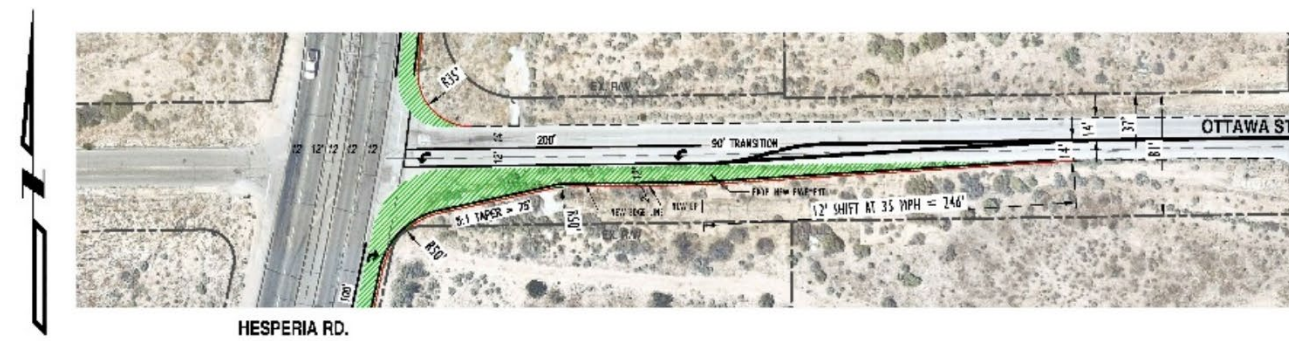
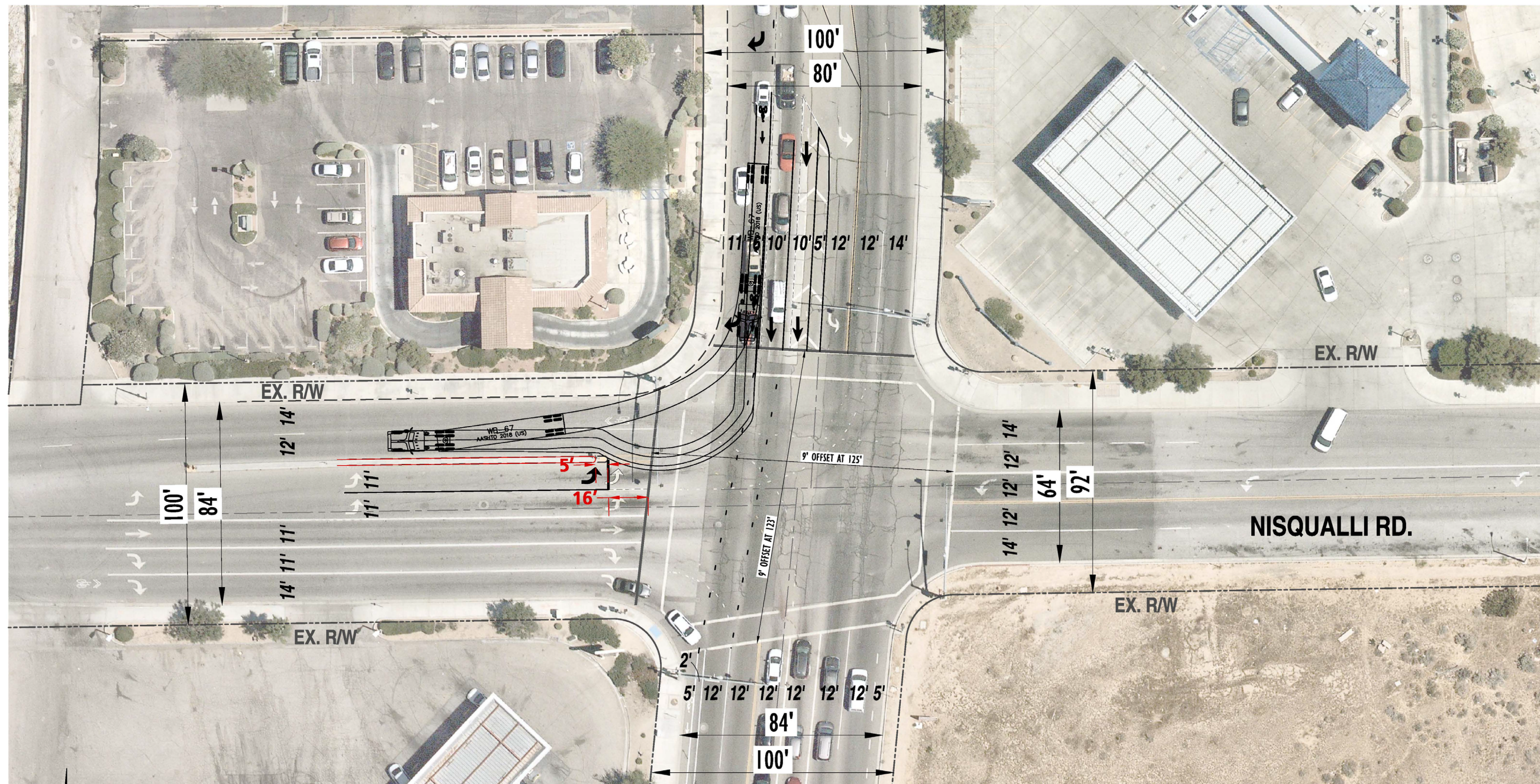


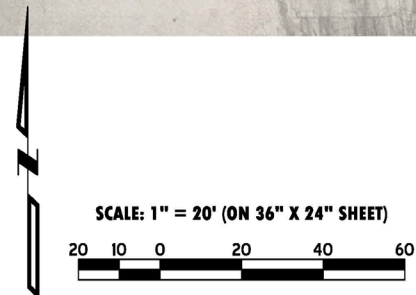
EXHIBIT 1-8: CONCEPT STRIPING AT HESPERIA ROAD AND NISQUALLI ROAD



RIGHT-OF-WAY HAS NOT BEEN VERIFIED

HESPERIA RD.

NISQUALLI RD.



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## 2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Victorville's Traffic Study Guidelines.

### 2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

### 2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6<sup>th</sup> Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (6) The HCM uses different procedures depending on the type of intersection control.

#### 2.2.1 SIGNALIZED INTERSECTIONS

The City of Victorville requires signalized intersection operations analysis based on the methodology described in the HCM. (6) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1. Consistent with City of Murrieta traffic study guidelines, a saturation flow rate of 1900 in vehicles per hour green per lane (vphgpl) has been utilized in the traffic analysis for signalized intersections.

**TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS**

| Description   | Average Control Delay (Seconds),<br>V/C ≤ 1.0 | Level of Service, V/C ≤ 1.0 | Level of Service, V/C > 1.0 |
|---|---|-----------------------------|-----------------------------|
| Operations with very low delay occurring with favorable progression and/or short cycle length.  | 0 to 10.00                                    | A                           | F                           |
| Operations with low delay occurring with good progression and/or short cycle lengths.   | 10.01 to 20.00                                | B                           | F                           |
| Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.  | 20.01 to 35.00                                | C                           | F                           |
| Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.                             | 35.01 to 55.00                                | D                           | F                           |
| Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay. | 55.01 to 80.00                                | E                           | F                           |
| Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.  | 80.01 and up                                  | F                           | F                           |

Source: HCM (6<sup>th</sup> Edition)

The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections within the City of Victorville. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g.,  $PHF = [Hourly Volume] / [4 \times Peak\ 15\text{-minute\ Flow\ Rate}]$ ). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (6)

### California Department of Transportation (Caltrans)

The traffic modeling and signal timing optimization software package Synchro (Version 11) has also been utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e., I-15 Freeway ramps at Amargosa Road and Nisqualli Road). Signal timing for the freeway arterial-to-ramp intersections has been obtained from Caltrans. It should be noted that for the purposes of this analysis, no optimization of signal timing has been performed for the LOS analysis unless noted otherwise (for improvements).

#### 2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Victorville require the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (6) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

**TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS**

| Description   | Average Control Delay Per Vehicle (Seconds) | Level of Service, V/C ≤ 1.0 | Level of Service, V/C > 1.0 |
|---|---|-----------------------------|-----------------------------|
| Little or no delays.  | 0 to 10.00                                  | A                           | F                           |
| Short traffic delays.                                       | 10.01 to 15.00                              | B                           | F                           |
| Average traffic delays.                                     | 15.01 to 25.00                              | C                           | F                           |
| Long traffic delays.  | 25.01 to 35.00                              | D                           | F                           |
| Very long traffic delays.                                   | 35.01 to 50.00                              | E                           | F                           |
| Extreme traffic delays with intersection capacity exceeded. | > 50.00                                     | F                           | F                           |

Source: HCM (6<sup>th</sup> Edition)

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop-controlled intersections, LOS is computed for the intersection as a whole. For two-way stop-controlled intersections, the delay is reported for the worst single movement/lane (typically occurs on the side street).

### 2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (7)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (7) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis

for existing traffic conditions. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics (e.g., located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Traffic signal warrant analyses were performed for the following study area intersection shown on Table 2-3:

**TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS**

| ID | Intersection              | Jurisdiction |
|----|---------------------------|--------------|
| 7  | Hesperia Rd. & Ottawa St. | Victorville  |

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *OYC (2024) Traffic Conditions* and Section 6 *2034 Traffic Conditions* of this report. It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

## 2.4 QUEUING ANALYSIS

A queuing analysis has been performed for the I-15 Freeway & Amargosa Road and Nisqualli Road interchange and the study area intersection of Hesperia Rd. & Ottawa St. The 95<sup>th</sup> percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the intersection and the interchange identified above. Specifically, the queuing analysis is utilized to identify any potential queuing and “spill back” onto the I-15 Freeway mainline from the off-ramps or out of the turn pockets.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95<sup>th</sup> percentile queue resulting from the Synchro progression analysis. There are two footnotes which appear on the Synchro outputs. One footnote indicates if the 95<sup>th</sup> percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95<sup>th</sup> percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95<sup>th</sup> percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The other footnote indicates whether or not the volume for the 95<sup>th</sup> percentile queue is metered by an upstream signal. If the upstream intersection is at or near capacity, the 50<sup>th</sup> percentile queue represents the maximum queue experienced.



A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. The 95<sup>th</sup> percentile queue is the maximum back of queue with 95<sup>th</sup> percentile traffic volumes during the peak hour and is derived from the average (50<sup>th</sup> percentile) queue plus 1.65 standard deviations. The queue length reported is for the lane with the highest queue in the lane group. The 95<sup>th</sup> percentile queue is not necessarily ever observed it is simply based on statistical calculations.

## **2.5 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)**

Minimum Acceptable LOS and associated definitions of intersection deficiencies has been obtained from each of the applicable surrounding jurisdictions.

### **2.5.1 CITY OF VICTORVILLE**

Per the City of Victorville General Plan, the City of Victorville's current LOS standard for intersections is LOS D for peak hour intersection operations.

### **2.5.2 CALTRANS**

Senate Bill 743 (SB 743), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (CEQA). The Office of Planning and Research (OPR) has recommended the use of vehicle miles traveled (VMT) as the replacement for automobile delay-based LOS. Caltrans acknowledges automobile delay will no longer be considered a CEQA impact for development projects and will use VMT as the metric for determining impacts on the State Highway System (SHS). However, LOS D has been utilized as the target LOS for Caltrans facilities, consistent with other recent studies in the City of Murrieta.

### **2.5.3 SAN BERNARDINO COUNTY CMP**

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. However, for the purposes of this analysis, LOS D has been utilized for all study area intersections.

## **2.6 DEFICIENCY CRITERIA**

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

### *Signalized Intersections*

Per the City of Victorville TA Guidelines, the following LOS will be utilized for signalized study area intersections located within the Desert, Valley and Mountain regions of the County:

- Any signalized study intersection in the Valley or Mountain regions that is operating at an acceptable LOS D or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS E or F shall identify improvements to improve operations to LOS D or better.

- Any signalized study intersection in the Desert region that is operating at an LOS C or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS D, E, or F shall identify improvements to improve operations to LOS C.
- Any signalized study intersection in the Valley or Mountain regions that is operating at LOS E or F without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.
- Any signalized study intersection in the Desert region that is operating at LOS D, E, or F without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.

#### *Unsignalized Intersections*

Per the City of Victorville TA Guidelines, the following LOS will be utilized for unsignalized study area intersections located within the Desert, Valley and Mountain regions of the County:

- The addition of project related traffic causes the intersection to degrade from an LOS D or better to a LOS E or worse in the Valley and Mountain regions or from an LOS C or better to an LOS D or worse in the Desert region.

OR

- The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at an LOS E or F in the Valley and Mountain regions or at an LOS D, E, or F in the Desert region (per Section 10.5.2 b))

AND

- One or both of the following conditions are met:
  - The project adds ten (10) or more trips to any approach
  - The intersection meets the peak hour traffic signal warrant after the addition of project traffic (per Section 10.5.2 c)).

The proposed significance thresholds will be applied at study area intersections for the purposes of determining project-related deficiencies.

## **2.7 PROJECT FAIR SHARE CALCULATION METHODOLOGY**

In cases where this TA identifies that the Project would contribute additional traffic volumes to traffic deficiencies, Project fair share costs of improvements necessary to address deficiencies have been identified. The Project's fair share cost of improvements is determined based on the following equation, which is the ratio of Project traffic to new traffic, and new traffic is total near-term future (OYC) traffic less existing baseline traffic:

$$\text{Project Fair Share \%} = \frac{\text{Project AM/PM Traffic}}{(\text{OYC WP AM/PM Total Traffic} - \text{Existing AM/PM Traffic})}$$

The project fair share percentage has been calculated for both the AM peak hour and PM peak hour and the highest of the two has been selected. The Project fair share contribution calculations are presented in Section 7 *Local and Regional Funding Mechanisms* of this TA.

### **3 AREA CONDITIONS**

This section provides a summary of the existing circulation network, the City of Victorville General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, and queuing analyses.

#### **3.1 EXISTING CIRCULATION NETWORK**

Pursuant to the agreement with City of Victorville staff (Appendix 1.1), the study area includes a total of 9 existing intersections as shown previously on Exhibit 1-3. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

#### **3.2 CITY OF VICTORVILLE GENERAL PLAN CIRCULATION ELEMENT**

Exhibit 3-2 shows the City of Victorville General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Victorville General Plan roadway cross-sections.

#### **3.3 CITY OF HESPERIA GENERAL PLAN CIRCULATION ELEMENT**

Exhibit 3-4 shows the City of Hesperia General Plan Circulation Element, and Exhibit 3-5 illustrates the City of Hesperia General Plan roadway cross-sections.

#### **3.4 TRUCK ROUTES**

The City of Victorville's truck routes are shown on Exhibit 3-6. Hesperia Road, Bear Valley Road, and Nisqualli Road are identified as a City truck routes.

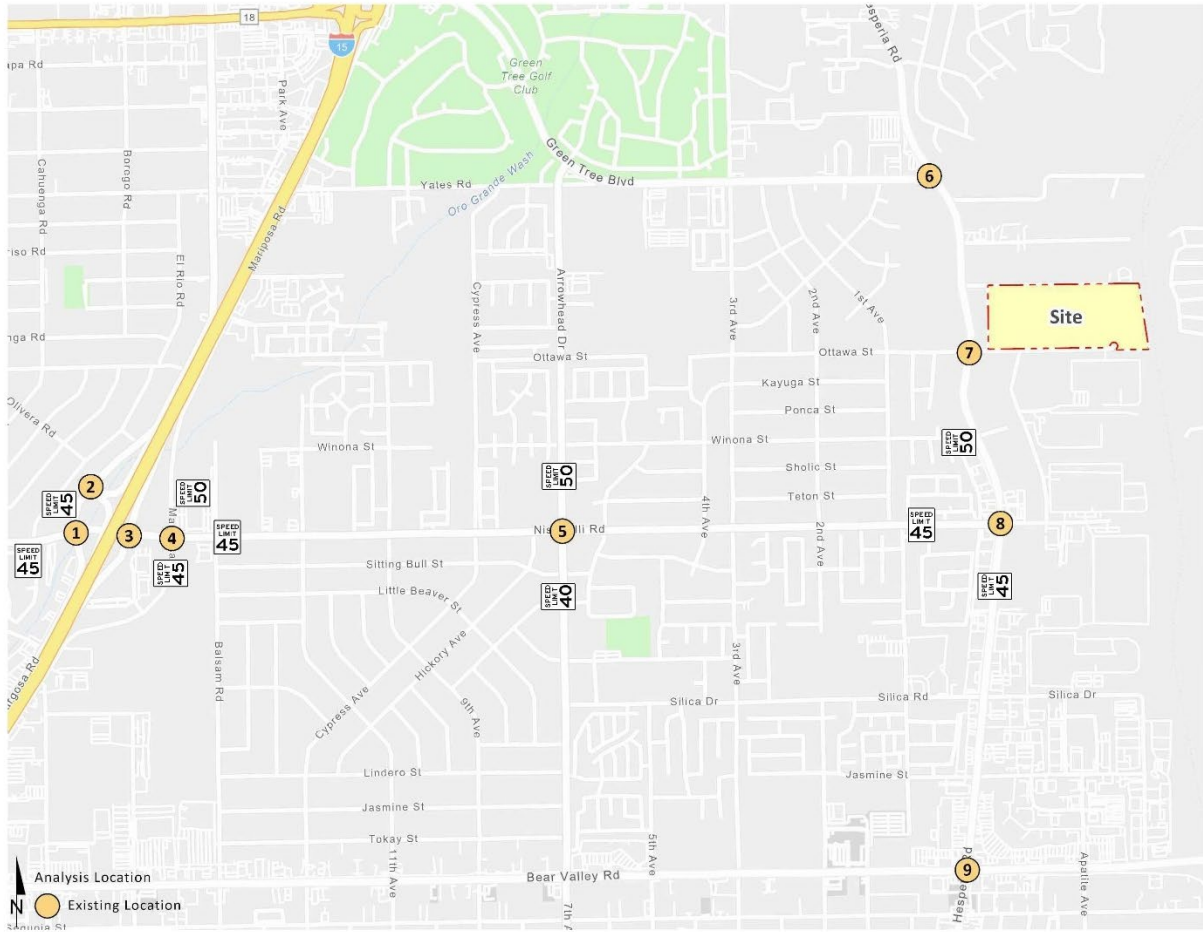
#### **3.5 TRANSIT SERVICE**

The study area is currently served by Victor Valley Transit Authority (VVTA) with bus service along Hesperia Road and Nisqualli Road. The existing transit routes within the study area are shown on Exhibit 3-7. VVTA Route 50 could potentially serve the Project if extended to the north on Hesperia Road. Route 50 currently runs along Hesperia Road south of Nisqualli Road and on Nisqualli Road to the west of Hesperia Road. VVA Route 51 runs along Hesperia Road north of Yates Road. Transit service is reviewed and updated by VVTA periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

#### **3.6 BICYCLE & PEDESTRIAN FACILITIES**

As shown on Exhibit 3-8, there are no pedestrian facilities in close proximity to the Project along Hesperia Road with limited pedestrian facilities along Nisqualli Road. Field observations indicate nominal pedestrian and bicycle activity within the study area.

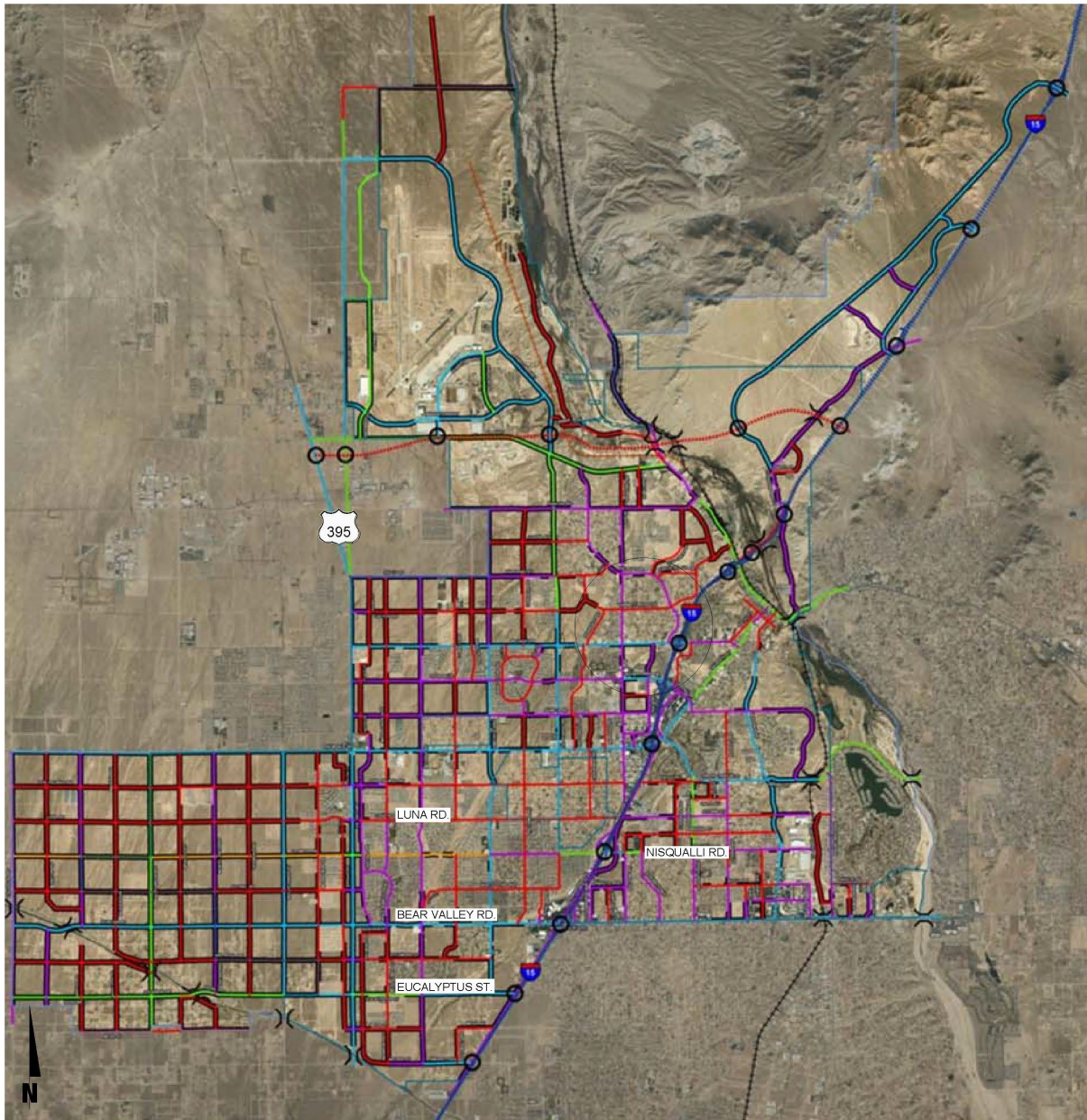
**EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS**



| 1  | 2                                       | 3  | 4   | 5  |
|--|---|--|---|--|
| <b>Amargosa Rd. &amp; La Mesa Rd.</b>    | <b>Amargosa Rd. &amp; I-15 SB Ramps</b> | <b>I-15 NB Ramps &amp; Nisqualli Rd.</b> | <b>Miraposa Rd. &amp; Nisqualli Rd.</b>   | <b>Arrowhead Dr. / Seventh Av. &amp; Nisqualli Rd.</b> |
|  |   |  |   |  |
| <b>Hesperia Rd. &amp; Green Tree Bl.</b> | <b>Hesperia Rd. &amp; Ottawa St.</b>    | <b>Hesperia Rd. &amp; Nisqualli Rd.</b>  | <b>Hesperia Rd. &amp; Bear Valley Rd.</b> |  |
|  |   |  |   |  |

= Traffic Signal  
 = Stop Sign  
**4** = Number of Lanes  
**D** = Divided  
**U** = Undivided  
**RTO** = Right Turn Overlap  
 = Free Right Turn  
 = Speed Limit (MPH)

**EXHIBIT 3-2: CITY OF VICTORVILLE GENERAL PLAN CIRCULATION ELEMENT**



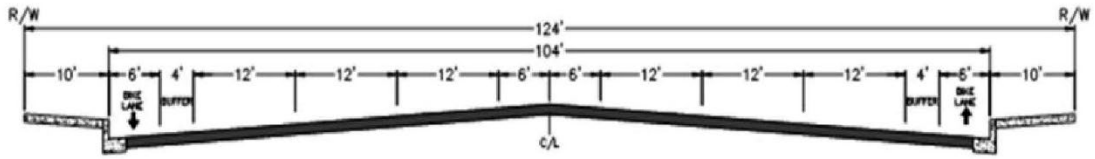
**Retrofit Street Sections**

- Collector
- Arterial
- Major Arterial
- Residential Arterial
- Super Arterial

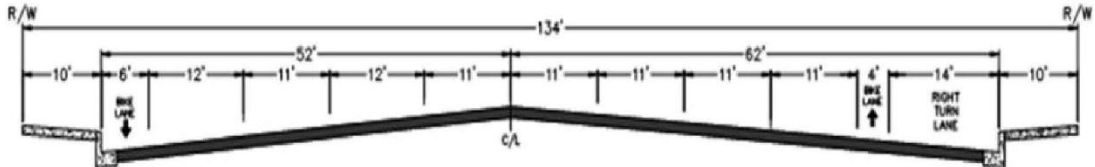
**Street Sections**

- Collector
- Arterial
- Major Arterial
- Residential Arterial
- Super Arterial

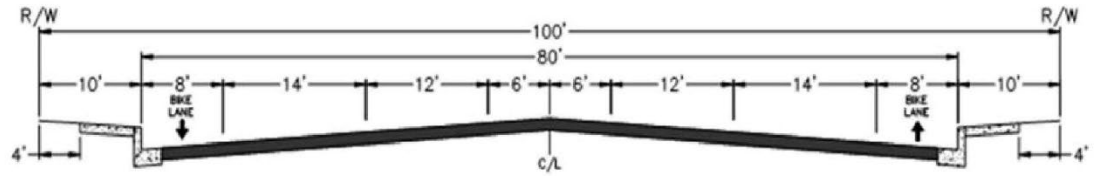
**EXHIBIT 3-3: CITY OF VICTORVILLE ROADWAY CROSS-SECTIONS**



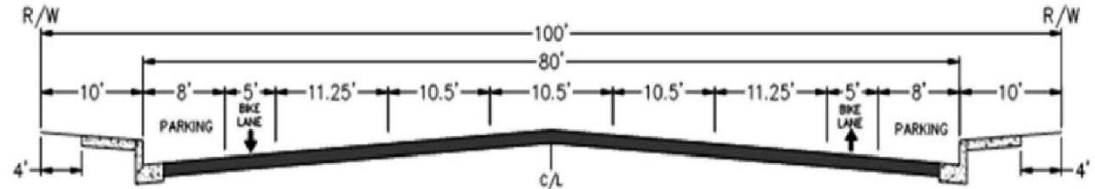
**SUPER ARTERIAL  
NO PARKING**



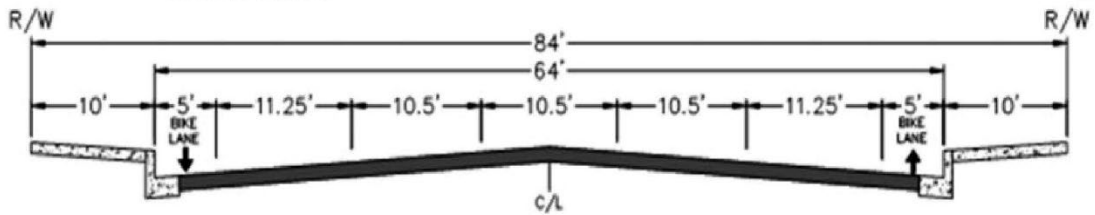
**SUPER ARTERIAL AT INTERSECTIONS  
WITH DUAL LEFT TURN LANES/ RIGHT TURN LANE**



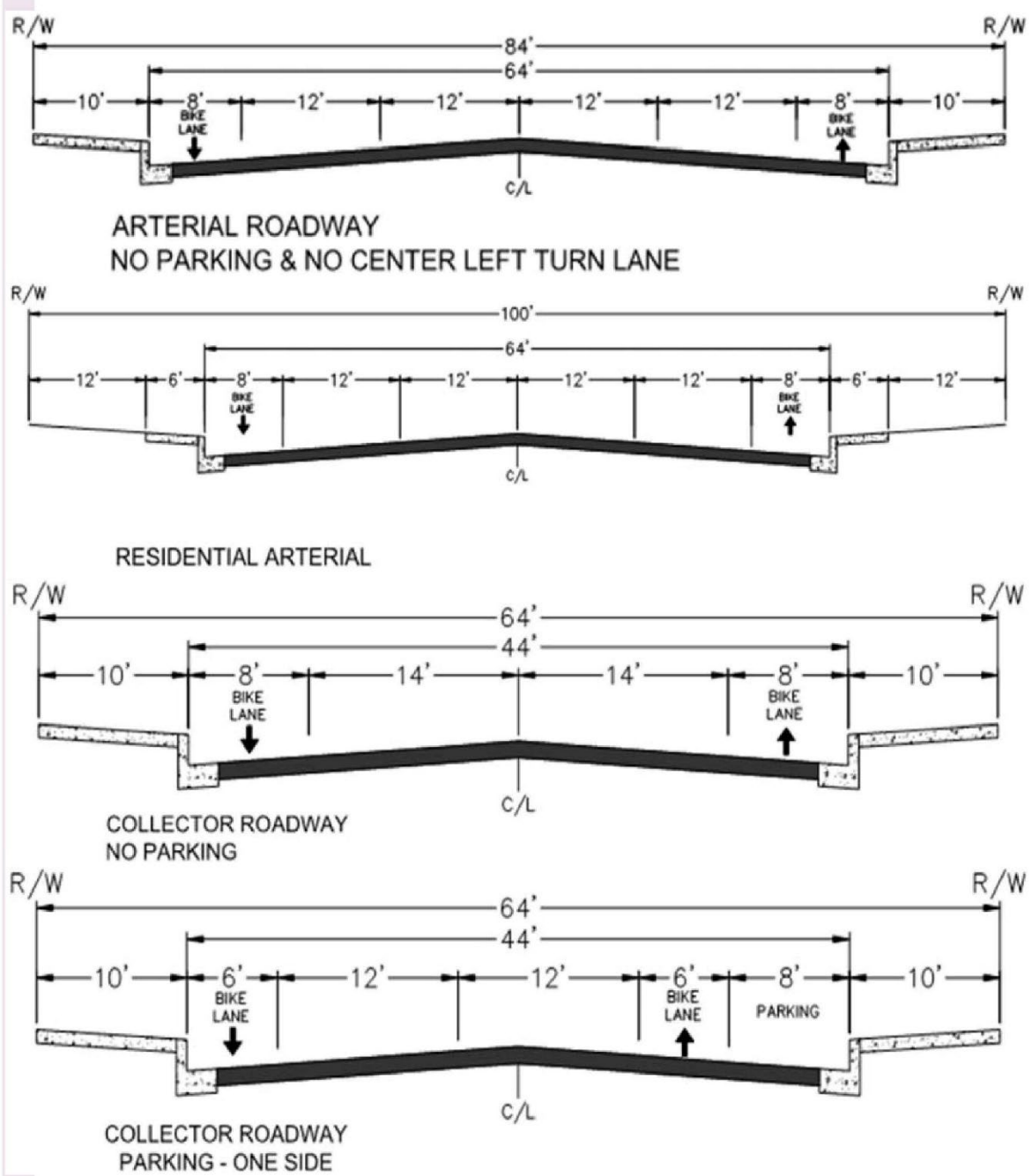
**MAJOR ARTERIAL  
NO PARKING**



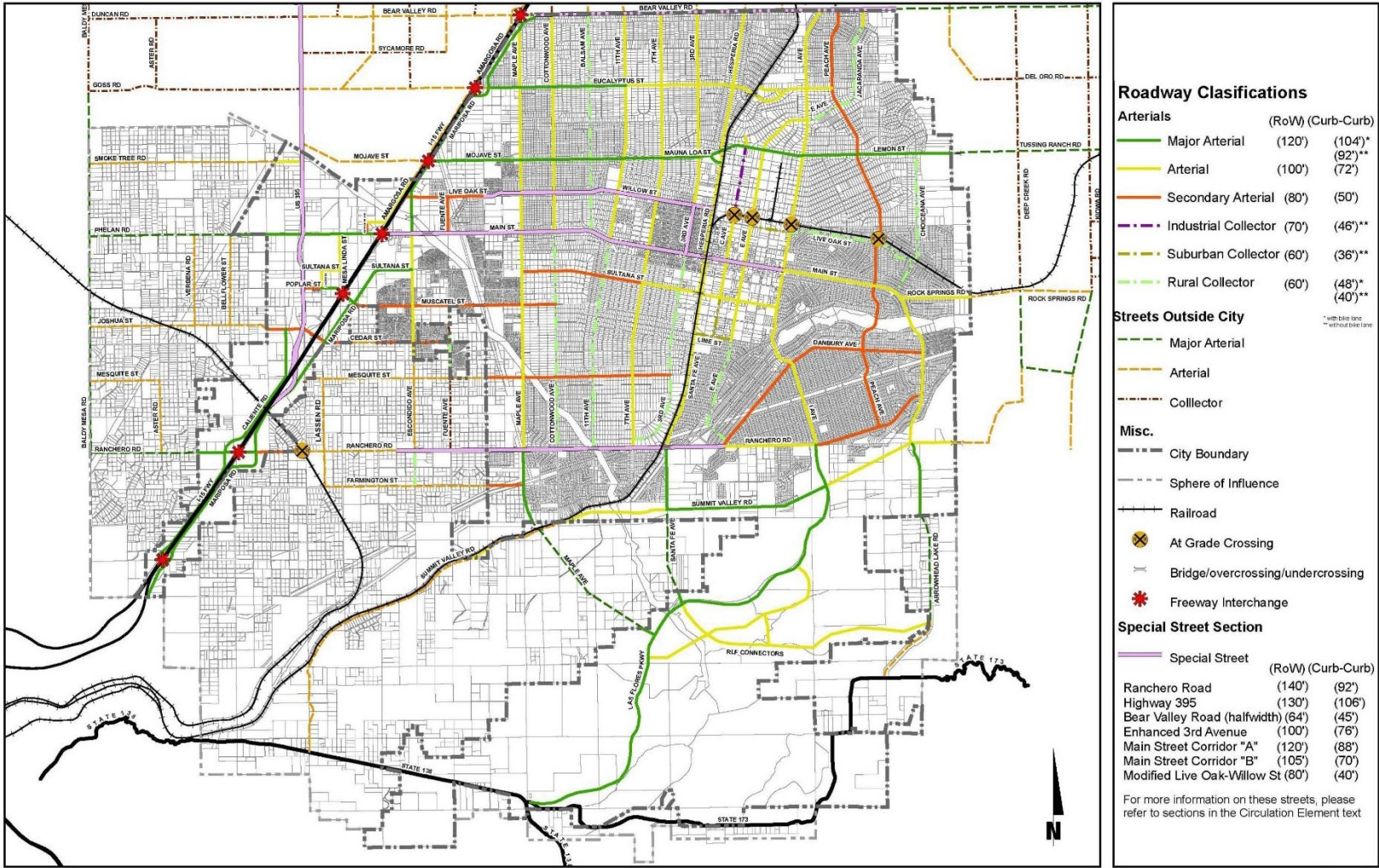
**MAJOR ARTERIAL  
WITH PARKING**



**ARTERIAL ROADWAY WITH CENTER  
LEFT TURN LANE**

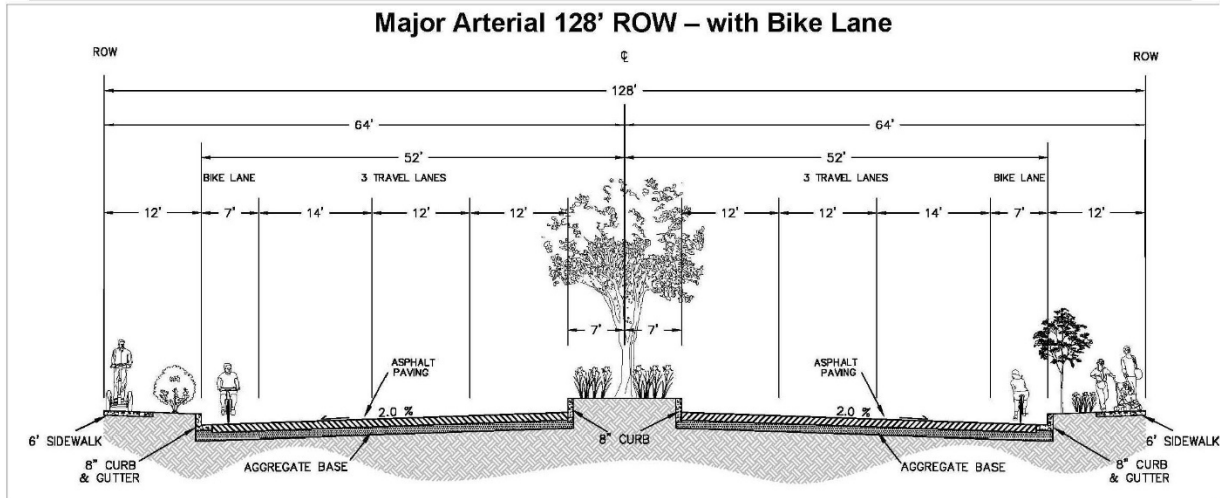
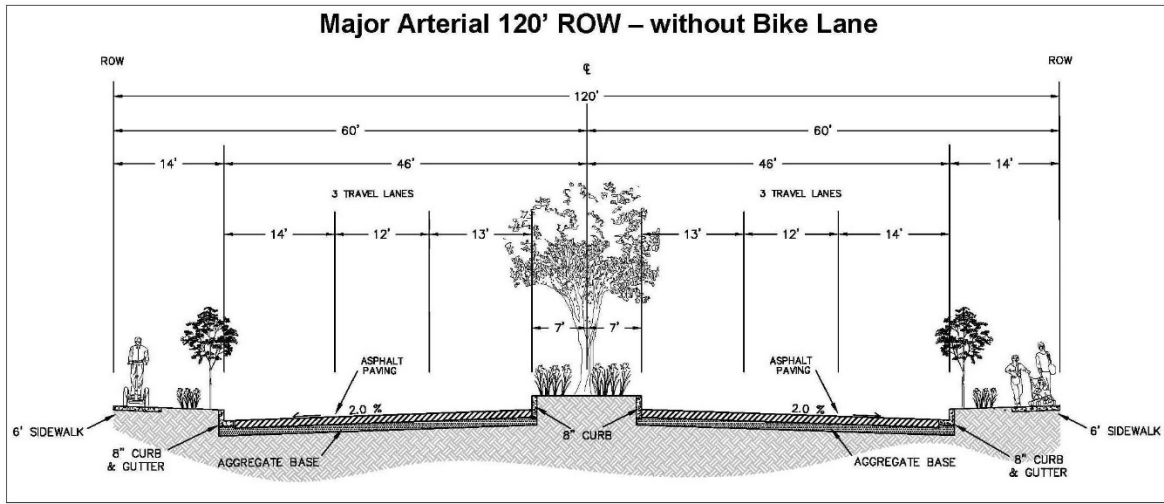


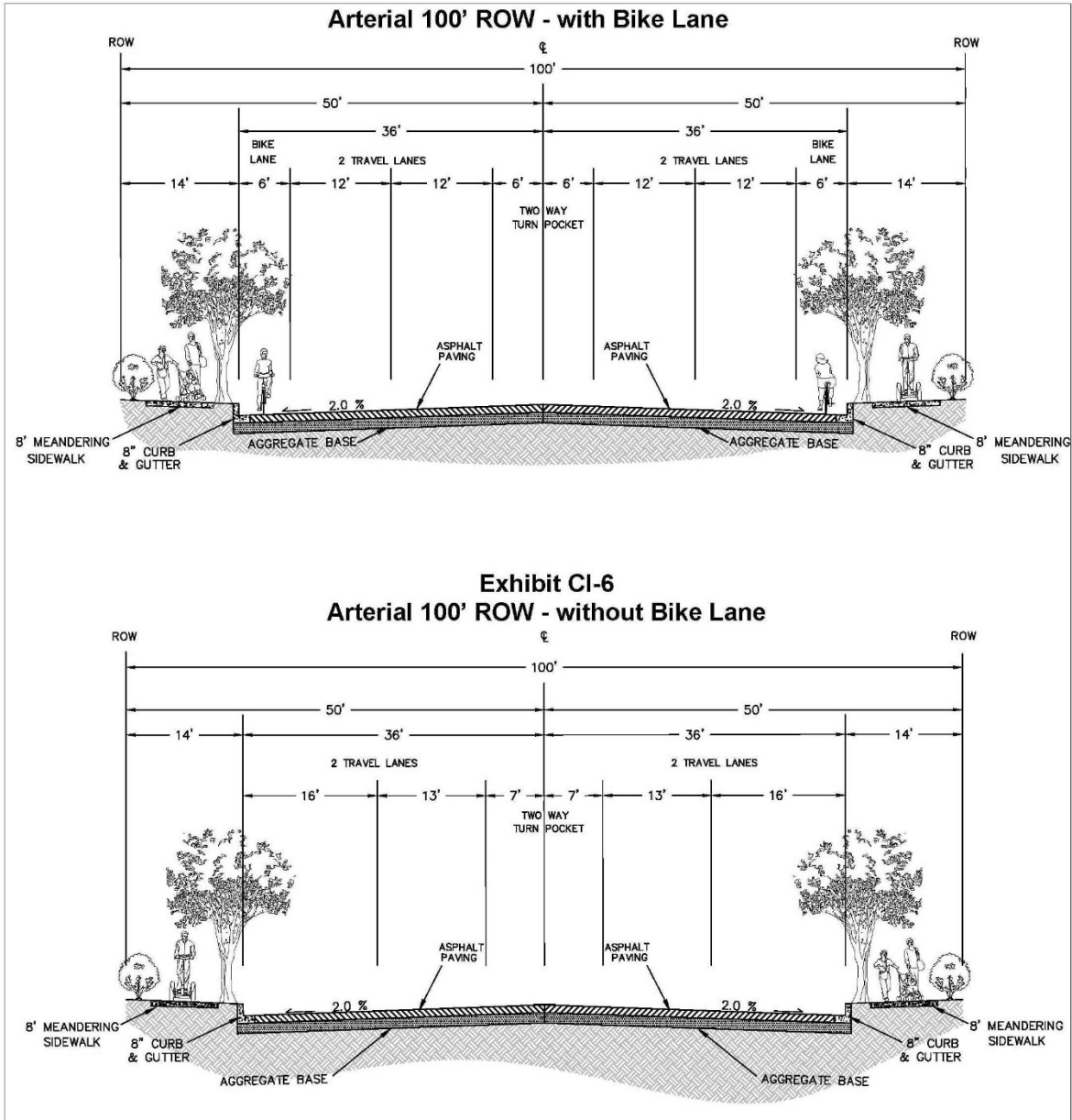
**EXHIBIT 3-4: CITY OF HESPERIA CIRCULATION ELEMENT**

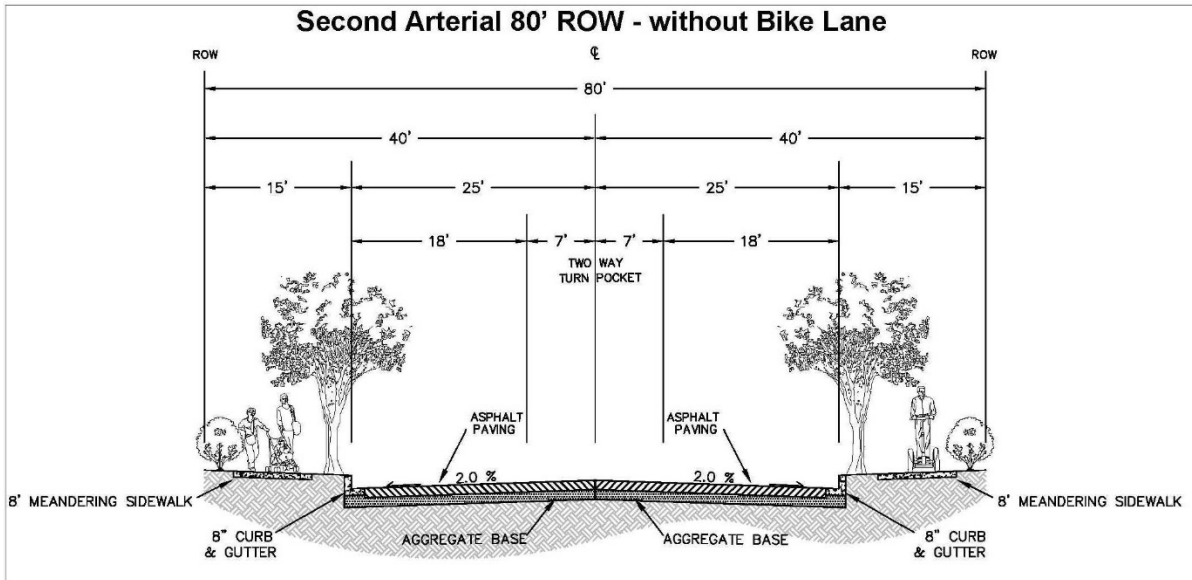
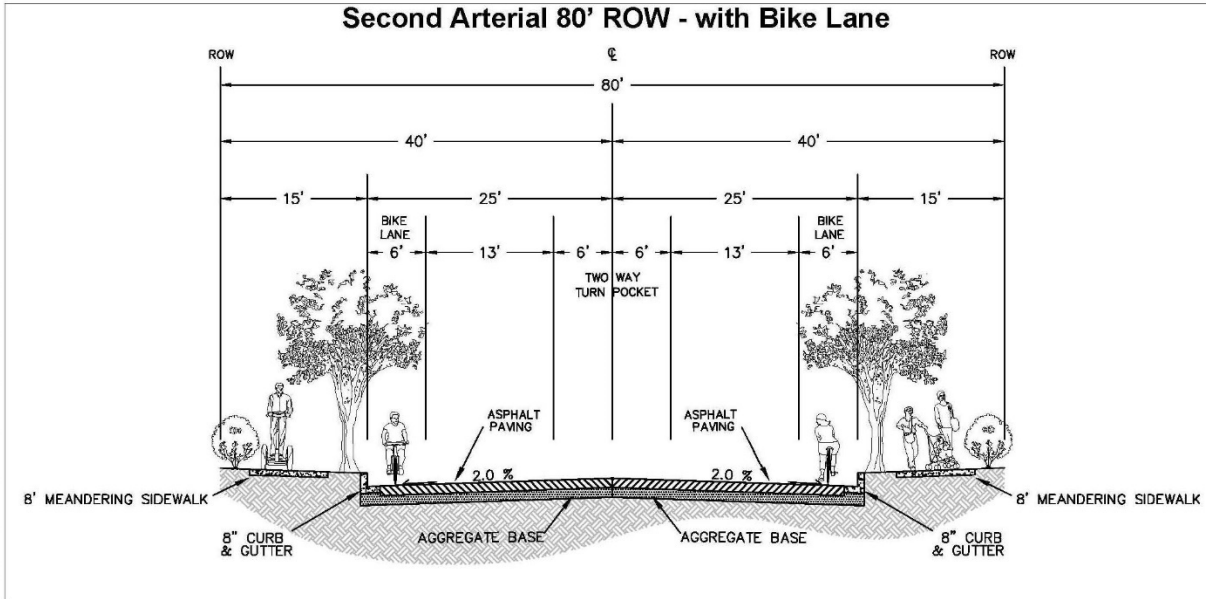




**EXHIBIT 3-5: CITY OF HESPERIA ROADWAY CROSS-SECTIONS**



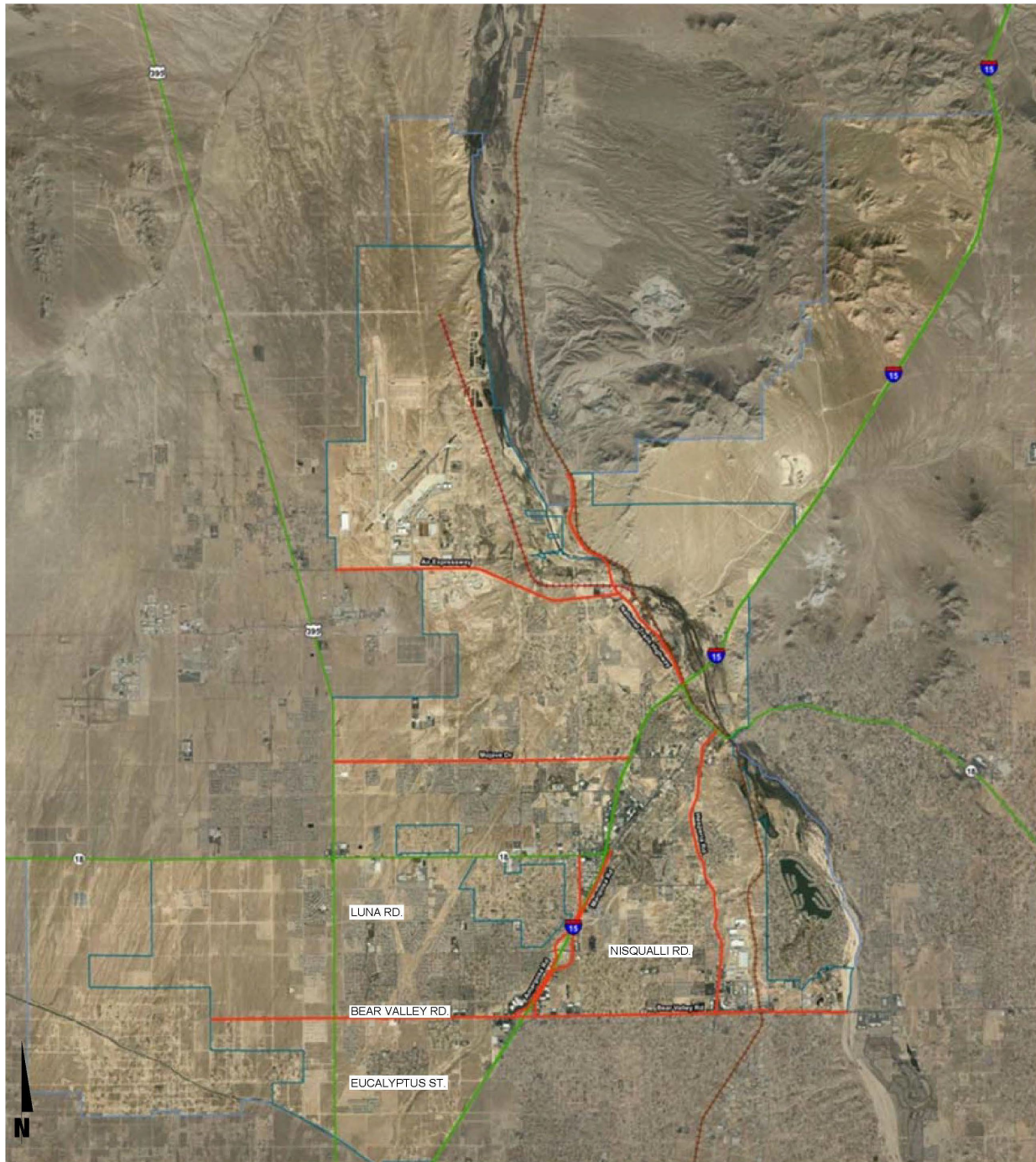




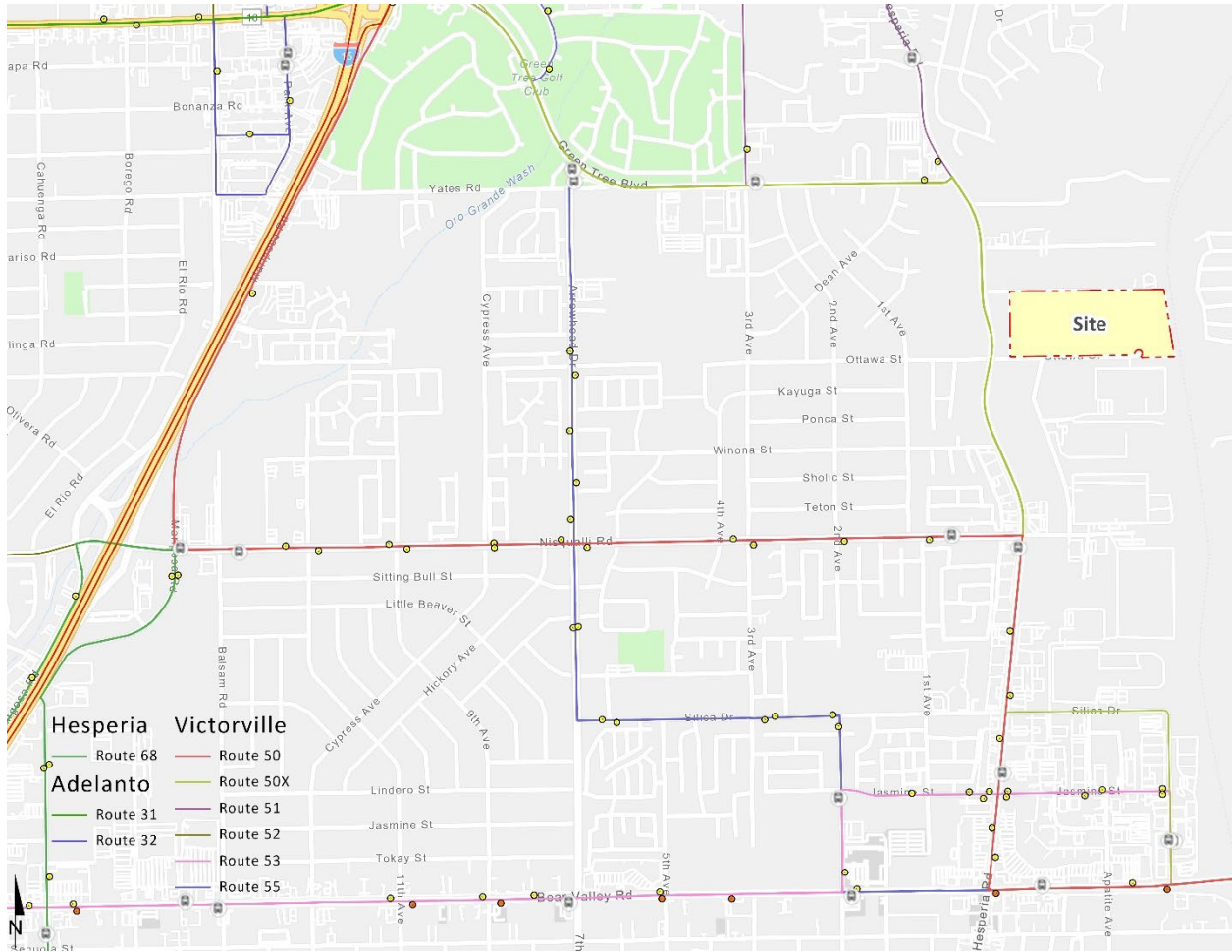




**EXHIBIT 3-6: CITY OF VICTORVILLE TRUCK ROUTES**



### EXHIBIT 3-7: EXISTING TRANSIT ROUTES







### 3.7 EXISTING (2021) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in April, May, and November of 2021. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

Due to the currently ongoing COVID-19 pandemic, schools and businesses within the study area were closed or operating at less than full capacity at the time this study was prepared. As such, a historic 2009 traffic count was utilized at the intersection of Hesperia Road and Nisqualli Road in conjunction with a 1.68% per year growth rate (compounded annually) to reflect 2021 conditions. For all other locations where historic traffic counts was not available, a new traffic count was conducted. A new traffic count was also conducted at the intersection of Hesperia Road and Nisqualli Road, where historic data was available. Based on the growth in traffic observed at the intersection of Hesperia Road and Nisqualli Road with both new and historic traffic count data, a growth factor was developed and applied to all other intersections where no historic data was available in an effort to establish a non-COVID baseline condition. Based on the comparison of the historic and current 2021 count at Hesperia Road and Nisqualli Road, a factor of 14% was applied to the AM peak hour 2021 traffic counts and 41% was applied to the PM peak hour 2021 traffic counts. Note that these adjustment percentages are in excess of the 10% adjustment requested by City staff as part of the scoping process.

The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access, and where there are currently no uses generating traffic. The traffic counts collected include the vehicle classifications as shown below:

- Passenger Cars
- 2-Axle Trucks
- 3-Axle Trucks
- 4 or More Axle Trucks

To represent the effect of large trucks, buses, and recreational vehicles have on traffic flow, all trucks were converted into PCEs. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the SBCTA CMP. (8)

Existing weekday ADT volumes are shown on Exhibit 3-9. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

$$\text{Weekday PM Peak Hour (Approach Volume + Exit Volume)} \times 13.72 = \text{Leg Volume}$$

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.29 percent. As such, the above equation utilizing a factor of 13.72 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.29 percent (i.e.,  $1/0.0729 = 13.72$ ) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes (in actual vehicles) are also shown on Exhibit 3-9.

### 3.8 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized on Table 3-1, which indicates that the existing study area intersections are currently operating at an acceptable LOS during the peak hours, with the exception of the following intersection:

- Hesperia Rd. & Bear Valley Rd. (#9) – LOS E PM peak hour only

The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

**TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2021) CONDITIONS**

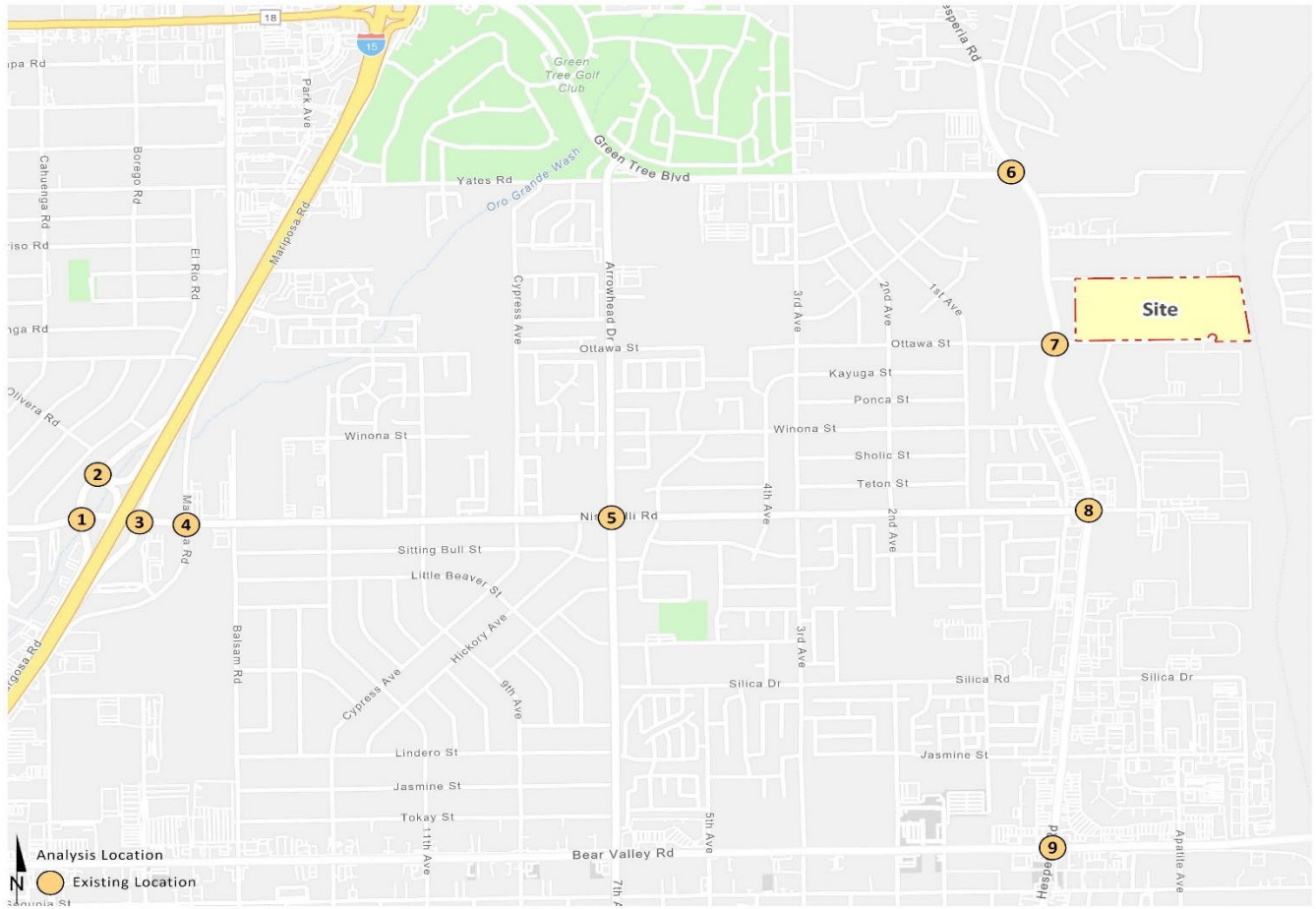
| # | Intersection                               | Traffic Control <sup>2</sup> | Delay <sup>1</sup> (secs.) |             | Level of Service |          |
|---|--|------------------------------|----------------------------|-------------|------------------|----------|
|   |  |                              | AM                         | PM          | AM               | PM       |
| 1 | Amargosa Rd. & La Mesa Rd.                 | TS                           | 29.9                       | 46.5        | C                | D        |
| 2 | Amargosa Rd. & I-15 SB Ramps               | TS                           | 22.2                       | 26.2        | C                | C        |
| 3 | I-15 NB Ramps & Nisqualli Rd.              | TS                           | 15.8                       | 25.0        | B                | C        |
| 4 | Mariposa Rd. & Nisqualli Rd.               | TS                           | 19.5                       | 32.1        | B                | C        |
| 5 | Seventh Ave./Arrowhead Dr. & Nisqualli Rd. | TS                           | 20.2                       | 47.7        | C                | D        |
| 6 | Hesperia Rd. & Green Tree Bl.              | TS                           | 13.6                       | 21.3        | B                | C        |
| 7 | Hesperia Rd. & Ottawa St.                  | CSS                          | 20.2                       | 29.9        | C                | D        |
| 8 | Hesperia Rd. & Nisqualli Rd.               | TS                           | 29.8                       | 48.3        | C                | D        |
| 9 | Hesperia Rd. & Bear Valley Rd.             | TS                           | 34.8                       | <b>57.7</b> | C                | <b>E</b> |

\* **BOLD** = Unacceptable LOS

<sup>1</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>2</sup> CSS = Cross-street Stop; TS = Traffic Signal

**EXHIBIT 3-9: EXISTING (2021) TRAFFIC VOLUMES**



| 1   | 2   | 3   | 4  | 5   |
|---|---|---|--|---|
| <b>Amargosa Rd. &amp; La Mesa Rd.</b>   | <b>Amargosa Rd. &amp; I-15 SB Ramps</b>   | <b>I-15 NB Ramps &amp; Nisqualli Rd.</b>  | <b>Mariposa Rd. &amp; Nisqualli Rd.</b>  | <b>Seventh Ave./Arrowhead Dr. &amp; Nisqualli Rd.</b> |
| 39,150<br>105(398)<br>194(627)<br>333(769)<br>↓ ↓ ↓<br>↑ 520(609)<br>↑ 444(1426)<br>102(347)<br>172(139) →<br>776(906) →<br>69(136) ↓<br>20(131) ↓<br>105(311) ↑<br>75(391) ↑<br>43,000 | 61,000<br>25,800<br>739(914)<br>131(162)<br>↑ 36(45)<br>731(904)<br>615(761) →<br>243(301) ↑<br>19,350<br>9,050<br>60,950<br>15,700<br>57(103)<br>85(292)<br>56(177)<br>↑ 81(134)<br>↑ 917(1738)<br>82(127)<br>191(406) ↓<br>119(295) ↑<br>72(170) ↑<br>53,700<br>11,300<br>47(79)<br>158(291)<br>40(46)<br>↑ 43(73)<br>↑ 436(1062)<br>18(32)<br>26(96) ↓<br>680(831) →<br>92(180) ↓<br>92(214) ↓<br>202(239) ↑<br>18(39) ↑<br>28,600<br>13,650 | 191(285) ↓<br>1101(1776) →<br>167(470) ↓<br>1(0) ↑<br>194(385) ↑<br>11,750  | 48(143) ↓<br>1013(1569) →<br>232(446) ↓<br>191(406) ↓<br>119(295) ↑<br>72(170) ↑<br>60,450   | 23,800<br>33,750                                      |
| <b>6</b>  | <b>7</b>  | <b>8</b>  | <b>9</b>   |   |
| <b>Hesperia Rd. &amp; Green Tree Bl.</b>  | <b>Hesperia Rd. &amp; Ottawa St.</b>  | <b>Hesperia Rd. &amp; Nisqualli Rd.</b>   | <b>Hesperia Rd. &amp; Bear Valley Rd.</b>  |   |
| 32,100<br>111(135)<br>831(1024)<br>↓ ↓<br>124(132) →<br>259(515) ↓<br>306(492) ↓<br>680(1049) ↑<br>17,500   | 42,250<br>1(4)<br>1083(1528)<br>7(6)<br>↑ 2(7)<br>0(1)<br>5(6) ↓<br>8(15) ↓<br>10(28) ↓<br>979(1528) →<br>3(0) ↑<br>42,550  | 200<br>42,050<br>44(106)<br>994(1478)<br>10(15)<br>↑ 17(26)<br>↑ 37(46)<br>56(82)<br>117(138) ↓<br>39(45) →<br>374(391) ↓<br>238(432) ↓<br>1050(1304) ↑<br>67(78) ↓<br>15,900 | 4,000<br>25,950<br>86(140)<br>329(615)<br>248(392)<br>↑ 187(159)<br>↑ 1257(1361)<br>↑ 294(303)<br>171(129) ↓<br>1184(1543) →<br>114(103) ↓<br>101(204) ↓<br>507(455) ↑<br>292(333) ↓<br>47,750 | 56,150<br>27,600                                      |

##(##) AM(PM) Peak Hour Intersection Volumes  
## Average Daily Trips

### 3.9 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized study area intersections that currently warrant a traffic signal for Existing traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

### 3.10 QUEUING ANALYSIS

Queuing analysis findings are presented on Table 3-2. It is important to note that available staking lengths are consistent with the measured distance between the intersection and the freeway mainline or based on the intersection turn pocket storage lengths. As shown on Table 3-3, all movements currently experience no queuing issues during the weekday AM and PM peak 95<sup>th</sup> percentile traffic flows. Worksheets for Existing traffic conditions queuing analysis are provided in Appendix 3.4.

**TABLE 3-2: PEAK HOUR QUEUING SUMMARY FOR EXISTING (2021) CONDITIONS**

| Intersection                       | Movement | Available Stacking Distance (Feet) | 95th Percentile Queue (Feet) |                  | Acceptable? <sup>1</sup> |     |
|------------------------------------|----------|------------------------------------|------------------------------|------------------|--------------------------|-----|
|                                    |          |                                    | AM Peak                      | PM Peak          | AM                       | PM  |
| Amargosa Rd. & I-15 SB Ramps (#2)  | WBL      | 1,600                              | 267                          | 347              | Yes                      | Yes |
|                                    | WBR      | 570                                | 21                           | 23               | Yes                      | Yes |
| I-15 NB Ramps & Nisqualli Rd. (#3) | NBL      | 645                                | 88                           | 210              | Yes                      | Yes |
|                                    | NBR      | 915                                | 158                          | 347 <sup>2</sup> | Yes                      | Yes |
| Hesperia Rd. & Ottawa St. (#7)     | WBL      | 200                                | 0                            | 5                | Yes                      | Yes |
|                                    | SBL      | 200                                | 3                            | 3                | Yes                      | Yes |

<sup>1</sup> Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable

<sup>2</sup> 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

## 4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The Project is proposed to consist of the development of 200,000 square feet of high-cube cold storage warehouse use and 796,520 square feet of high-cube fulfillment center warehouse use. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024. Regional access to the Project site will be provided by the I-15 Freeway via Nisqualli Road. Access to the Project would be provided to Ottawa Street to Hesperia Road.

### 4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project.

#### 4.1.1 PROPOSED PROJECT

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the ITE Trip Generation Manual (10th Edition, 2017) and High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) for the following land use codes (see Table 4-1): (3)  
(4)

- ITE land use code 157 (High-Cube Cold Storage Warehouse) has been used to derive site specific trip generation estimates for up to 200,000 square feet. High-cube cold storage warehouses include warehouses characterized by the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. High-cube cold storage warehouses are facilities typified by temperature-controlled environments for frozen food or other perishable products. The High-Cube Cold Storage Warehouse vehicle mix (passenger cars versus trucks) has been obtained from the ITE's Trip Generation Manual Supplement (dated February 2020). This study provides the following vehicle mix: AM Peak Hour: 73.0% passenger cars and 27.0% trucks; PM Peak Hour: 77.0% passenger cars and 23.0% trucks; Weekday Daily: 65.0% passenger cars and 35.0% trucks. The truck percentages were further broken down by axle type per the following South Coast Air Quality Management District (SCAQMD) recommended truck mix: 2-Axle = 34.7%; 3-Axle = 11.0%; 4+-Axle = 54.3%.
- High-Cube Fulfillment Center Warehouse has been used to derive site specific trip generation estimates for up to 796,520 square feet. The ITE Trip Generation Manual Supplement (February 2020) has trip generation rates for high-cube fulfillment center use for both non-sort and sort facilities (ITE land use code 155). While there is sufficient data to support use of the trip generation rates for non-sort facilities, the sort facility rate appears to be unreliable because they are based on limited data (i.e., one to two surveyed sites). The proposed Project is speculative and whether a non-sort or sort facility end-user would occupy the buildings is not known at this time. Lastly, the ITE Trip Generation Handbook recommends the use of local data sources where available. As such, the best available source for high-cube fulfillment center use would be the trip-generation statistics published in the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) which was commissioned by the Western Riverside Council of Governments (WRCOG) in support of the Transportation Uniform Mitigation Fee (TUMF) update in the County of Riverside (see Attachment A). The WSP trip generation rates were published in January 2019 and are based

on data collected at 11 local high-cube fulfillment center sites located throughout Southern California (specifically within San Bernardino County and Riverside County). However, the WSP study does not include a split for inbound and outbound vehicles, as such, the inbound and outbound splits per the ITE Trip Generation Manual for Land Use Code 154 have been utilized.

**TABLE 4-1: TRIP GENERATION RATES**

| Land Use <sup>1</sup>   | Units <sup>2</sup> | ITE LU Code | AM Peak Hour |       |       | PM Peak Hour |       |       | Daily |
|---|--------------------|-------------|--------------|-------|-------|--------------|-------|-------|-------|
|   |                    |             | In           | Out   | Total | In           | Out   | Total |       |
| <b>Actual Vehicle Trip Generation Rates</b>                             |                    |             |              |       |       |              |       |       |       |
| High-Cube Fulfillment Center Warehouse <sup>4</sup>                     | TSF                | --          | 0.094        | 0.028 | 0.122 | 0.046        | 0.119 | 0.165 | 2.129 |
| Passenger Cars  |                    |             | 0.079        | 0.024 | 0.103 | 0.040        | 0.104 | 0.144 | 1.750 |
| 2-4 Axle Trucks   |                    |             | 0.006        | 0.002 | 0.008 | 0.003        | 0.008 | 0.011 | 0.162 |
| 5+-Axle Trucks  |                    |             | 0.008        | 0.003 | 0.011 | 0.003        | 0.007 | 0.010 | 0.217 |
| High-Cube Cold Storage Warehouse <sup>3</sup>                           | TSF                | 157         | 0.085        | 0.025 | 0.110 | 0.032        | 0.088 | 0.120 | 2.120 |
| Passenger Cars  |                    |             | 0.062        | 0.018 | 0.080 | 0.025        | 0.067 | 0.092 | 1.378 |
| 2-Axle Trucks   |                    |             | 0.008        | 0.002 | 0.010 | 0.003        | 0.007 | 0.010 | 0.257 |
| 3-Axle Trucks   |                    |             | 0.003        | 0.001 | 0.003 | 0.001        | 0.002 | 0.003 | 0.082 |
| 4+-Axle Trucks  | 0.012              | 0.004       | 0.016        | 0.004 | 0.011 | 0.015        | 0.403 |       |       |
| <b>Passenger Car Equivalent (PCE) Trip Generation Rates<sup>5</sup></b> |                    |             |              |       |       |              |       |       |       |
| High-Cube Fulfillment Center Warehouse <sup>4</sup>                     | TSF                | --          | 0.094        | 0.028 | 0.122 | 0.046        | 0.119 | 0.165 | 2.129 |
| Passenger Cars  |                    |             | 0.079        | 0.024 | 0.103 | 0.040        | 0.104 | 0.144 | 1.750 |
| 2-4 Axle Trucks (PCE = 2.0)   |                    |             | 0.012        | 0.004 | 0.016 | 0.006        | 0.016 | 0.022 | 0.324 |
| 5+-Axle Trucks (PCE = 3.0)  |                    |             | 0.025        | 0.008 | 0.033 | 0.008        | 0.022 | 0.030 | 0.651 |
| High-Cube Cold Storage Warehouse <sup>3</sup>                           | TSF                | 157         | 0.085        | 0.025 | 0.110 | 0.032        | 0.088 | 0.120 | 2.120 |
| Passenger Cars  |                    |             | 0.062        | 0.018 | 0.080 | 0.025        | 0.067 | 0.092 | 1.378 |
| 2-Axle Trucks (PCE = 1.5)   |                    |             | 0.012        | 0.004 | 0.015 | 0.004        | 0.010 | 0.014 | 0.386 |
| 3-Axle Trucks (PCE = 2.0)   |                    |             | 0.005        | 0.002 | 0.007 | 0.002        | 0.004 | 0.006 | 0.163 |
| 4+-Axle Trucks (PCE = 3.0)  | 0.037              | 0.011       | 0.048        | 0.012 | 0.033 | 0.045        | 1.209 |       |       |

<sup>1</sup> Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

<sup>2</sup> TSF = thousand square feet

<sup>3</sup> Vehicle Mix Source: ITE Trip Generation Handbook Supplement (2020), Appendix C.

Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.  
 Normalized % - With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks.

<sup>4</sup> Vehicle Mix Source: High Cube Warehouse Trip Generation Study, WSP, January 29, 2019.

Inbound and outbound split source: ITE Trip Generation Manual, Tenth Edition (2017) for ITE Land Use Code 154.

<sup>5</sup> PCE factors per SBCTA CMP: 2-axle = 1.5; 3-axle = 2.0; 4+-axle = 3.0.

The trip generation summary illustrating daily, and peak hour trip generation estimates for the proposed Project are shown on Table 4-2. As shown in Table 4-2, the proposed Project is anticipated to generate 2,124 two-way trips per day with 119 AM peak hour trips and 154 PM peak hour trips (actual vehicles).

TABLE 4-2: PROJECT TRIP GENERATION (ACTUAL VEHICLES)

| Land Use  | Quantity Units <sup>1</sup> | AM Peak Hour |           |            | PM Peak Hour |            |            | Daily        |
|---|-----------------------------|--------------|-----------|------------|--------------|------------|------------|--------------|
|   |                             | In           | Out       | Total      | In           | Out        | Total      |              |
| <b>Actual Vehicles:</b>   |                             |              |           |            |              |            |            |              |
| High-Cube Cold Storage  | 200.000 TSF                 |              |           |            |              |            |            |              |
| Passenger Cars:   |                             | 12           | 4         | 16         | 5            | 13         | 18         | 276          |
| 2-axle Trucks:  |                             | 2            | 0         | 2          | 1            | 1          | 2          | 52           |
| 3-axle Trucks:  |                             | 1            | 0         | 1          | 0            | 0          | 0          | 16           |
| 4+-axle Trucks:   |                             | 2            | 1         | 3          | 1            | 2          | 3          | 82           |
| Total Truck Trips (Actual Vehicles):                                    |                             | 5            | 1         | 6          | 2            | 3          | 5          | 150          |
| <b>High-Cube Cold Storage Total Trips (Actual Vehicles)<sup>2</sup></b> |                             | <b>17</b>    | <b>5</b>  | <b>22</b>  | <b>7</b>     | <b>16</b>  | <b>23</b>  | <b>426</b>   |
| High-Cube Fulfillment   | 796.520 TSF                 |              |           |            |              |            |            |              |
| Passenger Cars:   |                             | 63           | 19        | 82         | 32           | 83         | 115        | 1,394        |
| 2-4axle Trucks:   |                             | 5            | 1         | 6          | 2            | 6          | 8          | 130          |
| 5+-axle Trucks:   |                             | 7            | 2         | 9          | 2            | 6          | 8          | 174          |
| Total Truck Trips (Actual Vehicles):                                    |                             | 12           | 3         | 15         | 4            | 12         | 16         | 304          |
| <b>High-Cube Fulfillment Total Trips (Actual Vehicles)<sup>2</sup></b>  |                             | <b>75</b>    | <b>22</b> | <b>97</b>  | <b>36</b>    | <b>95</b>  | <b>131</b> | <b>1,698</b> |
| Total Passenger Car Trips   |                             | 75           | 23        | 98         | 37           | 96         | 133        | 1,670        |
| Total Truck Trips   |                             | 17           | 4         | 21         | 6            | 15         | 21         | 454          |
| <b>Total Trips (Actual Vehicles)<sup>2</sup></b>                        |                             | <b>92</b>    | <b>27</b> | <b>119</b> | <b>43</b>    | <b>111</b> | <b>154</b> | <b>2,124</b> |

<sup>1</sup> TSF = thousand square feet

<sup>2</sup> Total Trips = Passenger Cars + Truck Trips.

Refinements to the raw trip generation estimates have been made to provide a more detailed breakdown of trips between passenger cars and trucks. Trip generation for heavy trucks was further broken down by truck type (or axle type). The total truck percentage is comprised of 3 different truck types: 2-axle, 3-axle, and 4+-axle trucks for High-Cube Cold Storage Warehouse use. PCE factors were applied to the trip generation rates for heavy trucks (large 2-axes, 3-axes, 4+-axes). PCEs allow the typical “real-world” mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in Appendix B of the San Bernardino County Congestion Management Program (CMP) (2016 Update). (8) Consistent with the City’s guidelines, the peak hour operations analysis has been conducted using PCE volumes. The proposed Project is anticipated to generate a total of 2,802 PCE trip-ends per day, 150 PCE AM peak hour trips and 188 PCE PM peak hour trips, as shown in Table 4-2.

TABLE 4-3: PROJECT TRIP GENERATION (PCE)

| Land Use  | Quantity Units <sup>1</sup> | AM Peak Hour |           |            | PM Peak Hour |            |            | Daily        |
|---|-----------------------------|--------------|-----------|------------|--------------|------------|------------|--------------|
|   |                             | In           | Out       | Total      | In           | Out        | Total      |              |
| <b>Passenger Car Equivalent (PCE):</b>                      |                             |              |           |            |              |            |            |              |
| High-Cube Cold Storage                                      | 200.000 TSF                 |              |           |            |              |            |            |              |
| Passenger Cars:   |                             | 12           | 4         | 16         | 5            | 13         | 18         | 276          |
| 2-axle Trucks:  |                             | 2            | 1         | 3          | 1            | 2          | 3          | 78           |
| 3-axle Trucks:  |                             | 1            | 0         | 1          | 0            | 1          | 1          | 34           |
| 4+-axle Trucks:   |                             | 7            | 2         | 9          | 2            | 7          | 9          | 242          |
| Total Truck Trips (PCE):                                    |                             | 10           | 3         | 13         | 3            | 10         | 13         | 354          |
| <b>High-Cube Cold Storage Total Trips (PCE)<sup>2</sup></b> |                             | <b>22</b>    | <b>7</b>  | <b>29</b>  | <b>8</b>     | <b>23</b>  | <b>31</b>  | <b>630</b>   |
| High-Cube Fulfillment                                       | 796.520 TSF                 |              |           |            |              |            |            |              |
| Passenger Cars:   |                             | 63           | 19        | 82         | 32           | 83         | 115        | 1,394        |
| 2-4axle Trucks:   |                             | 10           | 3         | 13         | 5            | 13         | 18         | 258          |
| 5+-axle Trucks:   |                             | 20           | 6         | 26         | 7            | 17         | 24         | 520          |
| Total Truck Trips (PCE):                                    |                             | 30           | 9         | 39         | 12           | 30         | 42         | 778          |
| <b>High-Cube Fulfillment Total Trips (PCE)<sup>2</sup></b>  |                             | <b>93</b>    | <b>28</b> | <b>121</b> | <b>44</b>    | <b>113</b> | <b>157</b> | <b>2,172</b> |
| Total Passenger Car Trips                                   |                             | 75           | 23        | 98         | 37           | 96         | 133        | 1,670        |
| Total Truck Trips   |                             | 40           | 12        | 52         | 15           | 40         | 55         | 1,132        |
| <b>Total Trips (PCE)<sup>2</sup></b>                        |                             | <b>115</b>   | <b>35</b> | <b>150</b> | <b>52</b>    | <b>136</b> | <b>188</b> | <b>2,802</b> |

<sup>1</sup> TSF = thousand square feet

<sup>2</sup> Total Trips = Passenger Cars + Truck Trips.

## 4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute. Distribution patterns are based on existing and planned land uses in the area along with the planned circulation system. Exhibit 4-1 illustrates the passenger car trip distribution patterns for the Project. Exhibit 4-2 illustrates the truck trip distribution patterns for the Project.

## 4.3 MODAL SPLIT

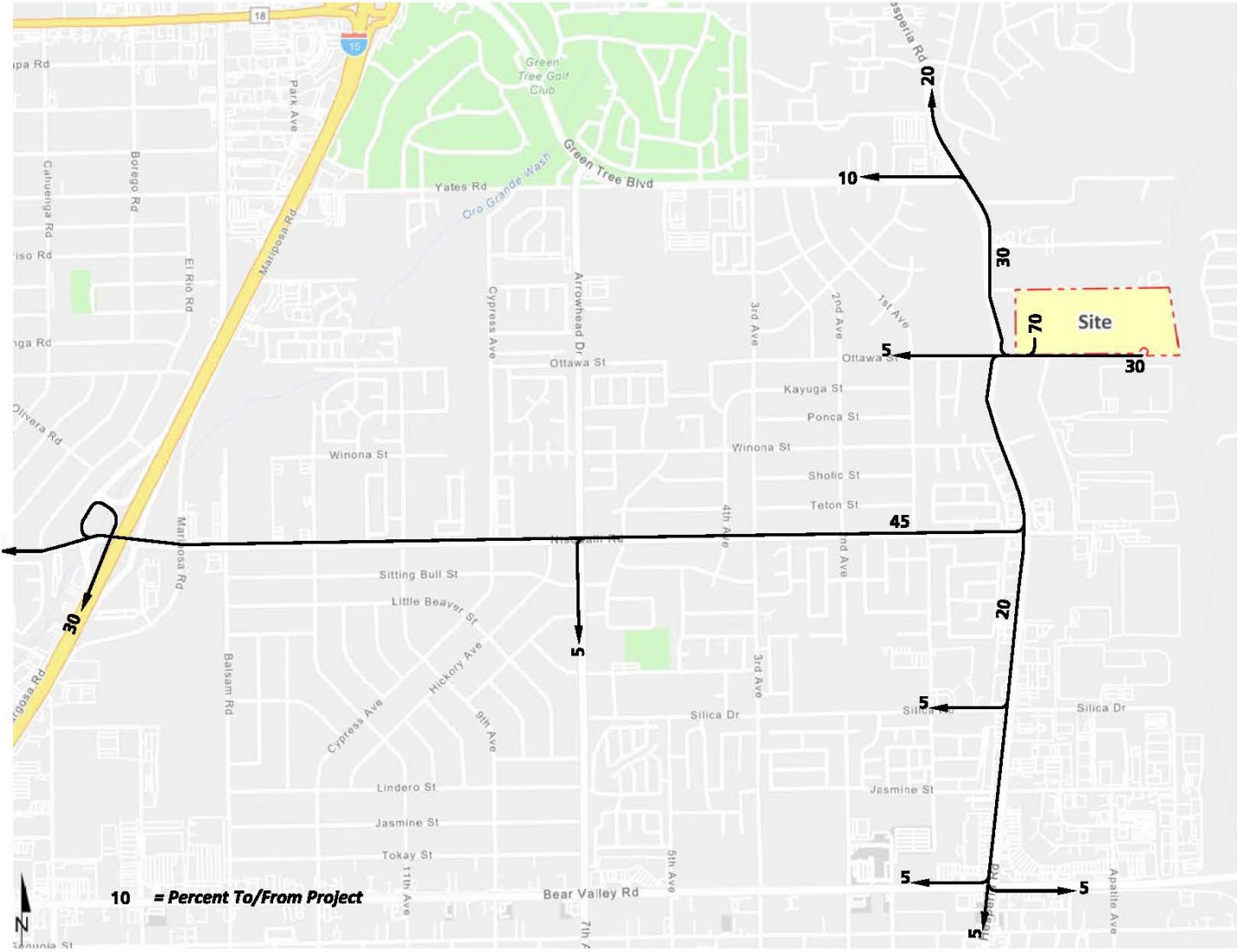
The potential for Project trips to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes (employee or non-truck trips only).

## 4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

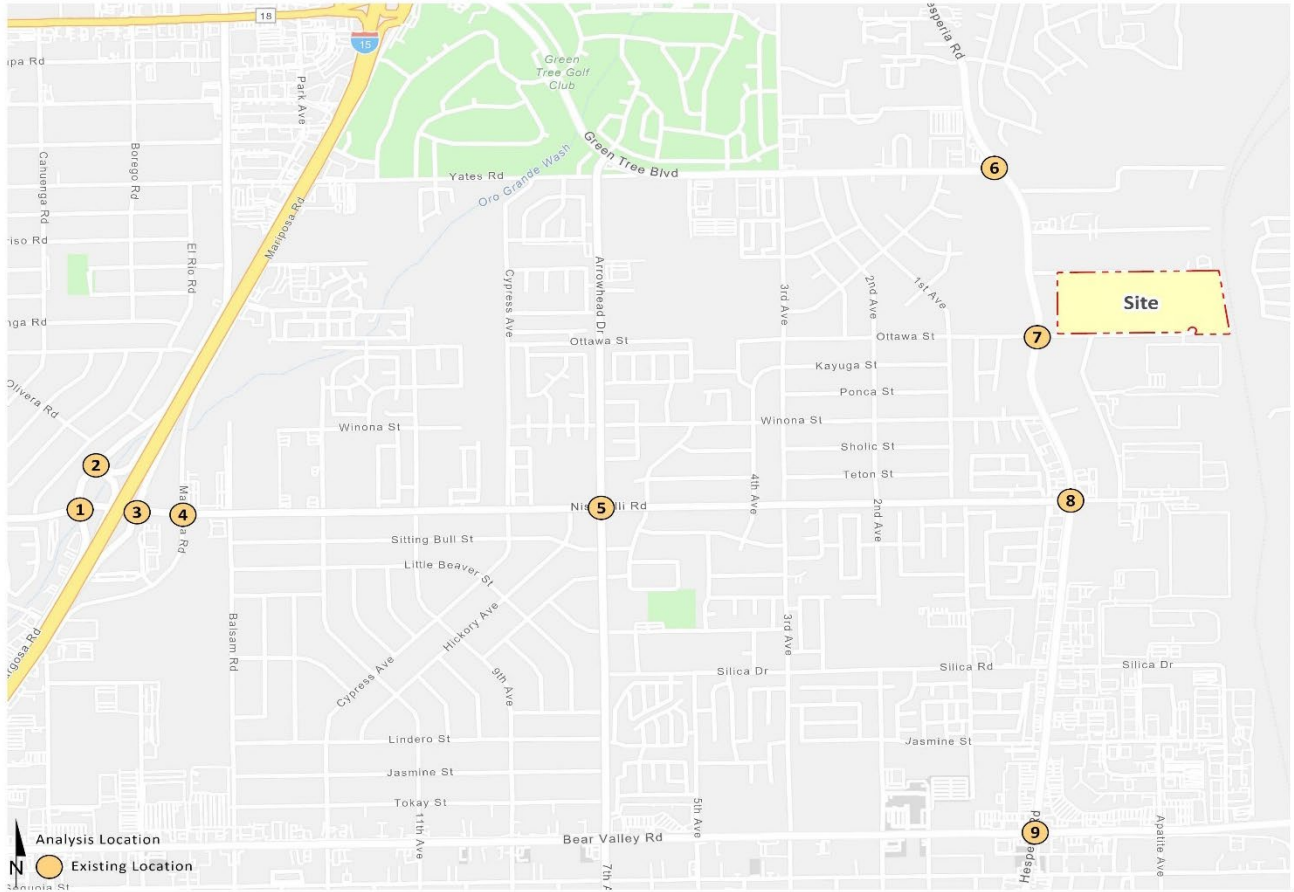


**EXHIBIT 4-1: PROJECT (PASSENGER CARS) TRIP DISTRIBUTION**





**EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES**



| 1  | 2  | 3   | 4   | 5   |
|--|--|---|---|---|
| <b>Amargosa Rd. &amp; La Mesa Rd.</b><br>500<br>650<br>9(3)<br>9(36)<br>2(10)<br>8(4) →<br>150 | <b>Amargosa Rd. &amp; I-15 SB Ramps</b><br>500<br>100<br>9(3)<br>9(36)<br>500  | <b>I-15 NB Ramps &amp; Nisqualli Rd.</b><br>1,100<br>16(7) →<br>31(14)<br>650                     | <b>Mariposa Rd. &amp; Nisqualli Rd.</b><br>1,100<br>47(21) →<br>350   | <b>Seventh Ave./Arrowhead Dr. &amp; Nisqualli Rd.</b><br>1,200<br>13(53)<br>1(5)<br>4(2)<br>1,100 |
| 6  | 7  | 8   | 9   |   |
| <b>Hesperia Rd. &amp; Green Tree Bl.</b><br>350<br>15(7)<br>8(4) ↓<br>2(10)<br>5(19)<br>500    | <b>Hesperia Rd. &amp; Ottawa St.</b><br>500<br>2,150<br>23(11)<br>7(29)<br>1(5)<br>19(77)<br>4(2) →<br>66(30)<br>500 | <b>Hesperia Rd. &amp; Nisqualli Rd.</b><br>1,550<br>14(58)<br>5(19)<br>51(23)<br>15(7) →<br>1,200 | <b>Hesperia Rd. &amp; Bear Valley Rd.</b><br>250<br>1(5)<br>1(5)<br>1(5)<br>4(2)<br>4(2) ↓<br>4(2) →<br>350 | 100<br>100  |

##(##) AM(PM) Peak Hour Intersection Volumes  
 ## Average Daily Trips

## 4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2.0% per year, compounded annually. The total ambient growth is 6.12% for 2024 traffic. The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. The traffic generated by the proposed Project is manually added to the base volume to determine Opening Year Cumulative forecasts.

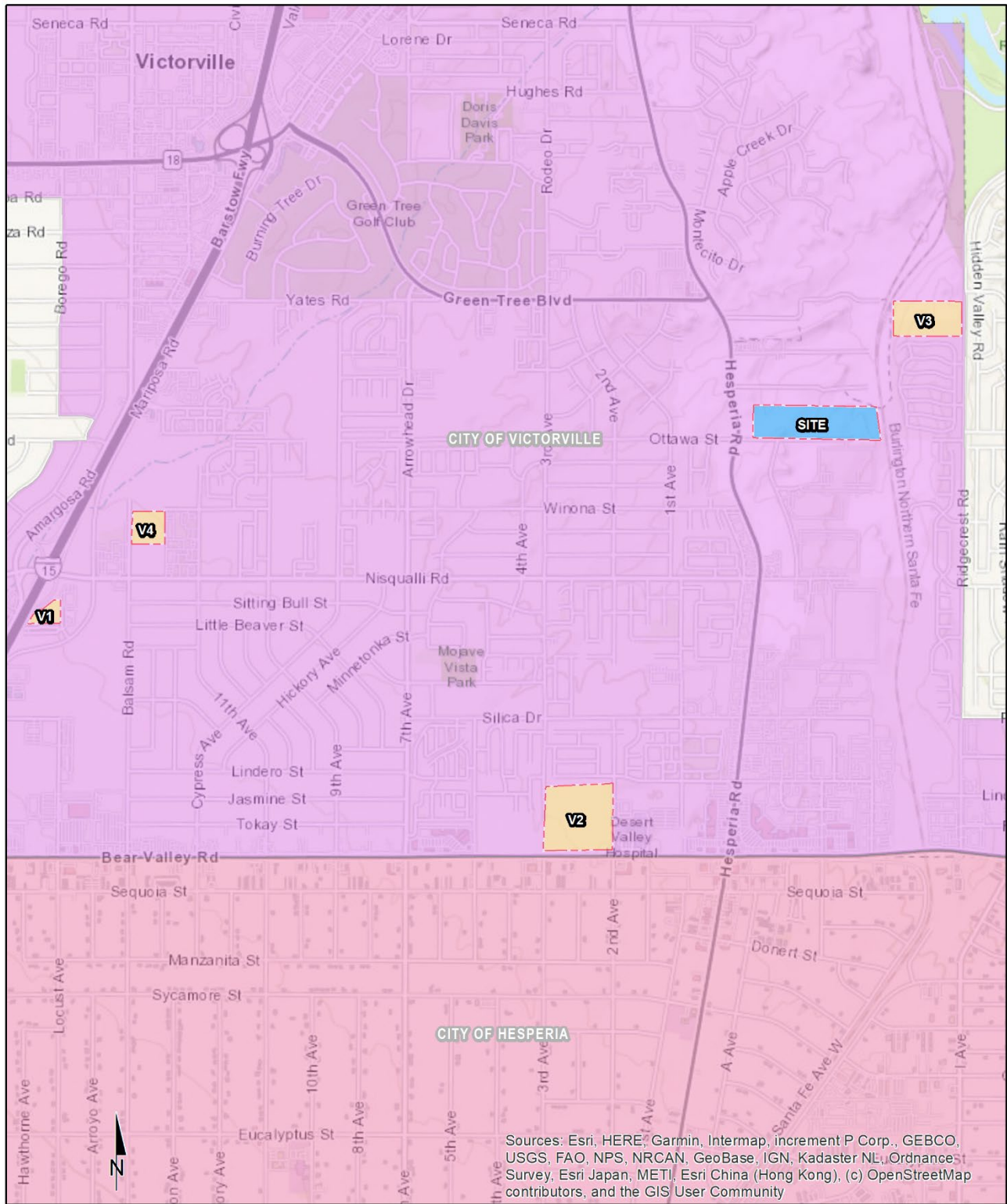
The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Opening Year Cumulative (2024) Without Project
  - Adjusted Existing 2021 volumes
  - Ambient growth traffic (6.12%)
  - Cumulative Development traffic
- Opening Year Cumulative (2024) With Project
  - Adjusted Existing 2021 volumes
  - Ambient growth traffic (6.12%)
  - Cumulative Development traffic
  - Project Traffic

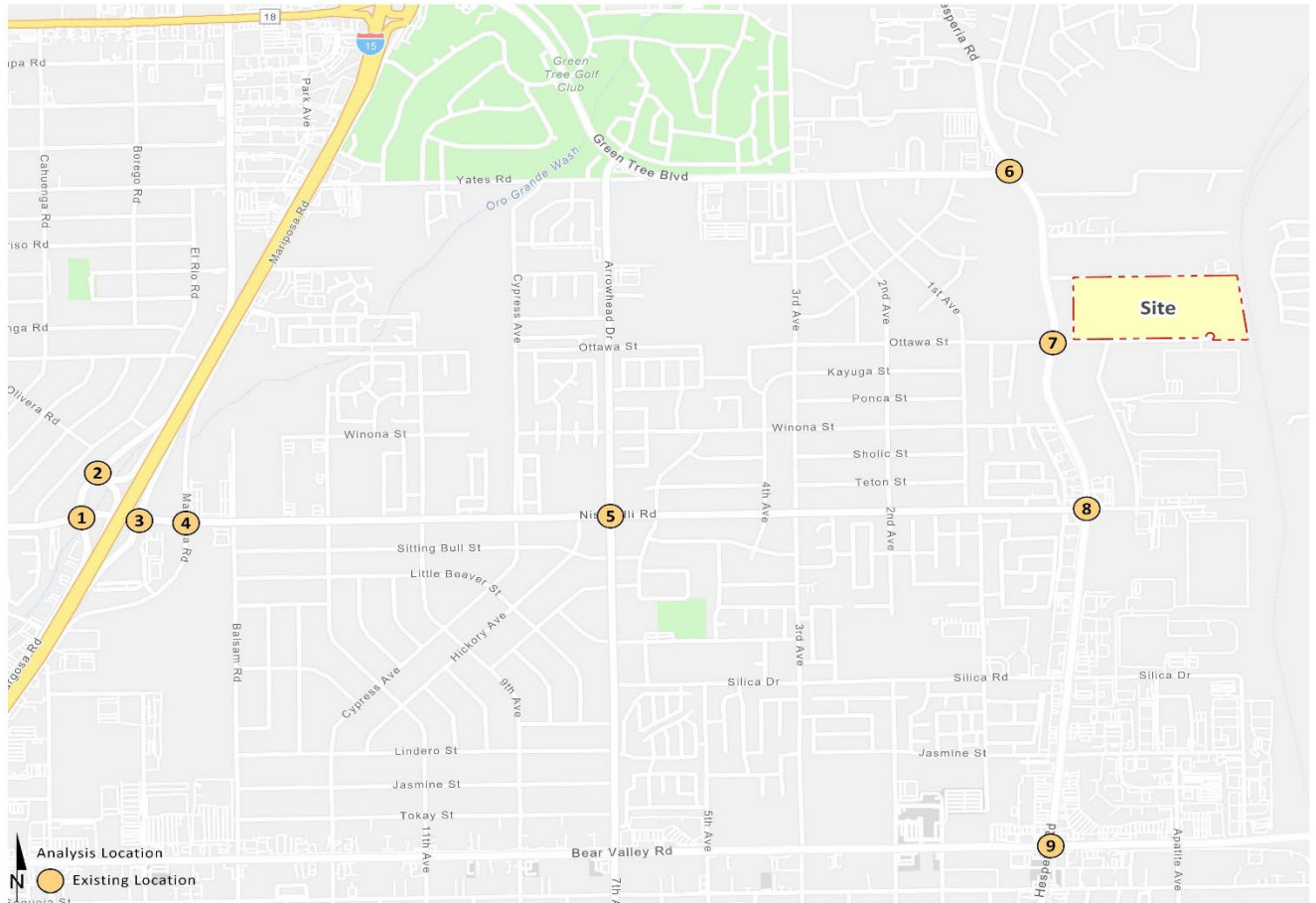
## 4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Victorville. The cumulative projects listed are those that would generate traffic and would contribute traffic to study area intersections. Exhibit 4-3 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-6. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative (2024) forecasts to ensure that traffic generated by the listed cumulative development projects on Table 4-2 is reflected as part of the background traffic. In an effort to conduct a conservative analysis, the cumulative projects are added in conjunction with the ambient growth identified in Section 4.5 *Background Traffic*. Cumulative ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-4 for near-term traffic conditions.

**EXHIBIT 4-3: CUMULATIVE DEVELOPMENT LOCATION MAP**



**EXHIBIT 4-4: CUMULATIVE ONLY TRAFFIC VOLUMES**



| 1   | 2   | 3  | 4  | 5  |
|---|---|--|--|--|
| <b>Amargosa Rd. &amp; La Mesa Rd.</b><br>1,100<br>1,100<br>26(47)<br>40(36) | <b>Amargosa Rd. &amp; I-15 SB Ramps</b><br>1,100<br>550<br>26(47)<br>40(36) | <b>I-15 NB Ramps &amp; Nisqualli Rd.</b><br>1,100<br>1,100<br>26(47) →<br>40(36) | <b>Mariposa Rd. &amp; Nisqualli Rd.</b><br>2,150<br>550<br>40(36)<br>40(36)<br>26(47) →<br>26(47)              | <b>Seventh Ave./Arrowhead Dr. &amp; Nisqualli Rd.</b><br>1,150<br>200<br>57(36)<br>19(57) →<br>33(37) ↓<br>23(35) →<br>9(7) →<br>200 |
| 6   | 7   | 8  | 9  |  |
| <b>Hesperia Rd. &amp; Green Tree Bl.</b><br>350<br>350<br>12(15)<br>16(12)  | <b>Hesperia Rd. &amp; Ottawa St.</b><br>350<br>350<br>12(15)<br>16(12)      | <b>Hesperia Rd. &amp; Nisqualli Rd.</b><br>350<br>350<br>12(15)<br>16(12)        | <b>Hesperia Rd. &amp; Bear Valley Rd.</b><br>350<br>1,700<br>1,750<br>9(8)<br>9(7)<br>31(73)<br>7(5)<br>75(49) |  |

##(##) AM(PM) Peak Hour Intersection Volumes  
 ## Average Daily Trips

**TABLE 4-2: CUMULATIVE DEVELOPMENT LAND USE SUMMARY**

| #  | Project Name | Land Use <sup>1</sup>      | Quantity Units <sup>1</sup> |
|----|--------------|----------------------------|-----------------------------|
| V1 | PLAN21-00005 | Hotel                      | 119.000 DU                  |
| V2 | PLAN21-00003 | Drive-Thru Restaurant      | 4.500 TSF                   |
| V3 | PLAN21-00010 | Residential (multi-family) | 272 DU                      |
| V4 | PLAN20-00009 | Residential (multi-family) | 212 DU                      |

<sup>1</sup> DU = Dwelling Units; TSF = Thousand Square Feet

#### 4.7 NEAR-TERM CONDITIONS

The “buildup” approach has been utilized which combines existing traffic counts with a background ambient growth factor to forecast the Opening Year Cumulative (2024) traffic conditions. An ambient growth factor of 6.12% accounts for background (area-wide) traffic increases that occur over time up to the year 2024 from the year 2021 (2 percent compounded over a 3-year period). Project traffic is added to assess Opening Year Cumulative (2024) With Project traffic conditions. Traffic volumes generated by cumulative development projects are included to assess the Opening Year Cumulative (2024) Without Project and With Project traffic conditions. The 2024 roadway networks are similar to the existing conditions roadway network with the exception of future intersections and driveways proposed to be developed by the Project.

#### 4.8 FUTURE YEAR (2034) CONDITIONS

The “buildup” approach has been utilized which combines existing traffic counts with a background ambient growth factor to forecast the Future Year (2034) traffic conditions. An ambient growth factor of 29.36% accounts for background (area-wide) traffic increases that occur over time up to the year 2034 from the year 2021 (2 percent compounded over a 13-year period). Project traffic is added to assess Future Year (2034) With Project traffic conditions. Traffic volumes generated by cumulative development projects are included to assess the Future Year (2034) Without Project and With Project traffic conditions. The 2034 roadway networks are similar to the existing conditions roadway network with the exception of future intersections and driveways proposed to be developed by the Project.

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## 5 OPENING YEAR CUMULATIVE (2024) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Opening Year Cumulative traffic conditions and the resulting intersection operations, traffic signal warrant, and queuing analyses.

### 5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for OYC (2024) With Project conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).

### 5.2 TRAFFIC VOLUME FORECASTS

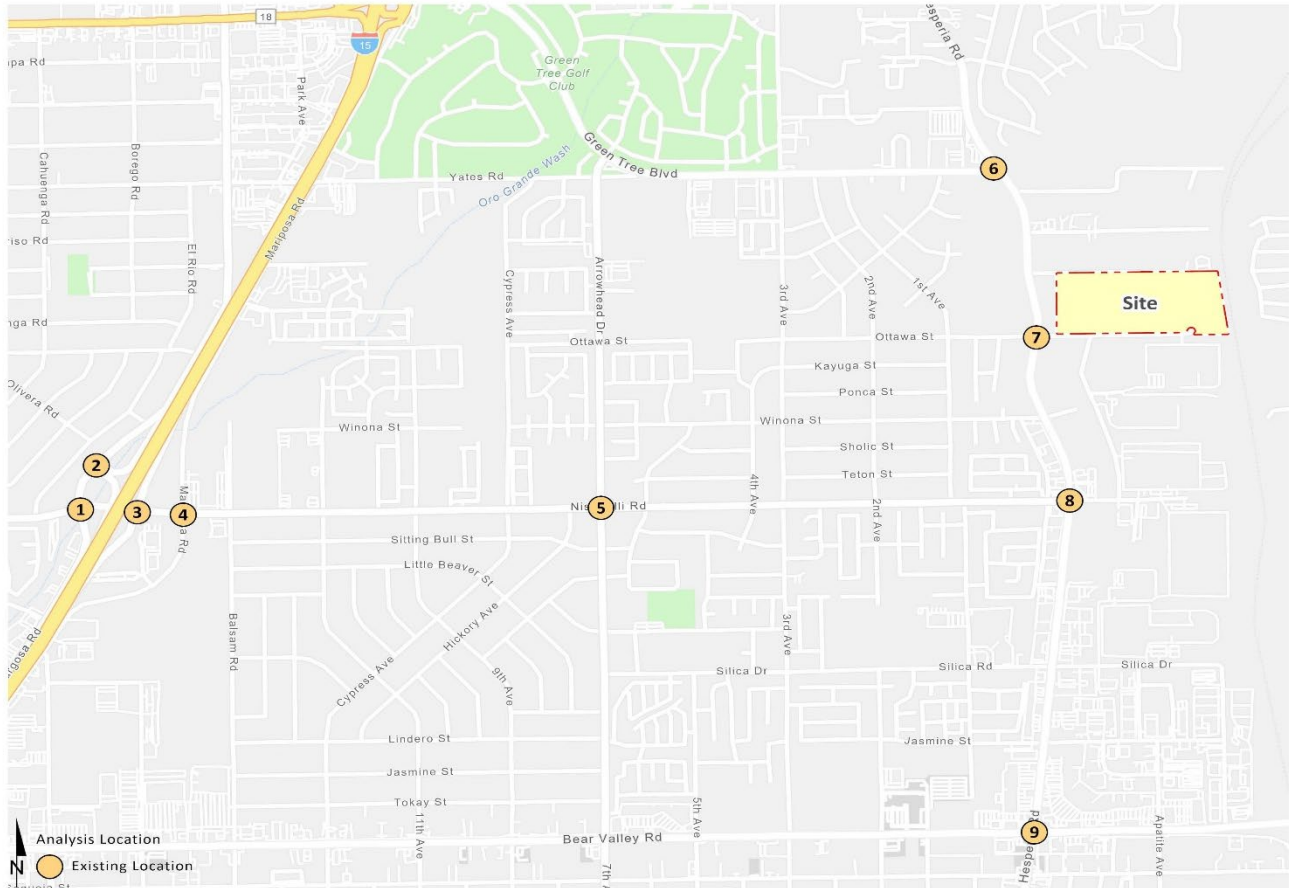
#### 5.2.1 OPENING YEAR CUMULATIVE (2024) WITHOUT PROJECT

This scenario includes Existing traffic volumes plus an ambient growth factor of 6.12% and the addition of cumulative development traffic. The weekday ADT, weekday AM, and PM peak hour volumes which can be expected for Opening Year Cumulative (2024) Without Project traffic conditions are shown on Exhibit 5-1 (in actual vehicles).

#### 5.2.2 OPENING YEAR CUMULATIVE (2024) WITH PROJECT

This scenario includes Existing traffic volumes plus an ambient growth factor of 6.12%, the addition of cumulative development traffic, and the addition of Project traffic. The weekday ADT, weekday AM, and PM peak hour volumes which can be expected for Opening Year Cumulative (2024) With Project traffic conditions are shown on Exhibit 5-2 (in actual vehicles).

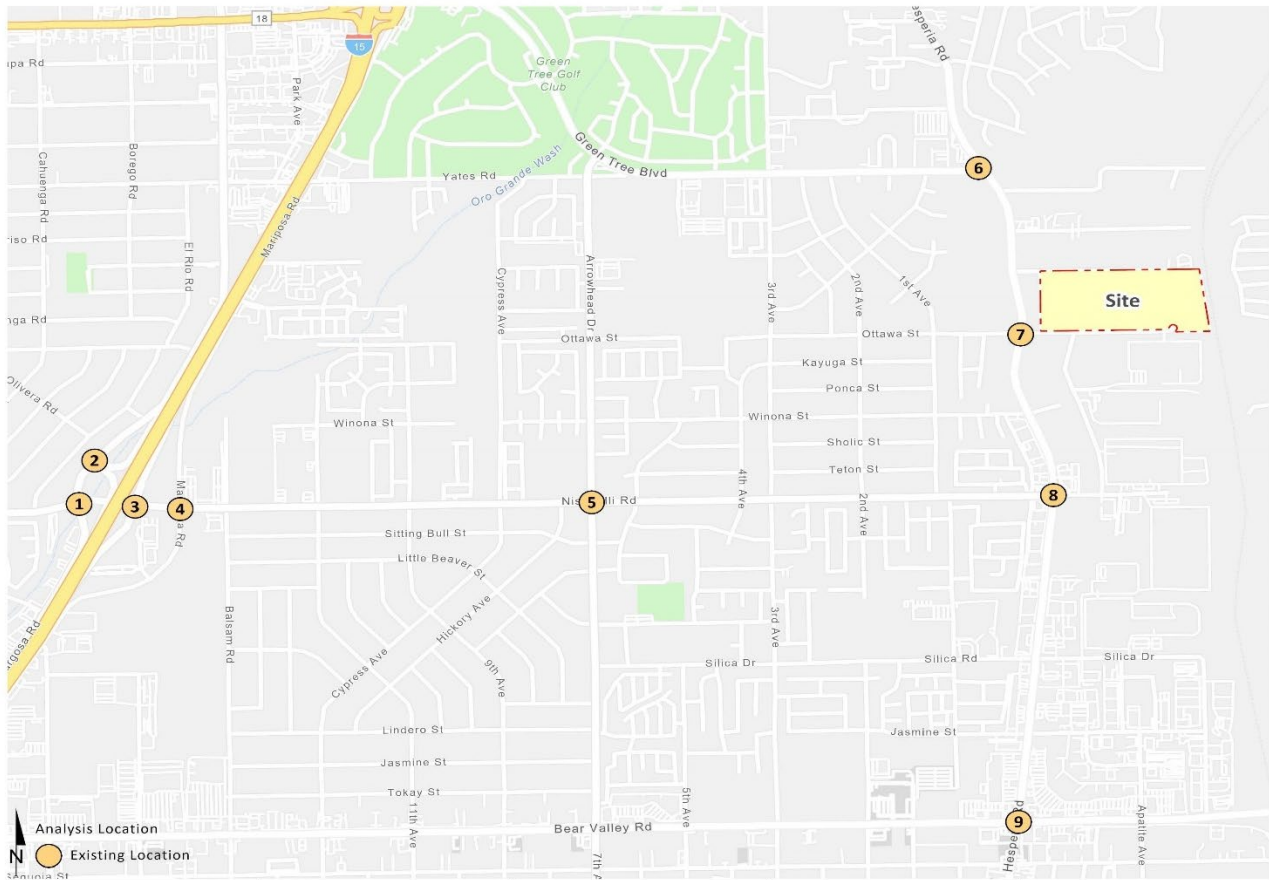
**EXHIBIT 5-1: OPENING YEAR CUMULATIVE (2024) WITHOUT PROJECT TRAFFIC VOLUMES**



| 1  | 2   | 3  | 4  | 5  |
|--|---|--|--|--|
| Amargosa Rd. & La Mesa Rd.   | Amargosa Rd. & I-15 SB Ramps  | I-15 NB Ramps & Nisqualli Rd.  | Mariposa Rd. & Nisqualli Rd.   | Seventh Ave./Arrowhead Dr. & Nisqualli Rd.   |
| 39,600<br>111(422)<br>206(666)<br>380(863)<br>592(682)<br>471(1513)<br>109(369)<br>182(148)<br>823(961)<br>74(145)<br>22(139)<br>111(330)<br>80(415)<br>61,650<br>26,650<br>43,200 | 25,800<br>785(970)<br>139(172)<br>39(48)<br>802(1006)<br>653(807)<br>298(355)<br>19,850<br>40,000     | 9,150<br>203(303)<br>1194(1932)<br>177(498)<br>1(0)<br>232(456)<br>62,050<br>12,100<br>61,550  | 15,700<br>60(109)<br>91(310)<br>59(188)<br>86(142)<br>1030(1880)<br>87(134)<br>51(152)<br>1094(1722)<br>279(510)<br>226(466)<br>127(313)<br>76(181)<br>54,850<br>23,800<br>61,550        | 11,300<br>49(84)<br>177(317)<br>42(49)<br>46(78)<br>462(1127)<br>19(34)<br>28(101)<br>722(882)<br>98(191)<br>98(227)<br>224(261)<br>19(42)<br>29,800<br>13,750<br>34,900 |
| 6  | 7   | 8  | 9  |  |
| Hesperia Rd. & Green Tree Bl.  | Hesperia Rd. & Ottawa St.   | Hesperia Rd. & Nisqualli Rd.   | Hesperia Rd. & Bear Valley Rd.   |  |
| 32,450<br>118(143)<br>894(1101)<br>132(140)<br>275(546)<br>325(522)<br>738(1125)<br>42,750<br>42,800   | 2,300<br>1(4)<br>116(1637)<br>7(6)<br>2(7)<br>0(1)<br>11(30)<br>1055(1634)<br>4(0)<br>2,300<br>44,100 | 43,600<br>47(113)<br>1067(1583)<br>11(16)<br>18(27)<br>39(49)<br>60(87)<br>124(146)<br>41(48)<br>397(415)<br>253(458)<br>1131(1396)<br>71(83)<br>4,000<br>17,100 | 26,200<br>100(156)<br>349(653)<br>265(423)<br>206(173)<br>1409(1494)<br>312(321)<br>191(144)<br>1287(1711)<br>120(109)<br>107(216)<br>538(483)<br>310(354)<br>56,200<br>27,700<br>47,850 |  |

##(##) AM(PM) Peak Hour Intersection Volumes  
 ## Average Daily Trips

**EXHIBIT 5-2: OPENING YEAR CUMULATIVE (2024) WITH PROJECT TRAFFIC VOLUMES**



| 1  | 2   | 3   | 4   | 5  |
|--|---|---|---|--|
| <b>Amargosa Rd. &amp; La Mesa Rd.</b>  | <b>Amargosa Rd. &amp; I-15 SB Ramps</b>   | <b>I-15 NB Ramps &amp; Nisqualli Rd.</b>  | <b>Mariposa Rd. &amp; Nisqualli Rd.</b>   | <b>Seventh Ave./Arrowhead Dr. &amp; Nisqualli Rd.</b>  |
| 42,000<br>111(422)<br>↓ 206(666)<br>↓ 389(866)<br>↑ 601(718)<br>↓ 473(1523)<br>109(369)<br>182(148)<br>831(965)<br>74(145)<br>22(139)<br>111(330)<br>80(415)<br>45,800 | 65,400<br>27,400<br>785(970)<br>139(172)<br>39(48)<br>811(1009)<br>653(807)<br>307(391)<br>42,400   | 9,700<br>65,800<br>311(439)<br>1019(2107)<br>203(303)<br>1210(1939)<br>177(498)<br>1(0)<br>263(470)<br>65,300   | 16,650<br>58,100<br>60(109)<br>91(310)<br>59(188)<br>86(142)<br>1043(1933)<br>87(134)<br>51(152)<br>1141(1743)<br>279(510)<br>226(466)<br>127(313)<br>76(181)<br>12,800                 | 12,000<br>31,550<br>49(84)<br>177(317)<br>42(49)<br>46(78)<br>475(1180)<br>20(39)<br>28(101)<br>769(903)<br>98(191)<br>98(227)<br>224(261)<br>23(44)<br>14,600 |
| <b>6</b>   | <b>7</b>  | <b>8</b>  | <b>9</b>  |  |
| <b>Hesperia Rd. &amp; Green Tree Bl.</b>   | <b>Hesperia Rd. &amp; Ottawa St.</b>  | <b>Hesperia Rd. &amp; Nisqualli Rd.</b>   | <b>Hesperia Rd. &amp; Bear Valley Rd.</b>   |  |
| 34,400<br>118(143)<br>↓ 909(1108)<br>132(140)<br>283(550)<br>327(532)<br>743(1144)<br>18,700   | 45,350<br>850<br>1(4)<br>1161(1637)<br>30(17)<br>9(36)<br>1(5)<br>19(78)<br>5(6)<br>4(2)<br>8(16)<br>11(30)<br>1055(1634)<br>70(30)<br>46,700 | 2,350<br>46,200<br>61(171)<br>1072(1602)<br>11(16)<br>18(27)<br>39(49)<br>60(87)<br>175(169)<br>41(48)<br>397(415)<br>253(458)<br>1146(1403)<br>71(83)<br>4,250 | 4,250<br>55,150<br>27,750<br>101(161)<br>350(658)<br>266(428)<br>210(175)<br>1409(1494)<br>312(321)<br>195(146)<br>1287(1711)<br>120(109)<br>107(216)<br>542(485)<br>310(354)<br>50,750 |  |

##(##) AM(PM) Peak Hour Intersection Volumes  
 ## Average Daily Trips

### 5.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2024) traffic conditions with roadway and intersection geometrics consistent with Section 5.1 *Roadway Improvements*. The intersection analysis results are summarized on Table 5-1 for Opening Year Cumulative (2024) Without Project traffic conditions, which indicates that the following study area intersections are anticipated to operate at an unacceptable LOS during one or more peak hours:

- Seventh Avenue/Arrowhead Drive & Nisqualli Road (#5) – LOS E PM peak hour only
- Hesperia Road & Nisqualli Road (#8) – LOS E PM peak hour only
- Hesperia Road & Bear Valley Road (#9) – LOS E PM peak hour only

With the addition of Project traffic, there are no additional study area intersections anticipated to operate at an unacceptable LOS during the peak hours under Opening Year Cumulative (2024) With Project traffic conditions. The Project is proposed to install a traffic signal at the intersection of Hesperia Road and Ottawa Street. This location is anticipated to operate at an acceptable LOS under With Project traffic conditions with the installation of a traffic signal (see also Section 5.4 *Traffic Signal Warrants Analysis*). The intersection operations analysis worksheets for Opening Year Cumulative (2024) Without Project and With Project traffic conditions are included in Appendices 5.1 and 5.2, respectively.

**TABLE 5-1: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2024) CONDITIONS**

| # | Intersection                               | Traffic Control <sup>2</sup> | 2024 Without Project       |             |                  |          | 2024 With Project          |             |                  |          | Difference in Delay <sup>3</sup> |            |
|---|--|------------------------------|----------------------------|-------------|------------------|----------|----------------------------|-------------|------------------|----------|----------------------------------|------------|
|   |  |                              | Delay <sup>1</sup> (secs.) |             | Level of Service |          | Delay <sup>1</sup> (secs.) |             | Level of Service |          | AM                               | PM         |
|   |  |                              | AM                         | PM          | AM               | PM       | AM                         | PM          | AM               | PM       | AM                               | PM         |
| 1 | Amargosa Rd. & La Mesa Rd.                 | TS                           | 31.5                       | 54.7        | C                | D        | 40.2                       | 54.8        | D                | D        | ----                             | ----       |
| 2 | Amargosa Rd. & I-15 SB Ramps               | TS                           | 23.7                       | 29.1        | C                | C        | 24.2                       | 29.6        | C                | C        | ----                             | ----       |
| 3 | I-15 NB Ramps & Nisqualli Rd.              | TS                           | 17.5                       | 31.0        | B                | C        | 19.3                       | 33.1        | B                | C        | ----                             | ----       |
| 4 | Mariposa Rd. & Nisqualli Rd.               | TS                           | 20.4                       | 38.6        | C                | C        | 20.5                       | 39.5        | C                | D        | ----                             | ----       |
| 5 | Seventh Ave./Arrowhead Dr. & Nisqualli Rd. | TS                           | 21.4                       | <b>58.4</b> | C                | <b>E</b> | 22.1                       | <b>58.6</b> | C                | <b>E</b> | ----                             | 0.2        |
| 6 | Hesperia Rd. & Green Tree Bl.              | TS                           | 14.9                       | 23.5        | B                | C        | 15.7                       | 28.9        | B                | C        | ----                             | ----       |
| 7 | Hesperia Rd. & Ottawa St.                  | CSS/ <u>TS</u>               | 22.1                       | 34.1        | C                | D        | 9.4                        | 12.6        | A                | B        | ----                             | ----       |
| 8 | Hesperia Rd. & Nisqualli Rd.               | TS                           | 34.5                       | <b>63.9</b> | C                | <b>E</b> | 37.2                       | <b>69.5</b> | D                | <b>E</b> | ----                             | <b>5.6</b> |
| 9 | Hesperia Rd. & Bear Valley Rd.             | TS                           | 45.0                       | <b>76.8</b> | D                | <b>E</b> | 45.2                       | <b>77.4</b> | D                | <b>E</b> | --                               | 0.6        |

<sup>1</sup> **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).  
<sup>2</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.  
<sup>3</sup> CSS = Cross-street Stop; TS = Traffic Signal; TS = Traffic Signal Installed from Project for WP scenario  
<sup>4</sup> Per the City of Victorville traffic study guidelines, increase in delay is only calculated for intersections operating at a deficient LOS.

### 5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no intersections anticipated to meet peak hour-volume based traffic signal warrants under Opening Year Cumulative (2024) Without Project traffic conditions (see Appendix 5.3). The following unsignalized study area intersection is anticipated to meet a peak hour volume-based traffic signal warrant for Opening Year Cumulative (2024) With Project traffic conditions (see Appendix 5.4):

- Hesperia Rd. & Ottawa St. (#6)

### 5.5 QUEUING ANALYSIS

Queuing analysis findings for Opening Year Cumulative (2024) Without Project are presented on Table 5-2. As shown on Table 5-2, no queuing issues are anticipated for any movements during the weekday AM and PM peak 95<sup>th</sup> percentile traffic flows. Worksheets for Opening Year Cumulative (2024) Without Project and With Project traffic conditions queuing analysis are provided in Appendices 5.5 and 5.6, respectively.

**TABLE 5-2: PEAK HOUR QUEUING SUMMARY FOR OPENING YEAR CUMULATIVE (2024) CONDITIONS**

| Intersection                       | Movement | Available Stacking Distance (Feet) | 2024 Without Project         |                  |                          |     | 2024 With Project            |                  |                          |     |
|------------------------------------|----------|------------------------------------|------------------------------|------------------|--------------------------|-----|------------------------------|------------------|--------------------------|-----|
|                                    |          |                                    | 95th Percentile Queue (Feet) |                  | Acceptable? <sup>1</sup> |     | 95th Percentile Queue (Feet) |                  | Acceptable? <sup>1</sup> |     |
|                                    |          |                                    | AM Peak Hour                 | PM Peak Hour     | AM                       | PM  | AM Peak Hour                 | PM Peak Hour     | AM                       | PM  |
| Amargosa Rd. & I-15 SB Ramps (#2)  | WBL      | 1,600                              | 300                          | 439 <sup>2</sup> | Yes                      | Yes | 308                          | 445 <sup>2</sup> | Yes                      | Yes |
|                                    | WBR      | 570                                | 21                           | 24               | Yes                      | Yes | 21                           | 24               | Yes                      | Yes |
| I-15 NB Ramps & Nisqualli Rd. (#3) | NBL      | 645                                | 89                           | 224              | Yes                      | Yes | 89                           | 224              | Yes                      | Yes |
|                                    | NBR      | 915                                | 188                          | 450 <sup>2</sup> | Yes                      | Yes | 228                          | 476 <sup>2</sup> | Yes                      | Yes |
| Hesperia Rd. & Ottawa St. (#7)     | WBL      | 200                                | 0                            | 5                | Yes                      | Yes | 38                           | 139              | Yes                      | Yes |
|                                    | SBL      | 200                                | 3                            | 3                | Yes                      | Yes | 45                           | 41               | Yes                      | Yes |

<sup>1</sup> Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

<sup>2</sup> 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

### 5.6 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The effectiveness of the recommended improvement strategies to address Opening Year Cumulative (2024) traffic deficiencies are presented on Table 5-3. Worksheets for Opening Year Cumulative (2024) With Project conditions, with improvements, HCM calculation worksheets are provided in Appendix 5.7.

**TABLE 5-3: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2024) CONDITIONS WITH IMPROVEMENTS**

| # | Intersection                 | Traffic Control <sup>3</sup> | Intersection Approach Lanes <sup>1</sup> |   |   |            |   |          |           |   |    |           |   |   | Delay <sup>2</sup> (secs.) |      | Level of Service |    |  |
|---|------------------------------|------------------------------|--|---|---|------------|---|----------|-----------|---|----|-----------|---|---|----------------------------|------|------------------|----|--|
|   |                              |                              | Northbound                               |   |   | Southbound |   |          | Eastbound |   |    | Westbound |   |   | AM                         | PM   | AM               | PM |  |
|   |                              |                              | L  | T | R | L          | T | R        | L         | T | R  | L         | T | R |                            |      |                  |    |  |
| 8 | Hesperia Rd. & Nisqualli Rd. |                              |  |   |   |            |   |          |           |   |    |           |   |   |                            |      |                  |    |  |
|   | - Without Improvements       | TS                           | 2  | 2 | 0 | 1          | 2 | 0        | 2         | 1 | 2> | 1         | 2 | 1 | 37.2                       | 69.5 | D                | E  |  |
|   | - With Improvements          | TS                           | 2  | 2 | 0 | 1          | 2 | <u>1</u> | 2         | 1 | 2> | 1         | 2 | 1 | 32.6                       | 51.8 | C                | D  |  |

<sup>1</sup> When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; 1 = Improvement

<sup>2</sup> Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all w stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>3</sup> TS = Traffic Signal

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## 6 FUTURE YEAR (2034) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Future Year traffic conditions and the resulting intersection operations, traffic signal warrant, and queuing analyses.

### 6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Future Year (2034) With Project conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Future Year (2034) conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Future Year (2034) conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).

### 6.2 TRAFFIC VOLUME FORECASTS

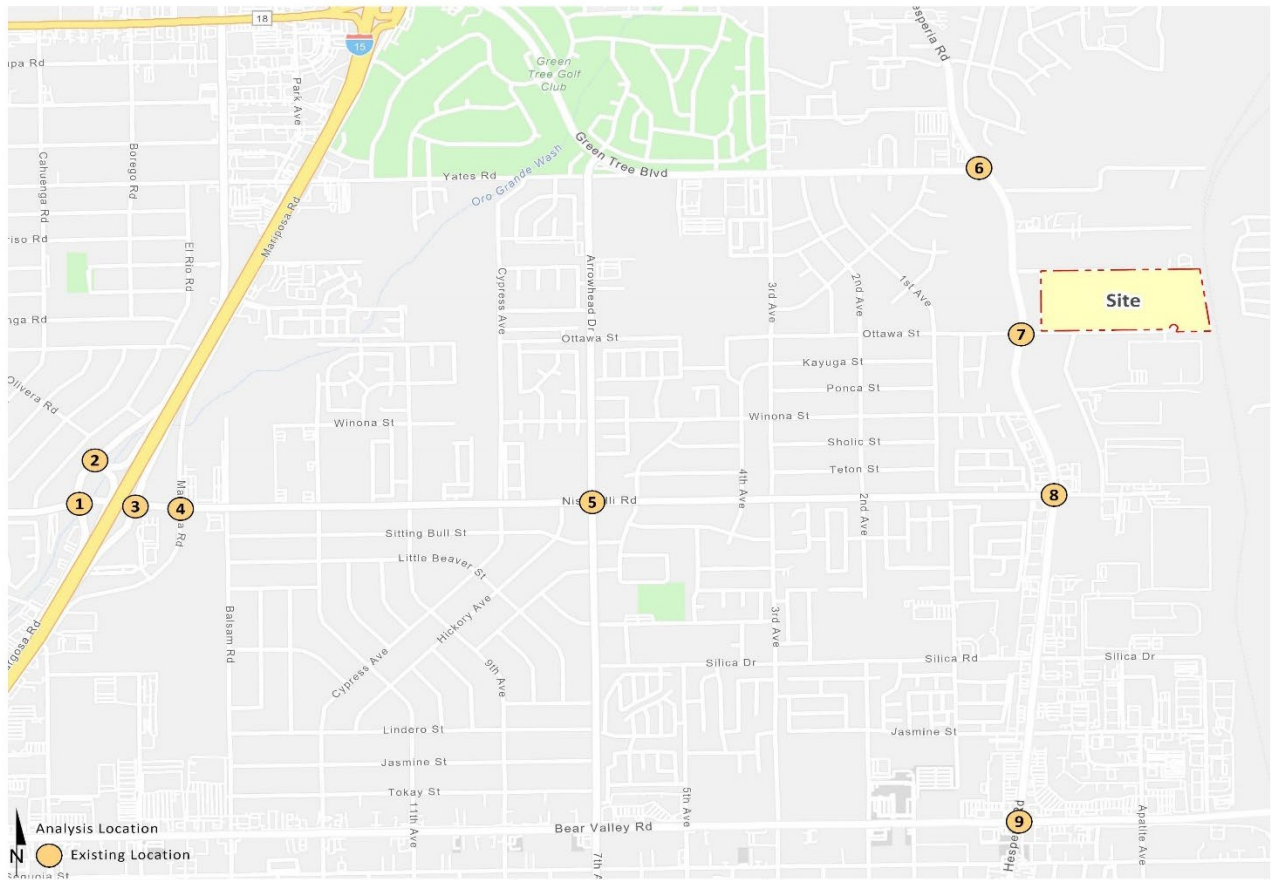
#### 6.2.1 FUTURE YEAR (2034) WITHOUT PROJECT

This scenario includes Existing traffic volumes plus an ambient growth factor of 29.36% and the addition of cumulative development traffic. The weekday ADT, weekday AM, and PM peak hour volumes which can be expected for Future Year (2034) Without Project traffic conditions are shown on Exhibit 6-1 (in actual vehicles).

#### 6.2.2 FUTURE YEAR (2034) WITH PROJECT

This scenario includes Existing traffic volumes plus an ambient growth factor of 29.36%, the addition of cumulative development traffic, and the addition of Project traffic. The weekday ADT, weekday AM, and PM peak hour volumes which can be expected for Future Year (2034) With Project traffic conditions are shown on Exhibit 6-2 (in actual vehicles).

**EXHIBIT 6-1: FUTURE YEAR (2034) WITHOUT PROJECT TRAFFIC VOLUMES**

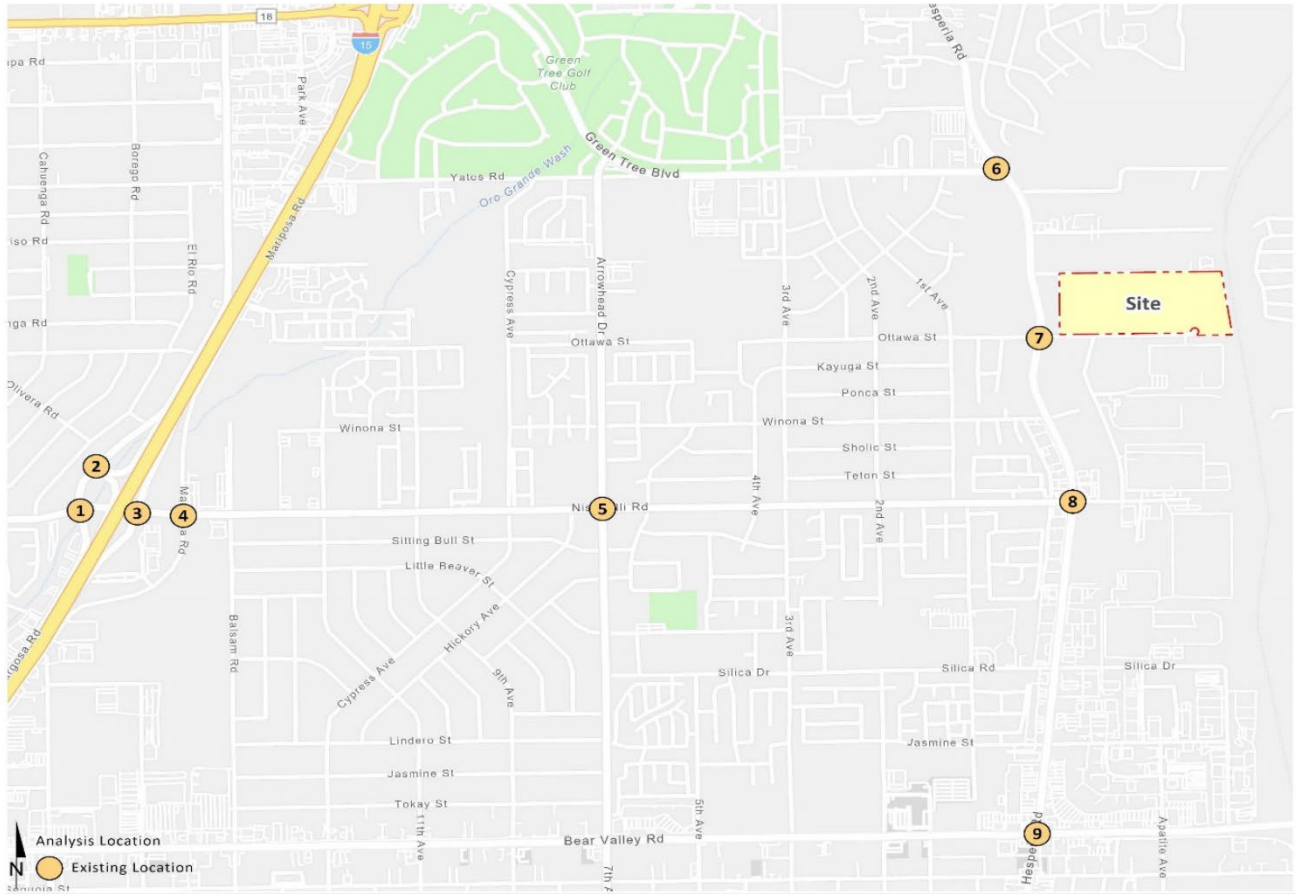


| 1   | 2  | 3  | 4   | 5  |
|---|--|--|---|--|
| <b>Amargosa Rd. &amp; La Mesa Rd.</b>   | <b>Amargosa Rd. &amp; I-15 SB Ramps</b>  | <b>I-15 NB Ramps &amp; Nisqually Rd.</b>   | <b>Mariposa Rd. &amp; Nisqually Rd.</b>   | <b>Seventh Ave./Arrowhead Dr. &amp; Nisqually Rd.</b>  |
| 51,700<br>135(515)<br>252(811)<br>457(1042)<br>712(824)<br>574(1844)<br>132(449)<br>222(180)<br>1003(1171)<br>90(176)<br>26(169)<br>135(402)<br>97(506)<br>55,650 | 80,000<br>33,400<br>956(1182)<br>169(209)<br>47(58)<br>972(1217)<br>796(984)<br>355(425)<br>52,200 | 12,200<br>81,000<br>368(518)<br>1220(2504)<br>247(369)<br>1450(2344)<br>216(608)<br>1(0)<br>278(545)<br>15,700   | 20,300<br>74(133)<br>110(378)<br>72(229)<br>104(173)<br>1243(2284)<br>106(164)<br>62(186)<br>1330(2087)<br>333(614)<br>270(561)<br>154(382)<br>93(220)<br>80,350              | 70,650<br>14,850<br>60(102)<br>214(385)<br>51(60)<br>56(95)<br>564(1373)<br>24(42)<br>34(124)<br>880(1075)<br>119(233)<br>119(276)<br>271(316)<br>24(51)<br>17,900 |
| 34,500  | 34,500   | 52,200   | 80,350  | 43,650   |
| 6   | 7  | 8  | 9   |  |
| <b>Hesperia Rd. &amp; Green Tree Bl.</b>  | <b>Hesperia Rd. &amp; Ottawa St.</b>   | <b>Hesperia Rd. &amp; Nisqually Rd.</b>  | <b>Hesperia Rd. &amp; Bear Valley Rd.</b>   |  |
| 41,900<br>144(175)<br>1088(1339)<br>160(171)<br>335(666)<br>396(637)<br>896(1369)<br>55,000   | 55,000<br>1(5)<br>1413(1992)<br>9(7)<br>3(9)<br>0(2)<br>13(36)<br>1283(1989)<br>4(0)<br>55,400     | 250<br>54,800<br>57(137)<br>1298(1927)<br>13(19)<br>22(33)<br>48(60)<br>73(106)<br>152(179)<br>50(58)<br>484(506)<br>308(559)<br>1375(1699)<br>87(101)<br>20,550 | 5,150<br>33,900<br>121(189)<br>426(796)<br>323(514)<br>249(210)<br>1701(1810)<br>381(392)<br>231(174)<br>1562(2069)<br>147(133)<br>131(264)<br>655(589)<br>378(431)<br>63,550 | 74,300<br>35,750   |
| 22,600  | 55,000   | 20,550   | 63,550  |  |

##(##) AM(PM) Peak Hour Intersection Volumes  
 ## Average Daily Trips



**EXHIBIT 6-2: FUTURE YEAR (2034) WITH PROJECT TRAFFIC VOLUMES**



| 1   | 2  | 3  | 4  | 5  |
|---|--|--|--|--|
| <b>Amargosa Rd. &amp; La Mesa Rd.</b>   | <b>Amargosa Rd. &amp; I-15 SB Ramps</b>  | <b>I-15 NB Ramps &amp; Nisqualli Rd.</b>   | <b>Mariposa Rd. &amp; Nisqualli Rd.</b>  | <b>Seventh Ave./Arrowhead Dr. &amp; Nisqualli Rd.</b>  |
| 52,200<br>135(515)<br>252(811)<br>466(1045)<br>721(860)<br>576(1854)<br>132(449)<br>222(180)<br>1011(1175)<br>90(176)<br>26(169)<br>135(402)<br>97(506)<br>34,500 | 80,650<br>33,400<br>956(1182)<br>169(209)<br>47(58)<br>981(1220)<br>796(984)<br>364(461)<br>26,600<br>52,650   | 12,350<br>82,100<br>370(526)<br>1231(2550)<br>247(369)<br>1466(2351)<br>216(608)<br>1(0)<br>309(559)<br>16,050   | 20,300<br>71,750<br>74(133)<br>110(378)<br>72(229)<br>104(173)<br>1256(2337)<br>106(164)<br>62(186)<br>1377(2108)<br>333(614)<br>270(561)<br>154(382)<br>93(220)<br>31,800     | 14,850<br>38,200<br>60(102)<br>214(385)<br>51(60)<br>56(95)<br>577(1426)<br>25(47)<br>34(124)<br>927(1096)<br>119(233)<br>119(276)<br>271(316)<br>28(53)<br>17,950 |
| 55,800  | 34,500   | 80,500   | 81,450   | 44,800   |
| <b>6</b>  | <b>7</b>   | <b>8</b>   | <b>9</b>   |  |
| <b>Hesperia Rd. &amp; Green Tree Bl.</b>  | <b>Hesperia Rd. &amp; Ottawa St.</b>   | <b>Hesperia Rd. &amp; Nisqualli Rd.</b>  | <b>Hesperia Rd. &amp; Bear Valley Rd.</b>  |  |
| 42,200<br>144(175)<br>1103(1346)<br>160(171)<br>343(670)<br>398(647)<br>901(1388)<br>55,500   | 55,500<br>1,050<br>1(5)<br>1413(1992)<br>32(18)<br>10(38)<br>1(5)<br>19(79)<br>6(7)<br>4(2)<br>10(20)<br>13(36)<br>1283(1989)<br>70(30)<br>2,400<br>56,950 | 56,350<br>5,150<br>71(195)<br>1303(1946)<br>13(19)<br>22(33)<br>48(60)<br>73(106)<br>203(202)<br>50(58)<br>484(506)<br>308(559)<br>1390(1706)<br>87(101)<br>21,750 | 34,150<br>74,400<br>122(194)<br>427(801)<br>324(519)<br>253(212)<br>1701(1810)<br>381(392)<br>235(176)<br>1562(2069)<br>147(133)<br>131(264)<br>659(591)<br>378(431)<br>67,500 | 63,600   |
| 22,800  | 55,500   | 21,750   | 63,600   | 95,800   |

##(##) AM(PM) Peak Hour Intersection Volumes  
 ## Average Daily Trips

### 6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Future Year (2034) traffic conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. The intersection analysis results are summarized on Table 6-1 for Future Year (2034) Without Project traffic conditions, which indicates that the following study area intersections are anticipated to operate at an unacceptable LOS during one or more peak hours:

- Amargosa Road & La Mesa Road (#1) – LOS E PM peak hour only
- Mariposa Road & Nisqualli Road (#4) – LOS E PM peak hour only
- Seventh Avenue/Arrowhead Drive & Nisqualli Road (#5) – LOS F PM peak hour only
- Hesperia Road & Ottawa Street (#7) – LOS F PM peak hour only
- Hesperia Road & Nisqualli Road (#8) – LOS F PM peak hour only
- Hesperia Road & Bear Valley Road (#9) – LOS E AM peak hour; LOS F PM peak hour

With the addition of Project traffic, there are no additional study area intersections anticipated to operate at an unacceptable LOS during the peak hours under Future Year (2034) With Project traffic conditions. The addition of the Project traffic is anticipated to result in a deficiency at the intersection of Hesperia Road and Ottawa Street based on the existing intersection traffic control. As such, the Project is proposed to install a traffic signal at the intersection of Hesperia Road and Ottawa Street. This location is anticipated to operate at an acceptable LOS under With Project traffic conditions with the installation of a traffic signal (see also Section 5.4 *Traffic Signal Warrants Analysis*). The intersection operations analysis worksheets for Future Year (2034) Without Project and With Project traffic conditions are included in Appendices 6.1 and 6.2, respectively.

**TABLE 6-1: INTERSECTION ANALYSIS FOR FUTURE YEAR (2034) CONDITIONS**

| # | Intersection                               | Traffic Control <sup>2</sup> | 2034 Without Project       |              |                  |    | 2034 With Project          |              |                  |    | Difference in Delay <sup>3</sup> |             |
|---|--|------------------------------|----------------------------|--------------|------------------|----|----------------------------|--------------|------------------|----|----------------------------------|-------------|
|   |  |                              | Delay <sup>1</sup> (secs.) |              | Level of Service |    | Delay <sup>1</sup> (secs.) |              | Level of Service |    | AM                               | PM          |
|   |  |                              | AM                         | PM           | AM               | PM | AM                         | PM           | AM               | PM | AM                               | PM          |
| 1 | Amargosa Rd. & La Mesa Rd.                 | TS                           | 35.4                       | <b>74.5</b>  | D                | E  | 40.7                       | <b>76.5</b>  | D                | E  | --                               | 2.0         |
| 2 | Amargosa Rd. & I-15 SB Ramps               | TS                           | 28.6                       | 44.5         | C                | D  | 32.9                       | 46.7         | C                | D  | ----                             | ----        |
| 3 | I-15 NB Ramps & Nisqualli Rd.              | TS                           | 20.9                       | 49.5         | C                | D  | 19.7                       | 52.7         | B                | E  | ----                             | ----        |
| 4 | Mariposa Rd. & Nisqualli Rd.               | TS                           | 21.9                       | <b>61.5</b>  | C                | E  | 22.1                       | <b>63.1</b>  | C                | E  | --                               | 1.6         |
| 5 | Seventh Ave./Arrowhead Dr. & Nisqualli Rd. | TS                           | 25.7                       | <b>92.7</b>  | C                | F  | 27.9                       | <b>92.9</b>  | C                | F  | --                               | 0.2         |
| 6 | Hesperia Rd. & Green Tree Bl.              | TS                           | 19.0                       | 34.0         | B                | C  | 19.4                       | 48.7         | B                | D  | --                               | --          |
| 7 | Hesperia Rd. & Ottawa St.                  | CSS/ <b>TS</b>               | 31.1                       | <b>63.9</b>  | D                | F  | 9.4                        | 15.6         | A                | B  | --                               | --          |
| 8 | Hesperia Rd. & Nisqualli Rd.               | TS                           | 46.3                       | <b>123.8</b> | D                | F  | 51.5                       | <b>142.2</b> | D                | F  | --                               | <b>18.4</b> |
| 9 | Hesperia Rd. & Bear Valley Rd.             | TS                           | <b>71.5</b>                | <b>122.2</b> | E                | F  | <b>71.6</b>                | <b>122.8</b> | E                | F  | 0.1                              | 0.6         |

**BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

<sup>1</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>2</sup> CSS = Cross-street Stop; TS = Traffic Signal; **TS** = Traffic Signal Installed from Project for WP scenario

<sup>3</sup> Per the City of Victorville traffic study guidelines, increase in delay is only calculated for intersections operating at a deficient LOS.

## 6.4 QUEUING ANALYSIS

Queuing analysis findings for Future Year (2034) Without Project are presented on Table 6-2. As shown on Table 6-2, it is anticipated for all movements to experience no queuing issues during the weekday AM and PM peak 95<sup>th</sup> percentile traffic flows. Worksheets for Future Year (2034) Without Project and With Project traffic conditions queuing analysis are provided in Appendices 6.3 and 6.4, respectively.

**TABLE 6-2: PEAK HOUR QUEUING SUMMARY FOR FUTURE YEAR (2034) CONDITIONS**

| Intersection                       | Movement | Available Stacking Distance (Feet) | 2034 Without Project         |                  |                          |     | 2034 With Project            |                  |                          |     |
|------------------------------------|----------|------------------------------------|------------------------------|------------------|--------------------------|-----|------------------------------|------------------|--------------------------|-----|
|                                    |          |                                    | 95th Percentile Queue (Feet) |                  | Acceptable? <sup>1</sup> |     | 95th Percentile Queue (Feet) |                  | Acceptable? <sup>1</sup> |     |
|                                    |          |                                    | AM Peak Hour                 | PM Peak Hour     | AM                       | PM  | AM Peak Hour                 | PM Peak Hour     | AM                       | PM  |
| Amargosa Rd. & I-15 SB Ramps (#2)  | WBL      | 1,600                              | 421 <sup>2</sup>             | 581 <sup>2</sup> | Yes                      | Yes | 435 <sup>2</sup>             | 587 <sup>2</sup> | Yes                      | Yes |
|                                    | WBR      | 570                                | 24                           | 26               | Yes                      | Yes | 24                           | 26               | Yes                      | Yes |
| I-15 NB Ramps & Nisqualli Rd. (#3) | NBL      | 645                                | 106                          | 285 <sup>2</sup> | Yes                      | Yes | 104                          | 285 <sup>2</sup> | Yes                      | Yes |
|                                    | NBR      | 915                                | 241                          | 579 <sup>2</sup> | Yes                      | Yes | 304 <sup>2</sup>             | 605 <sup>2</sup> | Yes                      | Yes |
| Hesperia Rd. & Ottawa St. (#7)     | WBL      | 200                                | 3                            | 13               | Yes                      | Yes | 41                           | 138              | Yes                      | Yes |
|                                    | SBL      | 200                                | 3                            | 3                | Yes                      | Yes | 51                           | 45               | Yes                      | Yes |

<sup>1</sup> Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

<sup>2</sup> 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

## 6.5 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The effectiveness of the recommended improvement strategies to address Future Year (2034) traffic deficiencies are presented on Table 6-3. Worksheets for Future Year (2034) With Project conditions, with improvements, HCM calculation worksheets are provided in Appendix 6.5.

**TABLE 6-3: INTERSECTION ANALYSIS FOR FUTURE YEAR (2034) CONDITIONS WITH IMPROVEMENTS**

| # | Intersection                      | Traffic Control <sup>3</sup> | Intersection Approach Lanes <sup>1</sup> |   |   |            |   |          |           |   |    |           |   |   | Delay <sup>2</sup> (secs.) |       | Level of Service |    |  |
|---|-----------------------------------|------------------------------|--|---|---|------------|---|----------|-----------|---|----|-----------|---|---|----------------------------|-------|------------------|----|--|
|   |                                   |                              | Northbound                               |   |   | Southbound |   |          | Eastbound |   |    | Westbound |   |   | AM                         | PM    | AM               | PM |  |
|   |                                   |                              | L  | T | R | L          | T | R        | L         | T | R  | L         | T | R |                            |       |                  |    |  |
| 8 | Hesperia Rd. & Nisqualli Rd.      |                              |  |   |   |            |   |          |           |   |    |           |   |   |                            |       |                  |    |  |
|   | - Without Improvements            | TS                           | 2  | 2 | 0 | 1          | 2 | 0        | 2         | 1 | 2> | 1         | 2 | 1 | 71.6                       | 122.8 | E                | F  |  |
|   | - With Improvements               | TS                           | 2  | 2 | 0 | 1          | 2 | <u>1</u> | 2         | 1 | 2> | 1         | 2 | 1 | 44.4                       | 71.9  | D                | E  |  |
|   | - With Improvements (Alternative) | TS                           | 2  | 2 | 0 | 1          | 2 | 0        | 2         | 1 | 2> | 1         | 2 | 1 | 36.2                       | 90.6  | D                | F  |  |

<sup>1</sup> When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; 1 = Improvement

<sup>2</sup> Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all w stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a sin lane) are shown.

<sup>3</sup> TS = Traffic Signal

As discussed previously in Section 1.9 *Concept Striping Plans* and shown previously in Exhibit 1-8, the median nose on the west leg and the stop bar for the inside eastbound left turn lane should be modified to provide sufficient space to accommodate the wide turning radius of heavy trucks. It should be noted, there is a proposed 9-foot offset for the southbound through lanes to the receiving lanes. This is consistent with the existing 9-foot offset for the westbound through lanes. Given the improvements to this intersection require restriping of the southbound approach, an offset for the southbound through lanes, and modification of the existing median and stop bar on the west leg, alternative signal timing improvements have also been recommended at this location. The alternative improvements consist of optimizing the traffic signal cycle splits during the AM and PM peak hours. Given the physical constraints of the intersection geometry, the northbound/southbound and eastbound/westbound left turns should operate with lead-lag operations to prevent conflicting left turns.

## 7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Victorville are funded through a combination of direct project mitigation, development impact fee programs or fair share contributions, such as the City of Victorville Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

### 7.1 CITY OF VICTORVILLE DEVELOPMENT IMPACT FEE PROGRAM

The County of San Bernardino adopted the latest update to their DIF program in September 2014. Fees from new residential, commercial, and industrial development are collected to fund Measure “I” compliant regional facilities as well as local facilities. Under the County’s DIF program, the County may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

After the County’s DIF fees are collected, they are placed in a separate restricted use account pursuant to the requirements of Government Code sections 66000 *et seq.* The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the County’s Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the County are also periodically performed by County staff and consultants. The County uses this data to determine the timing of the improvements listed in its facilities list. The County also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the County. In this way, the improvements are constructed before the LOS falls below the County’s LOS performance thresholds. The County’s DIF program establishes a timeline to fund, design, and build the improvements.

### 7.2 MEASURE “I” FUNDS

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure “I”, a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure “I” extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by SBCTA and concluded that each jurisdiction should include a regional fee component in their local programs to meet the Measure “I” requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in September 2017. Revenues collected through these programs are used in tandem with Measure “I” funds to deliver projects identified in the Nexus Study.

While Measure “I” is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure “I” have funded in the past, and will continue to fund, new transportation facilities in San Bernardino County, including within the City of Victorville.

### 7.3 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City’s discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, has been provided on Table 7-1 for the applicable deficient study area intersections.

**TABLE 7-1: PROJECT FAIR SHARE CALCULATIONS**

| # | Intersection                 | Existing | Project | OYC (2024)<br>WP | Total New<br>Traffic | Project % of<br>New Traffic <sup>1</sup> |              |
|---|------------------------------|----------|---------|------------------|----------------------|--|--------------|
| 8 | Hesperia Rd. & Nisqualli Rd. | AM:      | 3,044   | 85               | 3,343                | 299                                      | <b>28.4%</b> |
|   |                              | PM:      | 4,141   | 107              | 4,528                | 387                                      | 27.6%        |

**BOLD =** Highest fair share percentage is highlighted.

## 8 REFERENCES

1. **City of Victorville.** *General Guidelines For Conducting Traffic Studies and Determination of Intersection Level of Service and Improvement Needs.* Victorville : s.n., January 20, 2005.
2. **San Bernardino County.** *Transportation Impact Study Guidelines.* San Bernardino County : s.n., July 9, 2019.
3. **Institute of Transportation Engineers (ITE).** *Trip Generation Manual.* 10th Edition. 2017.
4. **WSP.** *TUMF High-Cube Warehouse Trip Generation Study.* County of Riverside : s.n., January 29, 2019.
5. **Southern California Association of Governments.** *Demographics and Growth Forecast Technical Report.* SCAG : s.n., Adopted on September 3, 2020.
6. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
7. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (CA MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CA MUTCD).* 2014.
8. **San Bernardino County Transportation Authority.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated 2016.

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**APPENDIX 1.1:**

**APPROVED TRAFFIC STUDY SCOPING AGREEMENT**

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**From:** [Anwar Wagdy](#)  
**To:** [Charlene So](#)  
**Cc:** [Alex Jauregui](#); [Michael Szarzynski](#); [Fredy Bonilla](#); [Connor Paquin](#)  
**Subject:** RE: 14035 Ottawa Business Center - Scoping Agreement  
**Date:** Monday, June 14, 2021 12:55:53 PM  
**Attachments:** [image001.png](#)  
[image003.png](#)

---

Hi Charlene,

Thanks for your detailed scoping agreement.  
Please add the following items to the study:

- Future 2034 year with and without project. Assume an annual growth rate of 2%.
- Conduct traffic signal warrants at the intersection of Hesperia/Ottawa.
- Conduct sight-distance analysis at the intersection of Hesperia/Ottawa.
- Conduct queueing analysis at the above intersection (southbound and westbound).
- Analyze the need to for left and right lanes for westbound Ottawa.
- Due to COVID and closed schools, please use a 10% adjustment factor on top of the new traffic counts.

When your TIA is complete, please mail to us in a hard-copy format.

Please let me know if you have any questions.

Thanks,



**ANWAR WAGDY, P.E.**  
City Traffic Engineer  
Public Works Dept. Engineering  
(760) 955-5160

---

**From:** Charlene So <[cso@urbanxroads.com](mailto:cso@urbanxroads.com)>  
**Sent:** Monday, June 14, 2021 10:16 AM  
**To:** Anwar Wagdy <[awagdy@victorvilleca.gov](mailto:awagdy@victorvilleca.gov)>  
**Cc:** Alex Jauregui <[AJauregui@victorvilleca.gov](mailto:AJauregui@victorvilleca.gov)>; Michael Szarzynski

<MSzarzynski@victorvilleca.gov>; Fredy Bonilla <fbonilla@victorvilleca.gov>; Connor Paquin <cpaquin@urbanxroads.com>

**Subject:** JN:14035 Ottawa Business Center - Scoping Agreement

[EXTERNAL EMAIL]: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Anwar,

I am following up on the status of the City's review of the attached scoping agreement. Please let me know if you have any questions or comments. Thank you!

Regards,

**URBAN** | CROSSROADS  
**CHARLENE SO, PE**  
Associate Principal  
(949) 861-0177 Mobile  
[urbanxroads.com](http://urbanxroads.com)

---

**From:** Charlene So

**Sent:** Tuesday, June 1, 2021 10:57 AM

**To:** [awagdy@victorvilleca.gov](mailto:awagdy@victorvilleca.gov)

**Cc:** [ajauregui@victorvilleca.gov](mailto:ajauregui@victorvilleca.gov); [MSzarzynski@victorvilleca.gov](mailto:MSzarzynski@victorvilleca.gov); [fbonilla@victorvilleca.gov](mailto:fbonilla@victorvilleca.gov); Connor Paquin <[cpaquin@urbanxroads.com](mailto:cpaquin@urbanxroads.com)>

**Subject:** JN:14035 Ottawa Business Center - Scoping Agreement

Hi Anwar,

Attached for your review is the scoping agreement for the proposed Ottawa Business Center project. Please let me know if there are any questions or comments. Thank you!

Regards,

**CHARLENE SO, P.E.**

Associate Principal

(949) 861-0177 Mobile

[urbanxroads.com](http://urbanxroads.com)



June 1, 2021

Mr. Anwar Wagdy  
City of Victorville  
8650 California Avenue  
South Gate, CA 90280

**SUBJECT: OTTAWA BUSINESS CENTER TRANSPORTATION ANALYSIS SCOPING AGREEMENT**

Dear Mr. Anwar Wagdy:

The firm of Urban Crossroads, Inc. is pleased to submit this scoping letter regarding the operational analysis for Ottawa Business Center development (Project), which is located on the northeast corner of Hesperia Road and Ottawa Street in the City of Victorville (see Exhibit 1). This letter describes the proposed Project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed Project study area and analysis locations. The following scope of work is based on the guidelines identified in the City's General Guidelines for Conducting Traffic Studies and Determination of Intersection Level of Service and Improvement Needs (City TIA Guidelines), dated January 20, 2005 and the County's Transportation Impact Study Guidelines (County TIS Guidelines), dated July 9, 2019.

A vehicle miles traveled (VMT) analysis will be prepared per SB743 requirements for the purposes of identifying impacts and mitigation measures associated with the Project as required in the City's VMT Analysis Guidelines (adopted June 23, 2020). In addition, a site access analysis will be conducted to ensure compliance with the TIA/TIS Guidelines but will not be used to determine any CEQA-related traffic impact and mitigation.

## **PROJECT DESCRIPTION**

A preliminary site use plan for the proposed Project is shown on Exhibit 2. The Project is anticipated to have an Opening Year of 2024. Access to the Project site will be provided to Ottawa Street. The proposed Project consists of 200,000 square feet of high-cube cold storage warehouse use and 796,520 square feet of high-cube fulfillment center warehouse use. Exhibit 3 identifies the proposed study area intersections.

## **TRIP GENERATION**

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. The trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual (10<sup>th</sup> Edition, 2017). For purposes of the trip generation

assessment, the following ITE land use codes and vehicle mix have been utilized for the proposed Project (see Table 1):

- ITE land use code 157 (High-Cube Cold Storage Warehouse) has been used to derive site specific trip generation estimates for up to 200,000 square feet. High-cube cold storage warehouses include warehouses characterized by the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. High-cube cold storage warehouses are facilities typified by temperature-controlled environments for frozen food or other perishable products. The High-Cube Cold Storage Warehouse vehicle mix (passenger cars versus trucks) has been obtained from the ITE's Trip Generation Manual Supplement (dated February 2020). This study provides the following vehicle mix: AM Peak Hour: 73.0% passenger cars and 27.0% trucks; PM Peak Hour: 77.0% passenger cars and 23.0% trucks; Weekday Daily: 65.0% passenger cars and 35.0% trucks. The truck percentages were further broken down by axle type per the following South Coast Air Quality Management District (SCAQMD) recommended truck mix: 2-Axle = 34.7%; 3-Axle = 11.0%; 4+-Axle = 54.3%.
- High-Cube Fulfillment Center Warehouse has been used to derive site specific trip generation estimates for up to 796,520 square feet. The ITE Trip Generation Manual Supplement (February 2020) has trip generation rates for high-cube fulfillment center use for both non-sort and sort facilities (ITE land use code 155). While there is sufficient data to support use of the trip generation rates for non-sort facilities, the sort facility rate appears to be unreliable because they are based on limited data (i.e., one to two surveyed sites). The proposed Project is speculative and whether a non-sort or sort facility end-user would occupy the buildings is not known at this time. Lastly, the ITE Trip Generation Handbook recommends the use of local data sources where available. As such, the best available source for high-cube fulfillment center use would be the trip-generation statistics published in the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) which was commissioned by the Western Riverside Council of Governments (WRCOG) in support of the Transportation Uniform Mitigation Fee (TUMF) update in the County of Riverside (see Attachment A). The WSP trip generation rates were published in January 2019 and are based on data collected at 11 local high-cube fulfillment center sites located throughout Southern California (specifically within San Bernardino County and Riverside County). However, the WSP study does not include a split for inbound and outbound vehicles, as such, the inbound and outbound splits per the ITE Trip Generation Manual for Land Use Code 154 have been utilized.

**TABLE 1: ITE TRIP GENERATION RATES**

| Land Use <sup>1</sup>   | Units <sup>2</sup> | ITE LU Code | AM Peak Hour |       |       | PM Peak Hour |       |       | Daily |
|---|--------------------|-------------|--------------|-------|-------|--------------|-------|-------|-------|
|   |                    |             | In           | Out   | Total | In           | Out   | Total |       |
| <b>Actual Vehicle Trip Generation Rates</b>                             |                    |             |              |       |       |              |       |       |       |
| High-Cube Fulfillment Center Warehouse <sup>4</sup>                     | TSF                | --          | 0.094        | 0.028 | 0.122 | 0.046        | 0.119 | 0.165 | 2.129 |
| Passenger Cars  |                    |             | 0.079        | 0.024 | 0.103 | 0.040        | 0.104 | 0.144 | 1.750 |
| 2-4 Axle Trucks   |                    |             | 0.006        | 0.002 | 0.008 | 0.003        | 0.008 | 0.011 | 0.162 |
| 5+-Axle Trucks  |                    |             | 0.008        | 0.003 | 0.011 | 0.003        | 0.007 | 0.010 | 0.217 |
| High-Cube Cold Storage Warehouse <sup>3</sup>                           | TSF                | 157         | 0.085        | 0.025 | 0.110 | 0.032        | 0.088 | 0.120 | 2.120 |
| Passenger Cars  |                    |             | 0.062        | 0.018 | 0.080 | 0.025        | 0.067 | 0.092 | 1.378 |
| 2-Axle Trucks   |                    |             | 0.008        | 0.002 | 0.010 | 0.003        | 0.007 | 0.010 | 0.257 |
| 3-Axle Trucks   |                    |             | 0.003        | 0.001 | 0.003 | 0.001        | 0.002 | 0.003 | 0.082 |
| 4+-Axle Trucks  |                    |             | 0.012        | 0.004 | 0.016 | 0.004        | 0.011 | 0.015 | 0.403 |
| <b>Passenger Car Equivalent (PCE) Trip Generation Rates<sup>5</sup></b> |                    |             |              |       |       |              |       |       |       |
| High-Cube Fulfillment Center Warehouse <sup>4</sup>                     | TSF                | --          | 0.094        | 0.028 | 0.122 | 0.046        | 0.119 | 0.165 | 2.129 |
| Passenger Cars  |                    |             | 0.079        | 0.024 | 0.103 | 0.040        | 0.104 | 0.144 | 1.750 |
| 2-4 Axle Trucks (PCE = 2.0)   |                    |             | 0.012        | 0.004 | 0.016 | 0.006        | 0.016 | 0.022 | 0.324 |
| 5+-Axle Trucks (PCE = 3.0)  |                    |             | 0.025        | 0.008 | 0.033 | 0.008        | 0.022 | 0.030 | 0.651 |
| High-Cube Cold Storage Warehouse <sup>3</sup>                           | TSF                | 157         | 0.085        | 0.025 | 0.110 | 0.032        | 0.088 | 0.120 | 2.120 |
| Passenger Cars  |                    |             | 0.062        | 0.018 | 0.080 | 0.025        | 0.067 | 0.092 | 1.378 |
| 2-Axle Trucks (PCE = 1.5)   |                    |             | 0.012        | 0.004 | 0.015 | 0.004        | 0.010 | 0.014 | 0.386 |
| 3-Axle Trucks (PCE = 2.0)   |                    |             | 0.005        | 0.002 | 0.007 | 0.002        | 0.004 | 0.006 | 0.163 |
| 4+-Axle Trucks (PCE = 3.0)  |                    |             | 0.037        | 0.011 | 0.048 | 0.012        | 0.033 | 0.045 | 1.209 |

<sup>1</sup> Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

<sup>2</sup> TSF = thousand square feet

<sup>3</sup> Vehicle Mix Source: ITE Trip Generation Handbook Supplement (2020), Appendix C.

Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.  
 Normalized % - With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks.

<sup>4</sup> Vehicle Mix Source: High Cube Warehouse Trip Generation Study, WSP, January 29, 2019.

Inbound and outbound split source: ITE Trip Generation Manual, Tenth Edition (2017) for ITE Land Use Code 154.

<sup>5</sup> PCE factors per SBCTA CMP: 2-axle = 1.5; 3-axle = 2.0; 4+-axle = 3.0.

The trip generation summary illustrating daily, and peak hour trip generation estimates for the proposed Project are shown on Table 2. As shown on Table 2, the existing use generates 2,124 two-way trips per day with 119 AM peak hour trips and 154 PM peak hour trips (actual vehicles).

**TABLE 2: PROJECT TRIP GENERATION SUMMARY (ACTUAL VEHICLES)**

| Land Use   | Quantity Units <sup>1</sup> | AM Peak Hour |           |            | PM Peak Hour |            |            | Daily        |
|--|-----------------------------|--------------|-----------|------------|--------------|------------|------------|--------------|
|  |                             | In           | Out       | Total      | In           | Out        | Total      |              |
| <b>Actual Vehicles:</b>                          |                             |              |           |            |              |            |            |              |
| High-Cube Cold Storage                           | 200.000 TSF                 |              |           |            |              |            |            |              |
| Passenger Cars:                                  |                             | 12           | 4         | 16         | 5            | 13         | 18         | 276          |
| 2-axle Trucks:                                   |                             | 2            | 0         | 2          | 1            | 1          | 2          | 52           |
| 3-axle Trucks:                                   |                             | 1            | 0         | 1          | 0            | 0          | 0          | 16           |
| 4+-axle Trucks:                                  |                             | 2            | 1         | 3          | 1            | 2          | 3          | 82           |
| Total Truck Trips (Actual Vehicles):             |                             | 5            | 1         | 6          | 2            | 3          | 5          | 150          |
| <b>Total Trips (Actual Vehicles)<sup>2</sup></b> |                             | <b>17</b>    | <b>5</b>  | <b>22</b>  | <b>7</b>     | <b>16</b>  | <b>23</b>  | <b>426</b>   |
| High-Cube Fulfillment                            | 796.520 TSF                 |              |           |            |              |            |            |              |
| Passenger Cars:                                  |                             | 63           | 19        | 82         | 32           | 83         | 115        | 1,394        |
| 2-4axle Trucks:                                  |                             | 5            | 1         | 6          | 2            | 6          | 8          | 130          |
| 5+-axle Trucks:                                  |                             | 7            | 2         | 9          | 2            | 6          | 8          | 174          |
| Total Truck Trips (Actual Vehicles):             |                             | 12           | 3         | 15         | 4            | 12         | 16         | 304          |
| <b>Total Trips (Actual Vehicles)<sup>2</sup></b> |                             | <b>75</b>    | <b>22</b> | <b>97</b>  | <b>36</b>    | <b>95</b>  | <b>131</b> | <b>1,698</b> |
| Total Passenger Car Trips                        |                             | 75           | 23        | 98         | 37           | 96         | 133        | 1,670        |
| Total Truck Trips                                |                             | 17           | 4         | 21         | 6            | 15         | 21         | 454          |
| <b>Total Trips (Actual Vehicles)<sup>2</sup></b> |                             | <b>92</b>    | <b>27</b> | <b>119</b> | <b>43</b>    | <b>111</b> | <b>154</b> | <b>2,124</b> |

<sup>1</sup> TSF = thousand square feet

<sup>2</sup> Total Trips = Passenger Cars + Truck Trips.

As shown on Table 3, the proposed Project is anticipated to generate 2,802 two-way daily PCE trips with 150 AM PCE peak hour trips and 188 PM PCE peak hour trips.



**TABLE 3: PROJECT TRIP GENERATION SUMMARY (PCE)**

| Land Use  | Quantity Units <sup>1</sup> | AM Peak Hour |           |            | PM Peak Hour |            |            | Daily        |
|---|-----------------------------|--------------|-----------|------------|--------------|------------|------------|--------------|
|   |                             | In           | Out       | Total      | In           | Out        | Total      |              |
| <b>Passenger Car Equivalent (PCE):</b>                      |                             |              |           |            |              |            |            |              |
| High-Cube Cold Storage                                      | 200.000 TSF                 |              |           |            |              |            |            |              |
| Passenger Cars:   |                             | 12           | 4         | 16         | 5            | 13         | 18         | 276          |
| 2-axle Trucks:  |                             | 2            | 1         | 3          | 1            | 2          | 3          | 78           |
| 3-axle Trucks:  |                             | 1            | 0         | 1          | 0            | 1          | 1          | 34           |
| 4+-axle Trucks:   |                             | 7            | 2         | 9          | 2            | 7          | 9          | 242          |
| Total Truck Trips (PCE):                                    |                             | 10           | 3         | 13         | 3            | 10         | 13         | 354          |
| <b>High-Cube Cold Storage Total Trips (PCE)<sup>2</sup></b> |                             | <b>22</b>    | <b>7</b>  | <b>29</b>  | <b>8</b>     | <b>23</b>  | <b>31</b>  | <b>630</b>   |
| High-Cube Fulfillment                                       | 796.520 TSF                 |              |           |            |              |            |            |              |
| Passenger Cars:   |                             | 63           | 19        | 82         | 32           | 83         | 115        | 1,394        |
| 2-4axle Trucks:   |                             | 10           | 3         | 13         | 5            | 13         | 18         | 258          |
| 5+-axle Trucks:   |                             | 20           | 6         | 26         | 7            | 17         | 24         | 520          |
| Total Truck Trips (PCE):                                    |                             | 30           | 9         | 39         | 12           | 30         | 42         | 778          |
| <b>High-Cube Fulfillment Total Trips (PCE)<sup>2</sup></b>  |                             | <b>93</b>    | <b>28</b> | <b>121</b> | <b>44</b>    | <b>113</b> | <b>157</b> | <b>2,172</b> |
| Total Passenger Car Trips                                   |                             | 75           | 23        | 98         | 37           | 96         | 133        | 1,670        |
| Total Truck Trips   |                             | 40           | 12        | 52         | 15           | 40         | 55         | 1,132        |
| <b>Total Trips (PCE)<sup>2</sup></b>                        |                             | <b>115</b>   | <b>35</b> | <b>150</b> | <b>52</b>    | <b>136</b> | <b>188</b> | <b>2,802</b> |

<sup>1</sup> TSF = thousand square feet

<sup>2</sup> Total Trips = Passenger Cars + Truck Trips.

## TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. Exhibit 4 illustrates the anticipated passenger car trip distribution patterns for the Project and Exhibit 5 illustrates the Project truck trip distribution patterns.

## OPERATIONAL ANALYSIS SCENARIOS

Consistent with the TIA Guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2021) Conditions
- Opening Year Cumulative (2024) Without Project Conditions
- Opening Year Cumulative (2024) With Project Conditions

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6<sup>th</sup> Edition analysis methodology.

## **TRAFFIC COUNTS**

In light of current economic conditions and social-distancing practices in place, historical traffic counts will be utilized. A 1.68 percent per year growth factor (compounded annually) will be applied to historic traffic counts to reflect 2021 baseline conditions. The growth rate is an average of the SCAG RTC (SoCal Connect) population, household, and employment growth projections between 2016 and 2045. We will ensure historic traffic counts were collected when local schools were in session and operating on normal bell schedules. For locations where historic traffic counts are not available, a new traffic count will be conducted. A new traffic count will also be conducted at a location where historic data is available. Based on the growth in traffic observed at the location with both new and historic traffic count data, a similar growth will be applied to intersections where no historic data is available.

## **CUMULATIVE PROJECTS**

It is requested that the City's Planning Department provide us a list of cumulative projects to be included as part of the operational analysis. Alternatively, at the City's direction we can use an ambient growth to reflect background growth over time.

## **SIGNAL TIMING**

It is requested that the City's provide signal timing for any signalized City-controlled intersections. A request has already been made with Caltrans District 8 through their Public Records Request system to obtain signal timing for the I-15 Freeway ramps.

## **CONCLUSION**

Urban Crossroads, Inc. is pleased to submit this letter documenting the Project trip generation, trip distribution, and the recommended intersection analysis locations for the Ottawa Business Center Traffic Analysis. We will continue to move forward towards completing the traffic study after receiving jurisdiction approval or comments finalizing the study area. If you have any questions, please contact me directly at (949) 861-0177.

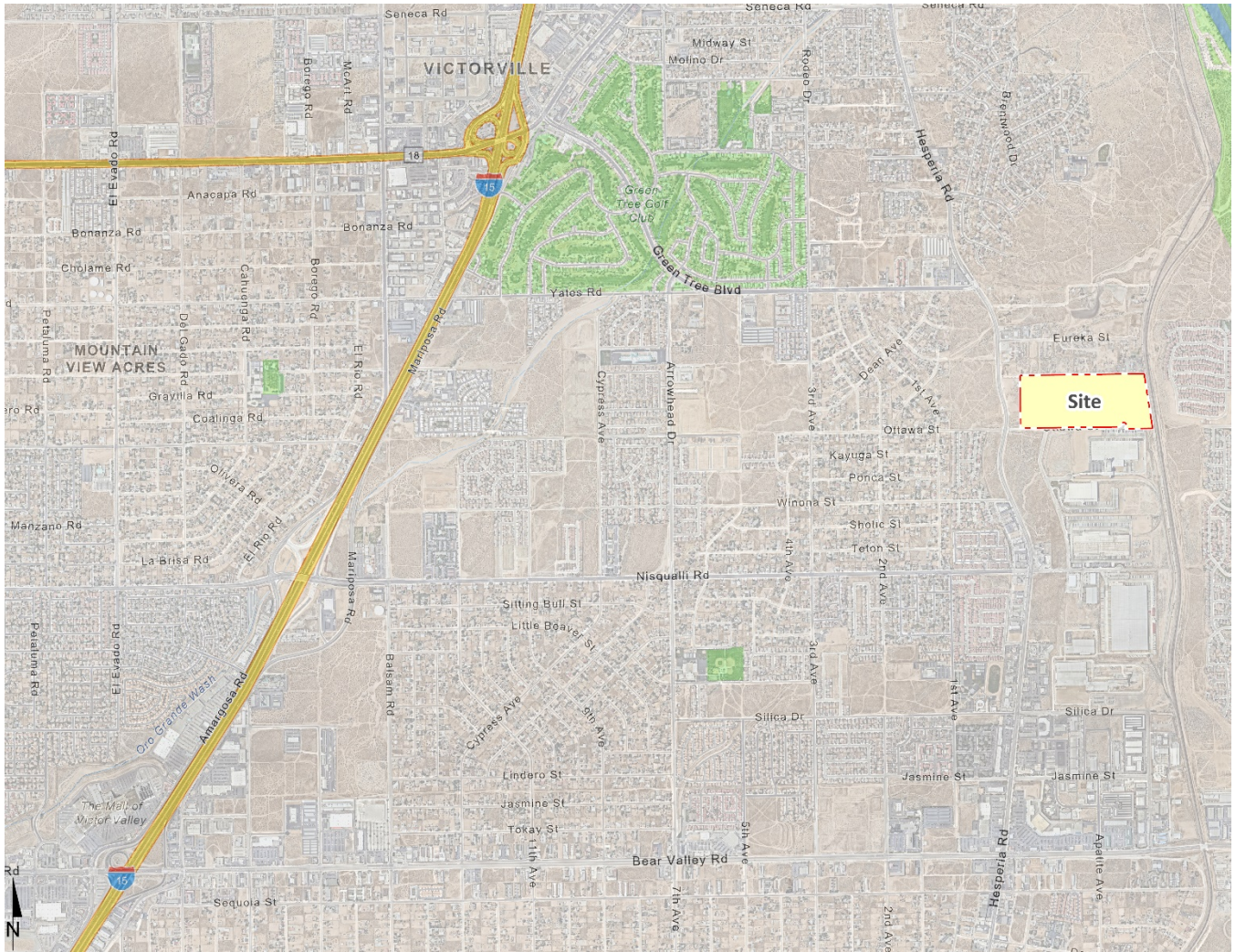
Respectfully submitted,

URBAN CROSSROADS, INC.

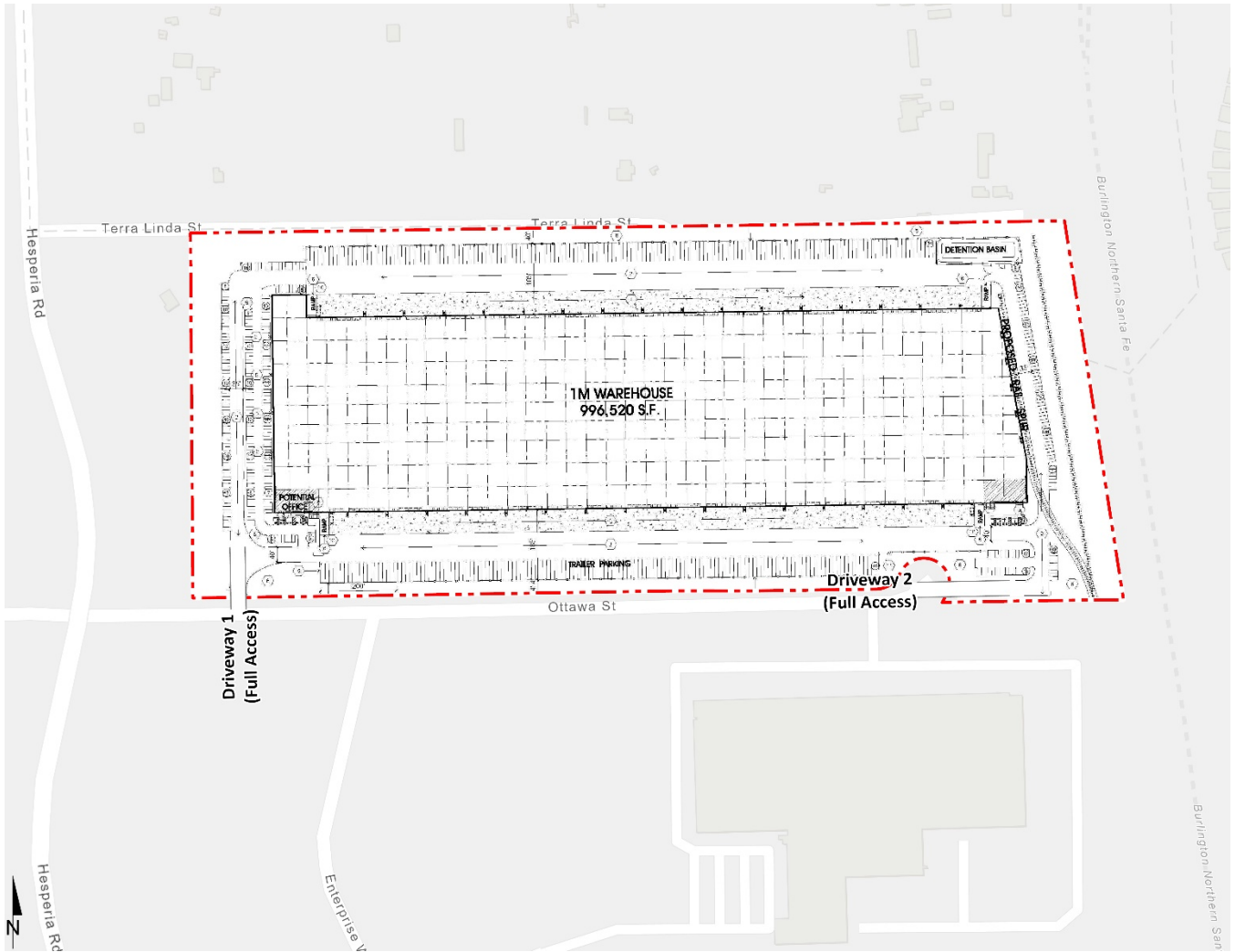


Charlene So, PE  
Associate Principal

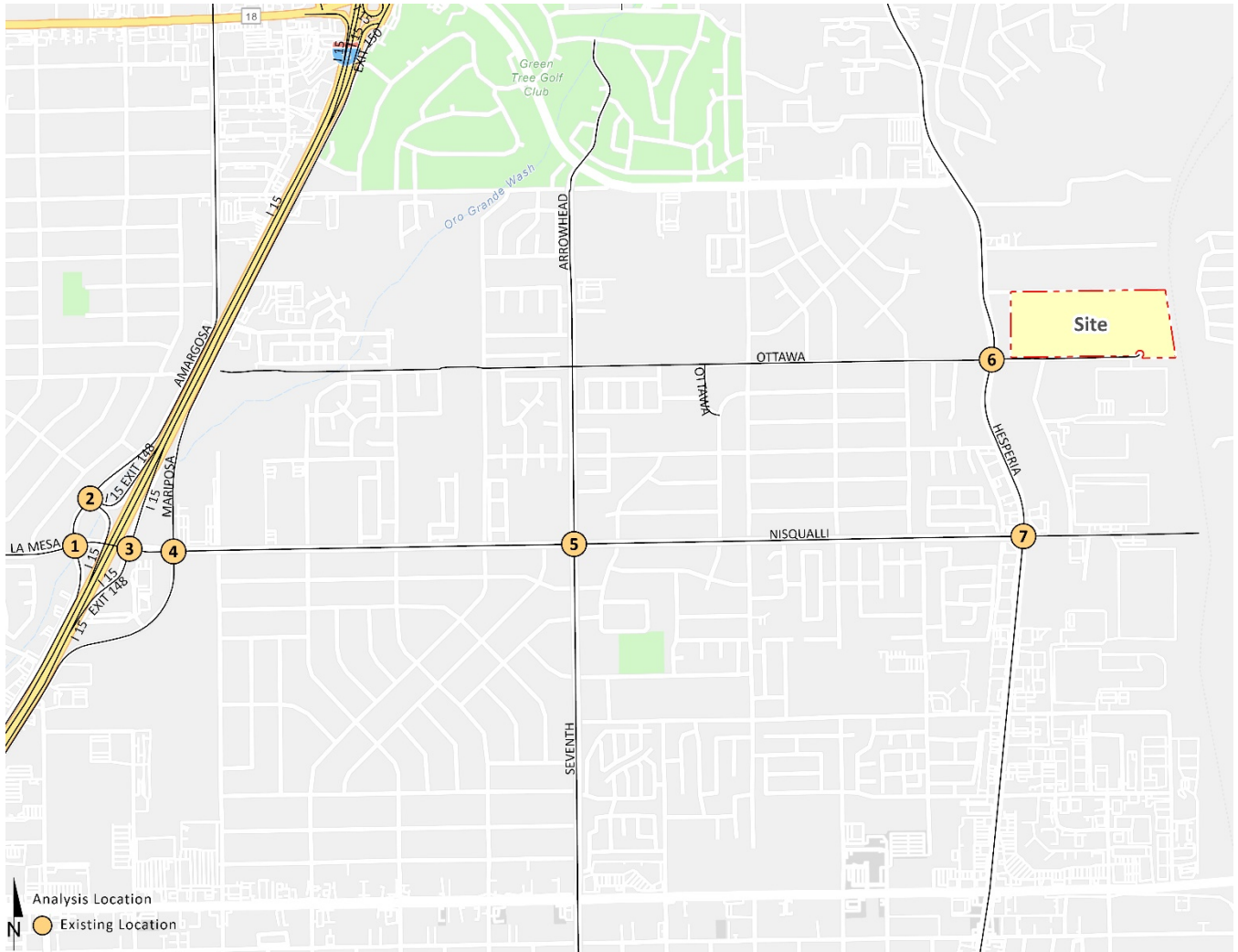
# EXHIBIT 1: LOCATION MAP



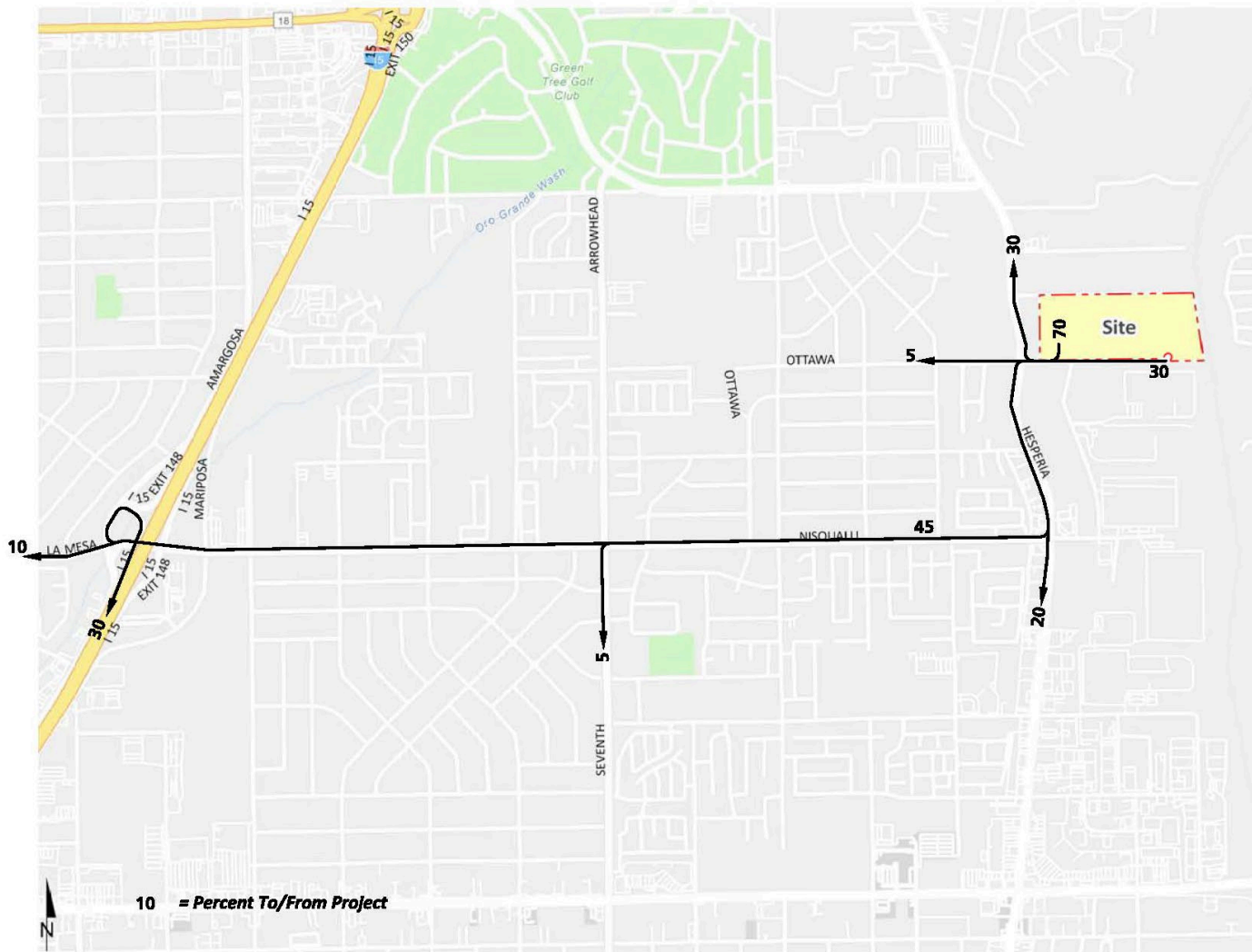
## EXHIBIT 2: PRELIMINARY SITE PLAN



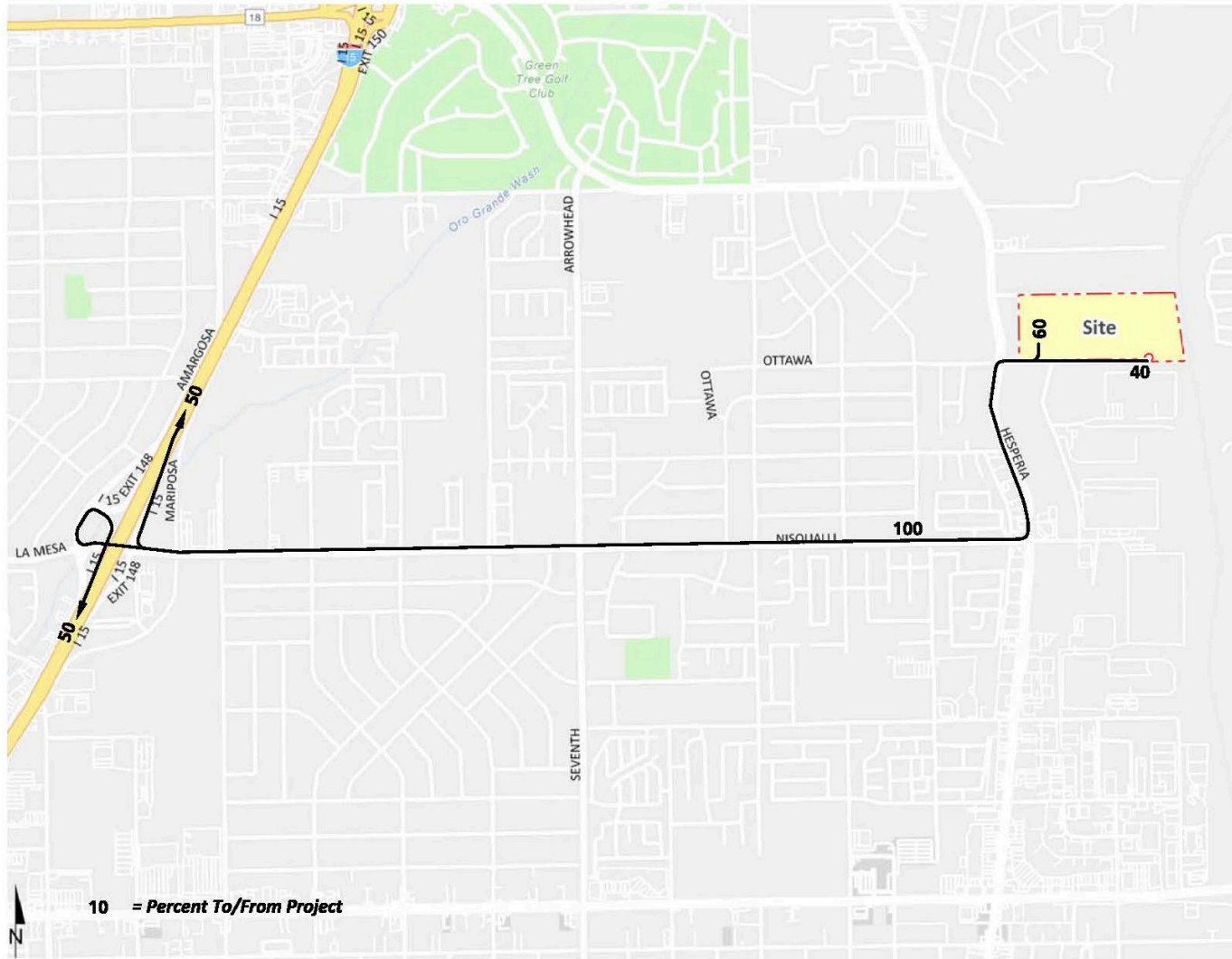
### EXHIBIT 3: STUDY AREA



### EXHIBIT 4: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



### EXHIBIT 5: PROJECT (TRUCK) TRIP DISTRIBUTION



**ATTACHMENT A: HIGH-CUBE WAREHOUSE TRIP GENERATION STUDY (WSP, JANUARY 2019)**





**To:** Daniel Ramirez-Cornejo, Program Manager, WRCOG  
**From:** Billy Park, Supervising Transportation Planner, WSP  
**Subject:** TUMF High-Cube Warehouse Trip Generation Study  
**Date:** January 29, 2019

---

## Background

High-cube warehousing is emerging as an important development type in the Inland Empire. Studies such as *Logistics & Distribution: An Answer to Regional Upward Social Mobility*<sup>1</sup> and *Multi-County Goods Movement Action Plan*<sup>2</sup> suggests that this trend is likely to increase over time due to the Inland Empire’s relative abundance of suitable sites compared to coastal counties.

A recurring analytical problem for the analyses of traffic impacts associated with proposed high-cube warehouses is the lack of reliable data regarding the number and vehicle mix of trips generated by this land development type. Specifically:

- The *2003 Fontana Truck Trip Generation Study*, which has been used for years by agencies in the Inland Empire, is based on the older type of high-cube warehouse. Newer warehouses generally are larger (often over 1 million square feet), much more automated, and generate far fewer trips per square foot.
- The use of overly-conservative estimates has produced results that were unreasonable when compared to actual field conditions. For example, the Environmental Impact Report (EIR) for the Skechers high-cube warehouse building in Moreno Valley included traffic forecasts that were substantially higher than the actual post-construction trip generation for both cars and trucks. Overstated forecasts are misleading to decision makers and could result in oversized infrastructure that could itself have environmental consequences, creates an undue burden on development, and could even have adverse legal consequences for the agencies involved.
- In 2011 the Commercial Real Estate Development Association, also known by its former acronym NAIOP, commissioned a trip generation study of high-cube warehouses focused on large highly-automated warehouses in the Inland Empire. NAIOP had hoped that their study, which found trip-gen rates considerably lower than previous studies, would be used in CEQA analyses going forward. However, concerns about potential bias by the sponsoring party have placed into question the validity of the study results. Similarly, a study commissioned by SCAQMD was viewed as possibly having an anti-development bias.
- Finally, in 2015 NAIOP and SCAQMD jointly sponsored a trip-gen study for high-cube warehouses through a respected neutral party, the Institute of Transportation Engineers (ITE). The report for this study, *High-Cube Warehouse Vehicle Trip Generation Analysis*, was completed in 2016.

The joint NAIOP/SCAQMD/ITE study resulted in a consensus on the trip generation rates to be used for the most common type of high-cube warehouse, a category they call “transload and short-term storage”. The findings of the joint study generally indicated the trip generation rates for this use as being consistent with the trip generation rates for the broader category of high-cube warehouses as described by ITE in the 9<sup>th</sup> Edition of the *Trip*

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<sup>1</sup> *Logistics & Distribution: An Answer to Regional Upward Social Mobility*, Dr. John Husing for SCAG, June 2004

<sup>2</sup> *Multi-County Goods Movement Action Plan*, Wilbur Smith Associates, August 2008

*Generation Manual*. However, the report did not settle the issue of trip generation rates for two other specific types of high-cube warehouses:

*“The single data points for fulfillment centers and parcel hubs indicate that they have significantly different vehicle trip generation characteristics compared to other HCWs. However, there are insufficient data from which to derive useable trip generation rates.”*

The purpose of this technical memorandum is to gather sufficient data to develop reliable trip generation rates for fulfillment centers and parcel hubs for use in traffic impact studies in the Inland Empire.

## Methodology

Number of Sites: The study team reviewed ITE’s *Trip Generation Handbook 2nd Edition*, Chapter 4 of which describes how to perform a trip generation study that meets ITE’s standards (which improves the defensibility of the results if they are used for CEQA analyses). ITE recommends that at least three sites, and preferably five, be surveyed for a given land use category. Based on the review of candidate sites identified by Western Riverside Council of Governments (WRCOG) staff, it was recommended that data be collected at a total of 16 sites for the purposes of this study.

Independent Variables: ITE’s *Trip Generation Manual* measures the size of proposed developments using more than a dozen different independent variables, such as students (for schools), acres (for parks), etc. All High-Cube related categories in both 9th and 10th Editions of the *Trip Generation Manual* are reported in Square Foot Gross Floor Area (GFA) measured in thousands of square feet (TSF), which is also the independent variable used for the TUMF program. Some other ITE employment categories use employment as the independent variable, as does SCAG in its Sustainable Communities Strategy. WRCOG provided GFA for all sites and employment data for eight fulfillment centers and one parcel hub site.

The ITE *Trip Generation Manual* typically reports trip generation rates two ways; namely as the average rate and using the “best fit” mathematical relationship between the number of trips generated and the independent variable. R-squared, also known as the coefficient of determination, is used to measure how well the best fit equations match the surveyed traffic counts. The *Trip Generation Manual* recommends that the best fit equation only be used when the R<sup>2</sup> is greater than or equal to 0.50 and certain other conditions being met; otherwise the average rate should be used.

## Data Collection

WRCOG provided a list of recommended trip generation study sites after reviewing potential sites within the Inland Empire with its member agencies. The list included 11 fulfillment centers and 5 parcel hub sites as follows:

### Fulfillment Centers

1. Walmart: 6750 Kimball Ave, Chino, CA 91708
2. Amazon: 24208 San Michele Rd, Moreno Valley, CA 92551
3. Lineage Logistics: 1001 Columbia Ave Riverside, CA 92507
4. P&G: 16110 Cosmos Street, Moreno Valley, CA 92551
5. Big 5: 6125 Sycamore Canyon Blvd, Riverside, CA 92507
6. Nestle USA: 3450 Dulles Drive, Jurupa Valley, CA
7. Home Depot: 11650 Venture Drive, Jurupa Valley, CA
8. ACT Fulfillment Center: 3155 Universe Drive, Jurupa Valley, CA
9. Petco: 4345 Parkhurst Street, Jurupa Valley, CA
10. Komer: 11850 Riverside Drive, Jurupa Valley, CA
11. Ross: 3404 Indian Ave Perris, CA 92571

### Parcel Hubs

12. UPS: 15801 Meridian Pkwy, Riverside, CA 92518
13. FedEx: 330 Resource Dr, Bloomington, CA 92316
14. FedEx Freight: 12100 Riverside Drive, Jurupa Valley, CA
15. UPS Chain Logistics: 11811/11991 Landon Drive, Jurupa Valley, CA
16. DHL: 12249 Holly St N, Riverside, CA 92509

Traffic counts were collected at all of these sites. These were 72-hour driveway counts collected using video cameras for three-midweek days starting June 26, 2018. Video collection was determined to be preferable to collection data by means of machine counts, which can be problematic for driveways where vehicles are maneuvering at slow speeds. Video counts provide the ability for human viewers to review the captured footage to classify vehicles into 5 types (car, large 2-axle, 3-axle, 4-axle, and 5+ axle truck). The three-day average was calculated and used for the purposes of this study.

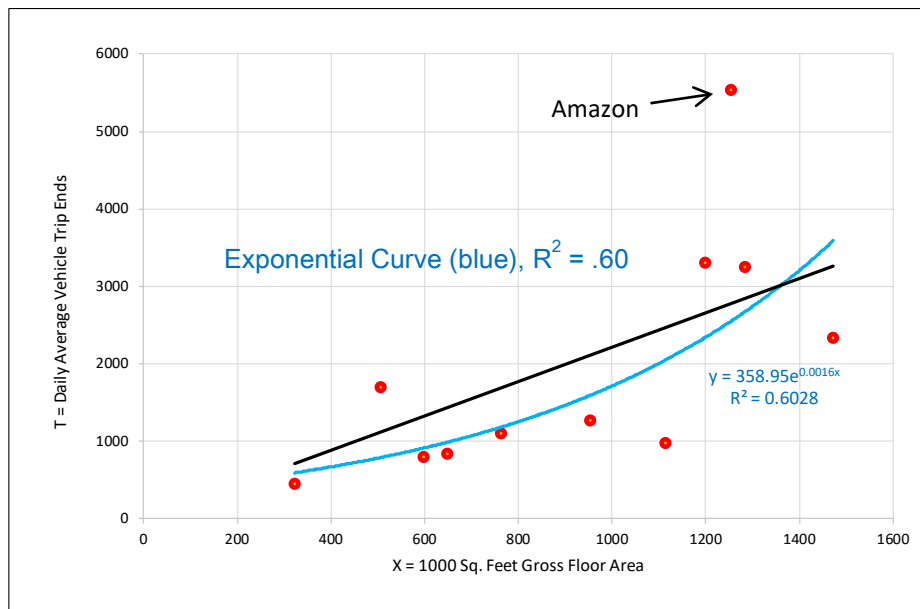
### **Fulfillment Centers**

#### **By Building Size**

Exhibit 1 displays a data plot of daily vehicle trips for the 11 fulfillment centers against building size as the independent variable. The average trip generation rate for fulfillment centers (see black line in Exhibit 1) was found to be 2.2 trips/TSF, compared to the 1.4 trips/TSF found for conventional high-cube warehouses in the ITE/SCAQMD/NAIOP study (i.e. about 50% higher).

Exhibit 1 denotes one outlier data point representing the Amazon site in the upper right of the chart. As shown, the average daily trips generated at this facility is over 50% higher than the trips generated at the two sites of similar size (Walmart and Ross), which appears indicative of a greater frequency of same day e-commerce deliveries from Amazon to individual consumers.

**Exhibit 1: Data Plot for Daily Total Vehicle Trip Ends against Building Size (Fulfillment Center)**



The best fit equation was an exponential relationship with  $R^2$  of 0.60 (i.e. high enough to meet the criteria of acceptability). This is shown as a blue line in Exhibit 1. An exponential relationship, meaning that the larger the

building the higher the trip generation rate, is quite unusual. Exhibit 2 takes a deeper look at this by showing the daily vehicle trip generation rates for each of the 11 surveyed fulfillment centers sorted by the smallest to the largest building size from left to right. As shown, small sites tend to generate fewer trips per thousand square feet, but higher percentage of trucks. On the other hand, largest sites tend to generate a higher number of car trips, but fewer truck trips. So not only is the overall trip generation rate affected by building size, the vehicle mix is affected as well.

**Exhibit 2: Daily Vehicle Trip Generation Rates by Building Size for Each Fulfillment Center**

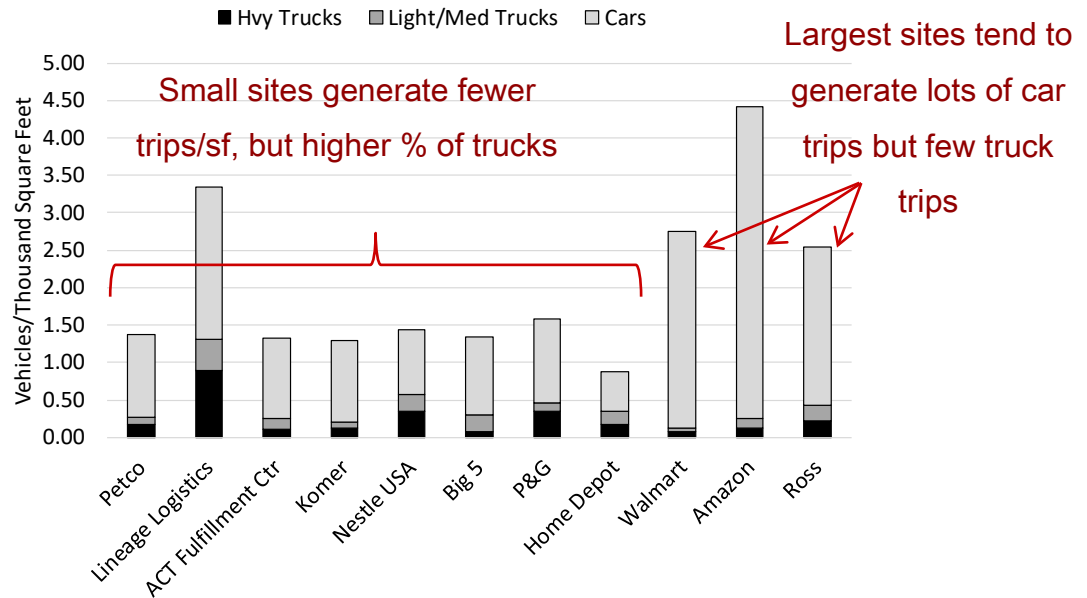
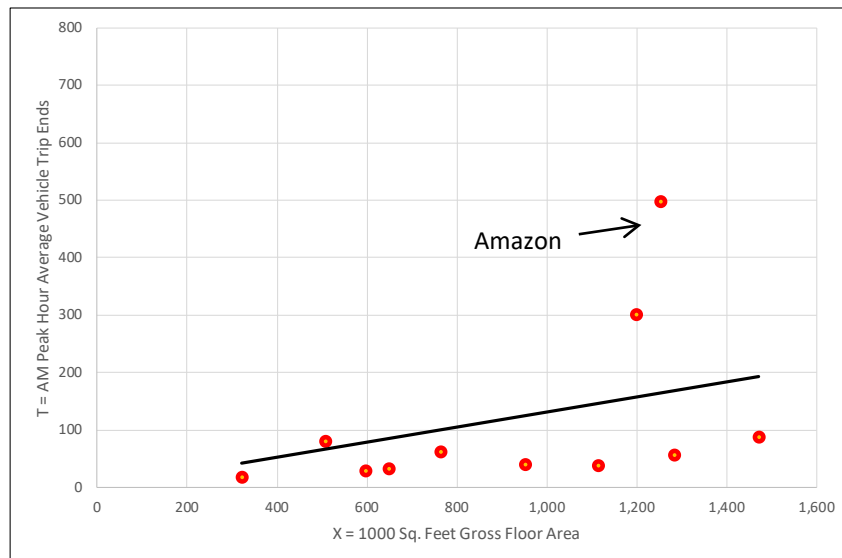


Exhibit 3 and Exhibit 4 show data plots for AM and PM peak hour vehicle trip ends against building size (respectively). The fitted curves had a low  $R^2$ , and so we recommend using the average rate.

**Exhibit 3: Data Plot for AM Peak Hour Vehicle Trip Ends against Building Size (Fulfillment Center)**





**Exhibit 4: Data Plot for PM Peak Hour Vehicle Trip Ends against Building Size (Fulfillment Center)**

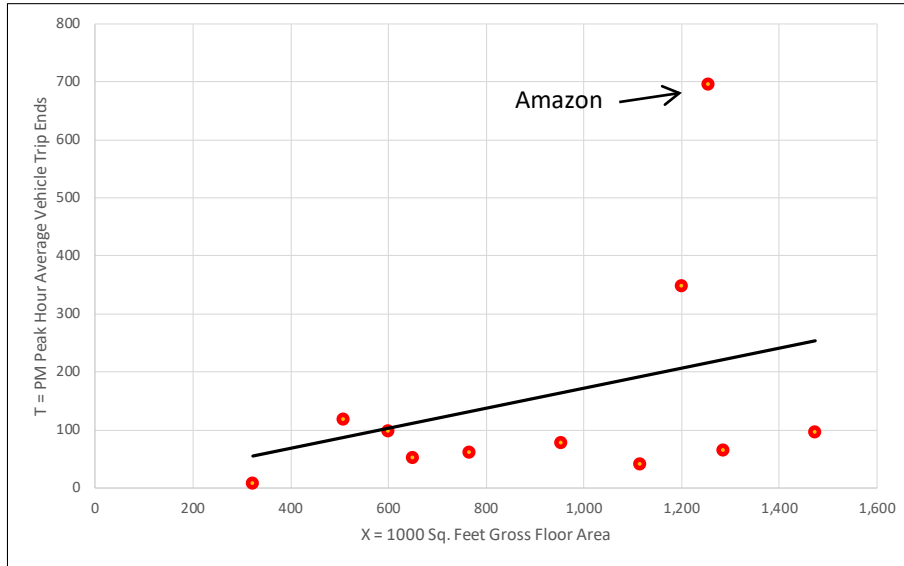
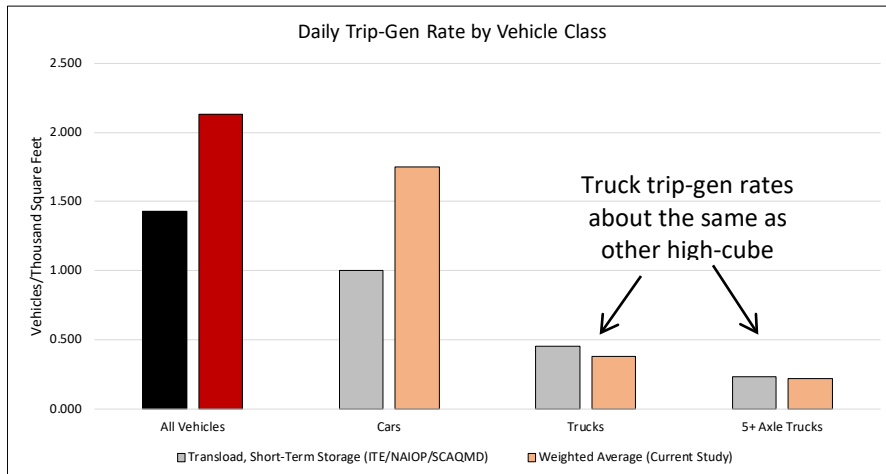


Exhibit 5 compares the average trip generation rates of 11 fulfillment centers with the rates found for conventional transload and short-term storage warehouses in the 2016 high-cube warehouse trip generation study<sup>3</sup> by SCAQMD/NAIOP/ITE. As shown, the fulfillment centers generate more daily vehicle trips than conventional warehouse facilities although trucks are roughly the same. This means that the additional trips by fulfillment centers are entirely due to additional car traffic, which is almost double the rate of car trips generated by conventional warehouses.

**Exhibit 5: Conventional Warehouse vs Fulfillment Centers**



Visual observation of the fulfillment center sites indicates the higher trip generation rates for cars appears to be mostly due to the use vans and passenger cars as delivery vehicles, particularly for the larger facilities operated by retailers such as Amazon and Walmart.

<sup>3</sup> High-Cube Warehouse Vehicle Trip Generation Analysis, Institute of Transportation Engineers, 2016

Exhibit 6 summarizes the AM and PM peak hour trip rates and the daily rates for fulfillment centers based on the findings of this study, and compares the results to rates for conventional transload and short-term storage warehouses.

**Exhibit 6: Summary of Trip Generation Rates per Thousand Square Feet of Gross Floor Area for Fulfillment Centers**

| Vehicle Class              | AM Peak Hour            |                    | PM Peak Hour           |                    | Daily                  |                    |
|----------------------------|-------------------------|--------------------|------------------------|--------------------|------------------------|--------------------|
|                            | Conventional Warehouse* | Fulfillment Center | Conventional Warehouse | Fulfillment Center | Conventional Warehouse | Fulfillment Center |
| Cars                       | 0.057                   | 0.103              | 0.086                  | 0.144              | 1.000                  | 1.750              |
| 2-4 Axle Trucks            | 0.009                   | 0.008              | 0.013                  | 0.011              | 0.221                  | 0.162              |
| 5-Axle Trucks              | 0.015                   | 0.011              | 0.010                  | 0.010              | 0.233                  | 0.217              |
| Total                      | 0.082                   | 0.122              | 0.108                  | 0.165              | 1.432                  | 2.129              |
| % Higher than Conventional | 49%                     |                    | 52%                    |                    | 49%                    |                    |

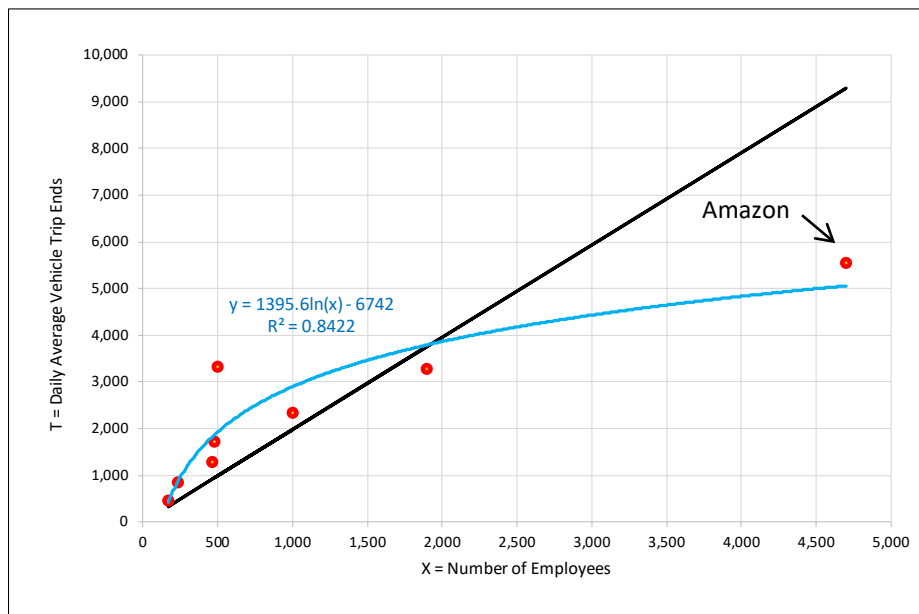
\* Transload, Short-Term Storage category in 2016 TIE/ NAIOP/ SCAQMD study

**By Employee**

The WRCOG contacted the surveyed fulfillment centers and obtained employment data for eight of the eleven sites. Exhibit 7 shows a data plot for those eight sites for daily total vehicle trip ends against the number of employees. The best fit equation was logarithmic function which had an R<sup>2</sup> of 0.84, indicating a very good fit. Notably, the Amazon site, which was an outlier for trip generation based on floor area (see Exhibit 1), correlates more closely to other sites when employment is used instead. The average trip generation rate for fulfillments centers (represented by the black line in Exhibit 7) was found to be 2.0 trips/TSF

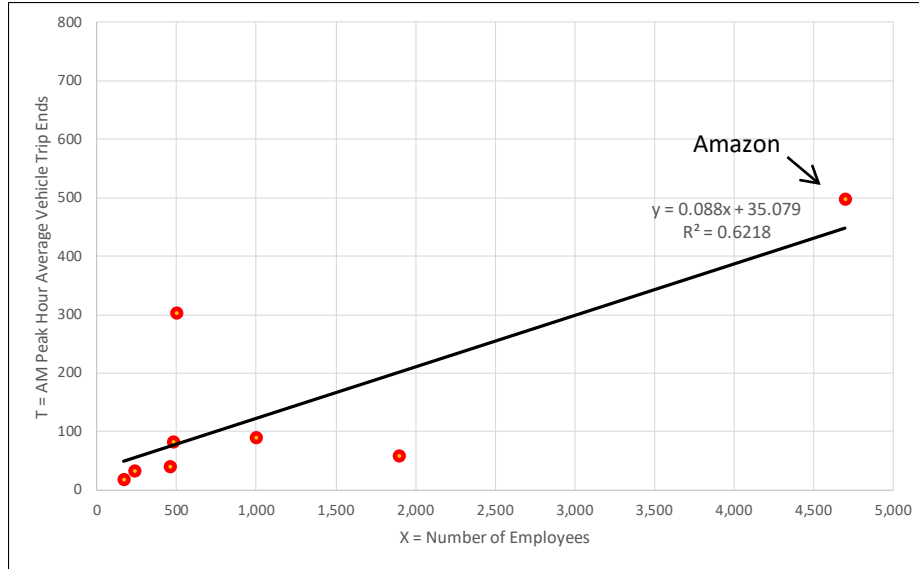
No comparison was made to any previous rates per employees because none of the previous high-cube warehouse related trip generation studies included correlation of trips with employment data.

**Exhibit 7: Data Plot for Daily Total Vehicle Trip Ends against Employee (Fulfillment Center)**



The data plots for the AM and PM peak hour total vehicle trip ends against the number of fulfillment center employees are shown in Exhibit 8 and Exhibit 9. The best fit equations are linear regressions (shown with black lines) which show a good R<sup>2</sup> for both the AM and PM peak periods.

**Exhibit 8: Data Plot for AM Peak Hour Total Vehicle Trip Ends against Employee (Fulfillment Center)**



**Exhibit 9: Data Plot for PM Peak Hour Total Vehicle Trip Ends against Employee (Fulfillment Center)**

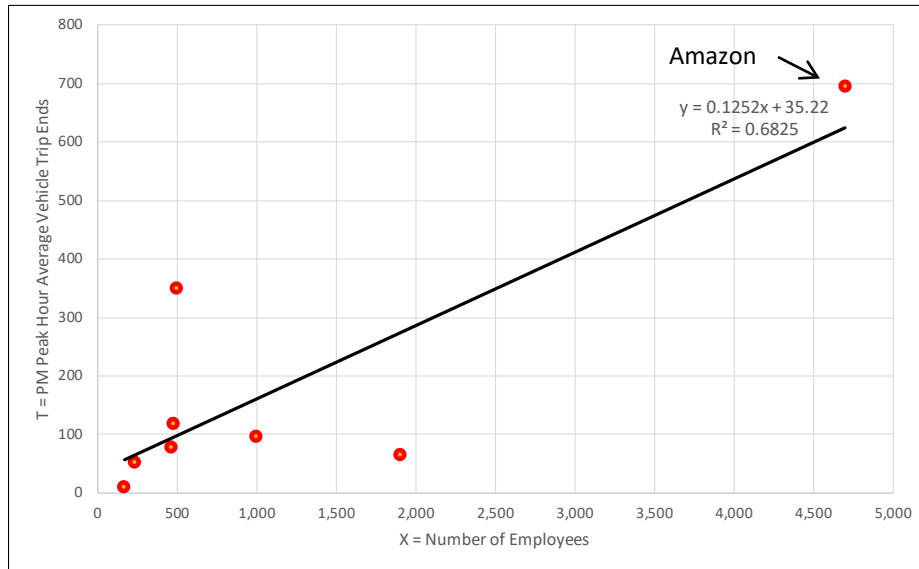


Exhibit 10 summarizes the AM and PM peak hour trip rates and the daily rates for trip generation per employee at fulfillment centers based on the findings of this study.





**Exhibit 10: Summary of Trip Generation Rates per Employee for Fulfillment Centers**

| Vehicle Class   | AM Peak Hour | PM Peak Hour | Daily |
|-----------------|--------------|--------------|-------|
| Cars            | 0.102        | 0.139        | 1.673 |
| 2-4 Axle Trucks | 0.006        | 0.008        | 0.125 |
| 5-Axle Trucks   | 0.009        | 0.008        | 0.178 |
| Total           | 0.118        | 0.155        | 1.977 |

**Parcel Hubs**

**By Building Size**

Exhibit 11 displays daily vehicle trip generation rates by building size for each of five parcel hub sites. They are sorted by the smallest to the largest building size from left to right. In this case the small sites generate significantly more trips of every kind than the larger sites, which is the opposite to the pattern observed for fulfillment centers.

**Exhibit 11: Daily Trip Generation Rates at Parcel Hubs**

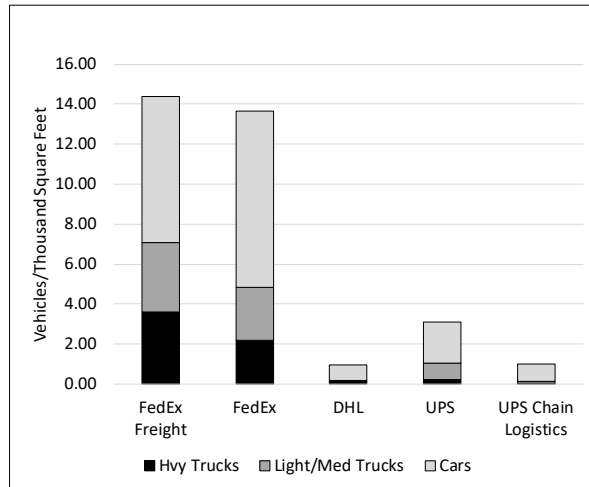
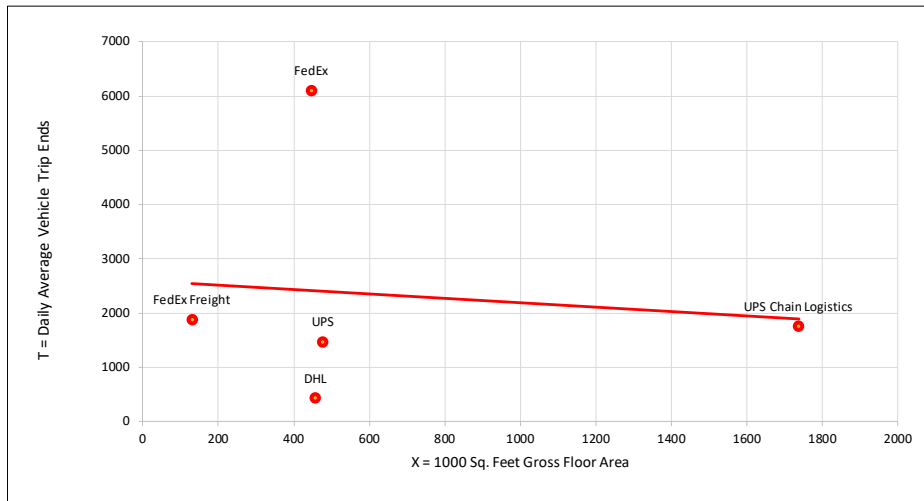


Exhibit 12 shows a data plot of daily vehicle trips of five parcel hubs against building size. As shown, a linear best fit was negative. During the collection of traffic data, construction activity was observed at the FedEx site potentially tainting the validity of these data to represent typical trip generation characteristics. To determine if the trip generation at this site was contributing to the poor data correlation, Exhibit 13 displays the same daily data plot without the FedEx site. The linear best fit shows a positive slope, but remains almost flat effectively indicating no correlation between the daily trips and building size based on the analysis of these sites.

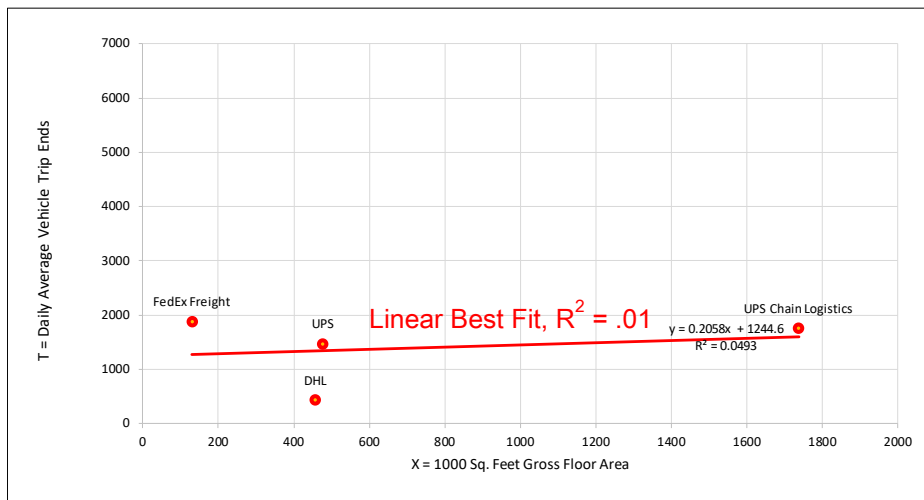
The basic premise of the ITE trip generation approach is that the number of trips generated by a project is proportional to its size. That premise does not hold true for the parcel hubs in this sample and so no meaningful trip generation rates could be determined based on the data collected in support of this study. It should be recognized that a sample size of four or five sites represents the minimum recommended by ITE for valid trip generation studies, and for this reason, it is recommended that additional sites would need to be investigated and included in the data set to develop a more definitive finding on trip generation rates. Furthermore, it may be appropriate to determine the specific function at each site, due to the disparity between the rates observed at the FedEx sites versus the other three sites. It is likely that the function served by the respective sites is significantly different, as reflected in the trip generation rates, thereby necessitating reclassification of these uses for comparative purposes.



**Exhibit 12: Data Plot for Daily Total Vehicle Trip Ends against Building Size (Parcel Hubs)**



**Exhibit 13: Data Plot for Daily Vehicle Trip Ends against Building Size without Construction Site**



**Conclusions**

Our survey of 11 fulfillment centers produced trip generation rates based on the gross floor area of the sites that satisfies ITE’s standards for use. The findings of the study indicate that the daily trip generation rates for fulfillment centers is approximately 2.1 trips per thousand square feet of gross floor area, which is roughly 50% higher than the comparable rate for conventional transload and short term storage warehouses previously defined in the ITE *Trip Generation Manual* Version 10. The results of the study further indicate that the higher rates were entirely due to more cars traffic at these sites; the trip generation rates for trucks was found to comparable to those at conventional warehouses.

Employment data were available for eight out of 11 fulfillment center sites. This provided the ability to determine trip generation rates per employee. The study results indicate that that trip generation for fulfillment centers is approximately 2.0 trips per employee. The study also found that the trip generation rate per employee correlated more closely that the trip generation rate per thousand square feet of gross floor area.

The data from the five parcel hubs did not show any statistically meaningful relationship between trips and building size. Therefore, no trip generation rate could be calculated. However, the data collected at these sites may provide a useful basis for further comparison with additional sites to provide more data points for analysis.

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**APPENDIX 1.2:**  
**SITE ADJACENT QUEUES**

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Intersection: 7: Hesperia Rd. & Ottawa St.

| Movement              | EB   | WB   | WB   | NB  | NB   | NB   | NB  | SB  | SB  | SB  |
|-----------------------|------|------|------|-----|------|------|-----|-----|-----|-----|
| Directions Served     | LTR  | L    | TR   | L   | T    | T    | R   | L   | T   | TR  |
| Maximum Queue (ft)    | 40   | 61   | 31   | 53  | 176  | 155  | 51  | 72  | 187 | 148 |
| Average Queue (ft)    | 15   | 19   | 9    | 8   | 78   | 54   | 6   | 28  | 80  | 60  |
| 95th Queue (ft)       | 40   | 48   | 28   | 29  | 151  | 126  | 29  | 59  | 158 | 127 |
| Link Distance (ft)    | 1036 | 2189 | 2189 |     | 1342 | 1342 |     |     | 962 | 962 |
| Upstream Blk Time (%) |      |      |      |     |      |      |     |     |     |     |
| Queuing Penalty (veh) |      |      |      |     |      |      |     |     |     |     |
| Storage Bay Dist (ft) |      |      |      | 100 |      |      | 100 | 100 |     |     |
| Storage Blk Time (%)  |      |      |      |     | 3    | 1    |     | 0   | 3   |     |
| Queuing Penalty (veh) |      |      |      |     | 0    | 1    |     | 1   | 1   |     |

Network Summary

Network wide Queuing Penalty: 3

Intersection: 7: Hesperia Rd. & Ottawa St.

| Movement              | EB   | WB   | WB   | NB  | NB   | NB   | NB  | SB  | SB  | SB  |
|-----------------------|------|------|------|-----|------|------|-----|-----|-----|-----|
| Directions Served     | LTR  | L    | TR   | L   | T    | T    | R   | L   | T   | TR  |
| Maximum Queue (ft)    | 72   | 147  | 83   | 90  | 300  | 265  | 150 | 124 | 431 | 448 |
| Average Queue (ft)    | 23   | 71   | 28   | 30  | 156  | 133  | 10  | 23  | 211 | 198 |
| 95th Queue (ft)       | 56   | 124  | 64   | 66  | 266  | 244  | 67  | 76  | 357 | 344 |
| Link Distance (ft)    | 1036 | 2189 | 2189 |     | 1342 | 1342 |     |     | 962 | 962 |
| Upstream Blk Time (%) |      |      |      |     |      |      |     |     |     |     |
| Queuing Penalty (veh) |      |      |      |     |      |      |     |     |     |     |
| Storage Bay Dist (ft) |      |      |      | 100 |      |      | 100 | 100 |     |     |
| Storage Blk Time (%)  |      |      |      | 0   | 11   | 8    |     |     | 17  |     |
| Queuing Penalty (veh) |      |      |      | 0   | 4    | 3    |     |     | 3   |     |

Network Summary

Network wide Queuing Penalty: 10

**APPENDIX 3.1:**  
**EXISTING TRAFFIC COUNTS**

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**INTERSECTION TURNING MOVEMENT COUNTS**

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Jun 16, 21  
 LOCATION: NORTH & SOUTH: Victorville  
 EAST & WEST: Amargosa La Mesa  
 PROJECT #: SC2957  
 LOCATION #: 1  
 CONTROL: SIGNAL

|        |                                  |                       |
|--------|----------------------------------|-----------------------|
| NOTES: | AM<br>PM<br>MD<br>OTHER<br>OTHER | ▲<br>N<br>E<br>S<br>▼ |
|--------|----------------------------------|-----------------------|

Add U-Turns to Left Turns

| LANES: | NORTHBOUND<br>Amargosa |    |    | SOUTHBOUND<br>Amargosa |    |    | EASTBOUND<br>La Mesa |    |    | WESTBOUND<br>La Mesa |    |    | TOTAL |
|--------|------------------------|----|----|------------------------|----|----|----------------------|----|----|----------------------|----|----|-------|
|        | NL                     | NT | NR | SL                     | ST | SR | EL                   | ET | ER | WL                   | WT | WR |       |

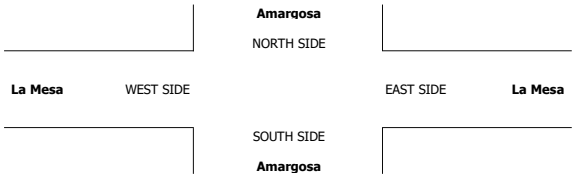
| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |

|                |            |     |       |       |       |       |       |     |       |       |       |       |       |       |
|----------------|------------|-----|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| AM             | 7:00 AM    | 3   | 12    | 18    | 68    | 17    | 13    | 36  | 123   | 8     | 13    | 62    | 86    | 459   |
|                | 7:15 AM    | 3   | 20    | 11    | 68    | 18    | 11    | 34  | 165   | 4     | 13    | 86    | 90    | 523   |
|                | 7:30 AM    | 4   | 18    | 16    | 94    | 21    | 17    | 33  | 213   | 6     | 10    | 99    | 100   | 631   |
|                | 7:45 AM    | 2   | 23    | 14    | 91    | 23    | 18    | 23  | 216   | 11    | 28    | 90    | 130   | 669   |
|                | 8:00 AM    | 4   | 18    | 16    | 73    | 32    | 23    | 54  | 170   | 11    | 29    | 111   | 114   | 655   |
|                | 8:15 AM    | 4   | 15    | 13    | 70    | 39    | 21    | 38  | 151   | 11    | 12    | 94    | 127   | 595   |
|                | 8:30 AM    | 2   | 22    | 18    | 77    | 43    | 26    | 31  | 169   | 15    | 26    | 88    | 97    | 614   |
|                | 8:45 AM    | 8   | 37    | 19    | 73    | 57    | 22    | 28  | 192   | 24    | 23    | 97    | 119   | 699   |
|                | VOLUMES    | 30  | 165   | 125   | 614   | 250   | 151   | 277 | 1,399 | 90    | 154   | 727   | 863   | 4,845 |
|                | APPROACH % | 9%  | 52%   | 39%   | 60%   | 25%   | 15%   | 16% | 79%   | 5%    | 9%    | 42%   | 49%   |       |
| APP/DEPART     | 320        | /   | 1,304 | 1,015 | /     | 494   | 1,766 | /   | 2,138 | 1,744 | /     | 909   | 0     |       |
| BEGIN PEAK HR  | 8:00 AM    |     |       |       |       |       |       |     |       |       |       |       |       |       |
| VOLUMES        | 18         | 92  | 66    | 293   | 171   | 92    | 151   | 682 | 61    | 90    | 390   | 457   | 2,563 |       |
| APPROACH %     | 10%        | 52% | 38%   | 53%   | 31%   | 17%   | 17%   | 76% | 7%    | 10%   | 42%   | 49%   |       |       |
| PEAK HR FACTOR | 0.688      |     |       |       |       |       |       |     |       |       |       |       |       |       |
| APP/DEPART     | 176        | /   | 700   | 556   | /     | 322   | 894   | /   | 1,041 | 937   | /     | 500   | 0     |       |
| PM             | 4:00 PM    | 21  | 80    | 57    | 127   | 101   | 65    | 13  | 154   | 28    | 52    | 236   | 96    | 1,030 |
|                | 4:15 PM    | 15  | 53    | 74    | 135   | 107   | 71    | 21  | 147   | 32    | 55    | 249   | 103   | 1,062 |
|                | 4:30 PM    | 18  | 55    | 76    | 142   | 115   | 57    | 22  | 163   | 24    | 66    | 225   | 103   | 1,066 |
|                | 4:45 PM    | 21  | 65    | 68    | 125   | 113   | 66    | 23  | 185   | 20    | 69    | 253   | 99    | 1,107 |
|                | 5:00 PM    | 19  | 50    | 76    | 152   | 127   | 77    | 28  | 148   | 26    | 58    | 248   | 110   | 1,119 |
|                | 5:15 PM    | 21  | 56    | 64    | 134   | 103   | 67    | 30  | 151   | 25    | 68    | 269   | 120   | 1,108 |
|                | 5:30 PM    | 32  | 50    | 70    | 136   | 103   | 73    | 18  | 160   | 26    | 52    | 244   | 104   | 1,068 |
|                | 5:45 PM    | 20  | 83    | 85    | 121   | 87    | 68    | 26  | 153   | 20    | 72    | 241   | 90    | 1,066 |
|                | VOLUMES    | 167 | 492   | 570   | 1,072 | 856   | 544   | 181 | 1,261 | 201   | 492   | 1,965 | 825   | 8,626 |
|                | APPROACH % | 14% | 40%   | 46%   | 43%   | 35%   | 22%   | 11% | 77%   | 12%   | 15%   | 60%   | 25%   |       |
| APP/DEPART     | 1,229      | /   | 1,498 | 2,472 | /     | 1,549 | 1,643 | /   | 2,903 | 3,282 | /     | 2,676 | 0     |       |
| BEGIN PEAK HR  | 4:45 PM    |     |       |       |       |       |       |     |       |       |       |       |       |       |
| VOLUMES        | 93         | 221 | 278   | 547   | 446   | 283   | 99    | 644 | 97    | 247   | 1,014 | 433   | 4,402 |       |
| APPROACH %     | 16%        | 37% | 47%   | 43%   | 35%   | 22%   | 12%   | 77% | 12%   | 15%   | 60%   | 26%   |       |       |
| PEAK HR FACTOR | 0.961      |     |       |       |       |       |       |     |       |       |       |       |       |       |
| APP/DEPART     | 592        | /   | 753   | 1,276 | /     | 790   | 840   | /   | 1,469 | 1,694 | /     | 1,390 | 0     |       |

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 1 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 1 |

|   |    |    |     |
|---|----|----|-----|
| 0 | 8  | 4  | 29  |
| 0 | 5  | 2  | 45  |
| 0 | 9  | 3  | 39  |
| 0 | 8  | 5  | 65  |
| 0 | 16 | 6  | 72  |
| 0 | 12 | 5  | 69  |
| 0 | 11 | 3  | 49  |
| 0 | 10 | 14 | 54  |
| 0 | 79 | 42 | 422 |



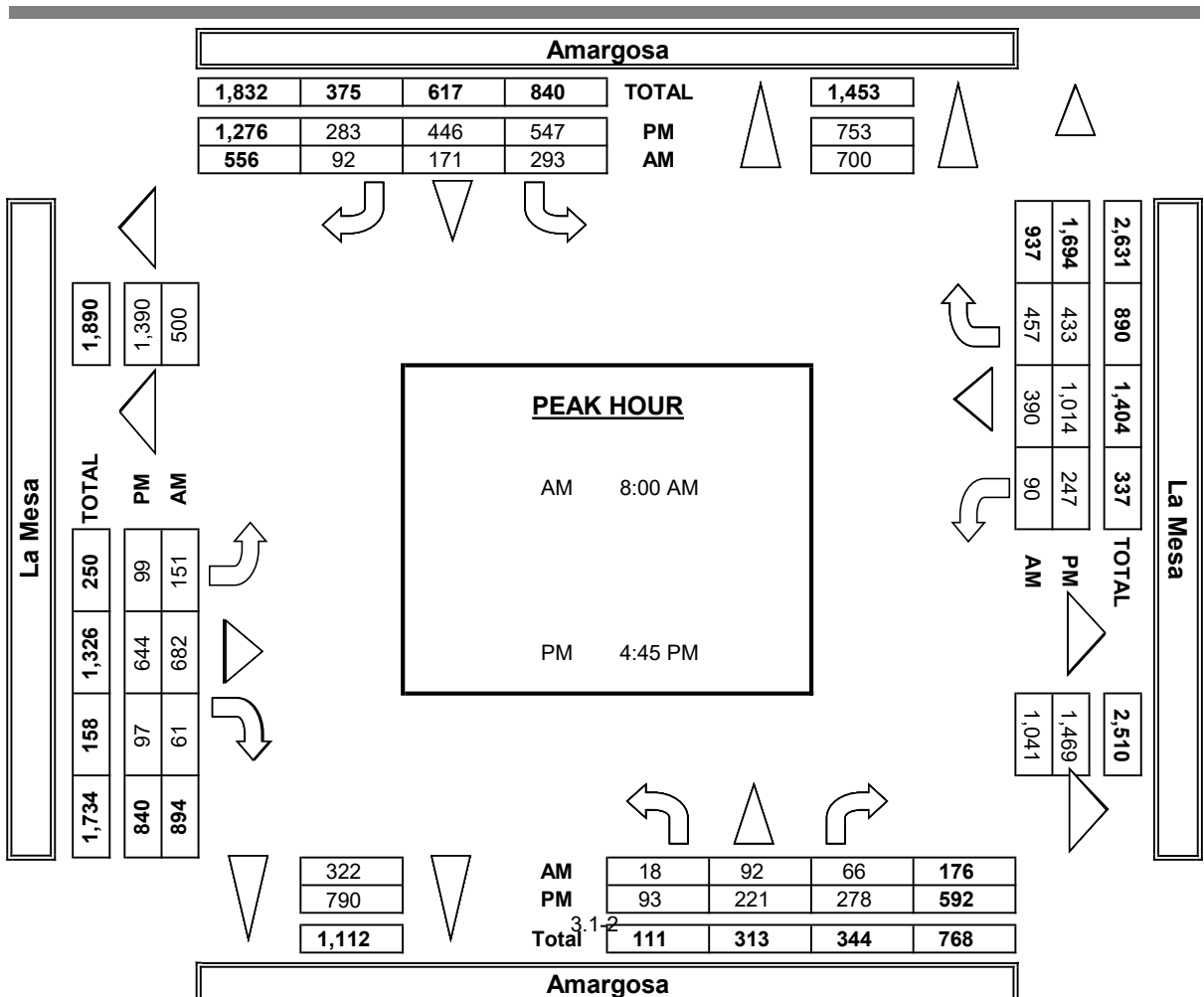
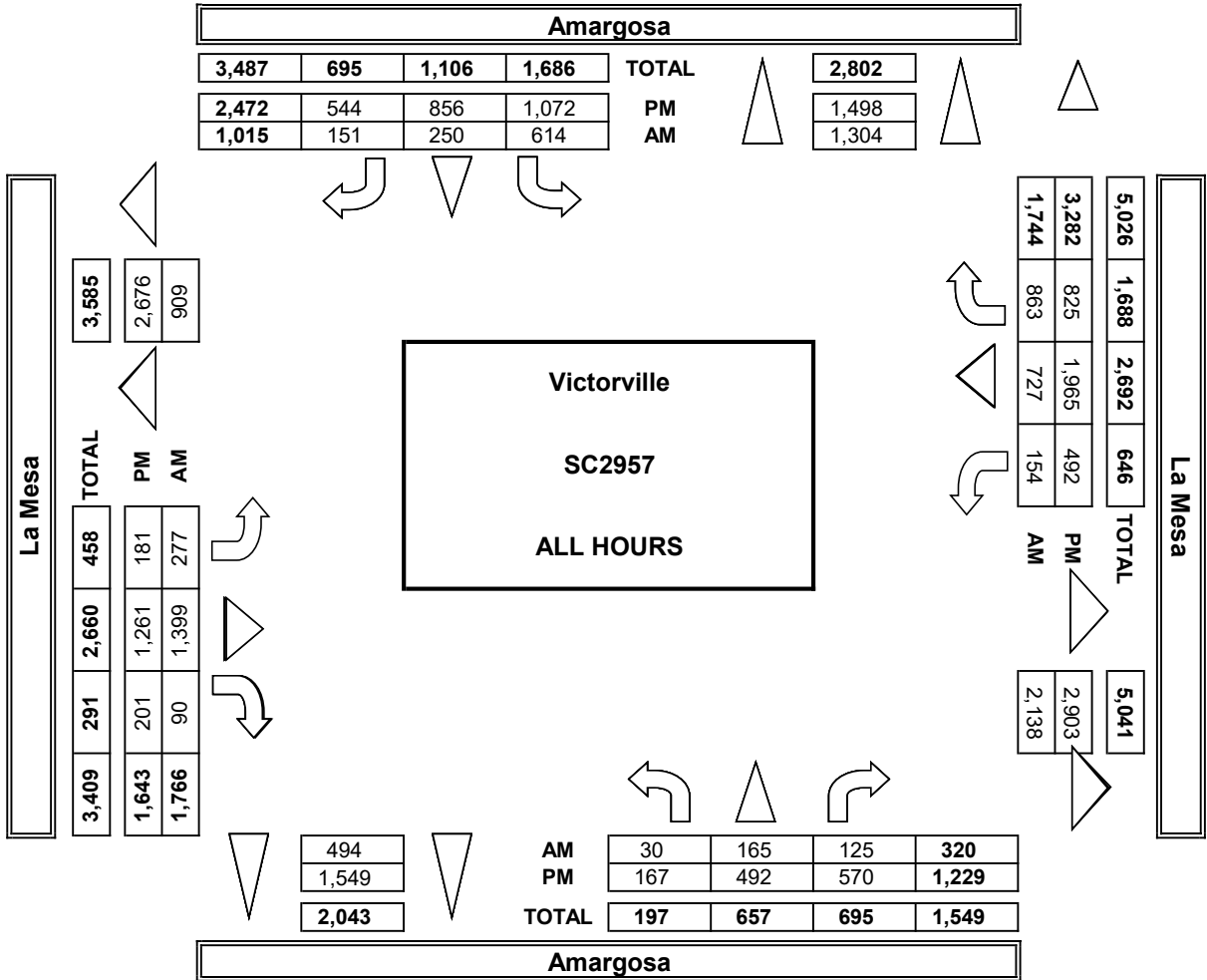
|         | ALL PED AND BIKE |        |        |        |       |
|---------|------------------|--------|--------|--------|-------|
|         | E SIDE           | W SIDE | S SIDE | N SIDE | TOTAL |
| 7:00 AM | 0                | 0      | 0      | 0      | 0     |
| 7:15 AM | 0                | 0      | 0      | 0      | 0     |
| 7:30 AM | 0                | 0      | 0      | 0      | 0     |
| 7:45 AM | 0                | 0      | 0      | 2      | 2     |
| 8:00 AM | 0                | 0      | 0      | 0      | 0     |
| 8:15 AM | 0                | 0      | 0      | 1      | 1     |
| 8:30 AM | 0                | 0      | 1      | 0      | 1     |
| 8:45 AM | 0                | 0      | 2      | 0      | 2     |
| TOTAL   | 0                | 0      | 3      | 3      | 6     |
| 4:00 PM | 0                | 0      | 0      | 0      | 0     |
| 4:15 PM | 0                | 0      | 0      | 0      | 0     |
| 4:30 PM | 0                | 0      | 0      | 0      | 0     |
| 4:45 PM | 0                | 1      | 0      | 0      | 1     |
| 5:00 PM | 0                | 1      | 0      | 0      | 1     |
| 5:15 PM | 0                | 0      | 1      | 0      | 1     |
| 5:30 PM | 0                | 0      | 0      | 0      | 0     |
| 5:45 PM | 0                | 0      | 0      | 0      | 0     |
| TOTAL   | 0                | 2      | 1      | 0      | 3     |

|         | PEDESTRIAN CROSSINGS |        |        |        |       |
|---------|----------------------|--------|--------|--------|-------|
|         | E SIDE               | W SIDE | S SIDE | N SIDE | TOTAL |
| 7:00 AM | 0                    | 0      | 0      | 0      | 0     |
| 7:15 AM | 0                    | 0      | 0      | 0      | 0     |
| 7:30 AM | 0                    | 0      | 0      | 0      | 0     |
| 7:45 AM | 0                    | 0      | 0      | 1      | 1     |
| 8:00 AM | 0                    | 0      | 0      | 0      | 0     |
| 8:15 AM | 0                    | 0      | 0      | 1      | 1     |
| 8:30 AM | 0                    | 0      | 0      | 0      | 0     |
| 8:45 AM | 0                    | 0      | 0      | 0      | 0     |
| TOTAL   | 0                    | 0      | 0      | 2      | 2     |
| 4:00 PM | 0                    | 0      | 0      | 0      | 0     |
| 4:15 PM | 0                    | 0      | 0      | 0      | 0     |
| 4:30 PM | 0                    | 0      | 0      | 0      | 0     |
| 4:45 PM | 0                    | 0      | 0      | 0      | 0     |
| 5:00 PM | 0                    | 0      | 0      | 0      | 0     |
| 5:15 PM | 0                    | 0      | 0      | 0      | 0     |
| 5:30 PM | 0                    | 0      | 0      | 0      | 0     |
| 5:45 PM | 0                    | 0      | 0      | 0      | 0     |
| TOTAL   | 0                    | 0      | 0      | 0      | 0     |

|         | BICYCLE CROSSINGS |    |    |    |       |
|---------|-------------------|----|----|----|-------|
|         | ES                | WS | SS | NS | TOTAL |
| 7:00 AM | 0                 | 0  | 0  | 0  | 0     |
| 7:15 AM | 0                 | 0  | 0  | 0  | 0     |
| 7:30 AM | 0                 | 0  | 0  | 0  | 0     |
| 7:45 AM | 0                 | 0  | 0  | 1  | 1     |
| 8:00 AM | 0                 | 0  | 0  | 0  | 0     |
| 8:15 AM | 0                 | 0  | 0  | 1  | 1     |
| 8:30 AM | 0                 | 0  | 1  | 0  | 1     |
| 8:45 AM | 0                 | 0  | 2  | 0  | 2     |
| TOTAL   | 0                 | 0  | 3  | 1  | 4     |
| 4:00 PM | 0                 | 0  | 0  | 0  | 0     |
| 4:15 PM | 0                 | 0  | 0  | 0  | 0     |
| 4:30 PM | 0                 | 0  | 0  | 0  | 0     |
| 4:45 PM | 0                 | 1  | 0  | 0  | 1     |
| 5:00 PM | 0                 | 1  | 0  | 0  | 1     |
| 5:15 PM | 0                 | 0  | 1  | 0  | 1     |
| 5:30 PM | 0                 | 0  | 0  | 0  | 0     |
| 5:45 PM | 0                 | 0  | 0  | 0  | 0     |
| TOTAL   | 0                 | 2  | 1  | 0  | 3     |

|         | ALL PED AND BIKE |        |        |        |       |
|---------|------------------|--------|--------|--------|-------|
|         | E SIDE           | W SIDE | S SIDE | N SIDE | TOTAL |
| 7:00 AM | 0                | 0      | 0      | 0      | 0     |
| 7:15 AM | 0                | 0      | 0      | 0      | 0     |
| 7:30 AM | 0                | 0      | 0      | 0      | 0     |
| 7:45 AM | 0                | 0      | 0      | 2      | 2     |
| 8:00 AM | 0                | 0      | 0      | 0      | 0     |
| 8:15 AM | 0                | 0      | 0      | 1      | 1     |
| 8:30 AM | 0                | 0      | 1      | 0      | 1     |
| 8:45 AM | 0                | 0      | 2      | 0      | 2     |
| TOTAL   | 0                | 0      | 3      | 3      | 6     |
| 4:00 PM | 0                | 0      | 0      | 0      | 0     |
| 4:15 PM | 0                | 0      | 0      | 0      | 0     |
| 4:30 PM | 0                | 0      | 0      | 0      | 0     |
| 4:45 PM | 0                | 1      | 0      | 0      | 1     |
| 5:00 PM | 0                | 1      | 0      | 0      | 1     |
| 5:15 PM | 0                | 0      | 1      | 0      | 1     |
| 5:30 PM | 0                | 0      | 0      | 0      | 0     |
| 5:45 PM | 0                | 0      | 0      | 0      | 0     |
| TOTAL   | 0                | 2      | 1      | 0      | 3     |

**AimTD LLC**  
TURNING MOVEMENT COUNTS



**INTERSECTION TURNING MOVEMENT COUNTS**

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                                      |  |                                    |                             |
|--------------------------------------|--|------------------------------------|-----------------------------|
| <b>DATE:</b><br>6/16/21<br>WEDNESDAY | <b>LOCATION:</b><br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Amargosa<br>La Mesa | <b>PROJECT #:</b><br>SC2957 |
|                                      |  |                                    | <b>LOCATION #:</b><br>1     |
|                                      |  |                                    | <b>CONTROL:</b><br>SIGNAL   |

|  |               |                                  |                       |
|--|---------------|----------------------------------|-----------------------|
| <b>CLASS 1:</b><br>PASSENGER<br>VEHICLES | <b>NOTES:</b> | AM<br>PM<br>MD<br>OTHER<br>OTHER | ▲<br>N<br>E<br>S<br>▼ |
|--|---------------|----------------------------------|-----------------------|

| LANES: | NORTHBOUND<br>Amargosa |         |         | SOUTHBOUND<br>Amargosa |         |         | EASTBOUND<br>La Mesa |         |         | WESTBOUND<br>La Mesa |         |         | TOTAL |
|--------|------------------------|---------|---------|------------------------|---------|---------|----------------------|---------|---------|----------------------|---------|---------|-------|
|        | NL<br>2                | NT<br>2 | NR<br>1 | SL<br>2                | ST<br>2 | SR<br>1 | EL<br>2              | ET<br>2 | ER<br>1 | WL<br>2              | WT<br>3 | WR<br>1 |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |

| RTOR     |          |          |          |
|----------|----------|----------|----------|
| NRR<br>X | SRR<br>0 | ERR<br>0 | WRR<br>0 |

|                |            |     |       |       |       |       |       |     |       |       |     |       |       |       |
|----------------|------------|-----|-------|-------|-------|-------|-------|-----|-------|-------|-----|-------|-------|-------|
| A<br>M         | 7:00 AM    | 3   | 12    | 18    | 55    | 16    | 11    | 35  | 117   | 8     | 12  | 53    | 76    | 416   |
|                | 7:15 AM    | 3   | 19    | 10    | 59    | 16    | 10    | 34  | 153   | 3     | 11  | 77    | 84    | 479   |
|                | 7:30 AM    | 3   | 17    | 16    | 79    | 20    | 16    | 31  | 200   | 6     | 9   | 90    | 86    | 573   |
|                | 7:45 AM    | 2   | 22    | 13    | 85    | 22    | 15    | 22  | 206   | 10    | 27  | 87    | 112   | 623   |
|                | 8:00 AM    | 4   | 16    | 15    | 66    | 31    | 22    | 53  | 162   | 11    | 28  | 104   | 105   | 617   |
|                | 8:15 AM    | 4   | 15    | 13    | 57    | 37    | 20    | 38  | 145   | 11    | 11  | 87    | 118   | 556   |
|                | 8:30 AM    | 2   | 21    | 16    | 69    | 43    | 26    | 31  | 163   | 14    | 25  | 84    | 84    | 578   |
|                | 8:45 AM    | 7   | 34    | 18    | 67    | 55    | 19    | 25  | 185   | 24    | 23  | 96    | 103   | 656   |
|                | VOLUMES    | 28  | 156   | 119   | 537   | 240   | 139   | 269 | 1,331 | 87    | 146 | 678   | 768   | 4,498 |
|                | APPROACH % | 9%  | 51%   | 39%   | 59%   | 26%   | 15%   | 16% | 79%   | 5%    | 9%  | 43%   | 48%   |       |
| APP/DEPART     | 303        | /   | 1,192 | 916   | /     | 473   | 1,687 | /   | 1,987 | 1,592 | /   | 846   | 0     |       |
| BEGIN PEAK HR  | 8:00 AM    |     |       |       |       |       |       |     |       |       |     |       |       |       |
| VOLUMES        | 17         | 86  | 62    | 259   | 166   | 87    | 147   | 655 | 60    | 87    | 371 | 410   | 2,407 |       |
| APPROACH %     | 10%        | 52% | 38%   | 51%   | 32%   | 17%   | 17%   | 76% | 7%    | 10%   | 43% | 47%   |       |       |
| PEAK HR FACTOR | 0.699      |     |       | 0.908 |       |       | 0.921 |     |       | 0.916 |     |       | 0.917 |       |
| APP/DEPART     | 165        | /   | 643   | 512   | /     | 313   | 862   | /   | 976   | 868   | /   | 475   | 0     |       |
| P<br>M         | 4:00 PM    | 21  | 78    | 56    | 119   | 99    | 65    | 13  | 146   | 27    | 52  | 236   | 85    | 997   |
|                | 4:15 PM    | 14  | 53    | 72    | 122   | 106   | 69    | 19  | 137   | 31    | 55  | 246   | 98    | 1,022 |
|                | 4:30 PM    | 16  | 54    | 74    | 134   | 115   | 56    | 22  | 153   | 23    | 66  | 223   | 94    | 1,030 |
|                | 4:45 PM    | 20  | 63    | 67    | 120   | 112   | 65    | 23  | 181   | 20    | 67  | 246   | 95    | 1,079 |
|                | 5:00 PM    | 19  | 50    | 75    | 147   | 127   | 76    | 27  | 141   | 26    | 57  | 242   | 106   | 1,093 |
|                | 5:15 PM    | 21  | 55    | 63    | 131   | 102   | 66    | 30  | 149   | 24    | 65  | 266   | 111   | 1,083 |
|                | 5:30 PM    | 32  | 49    | 69    | 129   | 101   | 71    | 18  | 158   | 26    | 50  | 243   | 90    | 1,036 |
|                | 5:45 PM    | 20  | 82    | 84    | 119   | 86    | 67    | 25  | 147   | 20    | 72  | 241   | 82    | 1,045 |
|                | VOLUMES    | 163 | 484   | 560   | 1,021 | 848   | 535   | 177 | 1,212 | 197   | 484 | 1,943 | 761   | 8,385 |
|                | APPROACH % | 14% | 40%   | 46%   | 42%   | 35%   | 22%   | 11% | 76%   | 12%   | 15% | 61%   | 24%   |       |
| APP/DEPART     | 1,207      | /   | 1,422 | 2,404 | /     | 1,529 | 1,586 | /   | 2,793 | 3,188 | /   | 2,641 | 0     |       |
| BEGIN PEAK HR  | 4:45 PM    |     |       |       |       |       |       |     |       |       |     |       |       |       |
| VOLUMES        | 92         | 217 | 274   | 527   | 442   | 278   | 98    | 629 | 96    | 239   | 997 | 402   | 4,291 |       |
| APPROACH %     | 16%        | 37% | 47%   | 42%   | 35%   | 22%   | 12%   | 76% | 12%   | 15%   | 61% | 25%   |       |       |
| PEAK HR FACTOR | 0.972      |     |       | 0.891 |       |       | 0.919 |     |       | 0.926 |     |       | 0.981 |       |
| APP/DEPART     | 583        | /   | 717   | 1,247 | /     | 777   | 823   | /   | 1,430 | 1,638 | /   | 1,367 | 0     |       |

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 1 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 1 |

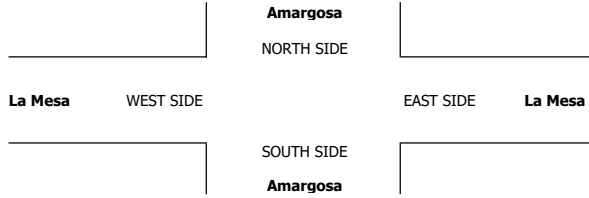
|   |    |    |     |
|---|----|----|-----|
| 0 | 6  | 4  | 24  |
| 0 | 5  | 2  | 42  |
| 0 | 8  | 3  | 34  |
| 0 | 6  | 5  | 59  |
| 0 | 15 | 6  | 67  |
| 0 | 11 | 5  | 66  |
| 0 | 11 | 3  | 42  |
| 0 | 9  | 14 | 51  |
| 0 | 71 | 42 | 385 |

|   |    |    |     |
|---|----|----|-----|
| 0 | 46 | 28 | 226 |
|---|----|----|-----|

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

|   |     |     |     |
|---|-----|-----|-----|
| 0 | 45  | 14  | 31  |
| 0 | 30  | 19  | 42  |
| 0 | 35  | 13  | 39  |
| 0 | 35  | 10  | 57  |
| 0 | 25  | 14  | 39  |
| 0 | 29  | 10  | 49  |
| 0 | 33  | 12  | 45  |
| 0 | 16  | 14  | 38  |
| 0 | 248 | 106 | 340 |

|   |     |    |     |
|---|-----|----|-----|
| 0 | 122 | 46 | 190 |
|---|-----|----|-----|



### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                               |   |                                    |                                       |                       |
|-------------------------------|---|------------------------------------|---------------------------------------|-----------------------|
| DATE:<br>6/16/21<br>WEDNESDAY | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Amargosa<br>La Mesa | PROJECT #:<br>LOCATION #:<br>CONTROL: | SC2957<br>1<br>SIGNAL |
|-------------------------------|---|------------------------------------|---------------------------------------|-----------------------|

|  |               |                         |                         |     |
|--|---------------|-------------------------|-------------------------|-----|
| <b>CLASS 2:</b><br>2-AXLE<br>WORK<br>VEHICLES/<br>TRUCKS | <b>NOTES:</b> | AM<br>PM<br>MD<br>OTHER | ▲<br>N<br>← W<br>S<br>▼ | E ► |
|--|---------------|-------------------------|-------------------------|-----|

| LANES: | NORTHBOUND<br><small>Amargosa</small> |    |    | SOUTHBOUND<br><small>Amargosa</small> |    |    | EASTBOUND<br><small>La Mesa</small> |    |    | WESTBOUND<br><small>La Mesa</small> |    |    | TOTAL |
|--------|---------------------------------------|----|----|---------------------------------------|----|----|-------------------------------------|----|----|-------------------------------------|----|----|-------|
|        | NL                                    | NT | NR | SL                                    | ST | SR | EL                                  | ET | ER | WL                                  | WT | WR |       |
|        | 2                                     | 2  | 1  | 2                                     | 2  | 1  | 2                                   | 2  | 1  | 2                                   | 3  | 1  |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
| X    | 0   | 0   | 0   |

|                |            |     |     |       |     |     |       |     |     |       |     |     |       |     |
|----------------|------------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|
| AM             | 7:00 AM    | 0   | 0   | 0     | 6   | 1   | 0     | 0   | 4   | 0     | 1   | 2   | 8     | 22  |
|                | 7:15 AM    | 0   | 1   | 1     | 6   | 2   | 1     | 0   | 7   | 0     | 1   | 2   | 3     | 24  |
|                | 7:30 AM    | 0   | 1   | 0     | 10  | 1   | 1     | 1   | 8   | 0     | 0   | 4   | 9     | 35  |
|                | 7:45 AM    | 0   | 0   | 0     | 3   | 0   | 0     | 1   | 5   | 0     | 0   | 2   | 12    | 23  |
|                | 8:00 AM    | 0   | 2   | 1     | 4   | 0   | 1     | 0   | 4   | 0     | 0   | 5   | 8     | 25  |
|                | 8:15 AM    | 0   | 0   | 0     | 7   | 2   | 1     | 0   | 2   | 0     | 1   | 4   | 3     | 20  |
|                | 8:30 AM    | 0   | 1   | 1     | 2   | 0   | 0     | 0   | 3   | 0     | 0   | 3   | 5     | 15  |
|                | 8:45 AM    | 0   | 2   | 0     | 4   | 0   | 3     | 2   | 6   | 0     | 0   | 0   | 7     | 24  |
|                | VOLUMES    | 0   | 7   | 3     | 42  | 6   | 7     | 4   | 39  | 0     | 3   | 22  | 55    | 188 |
|                | APPROACH % | 0%  | 70% | 30%   | 76% | 11% | 13%   | 9%  | 91% | 0%    | 4%  | 28% | 69%   |     |
| APP/DEPART     | 10         | /   | 66  | 55    | /   | 9   | 43    | /   | 84  | 80    | /   | 29  | 0     |     |
| BEGIN PEAK HR  | 8:00 AM    |     |     |       |     |     |       |     |     |       |     |     |       |     |
| VOLUMES        | 0          | 5   | 2   | 17    | 2   | 5   | 2     | 15  | 0   | 1     | 12  | 23  | 84    |     |
| APPROACH %     | 0%         | 71% | 29% | 71%   | 8%  | 21% | 12%   | 88% | 0%  | 3%    | 33% | 64% |       |     |
| PEAK HR FACTOR | 0.583      |     |     | 0.600 |     |     | 0.531 |     |     | 0.692 |     |     | 0.840 |     |
| APP/DEPART     | 7          | /   | 30  | 24    | /   | 3   | 17    | /   | 34  | 36    | /   | 17  | 0     |     |
| PM             | 4:00 PM    | 0   | 2   | 0     | 3   | 0   | 0     | 0   | 7   | 0     | 0   | 0   | 5     | 17  |
|                | 4:15 PM    | 1   | 0   | 0     | 8   | 0   | 2     | 2   | 8   | 1     | 0   | 1   | 3     | 26  |
|                | 4:30 PM    | 1   | 0   | 2     | 4   | 0   | 0     | 0   | 9   | 0     | 0   | 1   | 4     | 21  |
|                | 4:45 PM    | 1   | 2   | 1     | 4   | 1   | 0     | 0   | 4   | 0     | 0   | 5   | 4     | 22  |
|                | 5:00 PM    | 0   | 0   | 0     | 3   | 0   | 1     | 1   | 5   | 0     | 1   | 6   | 1     | 18  |
|                | 5:15 PM    | 0   | 0   | 0     | 1   | 1   | 1     | 0   | 2   | 0     | 2   | 2   | 7     | 16  |
|                | 5:30 PM    | 0   | 1   | 1     | 5   | 1   | 2     | 0   | 2   | 0     | 0   | 1   | 8     | 21  |
|                | 5:45 PM    | 0   | 0   | 0     | 1   | 0   | 0     | 0   | 4   | 0     | 0   | 0   | 6     | 11  |
|                | VOLUMES    | 3   | 5   | 4     | 29  | 3   | 6     | 3   | 41  | 1     | 3   | 16  | 38    | 152 |
|                | APPROACH % | 25% | 42% | 33%   | 76% | 8%  | 16%   | 7%  | 91% | 2%    | 5%  | 28% | 67%   |     |
| APP/DEPART     | 12         | /   | 46  | 38    | /   | 7   | 45    | /   | 74  | 57    | /   | 25  | 0     |     |
| BEGIN PEAK HR  | 4:45 PM    |     |     |       |     |     |       |     |     |       |     |     |       |     |
| VOLUMES        | 1          | 3   | 2   | 13    | 3   | 4   | 1     | 13  | 0   | 3     | 14  | 20  | 77    |     |
| APPROACH %     | 17%        | 50% | 33% | 65%   | 15% | 20% | 7%    | 93% | 0%  | 8%    | 38% | 54% |       |     |
| PEAK HR FACTOR | 0.375      |     |     | 0.625 |     |     | 0.583 |     |     | 0.841 |     |     | 0.875 |     |
| APP/DEPART     | 6          | /   | 24  | 20    | /   | 6   | 14    | /   | 28  | 37    | /   | 19  | 0     |     |

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

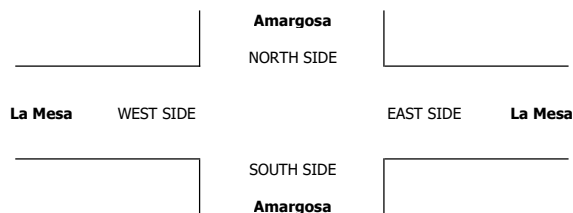
|   |   |   |    |
|---|---|---|----|
| 0 | 0 | 0 | 0  |
| 0 | 0 | 0 | 0  |
| 0 | 1 | 0 | 2  |
| 0 | 0 | 0 | 4  |
| 0 | 1 | 0 | 5  |
| 0 | 0 | 0 | 1  |
| 0 | 0 | 0 | 3  |
| 0 | 1 | 0 | 1  |
| 0 | 4 | 0 | 23 |

|   |   |   |    |
|---|---|---|----|
| 0 | 3 | 0 | 10 |
|---|---|---|----|

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

|   |   |   |    |
|---|---|---|----|
| 0 | 0 | 0 | 4  |
| 0 | 1 | 1 | 2  |
| 0 | 0 | 0 | 2  |
| 0 | 0 | 0 | 1  |
| 0 | 1 | 0 | 1  |
| 0 | 1 | 0 | 2  |
| 0 | 1 | 0 | 2  |
| 0 | 0 | 0 | 4  |
| 0 | 4 | 1 | 18 |

|   |   |   |   |
|---|---|---|---|
| 0 | 3 | 0 | 6 |
|---|---|---|---|





### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                                     |   |                                    |                                       |                       |
|-------------------------------------|---|------------------------------------|---------------------------------------|-----------------------|
| DATE:<br>6/16/21<br>WEDNESDAY       | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Amargosa<br>La Mesa | PROJECT #:<br>LOCATION #:<br>CONTROL: | SC2957<br>1<br>SIGNAL |
| <b>CLASS 3:</b><br>3-AXLE<br>TRUCKS | <b>NOTES:</b>                               |                                    |                                       |                       |
|                                     |   | AM<br>PM<br>MD<br>OTHER<br>OTHER   | ◀ W<br>S<br>▶ E                       | ▲ N<br>S<br>▼         |

| LANES: | NORTHBOUND<br><small>Amargosa</small> |         |         | SOUTHBOUND<br><small>Amargosa</small> |         |         | EASTBOUND<br><small>La Mesa</small> |         |         | WESTBOUND<br><small>La Mesa</small> |         |         | TOTAL |
|--------|---------------------------------------|---------|---------|---------------------------------------|---------|---------|-------------------------------------|---------|---------|-------------------------------------|---------|---------|-------|
|        | NL<br>2                               | NT<br>2 | NR<br>1 | SL<br>2                               | ST<br>2 | SR<br>1 | EL<br>2                             | ET<br>2 | ER<br>1 | WL<br>2                             | WT<br>3 | WR<br>1 |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |

|                |            |     |      |       |     |      |       |      |      |       |     |     |       |    |
|----------------|------------|-----|------|-------|-----|------|-------|------|------|-------|-----|-----|-------|----|
| <b>AM</b>      | 7:00 AM    | 0   | 0    | 0     | 1   | 0    | 0     | 1    | 0    | 0     | 0   | 1   | 0     | 3  |
|                | 7:15 AM    | 0   | 0    | 0     | 2   | 0    | 0     | 0    | 1    | 0     | 0   | 2   | 1     | 6  |
|                | 7:30 AM    | 0   | 0    | 0     | 2   | 0    | 0     | 1    | 1    | 0     | 0   | 1   | 2     | 7  |
|                | 7:45 AM    | 0   | 1    | 0     | 1   | 0    | 0     | 0    | 2    | 0     | 0   | 0   | 1     | 5  |
|                | 8:00 AM    | 0   | 0    | 0     | 0   | 1    | 0     | 0    | 1    | 0     | 1   | 1   | 0     | 4  |
|                | 8:15 AM    | 0   | 0    | 0     | 0   | 0    | 0     | 0    | 1    | 0     | 0   | 2   | 1     | 4  |
|                | 8:30 AM    | 0   | 0    | 0     | 1   | 0    | 0     | 0    | 2    | 0     | 0   | 1   | 1     | 5  |
|                | 8:45 AM    | 0   | 0    | 0     | 2   | 0    | 0     | 0    | 0    | 0     | 0   | 1   | 3     | 6  |
|                | VOLUMES    | 0   | 1    | 0     | 9   | 1    | 0     | 2    | 8    | 0     | 1   | 9   | 9     | 40 |
|                | APPROACH % | 0%  | 100% | 0%    | 90% | 10%  | 0%    | 20%  | 80%  | 0%    | 5%  | 47% | 47%   |    |
| APP/DEPART     | 1          | /   | 12   | 10    | /   | 2    | 10    | /    | 17   | 19    | /   | 9   | 0     |    |
| BEGIN PEAK HR  | 8:00 AM    |     |      |       |     |      |       |      |      |       |     |     |       |    |
| VOLUMES        | 0          | 0   | 0    | 3     | 1   | 0    | 0     | 4    | 0    | 1     | 5   | 5   | 19    |    |
| APPROACH %     | 0%         | 0%  | 0%   | 75%   | 25% | 0%   | 0%    | 100% | 0%   | 9%    | 45% | 45% |       |    |
| PEAK HR FACTOR | 0.000      |     |      | 0.500 |     |      | 0.500 |      |      | 0.688 |     |     | 0.792 |    |
| APP/DEPART     | 0          | /   | 5    | 4     | /   | 2    | 4     | /    | 7    | 11    | /   | 5   | 0     |    |
| <b>PM</b>      | 4:00 PM    | 0   | 0    | 0     | 1   | 1    | 0     | 0    | 0    | 0     | 0   | 0   | 0     | 2  |
|                | 4:15 PM    | 0   | 0    | 2     | 2   | 0    | 0     | 0    | 0    | 0     | 0   | 2   | 0     | 6  |
|                | 4:30 PM    | 1   | 0    | 0     | 0   | 0    | 0     | 0    | 0    | 0     | 0   | 1   | 2     | 4  |
|                | 4:45 PM    | 0   | 0    | 0     | 0   | 0    | 1     | 0    | 0    | 0     | 1   | 2   | 0     | 4  |
|                | 5:00 PM    | 0   | 0    | 0     | 0   | 0    | 0     | 0    | 2    | 0     | 0   | 0   | 0     | 2  |
|                | 5:15 PM    | 0   | 0    | 1     | 0   | 0    | 0     | 0    | 0    | 0     | 1   | 1   | 0     | 3  |
|                | 5:30 PM    | 0   | 0    | 0     | 0   | 0    | 0     | 0    | 0    | 0     | 0   | 0   | 1     | 1  |
|                | 5:45 PM    | 0   | 0    | 0     | 0   | 0    | 1     | 0    | 1    | 0     | 0   | 0   | 2     | 4  |
|                | VOLUMES    | 1   | 0    | 3     | 3   | 1    | 2     | 0    | 3    | 0     | 2   | 6   | 5     | 26 |
|                | APPROACH % | 25% | 0%   | 75%   | 50% | 17%  | 33%   | 0%   | 100% | 0%    | 15% | 46% | 38%   |    |
| APP/DEPART     | 4          | /   | 5    | 6     | /   | 3    | 3     | /    | 9    | 13    | /   | 9   | 0     |    |
| BEGIN PEAK HR  | 4:45 PM    |     |      |       |     |      |       |      |      |       |     |     |       |    |
| VOLUMES        | 0          | 0   | 1    | 0     | 0   | 1    | 0     | 2    | 0    | 2     | 3   | 1   | 10    |    |
| APPROACH %     | 0%         | 0%  | 100% | 0%    | 0%  | 100% | 0%    | 100% | 0%   | 33%   | 50% | 17% |       |    |
| PEAK HR FACTOR | 0.250      |     |      | 0.250 |     |      | 0.250 |      |      | 0.500 |     |     | 0.625 |    |
| APP/DEPART     | 1          | /   | 1    | 1     | /   | 2    | 2     | /    | 3    | 6     | /   | 4   | 0     |    |

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 0 | 0 |

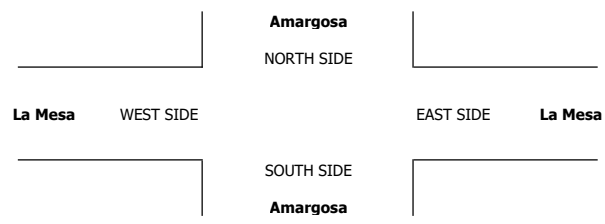
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| 0 | 0 | 0 | 1 |
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| 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 1 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 4 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 2 |
|---|---|---|---|

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 |
| 0 | 1 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 1 | 0 | 1 |

|   |   |   |   |
|---|---|---|---|
| 0 | 1 | 0 | 0 |
|---|---|---|---|



### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                               |   |                                    |                                       |                       |
|-------------------------------|---|------------------------------------|---------------------------------------|-----------------------|
| DATE:<br>6/16/21<br>WEDNESDAY | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Amargosa<br>La Mesa | PROJECT #:<br>LOCATION #:<br>CONTROL: | SC2957<br>1<br>SIGNAL |
|-------------------------------|---|------------------------------------|---------------------------------------|-----------------------|

|  |               |                         |                                |
|--|---------------|-------------------------|--------------------------------|
| <b>CLASS 4:</b><br>4 OR MORE<br>AXLE<br>TRUCKS | <b>NOTES:</b> | AM<br>PM<br>MD<br>OTHER | ▲<br>N<br>◀ W<br>E ▶<br>S<br>▼ |
|--|---------------|-------------------------|--------------------------------|

| LANES: | NORTHBOUND |    |    | SOUTHBOUND |    |    | EASTBOUND |    |    | WESTBOUND |    |    | TOTAL |
|--------|------------|----|----|------------|----|----|-----------|----|----|-----------|----|----|-------|
|        | Amargosa   |    |    | Amargosa   |    |    | La Mesa   |    |    | La Mesa   |    |    |       |
|        | NL         | NT | NR | SL         | ST | SR | EL        | ET | ER | WL        | WT | WR |       |
|        | 2          | 2  | 1  | 2          | 2  | 1  | 2         | 2  | 1  | 2         | 3  | 1  |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
| X    | 0   | 0   | 0   |

|                |            |      |     |       |     |     |       |     |      |       |     |      |       |    |
|----------------|------------|------|-----|-------|-----|-----|-------|-----|------|-------|-----|------|-------|----|
| AM             | 7:00 AM    | 0    | 0   | 0     | 2   | 0   | 1     | 0   | 2    | 0     | 0   | 2    | 2     | 9  |
|                | 7:15 AM    | 0    | 0   | 0     | 0   | 0   | 0     | 0   | 2    | 0     | 0   | 2    | 2     | 6  |
|                | 7:30 AM    | 0    | 0   | 0     | 3   | 0   | 0     | 0   | 3    | 0     | 0   | 1    | 2     | 9  |
|                | 7:45 AM    | 0    | 0   | 0     | 0   | 1   | 1     | 0   | 1    | 0     | 0   | 1    | 5     | 9  |
|                | 8:00 AM    | 0    | 0   | 0     | 0   | 0   | 0     | 1   | 2    | 0     | 0   | 1    | 1     | 5  |
|                | 8:15 AM    | 0    | 0   | 0     | 3   | 0   | 0     | 0   | 1    | 0     | 0   | 1    | 4     | 9  |
|                | 8:30 AM    | 0    | 0   | 0     | 3   | 0   | 0     | 0   | 1    | 0     | 0   | 0    | 7     | 11 |
|                | 8:45 AM    | 1    | 1   | 0     | 0   | 2   | 0     | 1   | 0    | 0     | 0   | 0    | 6     | 11 |
|                | VOLUMES    | 1    | 1   | 0     | 11  | 3   | 2     | 2   | 12   | 0     | 0   | 8    | 29    | 69 |
|                | APPROACH % | 50%  | 50% | 0%    | 69% | 19% | 13%   | 14% | 86%  | 0%    | 0%  | 22%  | 78%   |    |
| APP/DEPART     | 2          | /    | 32  | 16    | /   | 3   | 14    | /   | 23   | 37    | /   | 11   | 0     |    |
| BEGIN PEAK HR  | 8:00 AM    |      |     |       |     |     |       |     |      |       |     |      |       |    |
| VOLUMES        | 1          | 1    | 0   | 6     | 2   | 0   | 2     | 4   | 0    | 0     | 2   | 18   | 36    |    |
| APPROACH %     | 50%        | 50%  | 0%  | 75%   | 25% | 0%  | 33%   | 67% | 0%   | 0%    | 10% | 90%  |       |    |
| PEAK HR FACTOR | 0.250      |      |     | 0.667 |     |     | 0.500 |     |      | 0.714 |     |      | 0.818 |    |
| APP/DEPART     | 2          | /    | 21  | 8     | /   | 2   | 6     | /   | 10   | 20    | /   | 3    | 0     |    |
| PM             | 4:00 PM    | 0    | 0   | 1     | 3   | 0   | 0     | 0   | 1    | 0     | 0   | 0    | 6     | 11 |
|                | 4:15 PM    | 0    | 0   | 0     | 2   | 1   | 0     | 0   | 2    | 0     | 0   | 0    | 1     | 6  |
|                | 4:30 PM    | 0    | 1   | 0     | 4   | 0   | 1     | 0   | 1    | 0     | 0   | 3    | 10    |    |
|                | 4:45 PM    | 0    | 0   | 0     | 1   | 0   | 0     | 0   | 0    | 0     | 0   | 0    | 1     |    |
|                | 5:00 PM    | 0    | 0   | 0     | 2   | 0   | 0     | 0   | 0    | 0     | 0   | 3    | 5     |    |
|                | 5:15 PM    | 0    | 1   | 0     | 2   | 0   | 0     | 0   | 0    | 0     | 0   | 2    | 5     |    |
|                | 5:30 PM    | 0    | 0   | 0     | 2   | 1   | 0     | 0   | 0    | 0     | 0   | 5    | 8     |    |
|                | 5:45 PM    | 0    | 0   | 0     | 1   | 0   | 0     | 0   | 1    | 0     | 0   | 0    | 2     |    |
|                | VOLUMES    | 0    | 2   | 1     | 17  | 2   | 1     | 0   | 5    | 0     | 0   | 0    | 20    | 48 |
|                | APPROACH % | 0%   | 67% | 33%   | 85% | 10% | 5%    | 0%  | 100% | 0%    | 0%  | 0%   | 100%  |    |
| APP/DEPART     | 3          | /    | 22  | 20    | /   | 2   | 5     | /   | 23   | 20    | /   | 1    | 0     |    |
| BEGIN PEAK HR  | 4:45 PM    |      |     |       |     |     |       |     |      |       |     |      |       |    |
| VOLUMES        | 0          | 1    | 0   | 7     | 1   | 0   | 0     | 0   | 0    | 0     | 0   | 10   | 19    |    |
| APPROACH %     | 0%         | 100% | 0%  | 88%   | 13% | 0%  | 0%    | 0%  | 0%   | 0%    | 0%  | 100% |       |    |
| PEAK HR FACTOR | 0.250      |      |     | 0.667 |     |     | 0.000 |     |      | 0.500 |     |      | 0.594 |    |
| APP/DEPART     | 1          | /    | 11  | 8     | /   | 1   | 0     | /   | 7    | 10    | /   | 0    | 0     |    |

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

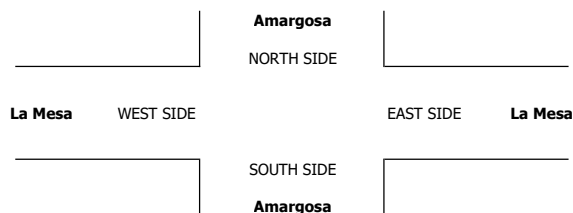
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|---|---|---|----|
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| 0 | 0 | 0 | 0  |
| 0 | 0 | 0 | 2  |
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| 0 | 0 | 0 | 0  |
| 0 | 0 | 0 | 0  |
| 0 | 0 | 0 | 1  |
| 0 | 0 | 0 | 3  |
| 0 | 0 | 0 | 2  |
| 0 | 2 | 0 | 10 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 6 |
|---|---|---|---|

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

|   |   |   |    |
|---|---|---|----|
| 0 | 0 | 0 | 4  |
| 0 | 0 | 0 | 0  |
| 0 | 1 | 0 | 1  |
| 0 | 0 | 0 | 0  |
| 0 | 0 | 0 | 3  |
| 0 | 0 | 0 | 0  |
| 0 | 0 | 0 | 4  |
| 0 | 0 | 0 | 0  |
| 0 | 1 | 0 | 12 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 7 |
|---|---|---|---|





### INTERSECTION TURNING MOVEMENT COUNTS

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|                               |   |                                    |   |
|-------------------------------|---|------------------------------------|---|
| DATE:<br>6/16/21<br>WEDNESDAY | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Amargosa<br>La Mesa | PROJECT #: SC2957<br>LOCATION #: 1<br>CONTROL: SIGNAL |
|-------------------------------|---|------------------------------------|---|

|          |        |                                  |                                |
|----------|--------|----------------------------------|--------------------------------|
| CLASS 6: | NOTES: | AM<br>PM<br>MD<br>OTHER<br>OTHER | ▲<br>N<br>◀ W<br>E ▶<br>S<br>▼ |
| BUSES    |        |                                  |                                |

| LANES: | NORTHBOUND<br><small>Amargosa</small> |         |         | SOUTHBOUND<br><small>Amargosa</small> |         |         | EASTBOUND<br><small>La Mesa</small> |         |         | WESTBOUND<br><small>La Mesa</small> |         |         | TOTAL |
|--------|---------------------------------------|---------|---------|---------------------------------------|---------|---------|-------------------------------------|---------|---------|-------------------------------------|---------|---------|-------|
|        | NL<br>2                               | NT<br>2 | NR<br>1 | SL<br>2                               | ST<br>2 | SR<br>1 | EL<br>2                             | ET<br>2 | ER<br>1 | WL<br>2                             | WT<br>3 | WR<br>1 |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |

|                |            |     |      |       |     |      |       |     |      |       |     |     |       |    |
|----------------|------------|-----|------|-------|-----|------|-------|-----|------|-------|-----|-----|-------|----|
| AM             | 7:00 AM    | 0   | 0    | 0     | 4   | 0    | 1     | 0   | 0    | 0     | 0   | 4   | 0     | 9  |
|                | 7:15 AM    | 0   | 0    | 0     | 1   | 0    | 0     | 0   | 2    | 1     | 1   | 3   | 0     | 8  |
|                | 7:30 AM    | 1   | 0    | 0     | 0   | 0    | 0     | 0   | 1    | 0     | 1   | 3   | 1     | 7  |
|                | 7:45 AM    | 0   | 0    | 1     | 2   | 0    | 2     | 0   | 2    | 1     | 1   | 0   | 0     | 9  |
|                | 8:00 AM    | 0   | 0    | 0     | 3   | 0    | 0     | 0   | 1    | 0     | 0   | 0   | 0     | 4  |
|                | 8:15 AM    | 0   | 0    | 0     | 3   | 0    | 0     | 0   | 2    | 0     | 0   | 0   | 1     | 6  |
|                | 8:30 AM    | 0   | 0    | 1     | 2   | 0    | 0     | 0   | 0    | 1     | 1   | 0   | 0     | 5  |
|                | 8:45 AM    | 0   | 0    | 1     | 0   | 0    | 0     | 0   | 1    | 0     | 0   | 0   | 0     | 2  |
|                | VOLUMES    | 1   | 0    | 3     | 15  | 0    | 3     | 0   | 9    | 3     | 4   | 10  | 2     | 50 |
|                | APPROACH % | 25% | 0%   | 75%   | 83% | 0%   | 17%   | 0%  | 75%  | 25%   | 25% | 63% | 13%   |    |
| APP/DEPART     | 4          | /   | 2    | 18    | /   | 7    | 12    | /   | 27   | 16    | /   | 14  | 0     |    |
| BEGIN PEAK HR  | 8:00 AM    |     |      |       |     |      |       |     |      |       |     |     |       |    |
| VOLUMES        | 0          | 0   | 2    | 8     | 0   | 0    | 0     | 4   | 1    | 1     | 0   | 1   | 17    |    |
| APPROACH %     | 0%         | 0%  | 100% | 100%  | 0%  | 0%   | 0%    | 80% | 20%  | 50%   | 0%  | 50% |       |    |
| PEAK HR FACTOR | 0.500      |     |      | 0.667 |     |      | 0.625 |     |      | 0.500 |     |     | 0.708 |    |
| APP/DEPART     | 2          | /   | 1    | 8     | /   | 2    | 5     | /   | 14   | 2     | /   | 0   | 0     |    |
| PM             | 4:00 PM    | 0   | 0    | 0     | 0   | 0    | 0     | 0   | 0    | 1     | 0   | 0   | 0     | 1  |
|                | 4:15 PM    | 0   | 0    | 0     | 0   | 0    | 0     | 0   | 0    | 0     | 0   | 0   | 1     | 1  |
|                | 4:30 PM    | 0   | 0    | 0     | 0   | 0    | 0     | 0   | 0    | 1     | 0   | 0   | 0     | 1  |
|                | 4:45 PM    | 0   | 0    | 0     | 0   | 0    | 0     | 0   | 0    | 0     | 1   | 0   | 0     | 1  |
|                | 5:00 PM    | 0   | 0    | 1     | 0   | 0    | 0     | 0   | 0    | 0     | 0   | 0   | 0     | 1  |
|                | 5:15 PM    | 0   | 0    | 0     | 0   | 0    | 0     | 0   | 0    | 1     | 0   | 0   | 0     | 1  |
|                | 5:30 PM    | 0   | 0    | 0     | 0   | 0    | 0     | 0   | 0    | 0     | 2   | 0   | 0     | 2  |
|                | 5:45 PM    | 0   | 1    | 1     | 0   | 1    | 0     | 0   | 0    | 0     | 0   | 0   | 0     | 3  |
|                | VOLUMES    | 0   | 1    | 2     | 0   | 1    | 0     | 0   | 0    | 3     | 3   | 0   | 1     | 11 |
|                | APPROACH % | 0%  | 33%  | 67%   | 0%  | 100% | 0%    | 0%  | 0%   | 100%  | 75% | 0%  | 25%   |    |
| APP/DEPART     | 3          | /   | 2    | 1     | /   | 7    | 3     | /   | 2    | 4     | /   | 0   | 0     |    |
| BEGIN PEAK HR  | 4:45 PM    |     |      |       |     |      |       |     |      |       |     |     |       |    |
| VOLUMES        | 0          | 0   | 1    | 0     | 0   | 0    | 0     | 0   | 1    | 3     | 0   | 0   | 5     |    |
| APPROACH %     | 0%         | 0%  | 100% | 0%    | 0%  | 0%   | 0%    | 0%  | 100% | 100%  | 0%  | 0%  |       |    |
| PEAK HR FACTOR | 0.250      |     |      | 0.000 |     |      | 0.250 |     |      | 0.375 |     |     | 0.625 |    |
| APP/DEPART     | 1          | /   | 0    | 0     | /   | 4    | 1     | /   | 1    | 3     | /   | 0   | 0     |    |

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 0 | 0 |

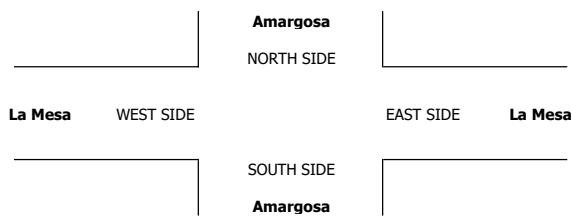
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| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 2 | 0 | 0 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
|---|---|---|---|

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

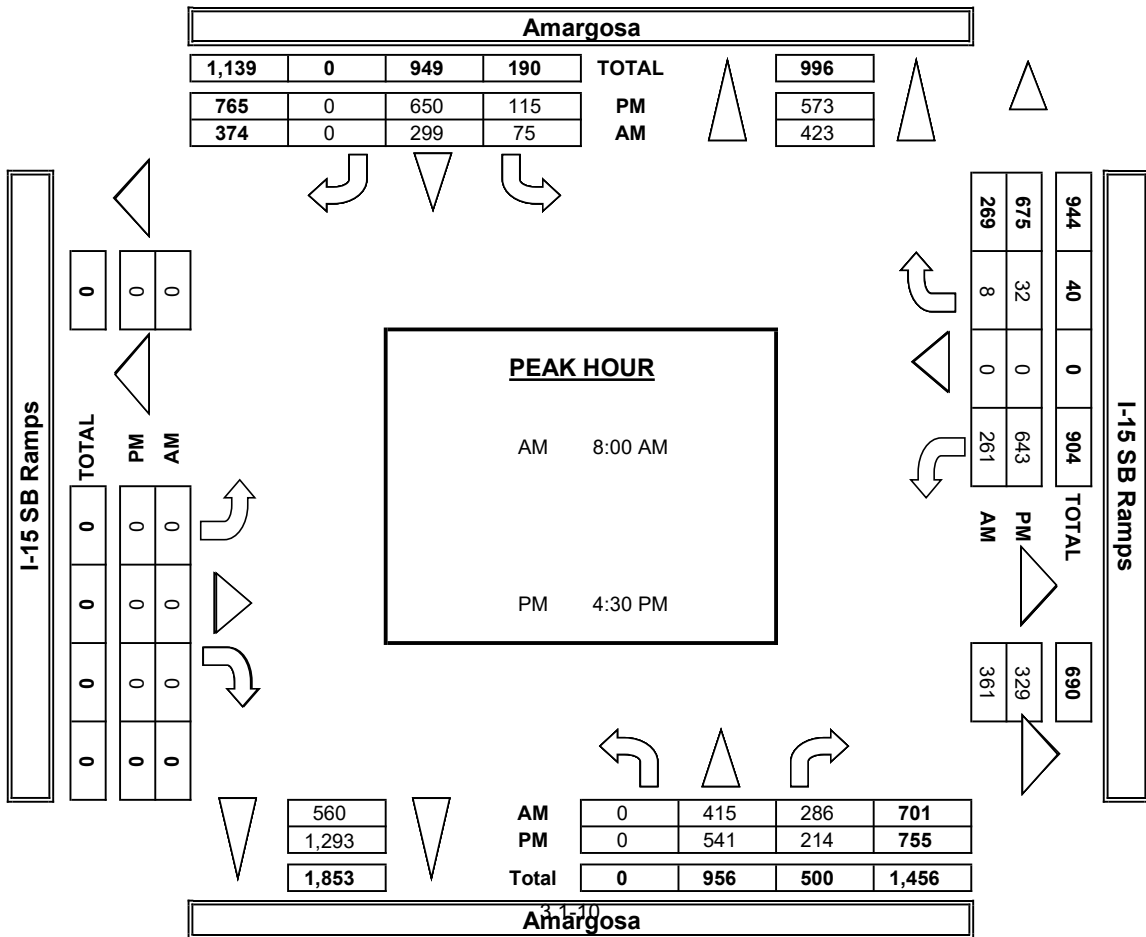
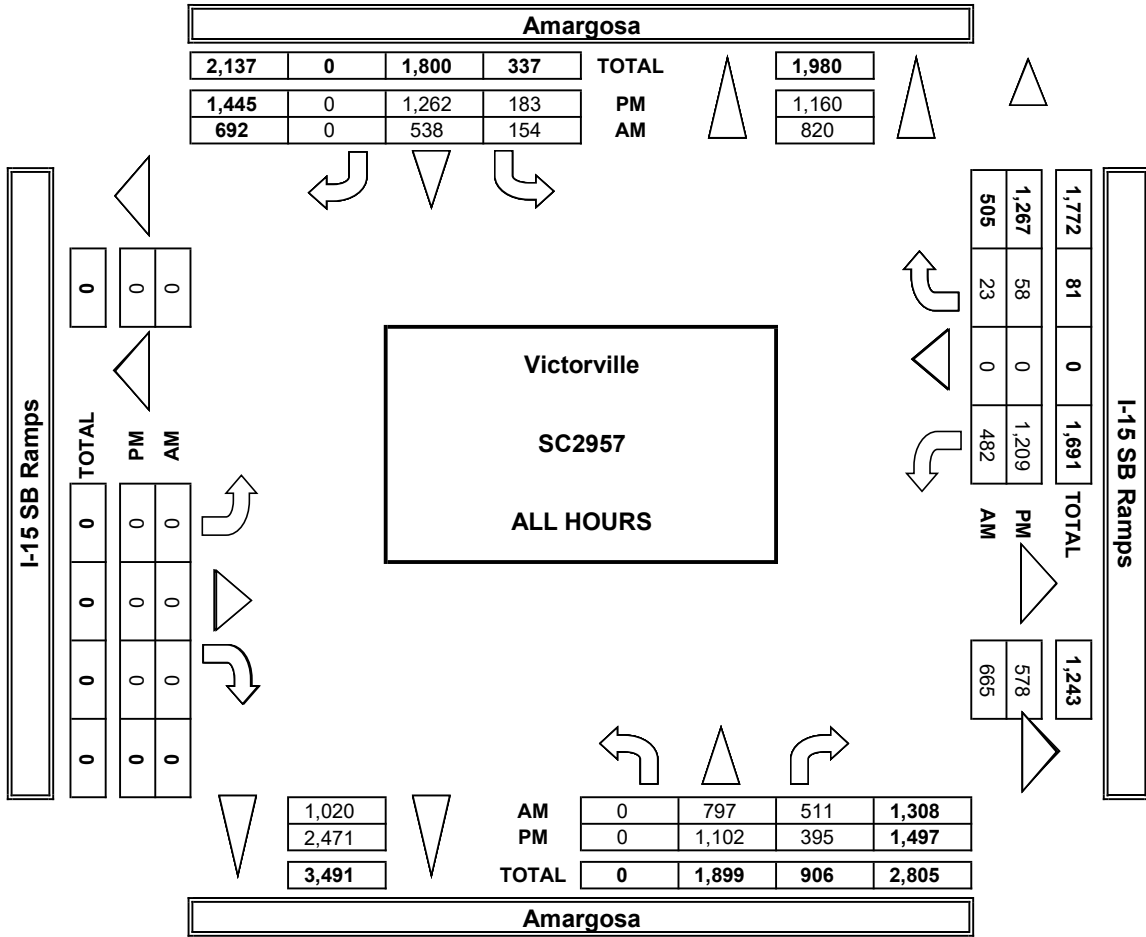
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| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 2 | 0 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 1 | 0 |
|---|---|---|---|





**AimTD LLC**  
TURNING MOVEMENT COUNTS











### INTERSECTION TURNING MOVEMENT COUNTS

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|                               |   |  |                                       |                       |
|-------------------------------|---|--|---------------------------------------|-----------------------|
| DATE:<br>6/16/21<br>WEDNESDAY | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Amargosa<br>I-15 SB Ramps | PROJECT #:<br>LOCATION #:<br>CONTROL: | SC2957<br>2<br>SIGNAL |
|-------------------------------|---|--|---------------------------------------|-----------------------|

|  |               |                         |                                |
|--|---------------|-------------------------|--------------------------------|
| <b>CLASS 4:</b><br>4 OR MORE<br>AXLE<br>TRUCKS | <b>NOTES:</b> | AM<br>PM<br>MD<br>OTHER | ▲<br>N<br>◀ W<br>E ▶<br>S<br>▼ |
|--|---------------|-------------------------|--------------------------------|

| LANES: | NORTHBOUND |    |    | SOUTHBOUND |    |    | EASTBOUND     |    |    | WESTBOUND     |    |    | TOTAL |
|--------|------------|----|----|------------|----|----|---------------|----|----|---------------|----|----|-------|
|        | Amargosa   |    |    | Amargosa   |    |    | I-15 SB Ramps |    |    | I-15 SB Ramps |    |    |       |
|        | NL         | NT | NR | SL         | ST | SR | EL            | ET | ER | WL            | WT | WR |       |
|        | X          | 2  | 1  | 1          | 2  | X  | X             | X  | X  | 2             | X  | 1  |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
| 0    | X   | X   | 0   |

|                |            |     |     |       |      |     |       |    |    |       |      |    |       |    |
|----------------|------------|-----|-----|-------|------|-----|-------|----|----|-------|------|----|-------|----|
| <b>AM</b>      | 7:00 AM    | 0   | 2   | 0     | 0    | 1   | 0     | 0  | 0  | 0     | 2    | 0  | 0     | 5  |
|                | 7:15 AM    | 0   | 1   | 1     | 0    | 0   | 0     | 0  | 0  | 0     | 1    | 0  | 0     | 3  |
|                | 7:30 AM    | 0   | 0   | 2     | 1    | 0   | 0     | 0  | 0  | 0     | 2    | 0  | 0     | 5  |
|                | 7:45 AM    | 0   | 1   | 4     | 0    | 0   | 0     | 0  | 0  | 0     | 2    | 0  | 0     | 7  |
|                | 8:00 AM    | 0   | 1   | 3     | 0    | 0   | 0     | 0  | 0  | 0     | 0    | 0  | 0     | 4  |
|                | 8:15 AM    | 0   | 0   | 3     | 0    | 0   | 0     | 0  | 0  | 0     | 3    | 0  | 0     | 6  |
|                | 8:30 AM    | 0   | 2   | 5     | 1    | 0   | 0     | 0  | 0  | 0     | 3    | 0  | 0     | 11 |
|                | 8:45 AM    | 0   | 3   | 4     | 1    | 0   | 0     | 0  | 0  | 0     | 2    | 0  | 0     | 10 |
|                | VOLUMES    | 0   | 10  | 22    | 3    | 1   | 0     | 0  | 0  | 0     | 15   | 0  | 0     | 51 |
|                | APPROACH % | 0%  | 31% | 69%   | 75%  | 25% | 0%    | 0% | 0% | 0%    | 100% | 0% | 0%    |    |
| APP/DEPART     | 32         | /   | 10  | 4     | /    | 16  | 0     | /  | 25 | 15    | /    | 0  | 0     |    |
| BEGIN PEAK HR  | 8:00 AM    |     |     |       |      |     |       |    |    |       |      |    |       |    |
| VOLUMES        | 0          | 6   | 15  | 2     | 0    | 0   | 0     | 0  | 0  | 8     | 0    | 0  | 31    |    |
| APPROACH %     | 0%         | 29% | 71% | 100%  | 0%   | 0%  | 0%    | 0% | 0% | 100%  | 0%   | 0% |       |    |
| PEAK HR FACTOR | 0.750      |     |     | 0.500 |      |     | 0.000 |    |    | 0.667 |      |    | 0.705 |    |
| APP/DEPART     | 21         | /   | 6   | 2     | /    | 8   | 0     | /  | 17 | 8     | /    | 0  | 0     |    |
| <b>PM</b>      | 4:00 PM    | 0   | 2   | 3     | 0    | 0   | 0     | 0  | 0  | 3     | 0    | 1  | 9     |    |
|                | 4:15 PM    | 0   | 1   | 1     | 1    | 2   | 0     | 0  | 0  | 3     | 0    | 1  | 9     |    |
|                | 4:30 PM    | 0   | 2   | 3     | 0    | 1   | 0     | 0  | 0  | 3     | 0    | 0  | 9     |    |
|                | 4:45 PM    | 0   | 0   | 0     | 0    | 0   | 0     | 0  | 0  | 1     | 0    | 0  | 1     |    |
|                | 5:00 PM    | 0   | 1   | 1     | 0    | 1   | 0     | 0  | 0  | 1     | 0    | 0  | 4     |    |
|                | 5:15 PM    | 0   | 1   | 1     | 0    | 0   | 0     | 0  | 0  | 3     | 0    | 0  | 5     |    |
|                | 5:30 PM    | 0   | 4   | 1     | 1    | 0   | 0     | 0  | 0  | 1     | 0    | 0  | 7     |    |
|                | 5:45 PM    | 0   | 0   | 1     | 0    | 0   | 0     | 0  | 0  | 1     | 0    | 0  | 2     |    |
|                | VOLUMES    | 0   | 11  | 11    | 2    | 4   | 0     | 0  | 0  | 0     | 16   | 0  | 2     | 46 |
|                | APPROACH % | 0%  | 50% | 50%   | 33%  | 67% | 0%    | 0% | 0% | 0%    | 89%  | 0% | 11%   |    |
| APP/DEPART     | 22         | /   | 13  | 6     | /    | 20  | 0     | /  | 13 | 18    | /    | 0  | 0     |    |
| BEGIN PEAK HR  | 4:30 PM    |     |     |       |      |     |       |    |    |       |      |    |       |    |
| VOLUMES        | 0          | 4   | 5   | 0     | 2    | 0   | 0     | 0  | 0  | 8     | 0    | 0  | 19    |    |
| APPROACH %     | 0%         | 44% | 56% | 0%    | 100% | 0%  | 0%    | 0% | 0% | 100%  | 0%   | 0% |       |    |
| PEAK HR FACTOR | 0.450      |     |     | 0.500 |      |     | 0.000 |    |    | 0.667 |      |    | 0.528 |    |
| APP/DEPART     | 9          | /   | 4   | 2     | /    | 10  | 0     | /  | 5  | 8     | /    | 0  | 0     |    |

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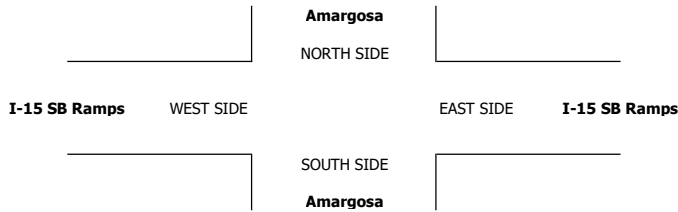
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| 2  | 0 | 0 | 0 |
| 0  | 0 | 0 | 0 |
| 1  | 0 | 0 | 0 |
| 3  | 0 | 0 | 0 |
| 2  | 0 | 0 | 0 |
| 1  | 0 | 0 | 0 |
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| 1 | 0 | 0 | 1 |
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| 3 | 0 | 0 | 2 |

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| 2 | 0 | 0 | 0 |
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**INTERSECTION TURNING MOVEMENT COUNTS**

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                                      |  |  |                             |                         |                           |
|--------------------------------------|--|--|-----------------------------|-------------------------|---------------------------|
| <b>DATE:</b><br>6/16/21<br>WEDNESDAY | <b>LOCATION:</b><br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Amargosa<br>I-15 SB Ramps | <b>PROJECT #:</b><br>SC2957 | <b>LOCATION #:</b><br>2 | <b>CONTROL:</b><br>SIGNAL |
|--------------------------------------|--|--|-----------------------------|-------------------------|---------------------------|

|                 |               |                                  |                                |
|-----------------|---------------|----------------------------------|--------------------------------|
| <b>CLASS 6:</b> | <b>NOTES:</b> | AM<br>PM<br>MD<br>OTHER<br>OTHER | ▲<br>N<br>◀ W<br>E ▶<br>S<br>▼ |
| BUSES           |               |                                  |                                |

| LANES: | NORTHBOUND<br>Amargosa |         |         | SOUTHBOUND<br>Amargosa |         |         | EASTBOUND<br>I-15 SB Ramps |         |         | WESTBOUND<br>I-15 SB Ramps |         |         | TOTAL |
|--------|------------------------|---------|---------|------------------------|---------|---------|----------------------------|---------|---------|----------------------------|---------|---------|-------|
|        | NL<br>X                | NT<br>2 | NR<br>1 | SL<br>1                | ST<br>2 | SR<br>X | EL<br>X                    | ET<br>X | ER<br>X | WL<br>2                    | WT<br>X | WR<br>1 |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |

|                |            |      |      |       |      |      |       |    |    |       |      |    |       |    |
|----------------|------------|------|------|-------|------|------|-------|----|----|-------|------|----|-------|----|
| AM             | 7:00 AM    | 0    | 0    | 0     | 0    | 3    | 0     | 0  | 0  | 0     | 2    | 0  | 0     | 5  |
|                | 7:15 AM    | 0    | 0    | 0     | 0    | 1    | 0     | 0  | 0  | 0     | 1    | 0  | 0     | 2  |
|                | 7:30 AM    | 0    | 1    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     | 1  |
|                | 7:45 AM    | 0    | 0    | 0     | 0    | 1    | 0     | 0  | 0  | 0     | 2    | 0  | 0     | 3  |
|                | 8:00 AM    | 0    | 0    | 0     | 0    | 1    | 0     | 0  | 0  | 0     | 3    | 0  | 0     | 4  |
|                | 8:15 AM    | 0    | 1    | 0     | 0    | 1    | 0     | 0  | 0  | 0     | 2    | 0  | 0     | 4  |
|                | 8:30 AM    | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 1    | 0  | 0     | 1  |
|                | 8:45 AM    | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     | 0  |
|                | VOLUMES    | 0    | 2    | 0     | 0    | 7    | 0     | 0  | 0  | 0     | 11   | 0  | 0     | 20 |
|                | APPROACH % | 0%   | 100% | 0%    | 0%   | 100% | 0%    | 0% | 0% | 100%  | 0%   | 0% | 0%    |    |
| APP/DEPART     | 2          | /    | 2    | 7     | /    | 18   | 0     | /  | 0  | 11    | /    | 0  | 0     |    |
| BEGIN PEAK HR  | 8:00 AM    |      |      |       |      |      |       |    |    |       |      |    |       |    |
| VOLUMES        | 0          | 1    | 0    | 0     | 2    | 0    | 0     | 0  | 0  | 6     | 0    | 0  | 9     |    |
| APPROACH %     | 0%         | 100% | 0%   | 0%    | 100% | 0%   | 0%    | 0% | 0% | 100%  | 0%   | 0% |       |    |
| PEAK HR FACTOR | 0.250      |      |      | 0.500 |      |      | 0.000 |    |    | 0.500 |      |    | 0.563 |    |
| APP/DEPART     | 1          | /    | 1    | 2     | /    | 8    | 0     | /  | 0  | 6     | /    | 0  | 0     |    |
| PM             | 4:00 PM    | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     |    |
|                | 4:15 PM    | 0    | 1    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 1     |    |
|                | 4:30 PM    | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     |    |
|                | 4:45 PM    | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     |    |
|                | 5:00 PM    | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     |    |
|                | 5:15 PM    | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     |    |
|                | 5:30 PM    | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     |    |
|                | 5:45 PM    | 0    | 0    | 1     | 0    | 0    | 0     | 0  | 0  | 0     | 1    | 0  | 0     | 2  |
|                | VOLUMES    | 0    | 1    | 1     | 0    | 0    | 0     | 0  | 0  | 0     | 1    | 0  | 0     | 3  |
|                | APPROACH % | 0%   | 50%  | 50%   | 0%   | 0%   | 0%    | 0% | 0% | 0%    | 100% | 0% | 0%    |    |
| APP/DEPART     | 2          | /    | 1    | 0     | /    | 1    | 0     | /  | 1  | 1     | /    | 0  | 0     |    |
| BEGIN PEAK HR  | 4:30 PM    |      |      |       |      |      |       |    |    |       |      |    |       |    |
| VOLUMES        | 0          | 0    | 0    | 0     | 0    | 0    | 0     | 0  | 0  | 0     | 0    | 0  | 0     |    |
| APPROACH %     | 0%         | 0%   | 0%   | 0%    | 0%   | 0%   | 0%    | 0% | 0% | 0%    | 0%   | 0% |       |    |
| PEAK HR FACTOR | 0.000      |      |      | 0.000 |      |      | 0.000 |    |    | 0.000 |      |    | 0.000 |    |
| APP/DEPART     | 0          | /    | 0    | 0     | /    | 0    | 0     | /  | 0  | 0     | /    | 0  | 0     |    |

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Amargosa

NORTH SIDE

I-15 SB Ramps WEST SIDE

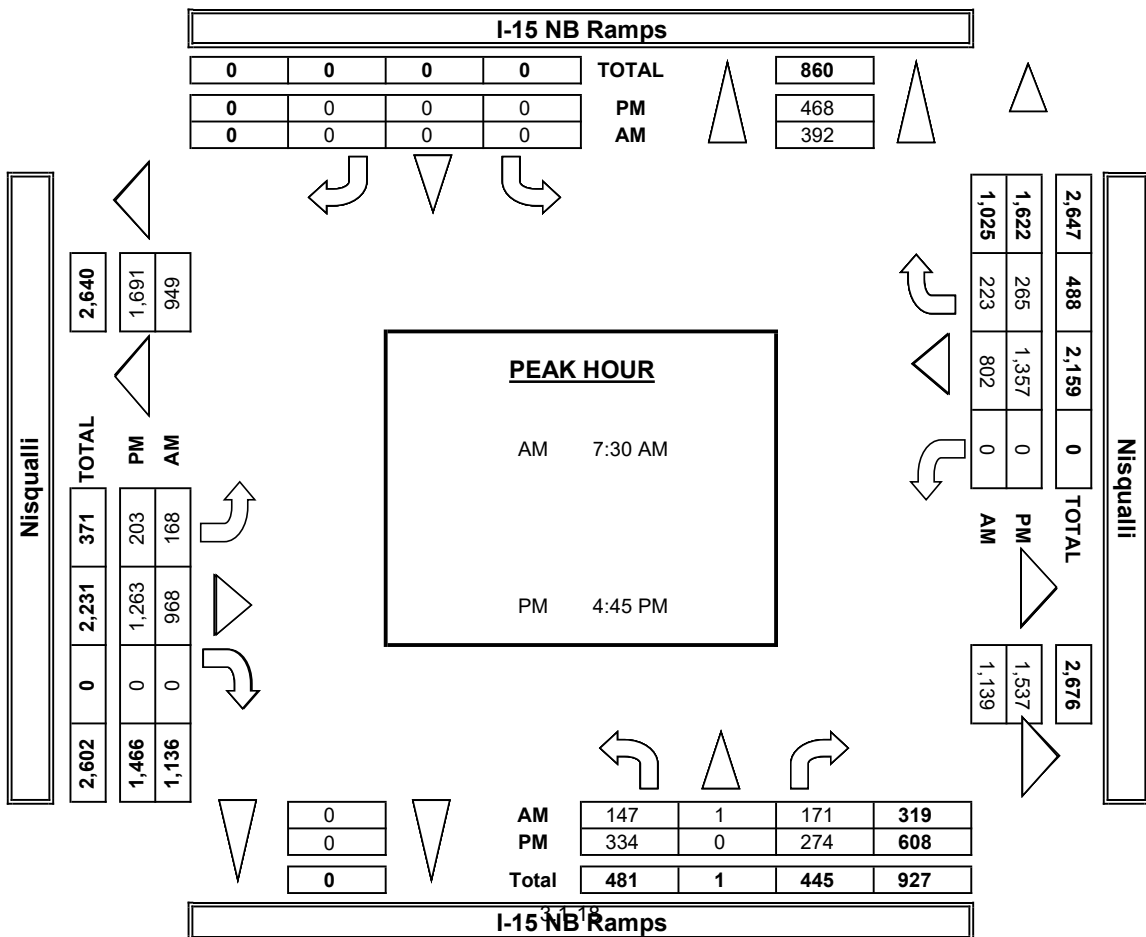
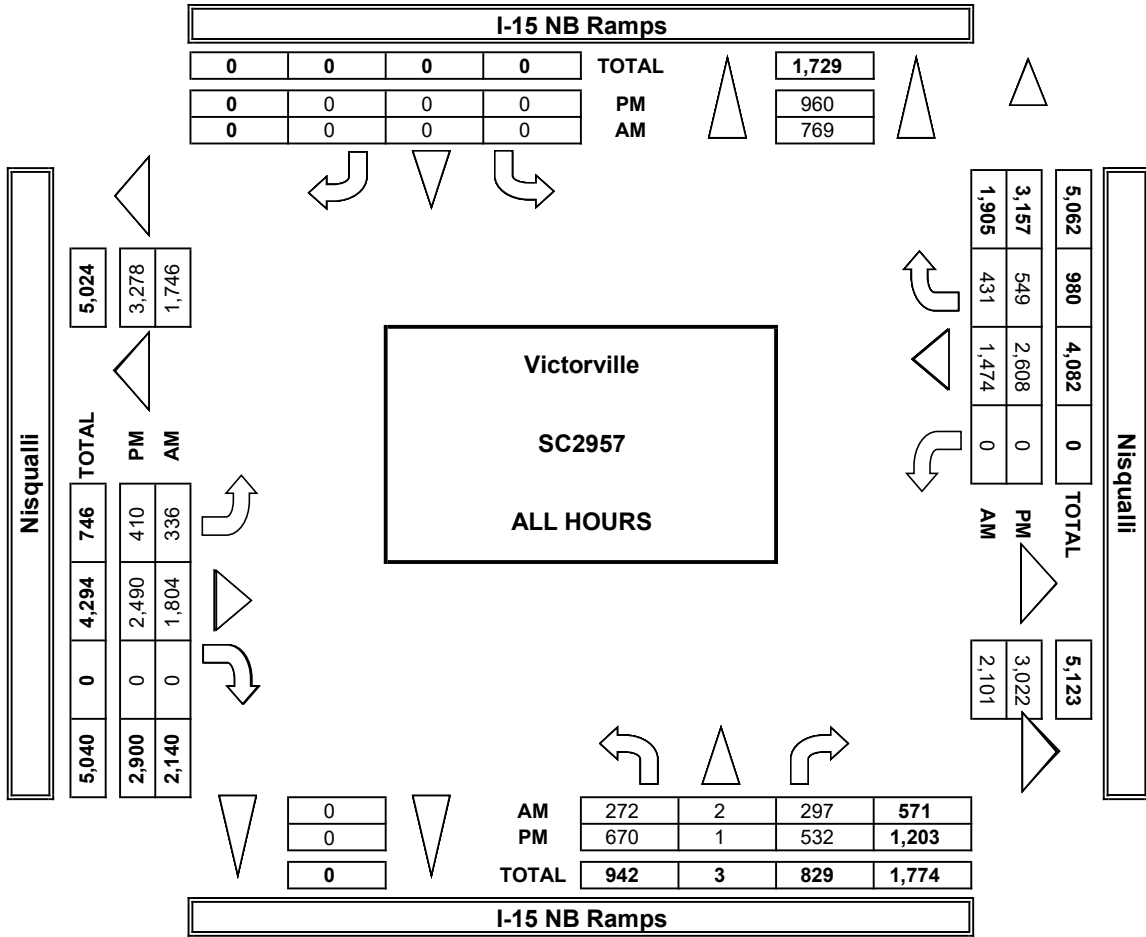
EAST SIDE I-15 SB Ramps

SOUTH SIDE

Amargosa



**AimTD LLC**  
TURNING MOVEMENT COUNTS









### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|  |   |   |                                       |                       |    |   |   |    |   |   |    |   |   |       |   |   |       |  |  |
|--|---|---|---------------------------------------|-----------------------|----|---|---|----|---|---|----|---|---|-------|---|---|-------|--|--|
| DATE:<br>6/16/21<br>WEDNESDAY  | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>I-15 NB Ramps<br>Nisqualli | PROJECT #:<br>LOCATION #:<br>CONTROL: | SC2957<br>3<br>SIGNAL |    |   |   |    |   |   |    |   |   |       |   |   |       |  |  |
| <b>CLASS 3:</b><br>3-AXLE<br>TRUCKS  | <b>NOTES:</b>                               |   |                                       |                       |    |   |   |    |   |   |    |   |   |       |   |   |       |  |  |
| <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px;">AM</td> <td style="padding: 2px;">▲</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;">PM</td> <td style="padding: 2px;">◀</td> <td style="padding: 2px;">W</td> </tr> <tr> <td style="padding: 2px;">MD</td> <td style="padding: 2px;">E</td> <td style="padding: 2px;">▶</td> </tr> <tr> <td style="padding: 2px;">OTHER</td> <td style="padding: 2px;">S</td> <td style="padding: 2px;">▼</td> </tr> <tr> <td style="padding: 2px;">OTHER</td> <td colspan="2"></td> </tr> </table> |   |   |                                       |                       | AM | ▲ | N | PM | ◀ | W | MD | E | ▶ | OTHER | S | ▼ | OTHER |  |  |
| AM   | ▲   | N   |                                       |                       |    |   |   |    |   |   |    |   |   |       |   |   |       |  |  |
| PM   | ◀   | W   |                                       |                       |    |   |   |    |   |   |    |   |   |       |   |   |       |  |  |
| MD   | E   | ▶   |                                       |                       |    |   |   |    |   |   |    |   |   |       |   |   |       |  |  |
| OTHER  | S   | ▼   |                                       |                       |    |   |   |    |   |   |    |   |   |       |   |   |       |  |  |
| OTHER  |   |   |                                       |                       |    |   |   |    |   |   |    |   |   |       |   |   |       |  |  |

| LANES:         | NORTHBOUND<br><small>I-15 NB Ramps</small> |           |         | SOUTHBOUND<br><small>I-15 NB Ramps</small> |         |         | EASTBOUND<br><small>Nisqualli</small> |         |         | WESTBOUND<br><small>Nisqualli</small> |         |         | TOTAL |
|----------------|--|-----------|---------|--|---------|---------|---------------------------------------|---------|---------|---------------------------------------|---------|---------|-------|
|                | NL<br>1.5                                  | NT<br>0.5 | NR<br>1 | SL<br>X                                    | ST<br>X | SR<br>X | EL<br>2                               | ET<br>3 | ER<br>X | WL<br>X                               | WT<br>3 | WR<br>1 |       |
| 7:00 AM        | 0  | 0         | 1       | 0  | 0       | 0       | 0                                     | 1       | 0       | 0                                     | 0       | 1       | 3     |
| 7:15 AM        | 0  | 0         | 1       | 0  | 0       | 0       | 1                                     | 2       | 0       | 0                                     | 4       | 0       | 8     |
| 7:30 AM        | 0  | 0         | 3       | 0  | 0       | 0       | 0                                     | 3       | 0       | 0                                     | 3       | 0       | 9     |
| 7:45 AM        | 0  | 0         | 0       | 0  | 0       | 0       | 1                                     | 2       | 0       | 0                                     | 1       | 1       | 5     |
| 8:00 AM        | 0  | 0         | 0       | 0  | 0       | 0       | 0                                     | 0       | 0       | 0                                     | 2       | 1       | 3     |
| 8:15 AM        | 1  | 0         | 0       | 0  | 0       | 0       | 1                                     | 1       | 0       | 0                                     | 2       | 2       | 7     |
| 8:30 AM        | 0  | 0         | 0       | 0  | 0       | 0       | 1                                     | 2       | 0       | 0                                     | 2       | 0       | 5     |
| 8:45 AM        | 0  | 0         | 1       | 0  | 0       | 0       | 0                                     | 2       | 0       | 0                                     | 4       | 1       | 8     |
| VOLUMES        | 1  | 0         | 6       | 0  | 0       | 0       | 4                                     | 13      | 0       | 0                                     | 18      | 6       | 48    |
| APPROACH %     | 14%  | 0%        | 86%     | 0%   | 0%      | 0%      | 24%                                   | 76%     | 0%      | 0%                                    | 75%     | 25%     |       |
| APP/DEPART     | 7  | /         | 10      | 0  | /       | 0       | 17                                    | /       | 19      | 24                                    | /       | 19      | 0     |
| BEGIN PEAK HR  | 7:30 AM                                    |           |         |  |         |         |                                       |         |         |                                       |         |         |       |
| VOLUMES        | 1  | 0         | 3       | 0  | 0       | 0       | 2                                     | 6       | 0       | 0                                     | 8       | 4       | 24    |
| APPROACH %     | 25%  | 0%        | 75%     | 0%   | 0%      | 0%      | 25%                                   | 75%     | 0%      | 0%                                    | 67%     | 33%     |       |
| PEAK HR FACTOR | 0.333                                      |           |         | 0.000                                      |         |         | 0.667                                 |         |         | 0.750                                 |         |         | 0.667 |
| APP/DEPART     | 4  | /         | 6       | 0  | /       | 0       | 8                                     | /       | 9       | 12                                    | /       | 9       | 0     |
| 4:00 PM        | 0  | 0         | 2       | 0  | 0       | 0       | 0                                     | 1       | 0       | 0                                     | 0       | 0       | 3     |
| 4:15 PM        | 1  | 0         | 0       | 0  | 0       | 0       | 1                                     | 0       | 0       | 0                                     | 1       | 1       | 4     |
| 4:30 PM        | 0  | 0         | 0       | 0  | 0       | 0       | 1                                     | 2       | 0       | 0                                     | 3       | 0       | 6     |
| 4:45 PM        | 0  | 0         | 1       | 0  | 0       | 0       | 0                                     | 0       | 0       | 0                                     | 3       | 0       | 4     |
| 5:00 PM        | 0  | 0         | 1       | 0  | 0       | 0       | 0                                     | 2       | 0       | 0                                     | 0       | 0       | 3     |
| 5:15 PM        | 0  | 0         | 0       | 0  | 0       | 0       | 0                                     | 1       | 0       | 0                                     | 2       | 1       | 4     |
| 5:30 PM        | 0  | 0         | 1       | 0  | 0       | 0       | 0                                     | 0       | 0       | 0                                     | 1       | 0       | 2     |
| 5:45 PM        | 0  | 0         | 0       | 0  | 0       | 0       | 0                                     | 1       | 0       | 0                                     | 2       | 0       | 3     |
| VOLUMES        | 1  | 0         | 5       | 0  | 0       | 0       | 2                                     | 7       | 0       | 0                                     | 12      | 2       | 29    |
| APPROACH %     | 17%  | 0%        | 83%     | 0%   | 0%      | 0%      | 22%                                   | 78%     | 0%      | 0%                                    | 86%     | 14%     |       |
| APP/DEPART     | 6  | /         | 4       | 0  | /       | 0       | 9                                     | /       | 12      | 14                                    | /       | 13      | 0     |
| BEGIN PEAK HR  | 4:45 PM                                    |           |         |  |         |         |                                       |         |         |                                       |         |         |       |
| VOLUMES        | 0  | 0         | 3       | 0  | 0       | 0       | 0                                     | 3       | 0       | 0                                     | 6       | 1       | 13    |
| APPROACH %     | 0%   | 0%        | 100%    | 0%   | 0%      | 0%      | 0%                                    | 100%    | 0%      | 0%                                    | 86%     | 14%     |       |
| PEAK HR FACTOR | 0.750                                      |           |         | 0.000                                      |         |         | 0.375                                 |         |         | 0.583                                 |         |         | 0.813 |
| APP/DEPART     | 3  | /         | 1       | 0  | /       | 0       | 3                                     | /       | 6       | 7                                     | /       | 6       | 0     |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
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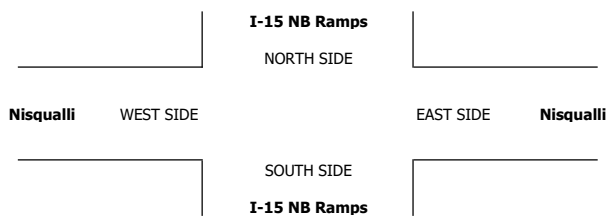
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|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
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| 1    | 0   | 0   | 0   |
| 3    | 0   | 0   | 0   |
| 0    | 0   | 0   | 0   |
| 0    | 0   | 0   | 1   |
| 0    | 0   | 0   | 2   |
| 0    | 0   | 0   | 0   |
| 0    | 0   | 0   | 0   |
| 5    | 0   | 0   | 3   |

|   |   |   |   |
|---|---|---|---|
| 3 | 0 | 0 | 3 |
|---|---|---|---|

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

|   |   |   |   |
|---|---|---|---|
| 1 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 2 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
|---|---|---|---|



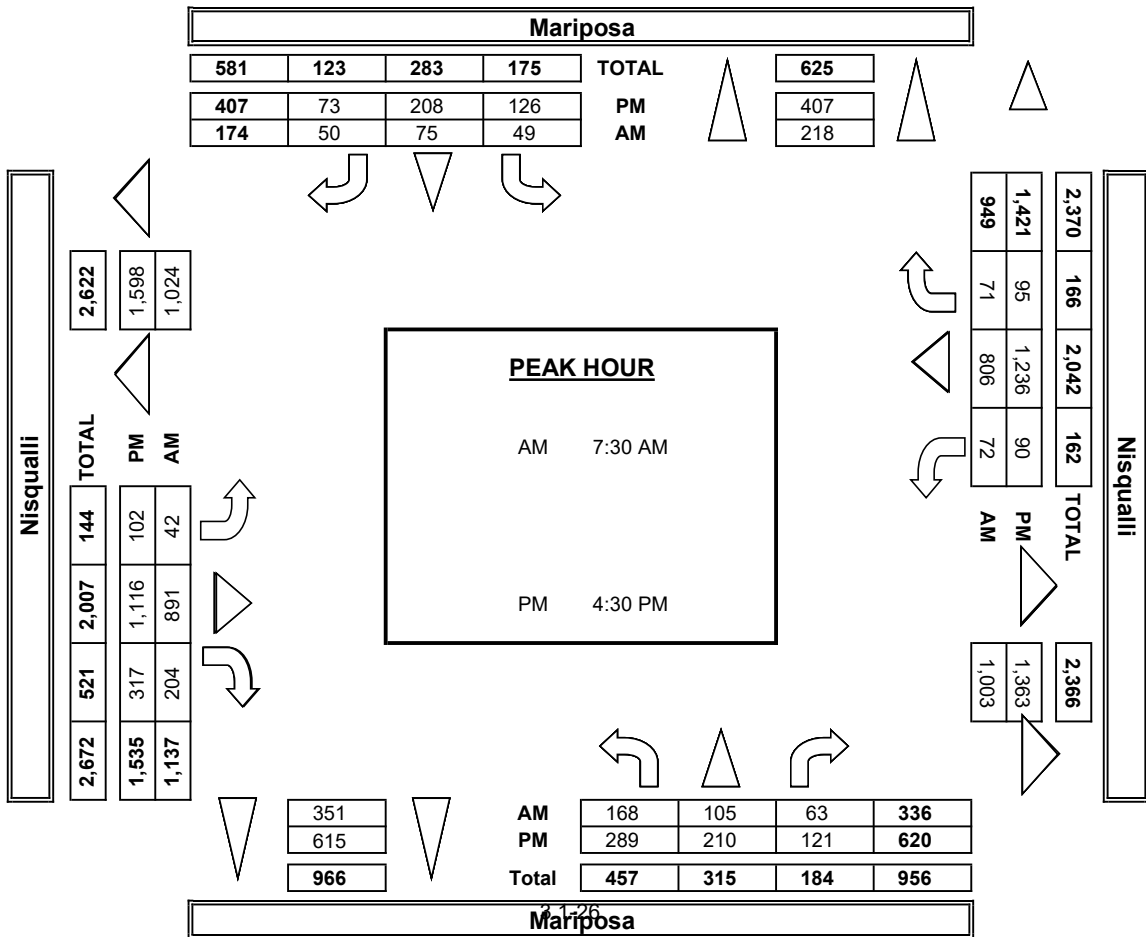
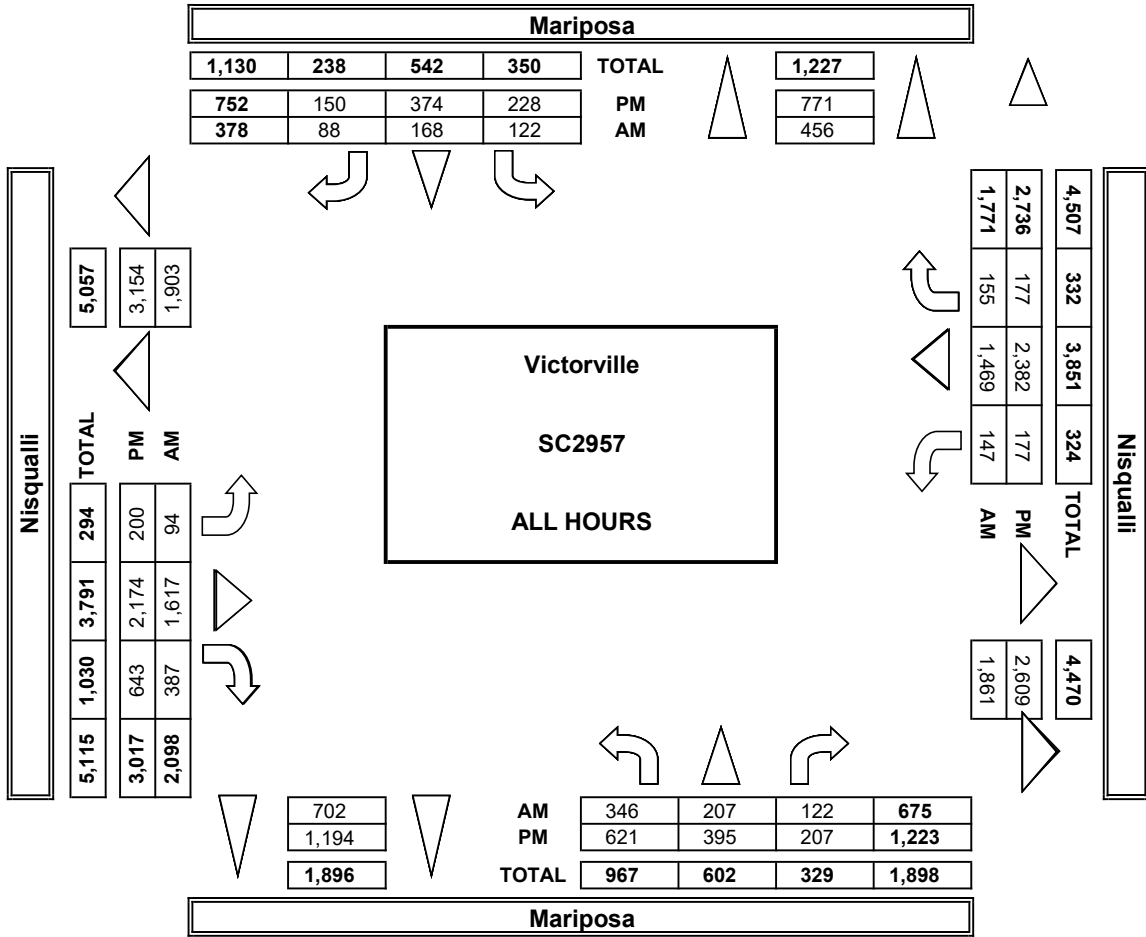








**AimTD LLC**  
TURNING MOVEMENT COUNTS













### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                               |   |                      |                  |                    |
|-------------------------------|---|----------------------|------------------|--------------------|
| DATE:<br>6/16/21<br>WEDNESDAY | LOCATION:<br>NORTH & SOUTH: Victorville<br>EAST & WEST: Mariposa<br>Nisqualli | PROJECT #:<br>SC2957 | LOCATION #:<br>4 | CONTROL:<br>SIGNAL |
|-------------------------------|---|----------------------|------------------|--------------------|

|                 |               |          |        |     |
|-----------------|---------------|----------|--------|-----|
| <b>CLASS 5:</b> | <b>NOTES:</b> | AP<br>PM | ▲<br>N | E ► |
| RV              |               | ◀ W      | S<br>▼ |     |

| LANES: | NORTHBOUND |    |    | SOUTHBOUND |    |    | EASTBOUND |    |    | WESTBOUND |    |    | TOTAL |
|--------|------------|----|----|------------|----|----|-----------|----|----|-----------|----|----|-------|
|        | Mariposa   |    |    | Mariposa   |    |    | Nisqualli |    |    | Nisqualli |    |    |       |
|        | NL         | NT | NR | SL         | ST | SR | EL        | ET | ER | WL        | WT | WR |       |
|        | 2          | 2  | 1  | 2          | 2  | 1  | 2         | 3  | 1  | 2         | 3  | 1  |       |

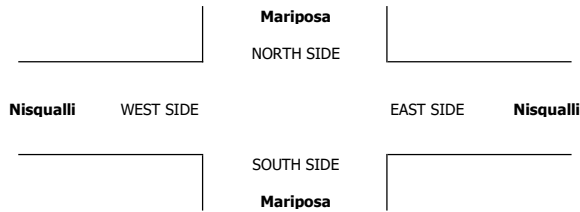
| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
| 0    | 0   | 0   | 0   |

|                |            |    |    |       |    |    |       |      |     |       |      |    |       |   |
|----------------|------------|----|----|-------|----|----|-------|------|-----|-------|------|----|-------|---|
| <b>AM</b>      | 7:00 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 7:15 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 7:30 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 7:45 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 8:00 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 8:15 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 8:30 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 8:45 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 1    | 0  | 0     | 1 |
|                | VOLUMES    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 1    | 0  | 0     | 1 |
|                | APPROACH % | 0% | 0% | 0%    | 0% | 0% | 0%    | 0%   | 0%  | 0%    | 100% | 0% | 0%    |   |
| APP/DEPART     | 0          | /  | 0  | 0     | /  | 1  | 0     | /    | 0   | 1     | /    | 0  | 0     |   |
| BEGIN PEAK HR  | 7:30 AM    |    |    |       |    |    |       |      |     |       |      |    |       |   |
| VOLUMES        | 0          | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     |   |
| APPROACH %     | 0%         | 0% | 0% | 0%    | 0% | 0% | 0%    | 0%   | 0%  | 0%    | 0%   | 0% |       |   |
| PEAK HR FACTOR | 0.000      |    |    | 0.000 |    |    | 0.000 |      |     | 0.000 |      |    | 0.000 |   |
| APP/DEPART     | 0          | /  | 0  | 0     | /  | 1  | 0     | /    | 0   | 0     | /    | 0  | 0     |   |
| <b>PM</b>      | 4:00 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 1     | 0    | 0  | 0     | 1 |
|                | 4:15 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 1   | 0     | 0    | 0  | 0     | 1 |
|                | 4:30 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 4:45 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 5:00 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 1   | 0     | 0    | 0  | 0     | 1 |
|                | 5:15 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 5:30 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | 5:45 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0   | 0     | 0    | 0  | 0     | 0 |
|                | VOLUMES    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 2   | 1     | 0    | 0  | 0     | 3 |
|                | APPROACH % | 0% | 0% | 0%    | 0% | 0% | 0%    | 0%   | 67% | 33%   | 0%   | 0% | 0%    |   |
| APP/DEPART     | 0          | /  | 0  | 0     | /  | 1  | 3     | /    | 2   | 0     | /    | 0  | 0     |   |
| BEGIN PEAK HR  | 4:30 PM    |    |    |       |    |    |       |      |     |       |      |    |       |   |
| VOLUMES        | 0          | 0  | 0  | 0     | 0  | 0  | 0     | 1    | 0   | 0     | 0    | 0  | 1     |   |
| APPROACH %     | 0%         | 0% | 0% | 0%    | 0% | 0% | 0%    | 100% | 0%  | 0%    | 0%   | 0% |       |   |
| PEAK HR FACTOR | 0.000      |    |    | 0.000 |    |    | 0.250 |      |     | 0.000 |      |    | 0.250 |   |
| APP/DEPART     | 0          | /  | 0  | 0     | /  | 0  | 1     | /    | 1   | 0     | /    | 0  | 0     |   |

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

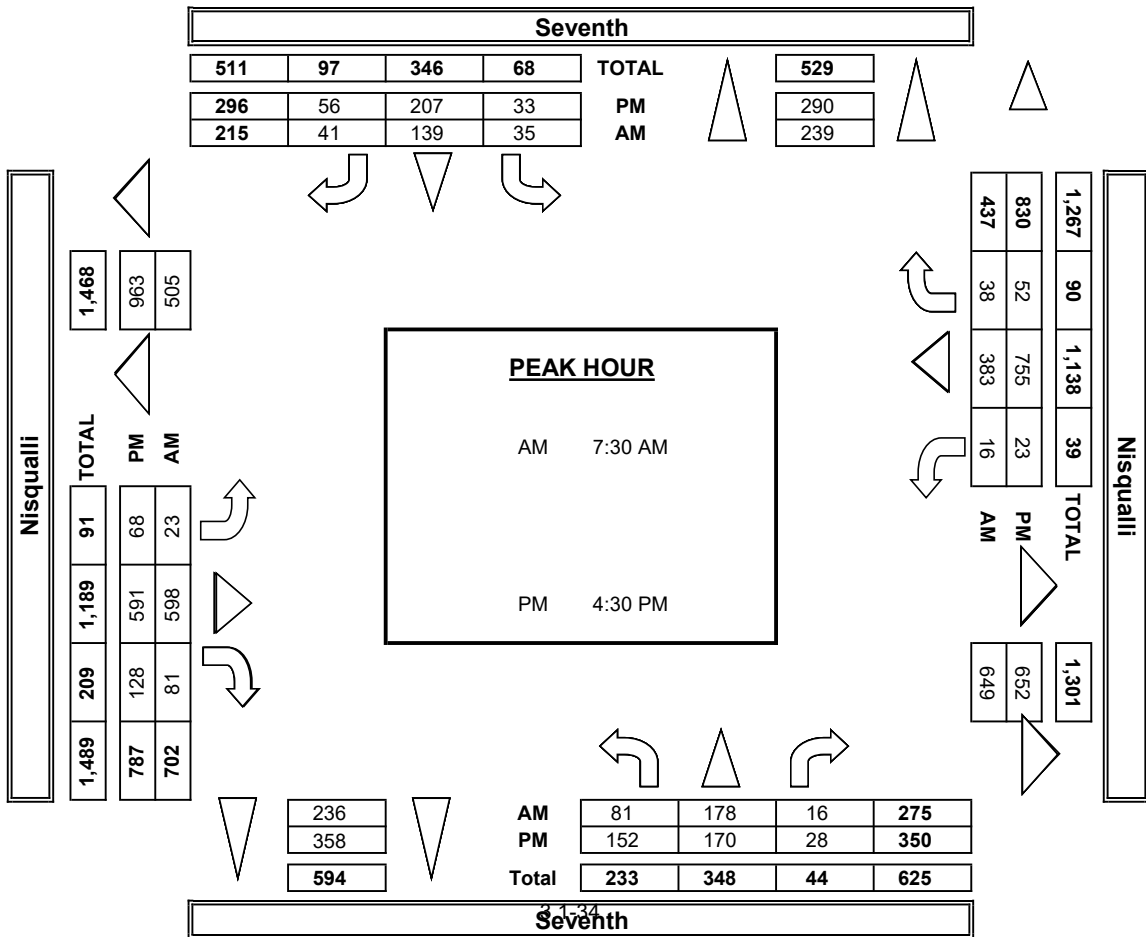
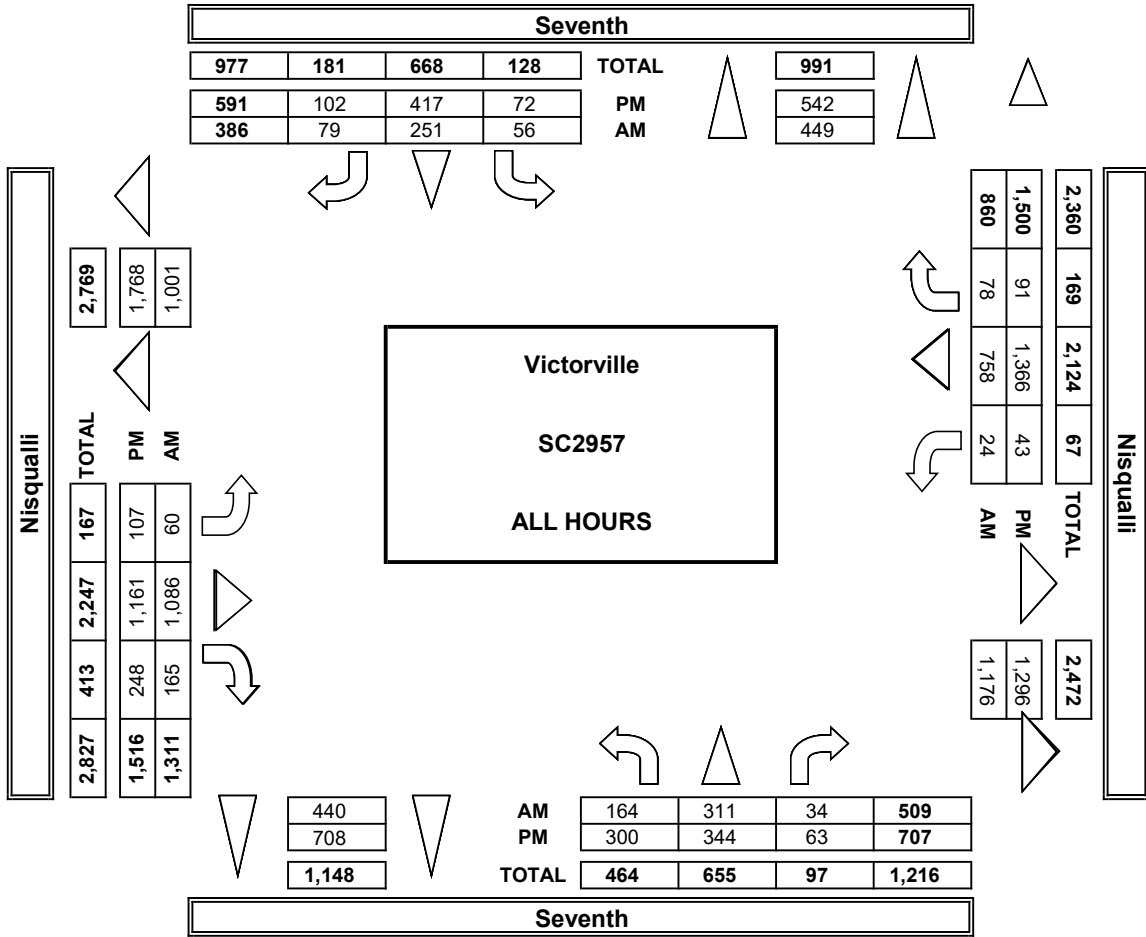
|   |   |   |   |
|---|---|---|---|
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| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |







**AimTD LLC**  
TURNING MOVEMENT COUNTS



### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                               |   |                                     |                                       |                       |
|-------------------------------|---|-------------------------------------|---------------------------------------|-----------------------|
| DATE:<br>6/16/21<br>WEDNESDAY | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Seventh<br>Nisqualli | PROJECT #:<br>LOCATION #:<br>CONTROL: | SC2957<br>5<br>SIGNAL |
|-------------------------------|---|-------------------------------------|---------------------------------------|-----------------------|

|                                |        |  |     |   |   |    |   |   |    |   |   |       |   |   |
|--------------------------------|--------|--|-----|---|---|----|---|---|----|---|---|-------|---|---|
| CLASS 1:<br>PASSENGER VEHICLES | NOTES: | <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="font-size: 8px;">APP</td> <td style="font-size: 8px;">▲</td> <td style="font-size: 8px;">N</td> </tr> <tr> <td style="font-size: 8px;">PM</td> <td style="font-size: 8px;">←</td> <td style="font-size: 8px;">E</td> </tr> <tr> <td style="font-size: 8px;">MD</td> <td style="font-size: 8px;">S</td> <td style="font-size: 8px;">▼</td> </tr> <tr> <td style="font-size: 8px;">OTHER</td> <td style="font-size: 8px;">▶</td> <td style="font-size: 8px;">W</td> </tr> </table> | APP | ▲ | N | PM | ← | E | MD | S | ▼ | OTHER | ▶ | W |
| APP                            | ▲      | N  |     |   |   |    |   |   |    |   |   |       |   |   |
| PM                             | ←      | E  |     |   |   |    |   |   |    |   |   |       |   |   |
| MD                             | S      | ▼  |     |   |   |    |   |   |    |   |   |       |   |   |
| OTHER                          | ▶      | W  |     |   |   |    |   |   |    |   |   |       |   |   |

|                | NORTHBOUND<br><small>Seventh</small> |         |         | SOUTHBOUND<br><small>Seventh</small> |         |         | EASTBOUND<br><small>Nisqualli</small> |         |         | WESTBOUND<br><small>Nisqualli</small> |         |         | TOTAL |
|----------------|--------------------------------------|---------|---------|--------------------------------------|---------|---------|---------------------------------------|---------|---------|---------------------------------------|---------|---------|-------|
|                | NL<br>1                              | NT<br>1 | NR<br>1 | SL<br>1                              | ST<br>1 | SR<br>0 | EL<br>1                               | ET<br>2 | ER<br>0 | WL<br>1                               | WT<br>2 | WR<br>0 |       |
| <b>AM</b>      |                                      |         |         |                                      |         |         |                                       |         |         |                                       |         |         |       |
| 7:00 AM        | 13                                   | 24      | 2       | 4                                    | 21      | 7       | 16                                    | 76      | 15      | 0                                     | 60      | 5       | 243   |
| 7:15 AM        | 14                                   | 33      | 1       | 1                                    | 26      | 13      | 7                                     | 111     | 18      | 1                                     | 69      | 9       | 303   |
| 7:30 AM        | 24                                   | 40      | 2       | 9                                    | 29      | 6       | 4                                     | 144     | 17      | 2                                     | 74      | 3       | 354   |
| 7:45 AM        | 12                                   | 60      | 8       | 8                                    | 42      | 13      | 5                                     | 175     | 22      | 7                                     | 80      | 18      | 450   |
| 8:00 AM        | 19                                   | 33      | 3       | 8                                    | 34      | 11      | 7                                     | 120     | 23      | 2                                     | 98      | 8       | 366   |
| 8:15 AM        | 21                                   | 30      | 2       | 9                                    | 26      | 8       | 6                                     | 103     | 14      | 3                                     | 84      | 8       | 314   |
| 8:30 AM        | 20                                   | 32      | 6       | 7                                    | 26      | 5       | 7                                     | 119     | 18      | 3                                     | 82      | 10      | 335   |
| 8:45 AM        | 30                                   | 40      | 8       | 8                                    | 33      | 11      | 6                                     | 135     | 28      | 2                                     | 117     | 12      | 430   |
| VOLUMES        | 153                                  | 292     | 32      | 54                                   | 237     | 74      | 58                                    | 983     | 155     | 20                                    | 664     | 73      | 2,795 |
| APPROACH %     | 32%                                  | 61%     | 7%      | 15%                                  | 65%     | 20%     | 5%                                    | 82%     | 13%     | 3%                                    | 88%     | 10%     |       |
| APP/DEPART     | 477                                  | /       | 423     | 365                                  | /       | 412     | 1,196                                 | /       | 1,069   | 757                                   | /       | 891     | 0     |
| BEGIN PEAK HR  | 7:30 AM                              |         |         |                                      |         |         |                                       |         |         |                                       |         |         |       |
| VOLUMES        | 76                                   | 163     | 15      | 34                                   | 131     | 38      | 22                                    | 542     | 76      | 14                                    | 336     | 37      | 1,484 |
| APPROACH %     | 30%                                  | 64%     | 6%      | 17%                                  | 65%     | 19%     | 3%                                    | 85%     | 12%     | 4%                                    | 87%     | 10%     |       |
| PEAK HR FACTOR | 0.794                                |         |         | 0.806                                |         |         | 0.792                                 |         |         | 0.896                                 |         |         | 0.824 |
| APP/DEPART     | 254                                  | /       | 222     | 203                                  | /       | 221     | 640                                   | /       | 591     | 387                                   | /       | 450     | 0     |
| <b>PM</b>      |                                      |         |         |                                      |         |         |                                       |         |         |                                       |         |         |       |
| 4:00 PM        | 37                                   | 41      | 7       | 7                                    | 53      | 17      | 7                                     | 101     | 26      | 6                                     | 154     | 10      | 466   |
| 4:15 PM        | 31                                   | 32      | 10      | 8                                    | 53      | 6       | 12                                    | 155     | 26      | 6                                     | 129     | 10      | 478   |
| 4:30 PM        | 50                                   | 33      | 8       | 6                                    | 43      | 13      | 14                                    | 154     | 30      | 6                                     | 176     | 16      | 549   |
| 4:45 PM        | 22                                   | 38      | 8       | 12                                   | 55      | 14      | 14                                    | 142     | 20      | 2                                     | 176     | 12      | 515   |
| 5:00 PM        | 38                                   | 42      | 7       | 8                                    | 61      | 11      | 20                                    | 142     | 40      | 6                                     | 195     | 10      | 580   |
| 5:15 PM        | 38                                   | 54      | 3       | 7                                    | 43      | 16      | 18                                    | 120     | 35      | 7                                     | 184     | 14      | 539   |
| 5:30 PM        | 46                                   | 46      | 7       | 15                                   | 58      | 11      | 9                                     | 117     | 34      | 4                                     | 160     | 10      | 517   |
| 5:45 PM        | 31                                   | 49      | 11      | 9                                    | 42      | 11      | 11                                    | 149     | 31      | 3                                     | 156     | 9       | 512   |
| VOLUMES        | 293                                  | 335     | 61      | 72                                   | 408     | 99      | 105                                   | 1,080   | 242     | 40                                    | 1,330   | 91      | 4,156 |
| APPROACH %     | 43%                                  | 49%     | 9%      | 12%                                  | 70%     | 17%     | 7%                                    | 76%     | 17%     | 3%                                    | 91%     | 6%      |       |
| APP/DEPART     | 689                                  | /       | 531     | 579                                  | /       | 690     | 1,427                                 | /       | 1,213   | 1,461                                 | /       | 1,722   | 0     |
| BEGIN PEAK HR  | 4:30 PM                              |         |         |                                      |         |         |                                       |         |         |                                       |         |         |       |
| VOLUMES        | 148                                  | 167     | 26      | 33                                   | 202     | 54      | 66                                    | 558     | 125     | 21                                    | 731     | 52      | 2,183 |
| APPROACH %     | 43%                                  | 49%     | 8%      | 11%                                  | 70%     | 19%     | 9%                                    | 74%     | 17%     | 3%                                    | 91%     | 6%      |       |
| PEAK HR FACTOR | 0.897                                |         |         | 0.892                                |         |         | 0.927                                 |         |         | 0.953                                 |         |         | 0.941 |
| APP/DEPART     | 341                                  | /       | 285     | 289                                  | /       | 348     | 749                                   | /       | 617     | 804                                   | /       | 933     | 0     |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |

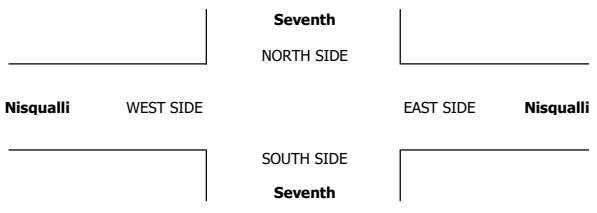
| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
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| 0    | 8   | 3   | 1   |
| 1    | 1   | 4   | 0   |
| 4    | 9   | 1   | 3   |
| 1    | 5   | 2   | 2   |
| 2    | 7   | 0   | 1   |
| 4    | 3   | 1   | 5   |
| 5    | 3   | 2   | 2   |
| 17   | 41  | 14  | 16  |

|   |    |   |   |
|---|----|---|---|
| 8 | 22 | 7 | 6 |
|---|----|---|---|

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |

|    |    |    |    |
|----|----|----|----|
| 5  | 9  | 1  | 0  |
| 6  | 3  | 3  | 1  |
| 6  | 7  | 5  | 3  |
| 5  | 6  | 0  | 2  |
| 3  | 6  | 4  | 3  |
| 3  | 7  | 6  | 0  |
| 5  | 6  | 0  | 1  |
| 6  | 7  | 5  | 1  |
| 39 | 51 | 24 | 11 |

|    |    |    |   |
|----|----|----|---|
| 17 | 26 | 15 | 8 |
|----|----|----|---|









### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|  |   |                                     |                                       |                       |
|--|---|-------------------------------------|---------------------------------------|-----------------------|
| <b>DATE:</b><br>6/16/21<br>WEDNESDAY           | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Seventh<br>Nisqualli | PROJECT #:<br>LOCATION #:<br>CONTROL: | SC2957<br>5<br>SIGNAL |
| <b>CLASS 4:</b><br>4 OR MORE<br>AXLE<br>TRUCKS | <b>NOTES:</b>                               |                                     |                                       |                       |

| LANES: | NORTHBOUND |    |    | SOUTHBOUND |    |    | EASTBOUND |    |    | WESTBOUND |    |    | TOTAL |
|--------|------------|----|----|------------|----|----|-----------|----|----|-----------|----|----|-------|
|        | NL         | NT | NR | SL         | ST | SR | EL        | ET | ER | WL        | WT | WR |       |
|        | 1          | 1  | 1  | 1          | 1  | 0  | 1         | 2  | 0  | 1         | 2  | 0  |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
| 0    | 0   | 0   | 0   |

|                |            |      |      |       |      |      |     |     |     |     |      |      |    |    |
|----------------|------------|------|------|-------|------|------|-----|-----|-----|-----|------|------|----|----|
| <b>AM</b>      | 7:00 AM    | 0    | 0    | 0     | 0    | 0    | 0   | 4   | 0   | 0   | 6    | 0    | 10 |    |
|                | 7:15 AM    | 0    | 0    | 0     | 0    | 0    | 0   | 5   | 0   | 0   | 3    | 1    | 9  |    |
|                | 7:30 AM    | 0    | 1    | 0     | 0    | 0    | 0   | 4   | 1   | 1   | 6    | 0    | 13 |    |
|                | 7:45 AM    | 0    | 0    | 0     | 0    | 0    | 0   | 3   | 1   | 0   | 2    | 0    | 6  |    |
|                | 8:00 AM    | 0    | 1    | 0     | 0    | 0    | 0   | 4   | 0   | 1   | 2    | 0    | 8  |    |
|                | 8:15 AM    | 0    | 0    | 0     | 0    | 1    | 0   | 0   | 5   | 0   | 0    | 6    | 12 |    |
|                | 8:30 AM    | 1    | 0    | 0     | 0    | 0    | 0   | 0   | 5   | 0   | 0    | 9    | 15 |    |
|                | 8:45 AM    | 0    | 0    | 0     | 0    | 0    | 0   | 0   | 2   | 0   | 0    | 3    | 5  |    |
|                | VOLUMES    | 1    | 2    | 0     | 0    | 1    | 0   | 0   | 32  | 2   | 2    | 37   | 1  | 78 |
|                | APPROACH % | 33%  | 67%  | 0%    | 0%   | 100% | 0%  | 0%  | 94% | 6%  | 5%   | 93%  | 3% |    |
| APP/DEPART     | 3          | /    | 3    | 1     | /    | 5    | 34  | /   | 32  | 40  | /    | 38   | 0  |    |
| BEGIN PEAK HR  | 7:30 AM    |      |      |       |      |      |     |     |     |     |      |      |    |    |
| VOLUMES        | 0          | 2    | 0    | 0     | 1    | 0    | 0   | 16  | 2   | 2   | 16   | 0    | 39 |    |
| APPROACH %     | 0%         | 100% | 0%   | 0%    | 100% | 0%   | 0%  | 89% | 11% | 11% | 89%  | 0%   |    |    |
| PEAK HR FACTOR | 0.500      |      |      | 0.250 |      |      |     |     |     |     |      |      |    |    |
| APP/DEPART     | 2          | /    | 2    | 1     | /    | 5    | 18  | /   | 16  | 18  | /    | 16   | 0  |    |
| <b>PM</b>      | 4:00 PM    | 1    | 0    | 0     | 0    | 0    | 0   | 0   | 0   | 0   | 1    | 0    | 2  |    |
|                | 4:15 PM    | 0    | 0    | 0     | 0    | 0    | 0   | 4   | 0   | 0   | 0    | 0    | 4  |    |
|                | 4:30 PM    | 0    | 0    | 1     | 0    | 0    | 1   | 0   | 0   | 1   | 0    | 4    | 7  |    |
|                | 4:45 PM    | 0    | 0    | 0     | 0    | 0    | 0   | 1   | 6   | 0   | 0    | 1    | 8  |    |
|                | 5:00 PM    | 0    | 0    | 0     | 0    | 0    | 0   | 0   | 0   | 0   | 1    | 0    | 1  |    |
|                | 5:15 PM    | 0    | 0    | 0     | 0    | 1    | 0   | 0   | 3   | 0   | 0    | 2    | 6  |    |
|                | 5:30 PM    | 0    | 1    | 0     | 0    | 0    | 0   | 0   | 3   | 0   | 0    | 0    | 4  |    |
|                | 5:45 PM    | 0    | 0    | 0     | 0    | 0    | 0   | 0   | 4   | 1   | 0    | 1    | 6  |    |
|                | VOLUMES    | 1    | 1    | 1     | 0    | 1    | 1   | 1   | 20  | 2   | 0    | 10   | 0  | 38 |
|                | APPROACH % | 33%  | 33%  | 33%   | 0%   | 50%  | 50% | 4%  | 87% | 9%  | 0%   | 100% | 0% |    |
| APP/DEPART     | 3          | /    | 2    | 2     | /    | 3    | 23  | /   | 21  | 10  | /    | 12   | 0  |    |
| BEGIN PEAK HR  | 4:30 PM    |      |      |       |      |      |     |     |     |     |      |      |    |    |
| VOLUMES        | 0          | 0    | 1    | 0     | 1    | 1    | 1   | 9   | 1   | 0   | 8    | 0    | 22 |    |
| APPROACH %     | 0%         | 0%   | 100% | 0%    | 50%  | 50%  | 9%  | 82% | 9%  | 0%  | 100% | 0%   |    |    |
| PEAK HR FACTOR | 0.250      |      |      | 0.393 |      |      |     |     |     |     |      |      |    |    |
| APP/DEPART     | 1          | /    | 1    | 2     | /    | 2    | 11  | /   | 10  | 8   | /    | 9    | 0  |    |

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |

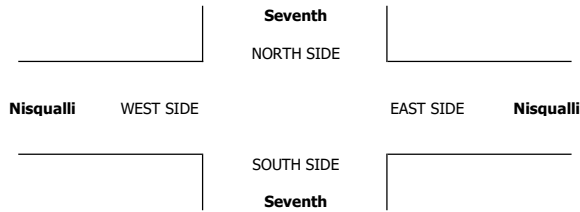
|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |

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|   |   |   |   |   |   |
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| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
|---|---|---|---|



### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                               |  |                      |                  |                    |
|-------------------------------|--|----------------------|------------------|--------------------|
| DATE:<br>6/16/21<br>WEDNESDAY | LOCATION:<br>NORTH & SOUTH: Victorville<br>EAST & WEST: Seventh<br>Nisqualli | PROJECT #:<br>SC2957 | LOCATION #:<br>5 | CONTROL:<br>SIGNAL |
|-------------------------------|--|----------------------|------------------|--------------------|

|                       |               |                          |
|-----------------------|---------------|--------------------------|
| <b>CLASS 5:</b><br>RV | <b>NOTES:</b> | ▲ N<br>◀ W    ▶ E<br>▼ S |
|-----------------------|---------------|--------------------------|

| LANES: | NORTHBOUND<br><small>Seventh</small> |         |         | SOUTHBOUND<br><small>Seventh</small> |         |         | EASTBOUND<br><small>Nisqualli</small> |         |         | WESTBOUND<br><small>Nisqualli</small> |         |         | TOTAL |
|--------|--------------------------------------|---------|---------|--------------------------------------|---------|---------|---------------------------------------|---------|---------|---------------------------------------|---------|---------|-------|
|        | NL<br>1                              | NT<br>1 | NR<br>1 | SL<br>1                              | ST<br>1 | SR<br>0 | EL<br>1                               | ET<br>2 | ER<br>0 | WL<br>1                               | WT<br>2 | WR<br>0 |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |

|                |            |    |    |       |    |    |       |      |      |       |    |    |       |
|----------------|------------|----|----|-------|----|----|-------|------|------|-------|----|----|-------|
| <b>AM</b>      | 7:00 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 7:15 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 7:30 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 7:45 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 8:00 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 8:15 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 8:30 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 8:45 AM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | VOLUMES    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | APPROACH % | 0% | 0% | 0%    | 0% | 0% | 0%    | 0%   | 0%   | 0%    | 0% | 0% | 0%    |
| APP/DEPART     | 0          | /  | 0  | 0     | /  | 0  | 0     | /    | 0    | 0     | /  | 0  |       |
| BEGIN PEAK HR  | 7:30 AM    |    |    |       |    |    |       |      |      |       |    |    |       |
| VOLUMES        | 0          | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  |       |
| APPROACH %     | 0%         | 0% | 0% | 0%    | 0% | 0% | 0%    | 0%   | 0%   | 0%    | 0% | 0% |       |
| PEAK HR FACTOR | 0.000      |    |    | 0.000 |    |    | 0.000 |      |      | 0.000 |    |    | 0.000 |
| APP/DEPART     | 0          | /  | 0  | 0     | /  | 0  | 0     | /    | 0    | 0     | /  | 0  |       |
| <b>PM</b>      | 4:00 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 4:15 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 1    | 0    | 0     | 0  | 0  | 1     |
|                | 4:30 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 4:45 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 5:00 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 1    | 0    | 0     | 0  | 0  | 1     |
|                | 5:15 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 5:30 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | 5:45 PM    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 0    | 0     | 0  | 0  | 0     |
|                | VOLUMES    | 0  | 0  | 0     | 0  | 0  | 0     | 0    | 2    | 0     | 0  | 0  | 2     |
|                | APPROACH % | 0% | 0% | 0%    | 0% | 0% | 0%    | 0%   | 100% | 0%    | 0% | 0% | 0%    |
| APP/DEPART     | 0          | /  | 0  | 0     | /  | 0  | 2     | /    | 2    | 0     | /  | 0  |       |
| BEGIN PEAK HR  | 4:30 PM    |    |    |       |    |    |       |      |      |       |    |    |       |
| VOLUMES        | 0          | 0  | 0  | 0     | 0  | 0  | 0     | 1    | 0    | 0     | 0  | 1  |       |
| APPROACH %     | 0%         | 0% | 0% | 0%    | 0% | 0% | 0%    | 100% | 0%   | 0%    | 0% | 0% |       |
| PEAK HR FACTOR | 0.000      |    |    | 0.000 |    |    | 0.250 |      |      | 0.000 |    |    | 0.250 |
| APP/DEPART     | 0          | /  | 0  | 0     | /  | 0  | 1     | /    | 1    | 0     | /  | 0  |       |

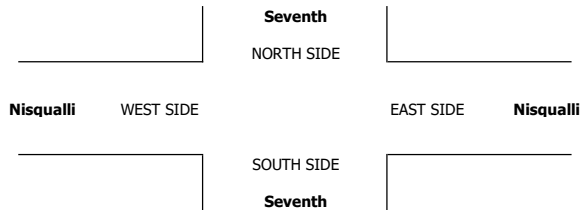
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| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
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| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |

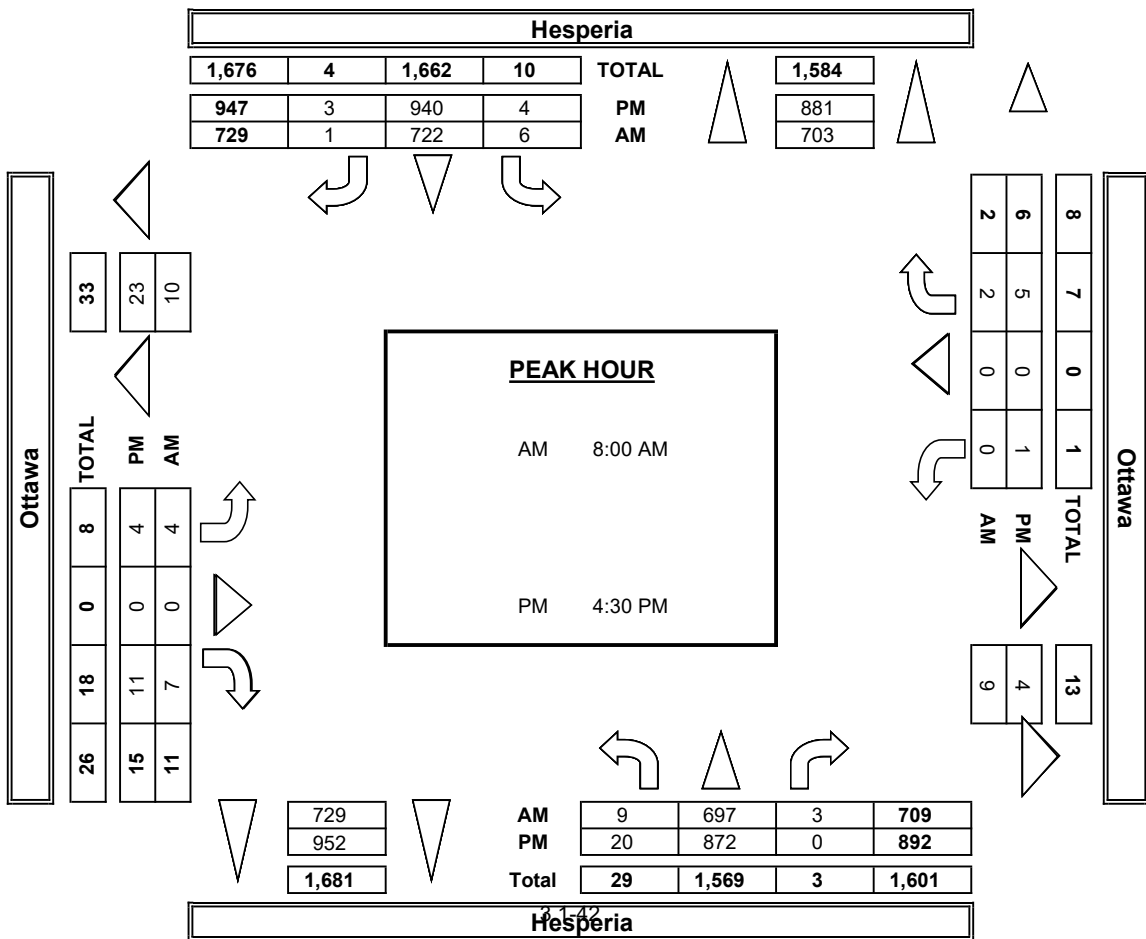
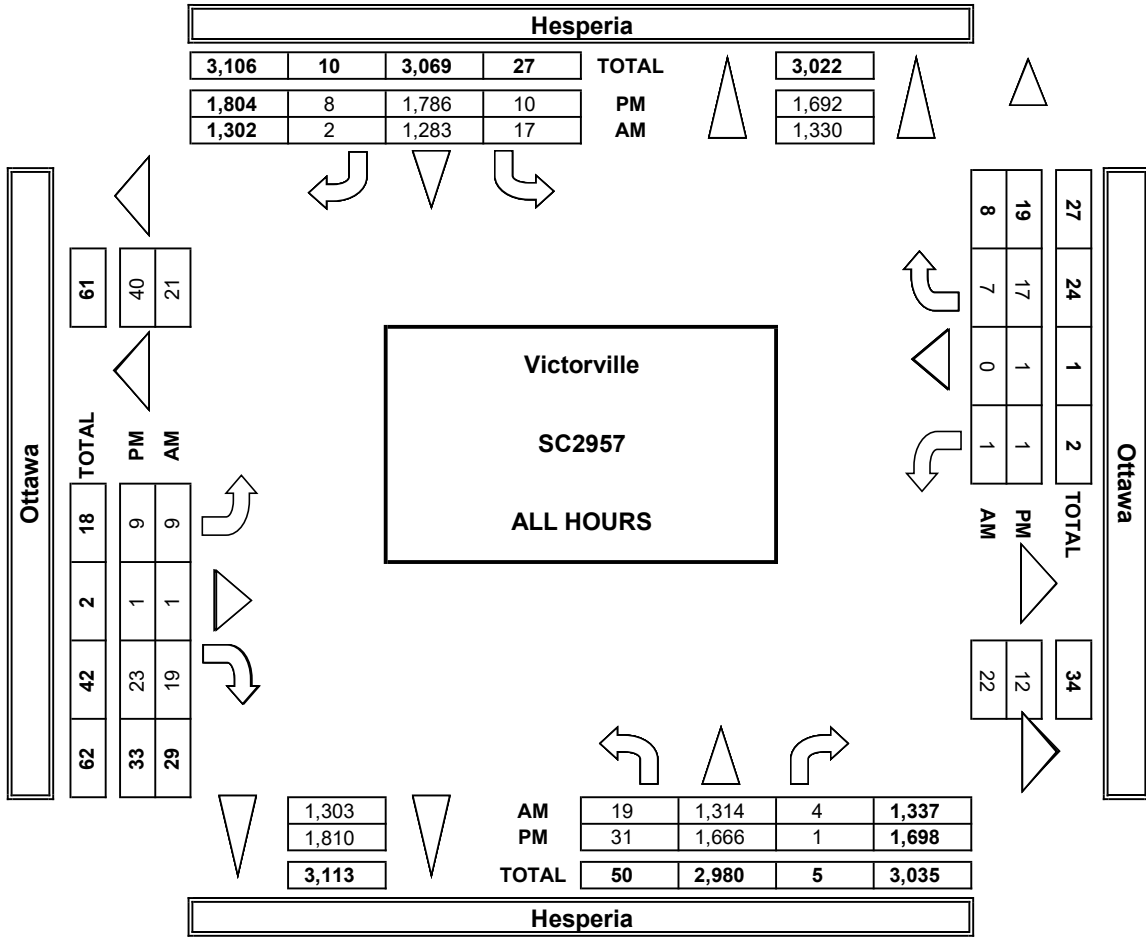
|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
|---|---|---|---|







**AimTD LLC**  
TURNING MOVEMENT COUNTS













### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                                      |   |  |  |
|--------------------------------------|---|--|--|
| <b>DATE:</b><br>6/16/21<br>WEDNESDAY | <b>LOCATION:</b><br>NORTH & SOUTH: Victorville<br>EAST & WEST: Hesperia<br>Ottawa | <b>PROJECT #:</b> SC2957<br><b>LOCATION #:</b> 6<br><b>CONTROL:</b> STOP E/W |  |
| <b>CLASS 5:</b><br>RV                | <b>NOTES:</b>   |  |  |

| LANES: | NORTHBOUND<br><small>Hesperia</small> |    |    | SOUTHBOUND<br><small>Hesperia</small> |    |    | EASTBOUND<br><small>Ottawa</small> |    |    | WESTBOUND<br><small>Ottawa</small> |    |    | TOTAL |
|--------|---------------------------------------|----|----|---------------------------------------|----|----|------------------------------------|----|----|------------------------------------|----|----|-------|
|        | NL                                    | NT | NR | SL                                    | ST | SR | EL                                 | ET | ER | WL                                 | WT | WR |       |
|        | 0                                     | 2  | 0  | 0                                     | 2  | 0  | 0                                  | 1  | 0  | 0                                  | 1  | 0  |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
| X    | X   | X   | X   |

|                |            |      |      |       |    |    |       |    |    |       |    |    |       |   |
|----------------|------------|------|------|-------|----|----|-------|----|----|-------|----|----|-------|---|
| <b>AM</b>      | 7:00 AM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 7:15 AM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 7:30 AM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 7:45 AM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 8:00 AM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 8:15 AM    | 0    | 1    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 1 |
|                | 8:30 AM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 8:45 AM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | VOLUMES    | 0    | 1    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 1 |
|                | APPROACH % | 0%   | 100% | 0%    | 0% | 0% | 0%    | 0% | 0% | 0%    | 0% | 0% | 0%    |   |
| APP/DEPART     | 1          | /    | 1    | 0     | /  | 0  | 0     | /  | 0  | 0     | /  | 0  | 0     |   |
| BEGIN PEAK HR  | 8:00 AM    |      |      |       |    |    |       |    |    |       |    |    |       |   |
| VOLUMES        | 0          | 1    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 1     |   |
| APPROACH %     | 0%         | 100% | 0%   | 0%    | 0% | 0% | 0%    | 0% | 0% | 0%    | 0% | 0% |       |   |
| PEAK HR FACTOR | 0.250      |      |      | 0.000 |    |    | 0.000 |    |    | 0.000 |    |    | 0.250 |   |
| APP/DEPART     | 1          | /    | 1    | 0     | /  | 0  | 0     | /  | 0  | 0     | /  | 0  | 0     |   |
| <b>PM</b>      | 4:00 PM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 4:15 PM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 4:30 PM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 4:45 PM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 5:00 PM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 5:15 PM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 5:30 PM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | 5:45 PM    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | VOLUMES    | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0 |
|                | APPROACH % | 0%   | 0%   | 0%    | 0% | 0% | 0%    | 0% | 0% | 0%    | 0% | 0% | 0%    |   |
| APP/DEPART     | 0          | /    | 0    | 0     | /  | 0  | 0     | /  | 0  | 0     | /  | 0  | 0     |   |
| BEGIN PEAK HR  | 4:30 PM    |      |      |       |    |    |       |    |    |       |    |    |       |   |
| VOLUMES        | 0          | 0    | 0    | 0     | 0  | 0  | 0     | 0  | 0  | 0     | 0  | 0  | 0     |   |
| APPROACH %     | 0%         | 0%   | 0%   | 0%    | 0% | 0% | 0%    | 0% | 0% | 0%    | 0% | 0% |       |   |
| PEAK HR FACTOR | 0.000      |      |      | 0.000 |    |    | 0.000 |    |    | 0.000 |    |    | 0.000 |   |
| APP/DEPART     | 0          | /    | 0    | 0     | /  | 0  | 0     | /  | 0  | 0     | /  | 0  | 0     |   |

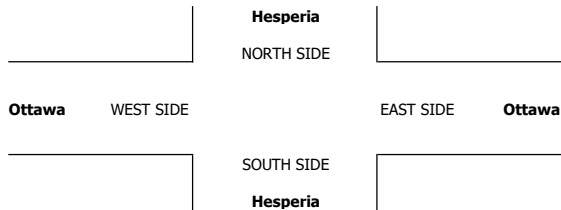
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|---|---|---|---|
| 0 | 0 | 0 | 0 |
|---|---|---|---|









**INTERSECTION TURNING MOVEMENT COUNTS**

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                               |   |                                      |                                       |                       |
|-------------------------------|---|--------------------------------------|---------------------------------------|-----------------------|
| DATE:<br>6/16/21<br>WEDNESDAY | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Hesperia<br>Nisqualli | PROJECT #:<br>LOCATION #:<br>CONTROL: | SC2957<br>7<br>SIGNAL |
|-------------------------------|---|--------------------------------------|---------------------------------------|-----------------------|

|                                   |        |       |   |     |
|-----------------------------------|--------|-------|---|-----|
| CLASS 1:<br>PASSENGER<br>VEHICLES | NOTES: | AP    | ▲ |     |
|                                   |        | PM    | ▲ | N   |
|                                   |        | MD    | ◀ | W   |
|                                   |        | OTHER |   | E ▶ |
|                                   |        | OTHER | S | ▼   |

| LANES:         | NORTHBOUND<br>Hesperia |         |         | SOUTHBOUND<br>Hesperia |         |         | EASTBOUND<br>Nisqualli |         |         | WESTBOUND<br>Nisqualli |         |         | TOTAL |
|----------------|------------------------|---------|---------|------------------------|---------|---------|------------------------|---------|---------|------------------------|---------|---------|-------|
|                | NL<br>1                | NT<br>3 | NR<br>0 | SL<br>1                | ST<br>2 | SR<br>0 | EL<br>2                | ET<br>1 | ER<br>2 | WL<br>1                | WT<br>2 | WR<br>0 |       |
| 7:00 AM        | 38                     | 119     | 6       | 3                      | 67      | 1       | 5                      | 6       | 43      | 4                      | 1       | 3       | 296   |
| 7:15 AM        | 34                     | 155     | 4       | 2                      | 99      | 4       | 7                      | 9       | 62      | 3                      | 6       | 1       | 386   |
| 7:30 AM        | 44                     | 136     | 9       | 3                      | 161     | 6       | 18                     | 8       | 99      | 7                      | 11      | 4       | 506   |
| 7:45 AM        | 66                     | 156     | 13      | 0                      | 169     | 7       | 20                     | 14      | 94      | 5                      | 4       | 1       | 549   |
| 8:00 AM        | 39                     | 143     | 10      | 1                      | 146     | 17      | 14                     | 8       | 86      | 4                      | 4       | 1       | 473   |
| 8:15 AM        | 47                     | 160     | 9       | 1                      | 145     | 9       | 15                     | 2       | 83      | 7                      | 3       | 1       | 482   |
| 8:30 AM        | 67                     | 154     | 3       | 0                      | 160     | 4       | 17                     | 4       | 90      | 0                      | 5       | 1       | 505   |
| 8:45 AM        | 67                     | 160     | 2       | 4                      | 192     | 6       | 23                     | 2       | 101     | 6                      | 4       | 1       | 568   |
| VOLUMES        | 402                    | 1,183   | 56      | 14                     | 1,139   | 54      | 119                    | 53      | 658     | 36                     | 38      | 13      | 3,765 |
| APPROACH %     | 24%                    | 72%     | 3%      | 1%                     | 94%     | 4%      | 14%                    | 6%      | 79%     | 41%                    | 44%     | 15%     |       |
| APP/DEPART     | 1,641                  | /       | 1,314   | 1,207                  | /       | 1,833   | 830                    | /       | 123     | 87                     | /       | 495     | 0     |
| BEGIN PEAK HR  | 8:00 AM                |         |         |                        |         |         |                        |         |         |                        |         |         |       |
| VOLUMES        | 220                    | 617     | 24      | 6                      | 643     | 36      | 68                     | 16      | 360     | 17                     | 16      | 4       | 2,028 |
| APPROACH %     | 26%                    | 72%     | 3%      | 1%                     | 94%     | 5%      | 15%                    | 4%      | 81%     | 46%                    | 43%     | 11%     |       |
| PEAK HR FACTOR | 0.940                  |         |         | 0.848                  |         |         | 0.883                  |         |         | 0.841                  |         |         | 0.893 |
| APP/DEPART     | 861                    | /       | 689     | 685                    | /       | 1,020   | 445                    | /       | 46      | 37                     | /       | 273     | 0     |
| 4:00 PM        | 104                    | 207     | 8       | 1                      | 214     | 12      | 15                     | 2       | 77      | 13                     | 9       | 3       | 665   |
| 4:15 PM        | 96                     | 185     | 5       | 3                      | 186     | 15      | 24                     | 6       | 104     | 12                     | 10      | 0       | 646   |
| 4:30 PM        | 117                    | 205     | 5       | 2                      | 208     | 13      | 21                     | 10      | 110     | 12                     | 5       | 2       | 710   |
| 4:45 PM        | 106                    | 183     | 4       | 3                      | 207     | 21      | 26                     | 14      | 82      | 8                      | 10      | 2       | 666   |
| 5:00 PM        | 109                    | 211     | 8       | 0                      | 224     | 19      | 10                     | 4       | 92      | 19                     | 12      | 2       | 710   |
| 5:15 PM        | 92                     | 204     | 8       | 2                      | 244     | 18      | 17                     | 9       | 91      | 12                     | 10      | 1       | 708   |
| 5:30 PM        | 98                     | 194     | 5       | 4                      | 192     | 16      | 12                     | 4       | 85      | 5                      | 10      | 2       | 627   |
| 5:45 PM        | 81                     | 165     | 8       | 2                      | 170     | 8       | 16                     | 6       | 92      | 13                     | 10      | 4       | 575   |
| VOLUMES        | 803                    | 1,554   | 51      | 17                     | 1,645   | 122     | 141                    | 55      | 733     | 94                     | 76      | 16      | 5,307 |
| APPROACH %     | 33%                    | 65%     | 2%      | 1%                     | 92%     | 7%      | 15%                    | 6%      | 79%     | 51%                    | 41%     | 9%      |       |
| APP/DEPART     | 2,408                  | /       | 1,711   | 1,784                  | /       | 2,472   | 929                    | /       | 123     | 186                    | /       | 1,001   | 0     |
| BEGIN PEAK HR  | 4:30 PM                |         |         |                        |         |         |                        |         |         |                        |         |         |       |
| VOLUMES        | 424                    | 803     | 25      | 7                      | 883     | 71      | 74                     | 37      | 375     | 51                     | 37      | 7       | 2,794 |
| APPROACH %     | 34%                    | 64%     | 2%      | 1%                     | 92%     | 7%      | 15%                    | 8%      | 77%     | 54%                    | 39%     | 7%      |       |
| PEAK HR FACTOR | 0.954                  |         |         | 0.910                  |         |         | 0.862                  |         |         | 0.720                  |         |         | 0.984 |
| APP/DEPART     | 1,252                  | /       | 884     | 961                    | /       | 1,309   | 486                    | /       | 69      | 95                     | /       | 532     | 0     |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 1  | 0  | 1   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 0  | 0  | 0   |
| 0       | 0  | 1  | 0  | 1   |

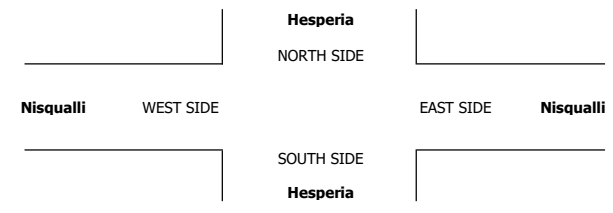
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|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |
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| 0    | 1   | 9   | 0   |
| 0    | 0   | 9   | 1   |
| 2    | 1   | 7   | 1   |
| 4    | 8   | 6   | 0   |
| 2    | 3   | 12  | 1   |
| 2    | 1   | 5   | 1   |
| 1    | 0   | 6   | 0   |
| 11   | 14  | 63  | 5   |

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| 0 | 1  | 10 | 1  |
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| 1 | 1  | 12 | 1  |
| 1 | 3  | 7  | 1  |
| 0 | 4  | 8  | 2  |
| 1 | 5  | 3  | 1  |
| 1 | 7  | 3  | 2  |
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| 6 | 25 | 64 | 11 |

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| 3 | 13 | 30 | 5 |
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### INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

|                                     |   |                                      |                                  |                         |                  |                    |
|-------------------------------------|---|--------------------------------------|----------------------------------|-------------------------|------------------|--------------------|
| DATE:<br>6/16/21<br>WEDNESDAY       | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | Victorville<br>Hesperia<br>Nisqualli | PROJECT #:<br>7                  | SC2957                  | LOCATION #:<br>7 | CONTROL:<br>SIGNAL |
| <b>CLASS 3:</b><br>3-AXLE<br>TRUCKS | <b>NOTES:</b>                               |                                      | AM<br>PM<br>MD<br>OTHER<br>OTHER | ▲<br>N<br>◀ W<br>S<br>▼ | E ▶              |                    |

| LANES: | NORTHBOUND<br>Hesperia |    |    | SOUTHBOUND<br>Hesperia |    |    | EASTBOUND<br>Nisqualli |    |    | WESTBOUND<br>Nisqualli |    |    | TOTAL |
|--------|------------------------|----|----|------------------------|----|----|------------------------|----|----|------------------------|----|----|-------|
|        | NL                     | NT | NR | SL                     | ST | SR | EL                     | ET | ER | WL                     | WT | WR |       |

| U-TURNS |    |    |    |     |
|---------|----|----|----|-----|
| NB      | SB | EB | WB | TTL |

| RTOR |     |     |     |
|------|-----|-----|-----|
| NRR  | SRR | ERR | WRR |

|                |            |     |     |       |     |     |       |     |     |       |     |     |       |    |    |
|----------------|------------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|----|----|
| AM             | 7:00 AM    | 0   | 2   | 1     | 0   | 2   | 0     | 0   | 2   | 1     | 0   | 0   | 0     | 0  | 8  |
|                | 7:15 AM    | 0   | 4   | 1     | 0   | 3   | 0     | 1   | 0   | 0     | 0   | 1   | 1     | 1  | 11 |
|                | 7:30 AM    | 0   | 1   | 0     | 0   | 2   | 0     | 0   | 4   | 0     | 0   | 0   | 0     | 0  | 7  |
|                | 7:45 AM    | 2   | 1   | 0     | 0   | 2   | 0     | 1   | 3   | 0     | 1   | 0   | 1     | 1  | 11 |
|                | 8:00 AM    | 0   | 1   | 0     | 2   | 2   | 0     | 0   | 0   | 0     | 1   | 1   | 0     | 0  | 7  |
|                | 8:15 AM    | 1   | 0   | 0     | 0   | 3   | 2     | 0   | 0   | 0     | 0   | 0   | 0     | 0  | 6  |
|                | 8:30 AM    | 0   | 1   | 0     | 0   | 0   | 0     | 0   | 0   | 1     | 0   | 1   | 0     | 0  | 3  |
|                | 8:45 AM    | 0   | 0   | 0     | 0   | 0   | 0     | 0   | 1   | 0     | 1   | 1   | 0     | 0  | 3  |
|                | VOLUMES    | 3   | 10  | 2     | 2   | 14  | 2     | 2   | 10  | 2     | 3   | 4   | 2     |    | 56 |
|                | APPROACH % | 20% | 67% | 13%   | 11% | 78% | 11%   | 14% | 71% | 14%   | 33% | 44% | 22%   |    |    |
| APP/DEPART     | 15         | /   | 14  | 18    | /   | 19  | 14    | /   | 14  | 9     | /   | 9   |       | 0  |    |
| BEGIN PEAK HR  | 8:00 AM    |     |     |       |     |     |       |     |     |       |     |     |       |    |    |
| VOLUMES        | 1          | 2   | 0   | 2     | 5   | 2   | 0     | 1   | 1   | 2     | 3   | 0   |       | 19 |    |
| APPROACH %     | 33%        | 67% | 0%  | 22%   | 56% | 22% | 0%    | 50% | 50% | 40%   | 60% | 0%  |       |    |    |
| PEAK HR FACTOR | 0.750      |     |     | 0.450 |     |     | 0.500 |     |     | 0.625 |     |     | 0.679 |    |    |
| APP/DEPART     | 3          | /   | 2   | 9     | /   | 8   | 2     | /   | 3   | 5     | /   | 6   |       | 0  |    |
| PM             | 4:00 PM    | 1   | 1   | 0     | 0   | 2   | 0     | 0   | 2   | 1     | 0   | 0   | 0     | 7  |    |
|                | 4:15 PM    | 1   | 0   | 0     | 0   | 1   | 0     | 0   | 0   | 0     | 0   | 0   | 0     | 2  |    |
|                | 4:30 PM    | 1   | 0   | 0     | 0   | 2   | 0     | 0   | 1   | 0     | 0   | 0   | 0     | 4  |    |
|                | 4:45 PM    | 0   | 0   | 0     | 0   | 0   | 0     | 1   | 0   | 0     | 0   | 0   | 0     | 1  |    |
|                | 5:00 PM    | 0   | 1   | 0     | 1   | 0   | 0     | 0   | 0   | 0     | 0   | 0   | 0     | 2  |    |
|                | 5:15 PM    | 1   | 1   | 0     | 0   | 1   | 0     | 0   | 0   | 0     | 0   | 0   | 0     | 3  |    |
|                | 5:30 PM    | 0   | 0   | 0     | 0   | 2   | 0     | 1   | 1   | 0     | 0   | 1   | 0     | 5  |    |
|                | 5:45 PM    | 1   | 1   | 0     | 0   | 1   | 0     | 0   | 0   | 0     | 1   | 0   | 0     | 4  |    |
|                | VOLUMES    | 5   | 4   | 0     | 1   | 9   | 0     | 2   | 4   | 1     | 1   | 1   | 0     |    | 28 |
|                | APPROACH % | 56% | 44% | 0%    | 10% | 90% | 0%    | 29% | 57% | 14%   | 50% | 50% | 0%    |    |    |
| APP/DEPART     | 9          | /   | 6   | 10    | /   | 11  | 7     | /   | 5   | 2     | /   | 6   |       | 0  |    |
| BEGIN PEAK HR  | 4:30 PM    |     |     |       |     |     |       |     |     |       |     |     |       |    |    |
| VOLUMES        | 2          | 2   | 0   | 1     | 3   | 0   | 1     | 1   | 0   | 0     | 0   | 0   |       | 10 |    |
| APPROACH %     | 50%        | 50% | 0%  | 25%   | 75% | 0%  | 50%   | 50% | 0%  | 0%    | 0%  | 0%  |       |    |    |
| PEAK HR FACTOR | 0.500      |     |     | 0.500 |     |     | 0.500 |     |     | 0.000 |     |     | 0.625 |    |    |
| APP/DEPART     | 4          | /   | 3   | 4     | /   | 3   | 2     | /   | 2   | 0     | /   | 2   |       | 0  |    |

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| 0 | 0 | 0 | 0 | 0 |
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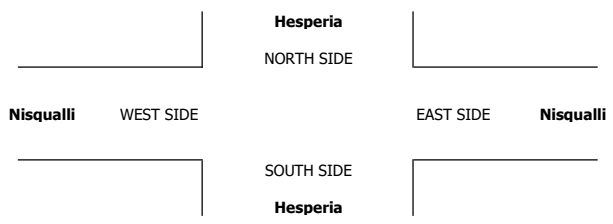
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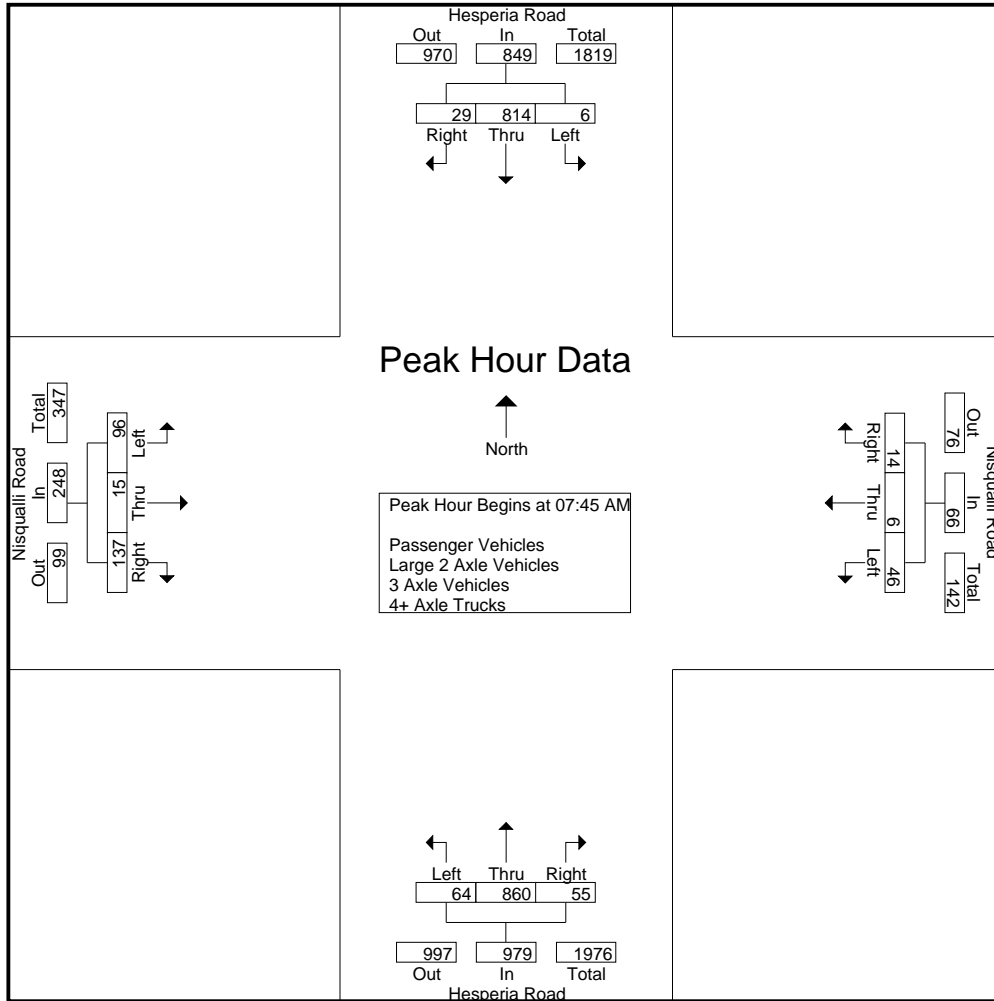
City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIAM  
 Site Code : 9220092  
 Start Date : 8/18/2009  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Hesperia Road Southbound |             |           |             | Nisqualli Road Westbound |           |           |            | Hesperia Road Northbound |             |            |             | Nisqualli Road Eastbound |           |            |            | Int. Total  |
|-------------------------|--------------------------|-------------|-----------|-------------|--------------------------|-----------|-----------|------------|--------------------------|-------------|------------|-------------|--------------------------|-----------|------------|------------|-------------|
|                         | Left                     | Thru        | Right     | App. Total  | Left                     | Thru      | Right     | App. Total | Left                     | Thru        | Right      | App. Total  | Left                     | Thru      | Right      | App. Total |             |
| 07:00 AM                | 1                        | 112         | 6         | 119         | 3                        | 0         | 3         | 6          | 19                       | 168         | 15         | 202         | 17                       | 6         | 19         | 42         | 369         |
| 07:15 AM                | 2                        | 140         | 8         | 150         | 3                        | 4         | 3         | 10         | 10                       | 204         | 6          | 220         | 16                       | 5         | 19         | 40         | 420         |
| 07:30 AM                | 2                        | 180         | 7         | 189         | 8                        | 0         | 4         | 12         | 8                        | 202         | 15         | 225         | 22                       | 3         | 24         | 49         | 475         |
| 07:45 AM                | 2                        | 213         | 4         | 219         | 15                       | 4         | 4         | 23         | 18                       | 260         | 18         | 296         | 30                       | 4         | 40         | 74         | 612         |
| <b>Total</b>            | <b>7</b>                 | <b>645</b>  | <b>25</b> | <b>677</b>  | <b>29</b>                | <b>8</b>  | <b>14</b> | <b>51</b>  | <b>55</b>                | <b>834</b>  | <b>54</b>  | <b>943</b>  | <b>85</b>                | <b>18</b> | <b>102</b> | <b>205</b> | <b>1876</b> |
| 08:00 AM                | 1                        | 185         | 4         | 190         | 10                       | 0         | 3         | 13         | 15                       | 212         | 8          | 235         | 27                       | 4         | 33         | 64         | 502         |
| 08:15 AM                | 1                        | 187         | 7         | 195         | 11                       | 2         | 5         | 18         | 19                       | 195         | 12         | 226         | 17                       | 2         | 30         | 49         | 488         |
| 08:30 AM                | 2                        | 229         | 14        | 245         | 10                       | 0         | 2         | 12         | 12                       | 193         | 17         | 222         | 22                       | 5         | 34         | 61         | 540         |
| 08:45 AM                | 1                        | 215         | 12        | 228         | 13                       | 7         | 4         | 24         | 14                       | 230         | 14         | 258         | 20                       | 7         | 29         | 56         | 566         |
| <b>Total</b>            | <b>5</b>                 | <b>816</b>  | <b>37</b> | <b>858</b>  | <b>44</b>                | <b>9</b>  | <b>14</b> | <b>67</b>  | <b>60</b>                | <b>830</b>  | <b>51</b>  | <b>941</b>  | <b>86</b>                | <b>18</b> | <b>126</b> | <b>230</b> | <b>2096</b> |
| <b>Grand Total</b>      | <b>12</b>                | <b>1461</b> | <b>62</b> | <b>1535</b> | <b>73</b>                | <b>17</b> | <b>28</b> | <b>118</b> | <b>115</b>               | <b>1664</b> | <b>105</b> | <b>1884</b> | <b>171</b>               | <b>36</b> | <b>228</b> | <b>435</b> | <b>3972</b> |
| Apprch %                | 0.8                      | 95.2        | 4         |             | 61.9                     | 14.4      | 23.7      |            | 6.1                      | 88.3        | 5.6        |             | 39.3                     | 8.3       | 52.4       |            |             |
| Total %                 | 0.3                      | 36.8        | 1.6       | 38.6        | 1.8                      | 0.4       | 0.7       | 3          | 2.9                      | 41.9        | 2.6        | 47.4        | 4.3                      | 0.9       | 5.7        | 11         |             |
| Passenger Vehicles      | 7                        | 1403        | 57        | 1467        | 51                       | 16        | 10        | 77         | 110                      | 1573        | 85         | 1768        | 163                      | 35        | 217        | 415        | 3727        |
| % Passenger Vehicles    | 58.3                     | 96          | 91.9      | 95.6        | 69.9                     | 94.1      | 35.7      | 65.3       | 95.7                     | 94.5        | 81         | 93.8        | 95.3                     | 97.2      | 95.2       | 95.4       | 93.8        |
| Large 2 Axle Vehicles   | 0                        | 50          | 5         | 55          | 3                        | 1         | 3         | 7          | 4                        | 75          | 3          | 82          | 7                        | 0         | 8          | 15         | 159         |
| % Large 2 Axle Vehicles | 0                        | 3.4         | 8.1       | 3.6         | 4.1                      | 5.9       | 10.7      | 5.9        | 3.5                      | 4.5         | 2.9        | 4.4         | 4.1                      | 0         | 3.5        | 3.4        | 4           |
| 3 Axle Vehicles         | 3                        | 5           | 0         | 8           | 3                        | 0         | 2         | 5          | 1                        | 9           | 4          | 14          | 1                        | 1         | 0          | 2          | 29          |
| % 3 Axle Vehicles       | 25                       | 0.3         | 0         | 0.5         | 4.1                      | 0         | 7.1       | 4.2        | 0.9                      | 0.5         | 3.8        | 0.7         | 0.6                      | 2.8       | 0          | 0.5        | 0.7         |
| 4+ Axle Trucks          | 2                        | 3           | 0         | 5           | 16                       | 0         | 13        | 29         | 0                        | 7           | 13         | 20          | 0                        | 0         | 3          | 3          | 57          |
| % 4+ Axle Trucks        | 16.7                     | 0.2         | 0         | 0.3         | 21.9                     | 0         | 46.4      | 24.6       | 0                        | 0.4         | 12.4       | 1.1         | 0                        | 0         | 1.3        | 0.7        | 1.4         |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|--|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|  | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:45 AM       |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| 07:45 AM   | 2                        | 213  | 4     | 219        | 15                       | 4    | 4     | 23         | 18                       | 260  | 18    | 296        | 30                       | 4    | 40    | 74         | 612        |
| 08:00 AM   | 1                        | 185  | 4     | 190        | 10                       | 0    | 3     | 13         | 15                       | 212  | 8     | 235        | 27                       | 4    | 33    | 64         | 502        |
| 08:15 AM   | 1                        | 187  | 7     | 195        | 11                       | 2    | 5     | 18         | 19                       | 195  | 12    | 226        | 17                       | 2    | 30    | 49         | 488        |
| 08:30 AM   | 2                        | 229  | 14    | 245        | 10                       | 0    | 2     | 12         | 12                       | 193  | 17    | 222        | 22                       | 5    | 34    | 61         | 540        |
| Total Volume   | 6                        | 814  | 29    | 849        | 46                       | 6    | 14    | 66         | 64                       | 860  | 55    | 979        | 96                       | 15   | 137   | 248        | 2142       |
| % App. Total   | 0.7                      | 95.9 | 3.4   |            | 69.7                     | 9.1  | 21.2  |            | 6.5                      | 87.8 | 5.6   |            | 38.7                     | 6    | 55.2  |            |            |
| PHF  | .750                     | .889 | .518  | .866       | .767                     | .375 | .700  | .717       | .842                     | .827 | .764  | .827       | .800                     | .750 | .856  | .838       | .875       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 08:00 AM |            |           |            | 08:00 AM  |          |          |           | 07:30 AM  |            |           |            | 07:45 AM  |          |           |           |
|--------------|----------|------------|-----------|------------|-----------|----------|----------|-----------|-----------|------------|-----------|------------|-----------|----------|-----------|-----------|
| +0 mins.     | 1        | 185        | 4         | 190        | 10        | 0        | 3        | 13        | 8         | 202        | 15        | 225        | <b>30</b> | 4        | <b>40</b> | <b>74</b> |
| +15 mins.    | 1        | 187        | 7         | 195        | 11        | 2        | <b>5</b> | 18        | 18        | <b>260</b> | <b>18</b> | <b>296</b> | 27        | 4        | 33        | 64        |
| +30 mins.    | <b>2</b> | <b>229</b> | <b>14</b> | <b>245</b> | 10        | 0        | 2        | 12        | 15        | 212        | 8         | 235        | 17        | 2        | 30        | 49        |
| +45 mins.    | 1        | 215        | 12        | 228        | <b>13</b> | <b>7</b> | 4        | <b>24</b> | <b>19</b> | 195        | 12        | 226        | 22        | <b>5</b> | 34        | 61        |
| Total Volume | 5        | 816        | 37        | 858        | 44        | 9        | 14       | 67        | 60        | 869        | 53        | 982        | 96        | 15       | 137       | 248       |
| % App. Total | 0.6      | 95.1       | 4.3       |            | 65.7      | 13.4     | 20.9     |           | 6.1       | 88.5       | 5.4       |            | 38.7      | 6        | 55.2      |           |
| PHF          | .625     | .891       | .661      | .876       | .846      | .321     | .700     | .698      | .789      | .836       | .736      | .829       | .800      | .750     | .856      | .838      |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIAM  
 Site Code : 9220092  
 Start Date : 8/18/2009  
 Page No : 1

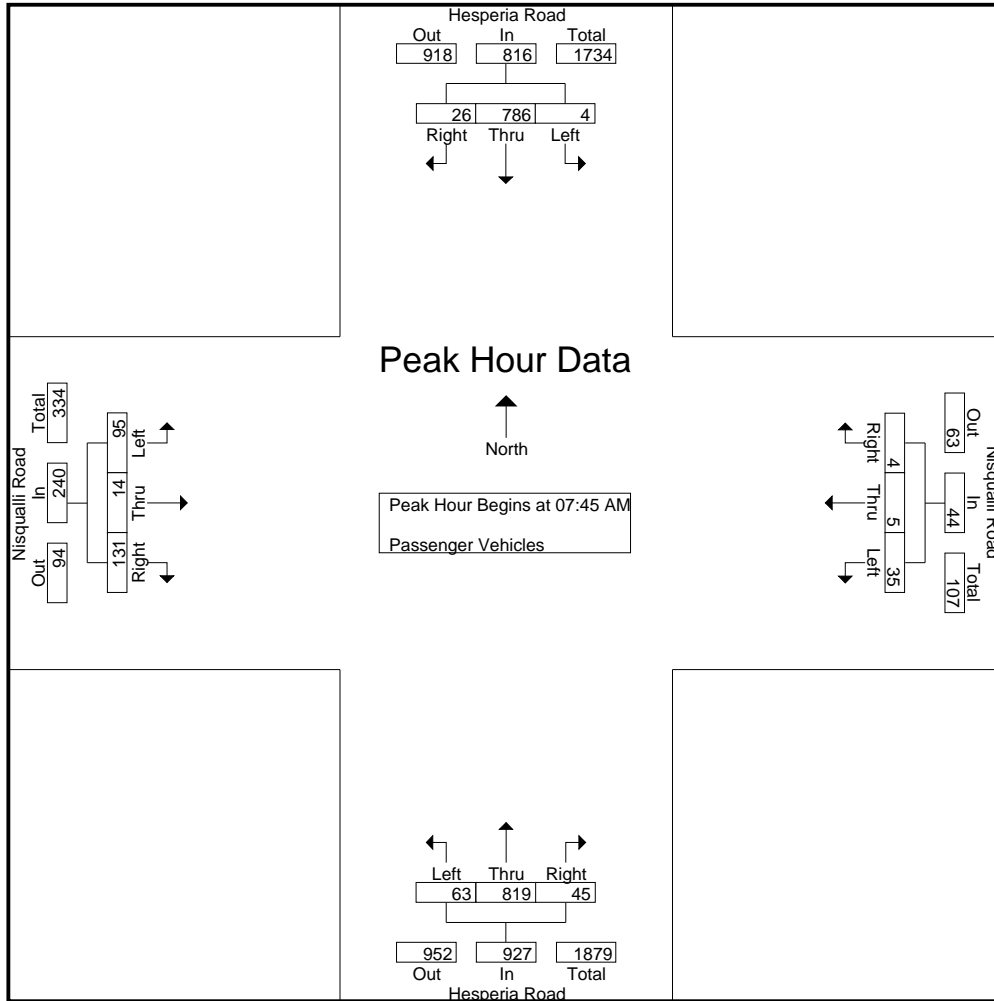
Groups Printed- Passenger Vehicles

| Start Time  | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|-------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|             | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 07:00 AM    | 0                        | 108  | 6     | 114        | 1                        | 0    | 0     | 1          | 17                       | 157  | 11    | 185        | 16                       | 6    | 18    | 40         | 340        |
| 07:15 AM    | 2                        | 133  | 8     | 143        | 2                        | 4    | 1     | 7          | 8                        | 189  | 5     | 202        | 14                       | 5    | 18    | 37         | 389        |
| 07:30 AM    | 1                        | 168  | 6     | 175        | 2                        | 0    | 2     | 4          | 8                        | 193  | 11    | 212        | 21                       | 3    | 23    | 47         | 438        |
| 07:45 AM    | 2                        | 209  | 4     | 215        | 11                       | 4    | 0     | 15         | 18                       | 252  | 13    | 283        | 30                       | 3    | 37    | 70         | 583        |
| Total       | 5                        | 618  | 24    | 647        | 16                       | 8    | 3     | 27         | 51                       | 791  | 40    | 882        | 81                       | 17   | 96    | 194        | 1750       |
| 08:00 AM    | 1                        | 179  | 3     | 183        | 10                       | 0    | 2     | 12         | 15                       | 198  | 7     | 220        | 27                       | 4    | 32    | 63         | 478        |
| 08:15 AM    | 0                        | 178  | 6     | 184        | 8                        | 1    | 1     | 10         | 18                       | 183  | 9     | 210        | 17                       | 2    | 29    | 48         | 452        |
| 08:30 AM    | 1                        | 220  | 13    | 234        | 6                        | 0    | 1     | 7          | 12                       | 186  | 16    | 214        | 21                       | 5    | 33    | 59         | 514        |
| 08:45 AM    | 0                        | 208  | 11    | 219        | 11                       | 7    | 3     | 21         | 14                       | 215  | 13    | 242        | 17                       | 7    | 27    | 51         | 533        |
| Total       | 2                        | 785  | 33    | 820        | 35                       | 8    | 7     | 50         | 59                       | 782  | 45    | 886        | 82                       | 18   | 121   | 221        | 1977       |
| Grand Total | 7                        | 1403 | 57    | 1467       | 51                       | 16   | 10    | 77         | 110                      | 1573 | 85    | 1768       | 163                      | 35   | 217   | 415        | 3727       |
| Apprch %    | 0.5                      | 95.6 | 3.9   |            | 66.2                     | 20.8 | 13    |            | 6.2                      | 89   | 4.8   |            | 39.3                     | 8.4  | 52.3  |            |            |
| Total %     | 0.2                      | 37.6 | 1.5   | 39.4       | 1.4                      | 0.4  | 0.3   | 2.1        | 3                        | 42.2 | 2.3   | 47.4       | 4.4                      | 0.9  | 5.8   | 11.1       |            |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|--------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|              | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 07:45 AM     | 2                        | 209  | 4     | 215        | 11                       | 4    | 0     | 15         | 18                       | 252  | 13    | 283        | 30                       | 3    | 37    | 70         | 583        |
| 08:00 AM     | 1                        | 179  | 3     | 183        | 10                       | 0    | 2     | 12         | 15                       | 198  | 7     | 220        | 27                       | 4    | 32    | 63         | 478        |
| 08:15 AM     | 0                        | 178  | 6     | 184        | 8                        | 1    | 1     | 10         | 18                       | 183  | 9     | 210        | 17                       | 2    | 29    | 48         | 452        |
| 08:30 AM     | 1                        | 220  | 13    | 234        | 6                        | 0    | 1     | 7          | 12                       | 186  | 16    | 214        | 21                       | 5    | 33    | 59         | 514        |
| Total Volume | 4                        | 786  | 26    | 816        | 35                       | 5    | 4     | 44         | 63                       | 819  | 45    | 927        | 95                       | 14   | 131   | 240        | 2027       |
| % App. Total | 0.5                      | 96.3 | 3.2   |            | 79.5                     | 11.4 | 9.1   |            | 6.8                      | 88.3 | 4.9   |            | 39.6                     | 5.8  | 54.6  |            |            |
| PHF          | .500                     | .893 | .500  | .872       | .795                     | .313 | .500  | .733       | .875                     | .813 | .703  | .819       | .792                     | .700 | .885  | .857       | .869       |

Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 07:45 AM |      |      |      | 07:45 AM |      |      |      | 07:45 AM |      |      |      | 07:45 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 2        | 209  | 4    | 215  | 11       | 4    | 0    | 15   | 18       | 252  | 13   | 283  | 30       | 3    | 37   | 70   |
| +15 mins.    | 1        | 179  | 3    | 183  | 10       | 0    | 2    | 12   | 15       | 198  | 7    | 220  | 27       | 4    | 32   | 63   |
| +30 mins.    | 0        | 178  | 6    | 184  | 8        | 1    | 1    | 10   | 18       | 183  | 9    | 210  | 17       | 2    | 29   | 48   |
| +45 mins.    | 1        | 220  | 13   | 234  | 6        | 0    | 1    | 7    | 12       | 186  | 16   | 214  | 21       | 5    | 33   | 59   |
| Total Volume | 4        | 786  | 26   | 816  | 35       | 5    | 4    | 44   | 63       | 819  | 45   | 927  | 95       | 14   | 131  | 240  |
| % App. Total | 0.5      | 96.3 | 3.2  |      | 79.5     | 11.4 | 9.1  |      | 6.8      | 88.3 | 4.9  |      | 39.6     | 5.8  | 54.6 |      |
| PHF          | .500     | .893 | .500 | .872 | .795     | .313 | .500 | .733 | .875     | .813 | .703 | .819 | .792     | .700 | .885 | .857 |



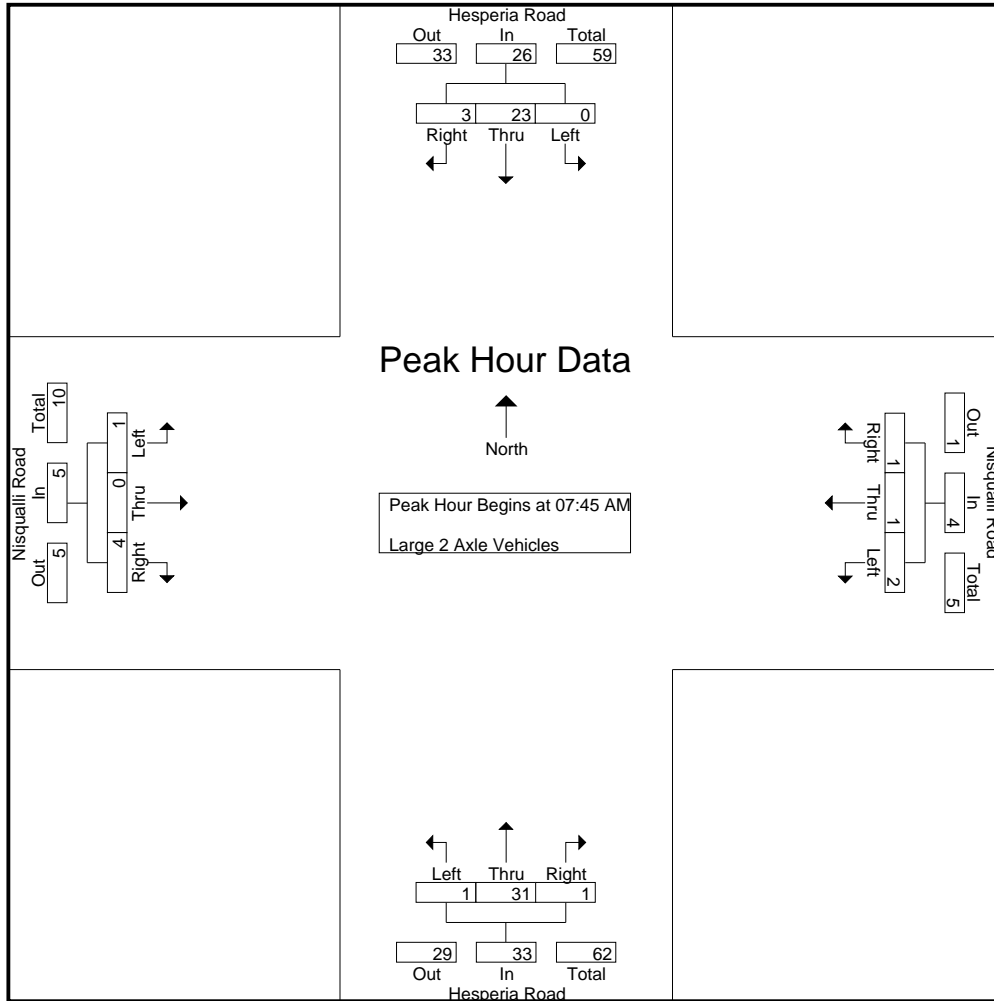
City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIAM  
 Site Code : 9220092  
 Start Date : 8/18/2009  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|-------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|             | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 07:00 AM    | 0                        | 3    | 0     | 3          | 0                        | 0    | 2     | 2          | 1                        | 10   | 1     | 12         | 1                        | 0    | 1     | 2          | 19         |
| 07:15 AM    | 0                        | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 2                        | 12   | 0     | 14         | 2                        | 0    | 1     | 3          | 24         |
| 07:30 AM    | 0                        | 10   | 1     | 11         | 1                        | 0    | 0     | 1          | 0                        | 9    | 0     | 9          | 1                        | 0    | 1     | 2          | 23         |
| 07:45 AM    | 0                        | 3    | 0     | 3          | 0                        | 0    | 1     | 1          | 0                        | 7    | 0     | 7          | 0                        | 0    | 2     | 2          | 13         |
| Total       | 0                        | 23   | 1     | 24         | 1                        | 0    | 3     | 4          | 3                        | 38   | 1     | 42         | 4                        | 0    | 5     | 9          | 79         |
| 08:00 AM    | 0                        | 6    | 1     | 7          | 0                        | 0    | 0     | 0          | 0                        | 11   | 1     | 12         | 0                        | 0    | 0     | 0          | 19         |
| 08:15 AM    | 0                        | 7    | 1     | 8          | 2                        | 1    | 0     | 3          | 1                        | 8    | 0     | 9          | 0                        | 0    | 1     | 1          | 21         |
| 08:30 AM    | 0                        | 7    | 1     | 8          | 0                        | 0    | 0     | 0          | 0                        | 5    | 0     | 5          | 1                        | 0    | 1     | 2          | 15         |
| 08:45 AM    | 0                        | 7    | 1     | 8          | 0                        | 0    | 0     | 0          | 0                        | 13   | 1     | 14         | 2                        | 0    | 1     | 3          | 25         |
| Total       | 0                        | 27   | 4     | 31         | 2                        | 1    | 0     | 3          | 1                        | 37   | 2     | 40         | 3                        | 0    | 3     | 6          | 80         |
| Grand Total | 0                        | 50   | 5     | 55         | 3                        | 1    | 3     | 7          | 4                        | 75   | 3     | 82         | 7                        | 0    | 8     | 15         | 159        |
| Apprch %    | 0                        | 90.9 | 9.1   |            | 42.9                     | 14.3 | 42.9  |            | 4.9                      | 91.5 | 3.7   |            | 46.7                     | 0    | 53.3  |            |            |
| Total %     | 0                        | 31.4 | 3.1   | 34.6       | 1.9                      | 0.6  | 1.9   | 4.4        | 2.5                      | 47.2 | 1.9   | 51.6       | 4.4                      | 0    | 5     | 9.4        |            |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|--|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|  | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1 |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:45 AM       |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| 07:45 AM   | 0                        | 3    | 0     | 3          | 0                        | 0    | 1     | 1          | 0                        | 7    | 0     | 7          | 0                        | 0    | 2     | 2          | 13         |
| 08:00 AM   | 0                        | 6    | 1     | 7          | 0                        | 0    | 0     | 0          | 0                        | 11   | 1     | 12         | 0                        | 0    | 0     | 0          | 19         |
| 08:15 AM   | 0                        | 7    | 1     | 8          | 2                        | 1    | 0     | 3          | 1                        | 8    | 0     | 9          | 0                        | 0    | 1     | 1          | 21         |
| 08:30 AM   | 0                        | 7    | 1     | 8          | 0                        | 0    | 0     | 0          | 0                        | 5    | 0     | 5          | 1                        | 0    | 1     | 2          | 15         |
| Total Volume   | 0                        | 23   | 3     | 26         | 2                        | 1    | 1     | 4          | 1                        | 31   | 1     | 33         | 1                        | 0    | 4     | 5          | 68         |
| % App. Total   | 0                        | 88.5 | 11.5  |            | 50                       | 25   | 25    |            | 3                        | 93.9 | 3     |            | 20                       | 0    | 80    |            |            |
| PHF  | .000                     | .821 | .750  | .813       | .250                     | .250 | .250  | .333       | .250                     | .705 | .250  | .688       | .250                     | .000 | .500  | .625       | .810       |



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 07:45 AM |      |      |      | 07:45 AM |      |      |      | 07:45 AM |      |      |      | 07:45 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 3    | 0    | 3    | 0        | 0    | 1    | 1    | 0        | 7    | 0    | 7    | 0        | 0    | 2    | 2    |
| +15 mins.    | 0        | 6    | 1    | 7    | 0        | 0    | 0    | 0    | 0        | 11   | 1    | 12   | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 7    | 1    | 8    | 2        | 1    | 0    | 3    | 1        | 8    | 0    | 9    | 0        | 0    | 1    | 1    |
| +45 mins.    | 0        | 7    | 1    | 8    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    | 1        | 0    | 1    | 2    |
| Total Volume | 0        | 23   | 3    | 26   | 2        | 1    | 1    | 4    | 1        | 31   | 1    | 33   | 1        | 0    | 4    | 5    |
| % App. Total | 0        | 88.5 | 11.5 |      | 50       | 25   | 25   |      | 3        | 93.9 | 3    |      | 20       | 0    | 80   |      |
| PHF          | .000     | .821 | .750 | .813 | .250     | .250 | .250 | .333 | .250     | .705 | .250 | .688 | .250     | .000 | .500 | .625 |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIAM  
 Site Code : 9220092  
 Start Date : 8/18/2009  
 Page No : 1

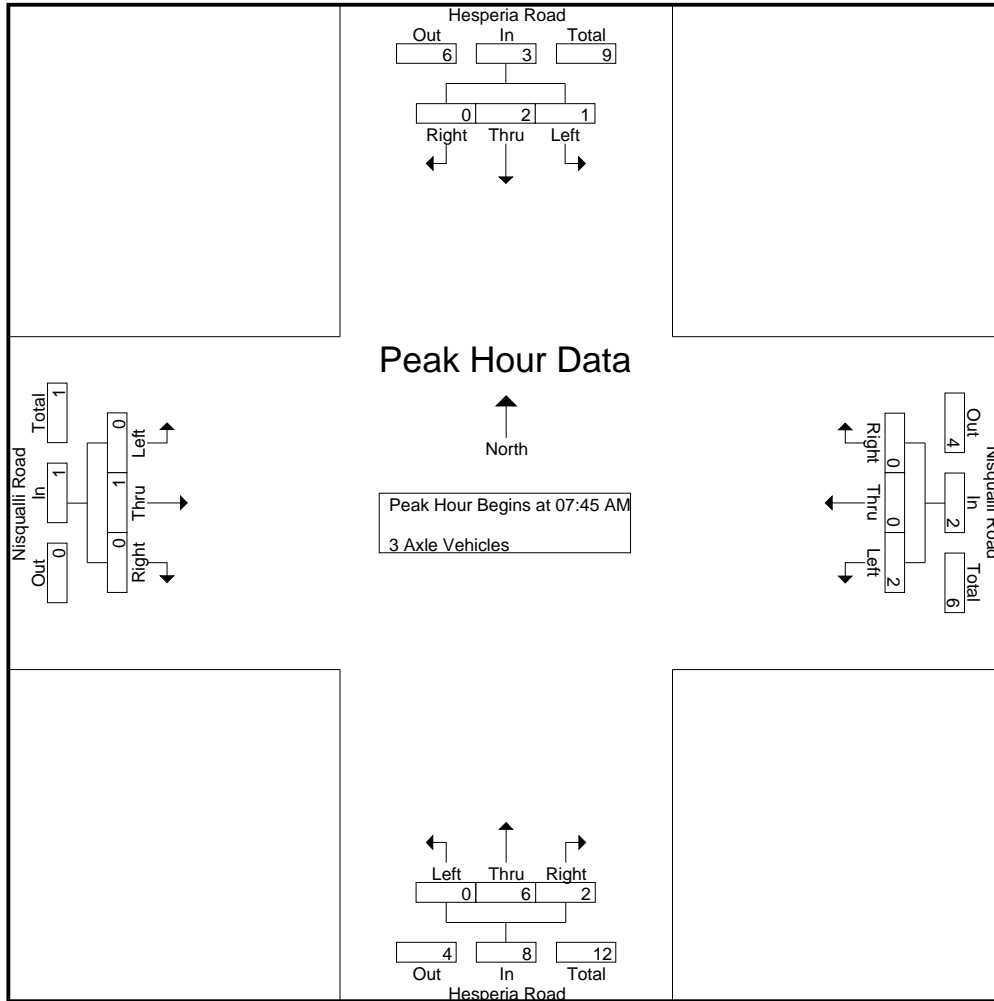
Groups Printed- 3 Axle Vehicles

| Start Time  | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|-------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|             | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 07:00 AM    | 0                        | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 1                        | 0    | 2     | 3          | 0                        | 0    | 0     | 0          | 4          |
| 07:15 AM    | 0                        | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                        | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 3          |
| 07:30 AM    | 1                        | 2    | 0     | 3          | 1                        | 0    | 1     | 2          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 5          |
| 07:45 AM    | 0                        | 1    | 0     | 1          | 1                        | 0    | 0     | 1          | 0                        | 0    | 1     | 1          | 0                        | 1    | 0     | 1          | 4          |
| Total       | 1                        | 4    | 0     | 5          | 2                        | 0    | 2     | 4          | 1                        | 2    | 3     | 6          | 0                        | 1    | 0     | 1          | 16         |
| 08:00 AM    | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 1          |
| 08:15 AM    | 0                        | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                        | 3    | 1     | 4          | 0                        | 0    | 0     | 0          | 5          |
| 08:30 AM    | 1                        | 0    | 0     | 1          | 1                        | 0    | 0     | 1          | 0                        | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 4          |
| 08:45 AM    | 1                        | 0    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                        | 1    | 0     | 1          | 1                        | 0    | 0     | 1          | 3          |
| Total       | 2                        | 1    | 0     | 3          | 1                        | 0    | 0     | 1          | 0                        | 7    | 1     | 8          | 1                        | 0    | 0     | 1          | 13         |
| Grand Total | 3                        | 5    | 0     | 8          | 3                        | 0    | 2     | 5          | 1                        | 9    | 4     | 14         | 1                        | 1    | 0     | 2          | 29         |
| Apprch %    | 37.5                     | 62.5 | 0     |            | 60                       | 0    | 40    |            | 7.1                      | 64.3 | 28.6  |            | 50                       | 50   | 0     |            |            |
| Total %     | 10.3                     | 17.2 | 0     | 27.6       | 10.3                     | 0    | 6.9   | 17.2       | 3.4                      | 31   | 13.8  | 48.3       | 3.4                      | 3.4  | 0     | 6.9        |            |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|--------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|              | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 07:45 AM     | 0                        | 1    | 0     | 1          | 1                        | 0    | 0     | 1          | 0                        | 0    | 1     | 1          | 0                        | 1    | 0     | 1          | 4          |
| 08:00 AM     | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 1          |
| 08:15 AM     | 0                        | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                        | 3    | 1     | 4          | 0                        | 0    | 0     | 0          | 5          |
| 08:30 AM     | 1                        | 0    | 0     | 1          | 1                        | 0    | 0     | 1          | 0                        | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 4          |
| Total Volume | 1                        | 2    | 0     | 3          | 2                        | 0    | 0     | 2          | 0                        | 6    | 2     | 8          | 0                        | 1    | 0     | 1          | 14         |
| % App. Total | 33.3                     | 66.7 | 0     |            | 100                      | 0    | 0     |            | 0                        | 75   | 25    |            | 0                        | 100  | 0     |            |            |
| PHF          | .250                     | .500 | .000  | .750       | .500                     | .000 | .000  | .500       | .000                     | .500 | .500  | .500       | .000                     | .250 | .000  | .250       | .700       |

Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 07:45 AM |      |      |      | 07:45 AM |      |      |      | 07:45 AM |      |      |      | 07:45 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 0    | 1    | 1        | 0    | 0    | 1    | 0        | 0    | 1    | 1    | 0        | 1    | 0    | 1    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 3    | 1    | 4    | 0        | 0    | 0    | 0    |
| +45 mins.    | 1        | 0    | 0    | 1    | 1        | 0    | 0    | 1    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| Total Volume | 1        | 2    | 0    | 3    | 2        | 0    | 0    | 2    | 0        | 6    | 2    | 8    | 0        | 1    | 0    | 1    |
| % App. Total | 33.3     | 66.7 | 0    |      | 100      | 0    | 0    |      | 0        | 75   | 25   |      | 0        | 100  | 0    |      |
| PHF          | .250     | .500 | .000 | .750 | .500     | .000 | .000 | .500 | .000     | .500 | .500 | .500 | .000     | .250 | .000 | .250 |

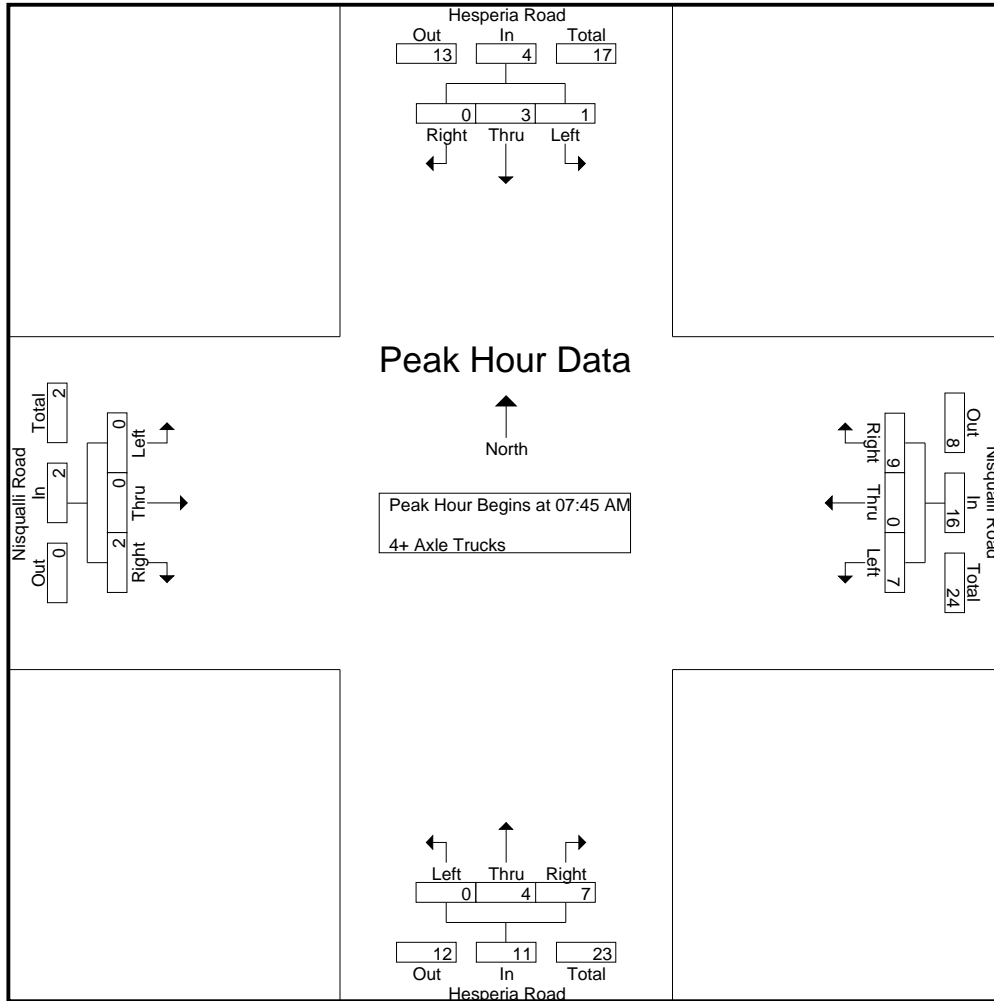
City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIAM  
 Site Code : 9220092  
 Start Date : 8/18/2009  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|-------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|             | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 07:00 AM    | 1                        | 0    | 0     | 1          | 2                        | 0    | 1     | 3          | 0                        | 1    | 1     | 2          | 0                        | 0    | 0     | 0          | 6          |
| 07:15 AM    | 0                        | 0    | 0     | 0          | 1                        | 0    | 1     | 2          | 0                        | 1    | 1     | 2          | 0                        | 0    | 0     | 0          | 4          |
| 07:30 AM    | 0                        | 0    | 0     | 0          | 4                        | 0    | 1     | 5          | 0                        | 0    | 4     | 4          | 0                        | 0    | 0     | 0          | 9          |
| 07:45 AM    | 0                        | 0    | 0     | 0          | 3                        | 0    | 3     | 6          | 0                        | 1    | 4     | 5          | 0                        | 0    | 1     | 1          | 12         |
| Total       | 1                        | 0    | 0     | 1          | 10                       | 0    | 6     | 16         | 0                        | 3    | 10    | 13         | 0                        | 0    | 1     | 1          | 31         |
| 08:00 AM    | 0                        | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                        | 2    | 0     | 2          | 0                        | 0    | 1     | 1          | 4          |
| 08:15 AM    | 1                        | 1    | 0     | 2          | 1                        | 0    | 4     | 5          | 0                        | 1    | 2     | 3          | 0                        | 0    | 0     | 0          | 10         |
| 08:30 AM    | 0                        | 2    | 0     | 2          | 3                        | 0    | 1     | 4          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 7          |
| 08:45 AM    | 0                        | 0    | 0     | 0          | 2                        | 0    | 1     | 3          | 0                        | 1    | 0     | 1          | 0                        | 0    | 1     | 1          | 5          |
| Total       | 1                        | 3    | 0     | 4          | 6                        | 0    | 7     | 13         | 0                        | 4    | 3     | 7          | 0                        | 0    | 2     | 2          | 26         |
| Grand Total | 2                        | 3    | 0     | 5          | 16                       | 0    | 13    | 29         | 0                        | 7    | 13    | 20         | 0                        | 0    | 3     | 3          | 57         |
| Apprch %    | 40                       | 60   | 0     |            | 55.2                     | 0    | 44.8  |            | 0                        | 35   | 65    |            | 0                        | 0    | 100   |            |            |
| Total %     | 3.5                      | 5.3  | 0     | 8.8        | 28.1                     | 0    | 22.8  | 50.9       | 0                        | 12.3 | 22.8  | 35.1       | 0                        | 0    | 5.3   | 5.3        |            |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|--|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|  | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1 |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:45 AM       |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| 07:45 AM   | 0                        | 0    | 0     | 0          | 3                        | 0    | 3     | 6          | 0                        | 1    | 4     | 5          | 0                        | 0    | 1     | 1          | 12         |
| 08:00 AM   | 0                        | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                        | 2    | 0     | 2          | 0                        | 0    | 1     | 1          | 4          |
| 08:15 AM   | 1                        | 1    | 0     | 2          | 1                        | 0    | 4     | 5          | 0                        | 1    | 2     | 3          | 0                        | 0    | 0     | 0          | 10         |
| 08:30 AM   | 0                        | 2    | 0     | 2          | 3                        | 0    | 1     | 4          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 7          |
| Total Volume   | 1                        | 3    | 0     | 4          | 7                        | 0    | 9     | 16         | 0                        | 4    | 7     | 11         | 0                        | 0    | 2     | 2          | 33         |
| % App. Total   | 25                       | 75   | 0     |            | 43.8                     | 0    | 56.2  |            | 0                        | 36.4 | 63.6  |            | 0                        | 0    | 100   |            |            |
| PHF  | .250                     | .375 | .000  | .500       | .583                     | .000 | .563  | .667       | .000                     | .500 | .438  | .550       | .000                     | .000 | .500  | .500       | .688       |



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 07:45 AM |      |      |      | 07:45 AM |      |      |      | 07:45 AM |      |      |      | 07:45 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 3        | 0    | 3    | 6    | 0        | 1    | 4    | 5    | 0        | 0    | 1    | 1    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 1    | 1    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 1    |
| +30 mins.    | 1        | 1    | 0    | 2    | 1        | 0    | 4    | 5    | 0        | 1    | 2    | 3    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 2    | 0    | 2    | 3        | 0    | 1    | 4    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    |
| Total Volume | 1        | 3    | 0    | 4    | 7        | 0    | 9    | 16   | 0        | 4    | 7    | 11   | 0        | 0    | 2    | 2    |
| % App. Total | 25       | 75   | 0    |      | 43.8     | 0    | 56.2 |      | 0        | 36.4 | 63.6 |      | 0        | 0    | 100  |      |
| PHF          | .250     | .375 | .000 | .500 | .583     | .000 | .563 | .667 | .000     | .500 | .438 | .550 | .000     | .000 | .500 | .500 |

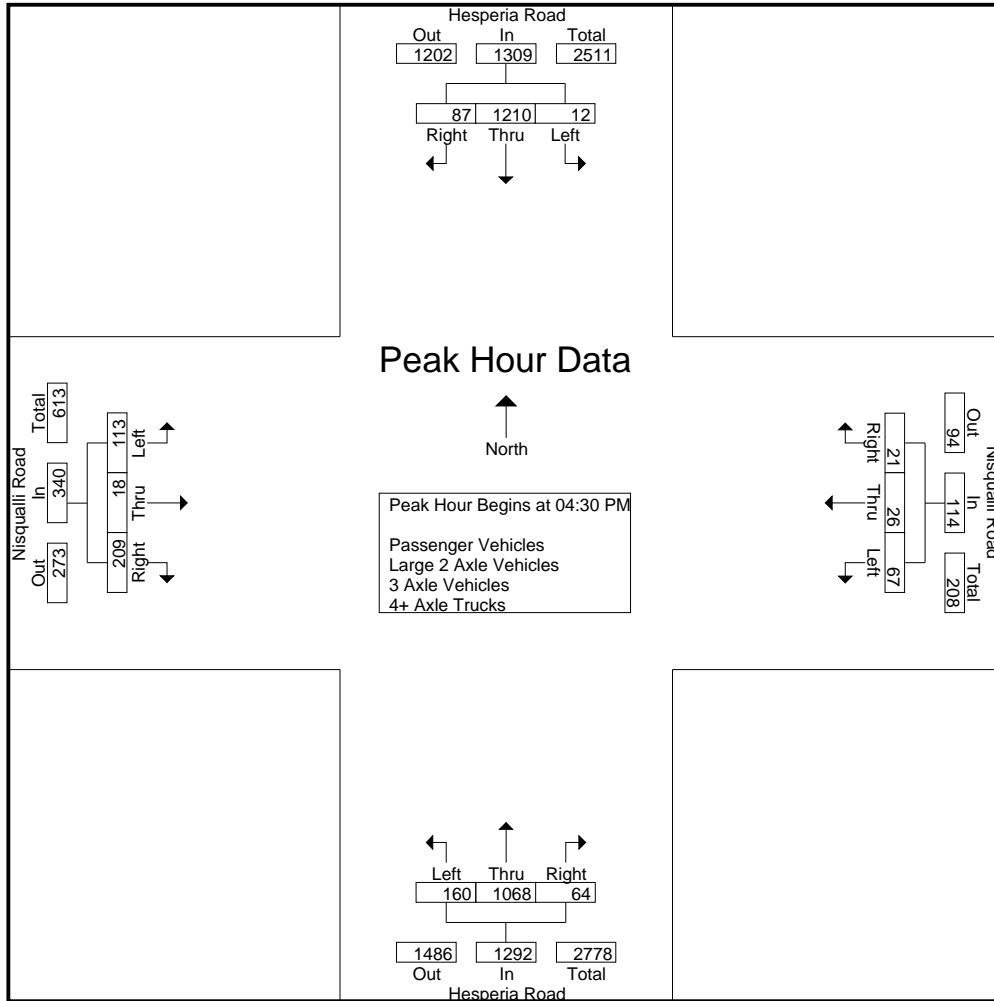
City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIPM  
 Site Code : 9220001  
 Start Date : 8/18/2009  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Hesperia Road Southbound |             |            |             | Nisqualli Road Westbound |           |           |            | Hesperia Road Northbound |             |            |             | Nisqualli Road Eastbound |           |            |            | Int. Total  |
|-------------------------|--------------------------|-------------|------------|-------------|--------------------------|-----------|-----------|------------|--------------------------|-------------|------------|-------------|--------------------------|-----------|------------|------------|-------------|
|                         | Left                     | Thru        | Right      | App. Total  | Left                     | Thru      | Right     | App. Total | Left                     | Thru        | Right      | App. Total  | Left                     | Thru      | Right      | App. Total |             |
| 04:00 PM                | 3                        | 287         | 11         | 301         | 7                        | 6         | 6         | 19         | 22                       | 246         | 8          | 276         | 20                       | 9         | 32         | 61         | 657         |
| 04:15 PM                | 2                        | 281         | 16         | 299         | 11                       | 7         | 2         | 20         | 39                       | 244         | 13         | 296         | 24                       | 1         | 38         | 63         | 678         |
| 04:30 PM                | 1                        | 279         | 23         | 303         | 22                       | 8         | 2         | 32         | 32                       | 242         | 10         | 284         | 29                       | 5         | 45         | 79         | 698         |
| 04:45 PM                | 8                        | 324         | 18         | 350         | 14                       | 8         | 3         | 25         | 42                       | 247         | 15         | 304         | 21                       | 7         | 55         | 83         | 762         |
| <b>Total</b>            | <b>14</b>                | <b>1171</b> | <b>68</b>  | <b>1253</b> | <b>54</b>                | <b>29</b> | <b>13</b> | <b>96</b>  | <b>135</b>               | <b>979</b>  | <b>46</b>  | <b>1160</b> | <b>94</b>                | <b>22</b> | <b>170</b> | <b>286</b> | <b>2795</b> |
| 05:00 PM                | 1                        | 291         | 22         | 314         | 19                       | 7         | 8         | 34         | 52                       | 297         | 18         | 367         | 30                       | 0         | 63         | 93         | 808         |
| 05:15 PM                | 2                        | 316         | 24         | 342         | 12                       | 3         | 8         | 23         | 34                       | 282         | 21         | 337         | 33                       | 6         | 46         | 85         | 787         |
| 05:30 PM                | 2                        | 248         | 20         | 270         | 22                       | 5         | 6         | 33         | 39                       | 223         | 16         | 278         | 18                       | 3         | 61         | 82         | 663         |
| 05:45 PM                | 0                        | 228         | 14         | 242         | 5                        | 8         | 3         | 16         | 28                       | 208         | 10         | 246         | 16                       | 1         | 46         | 63         | 567         |
| <b>Total</b>            | <b>5</b>                 | <b>1083</b> | <b>80</b>  | <b>1168</b> | <b>58</b>                | <b>23</b> | <b>25</b> | <b>106</b> | <b>153</b>               | <b>1010</b> | <b>65</b>  | <b>1228</b> | <b>97</b>                | <b>10</b> | <b>216</b> | <b>323</b> | <b>2825</b> |
| <b>Grand Total</b>      | <b>19</b>                | <b>2254</b> | <b>148</b> | <b>2421</b> | <b>112</b>               | <b>52</b> | <b>38</b> | <b>202</b> | <b>288</b>               | <b>1989</b> | <b>111</b> | <b>2388</b> | <b>191</b>               | <b>32</b> | <b>386</b> | <b>609</b> | <b>5620</b> |
| Apprch %                | 0.8                      | 93.1        | 6.1        |             | 55.4                     | 25.7      | 18.8      |            | 12.1                     | 83.3        | 4.6        |             | 31.4                     | 5.3       | 63.4       |            |             |
| Total %                 | 0.3                      | 40.1        | 2.6        | 43.1        | 2                        | 0.9       | 0.7       | 3.6        | 5.1                      | 35.4        | 2          | 42.5        | 3.4                      | 0.6       | 6.9        | 10.8       |             |
| Passenger Vehicles      | 14                       | 2205        | 147        | 2366        | 105                      | 52        | 20        | 177        | 284                      | 1962        | 93         | 2339        | 187                      | 32        | 377        | 596        | 5478        |
| % Passenger Vehicles    | 73.7                     | 97.8        | 99.3       | 97.7        | 93.8                     | 100       | 52.6      | 87.6       | 98.6                     | 98.6        | 83.8       | 97.9        | 97.9                     | 100       | 97.7       | 97.9       | 97.5        |
| Large 2 Axle Vehicles   | 0                        | 41          | 1          | 42          | 3                        | 0         | 2         | 5          | 4                        | 22          | 5          | 31          | 4                        | 0         | 9          | 13         | 91          |
| % Large 2 Axle Vehicles | 0                        | 1.8         | 0.7        | 1.7         | 2.7                      | 0         | 5.3       | 2.5        | 1.4                      | 1.1         | 4.5        | 1.3         | 2.1                      | 0         | 2.3        | 2.1        | 1.6         |
| 3 Axle Vehicles         | 1                        | 1           | 0          | 2           | 3                        | 0         | 1         | 4          | 0                        | 0           | 4          | 4           | 0                        | 0         | 0          | 0          | 10          |
| % 3 Axle Vehicles       | 5.3                      | 0           | 0          | 0.1         | 2.7                      | 0         | 2.6       | 2          | 0                        | 0           | 3.6        | 0.2         | 0                        | 0         | 0          | 0          | 0.2         |
| 4+ Axle Trucks          | 4                        | 7           | 0          | 11          | 1                        | 0         | 15        | 16         | 0                        | 5           | 9          | 14          | 0                        | 0         | 0          | 0          | 41          |
| % 4+ Axle Trucks        | 21.1                     | 0.3         | 0          | 0.5         | 0.9                      | 0         | 39.5      | 7.9        | 0                        | 0.3         | 8.1        | 0.6         | 0                        | 0         | 0          | 0          | 0.7         |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|--|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|  | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| 04:30 PM   | 1                        | 279  | 23    | 303        | 22                       | 8    | 2     | 32         | 32                       | 242  | 10    | 284        | 29                       | 5    | 45    | 79         | 698        |
| 04:45 PM   | 8                        | 324  | 18    | 350        | 14                       | 8    | 3     | 25         | 42                       | 247  | 15    | 304        | 21                       | 7    | 55    | 83         | 762        |
| 05:00 PM   | 1                        | 291  | 22    | 314        | 19                       | 7    | 8     | 34         | 52                       | 297  | 18    | 367        | 30                       | 0    | 63    | 93         | 808        |
| 05:15 PM   | 2                        | 316  | 24    | 342        | 12                       | 3    | 8     | 23         | 34                       | 282  | 21    | 337        | 33                       | 6    | 46    | 85         | 787        |
| Total Volume   | 12                       | 1210 | 87    | 1309       | 67                       | 26   | 21    | 114        | 160                      | 1068 | 64    | 1292       | 113                      | 18   | 209   | 340        | 3055       |
| % App. Total   | 0.9                      | 92.4 | 6.6   |            | 58.8                     | 22.8 | 18.4  |            | 12.4                     | 82.7 | 5     |            | 33.2                     | 5.3  | 61.5  |            |            |
| PHF  | .375                     | .934 | .906  | .935       | .761                     | .813 | .656  | .838       | .769                     | .899 | .762  | .880       | .856                     | .643 | .829  | .914       | .945       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      |      | 04:45 PM |      |      |      | 04:30 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 279  | 23   | 303  | 14       | 8    | 3    | 25   | 32       | 242  | 10   | 284  | 21       | 7    | 55   | 83   |
| +15 mins.    | 8        | 324  | 18   | 350  | 19       | 7    | 8    | 34   | 42       | 247  | 15   | 304  | 30       | 0    | 63   | 93   |
| +30 mins.    | 1        | 291  | 22   | 314  | 12       | 3    | 8    | 23   | 52       | 297  | 18   | 367  | 33       | 6    | 46   | 85   |
| +45 mins.    | 2        | 316  | 24   | 342  | 22       | 5    | 6    | 33   | 34       | 282  | 21   | 337  | 18       | 3    | 61   | 82   |
| Total Volume | 12       | 1210 | 87   | 1309 | 67       | 23   | 25   | 115  | 160      | 1068 | 64   | 1292 | 102      | 16   | 225  | 343  |
| % App. Total | 0.9      | 92.4 | 6.6  |      | 58.3     | 20   | 21.7 |      | 12.4     | 82.7 | 5    |      | 29.7     | 4.7  | 65.6 |      |
| PHF          | .375     | .934 | .906 | .935 | .761     | .719 | .781 | .846 | .769     | .899 | .762 | .880 | .773     | .571 | .893 | .922 |



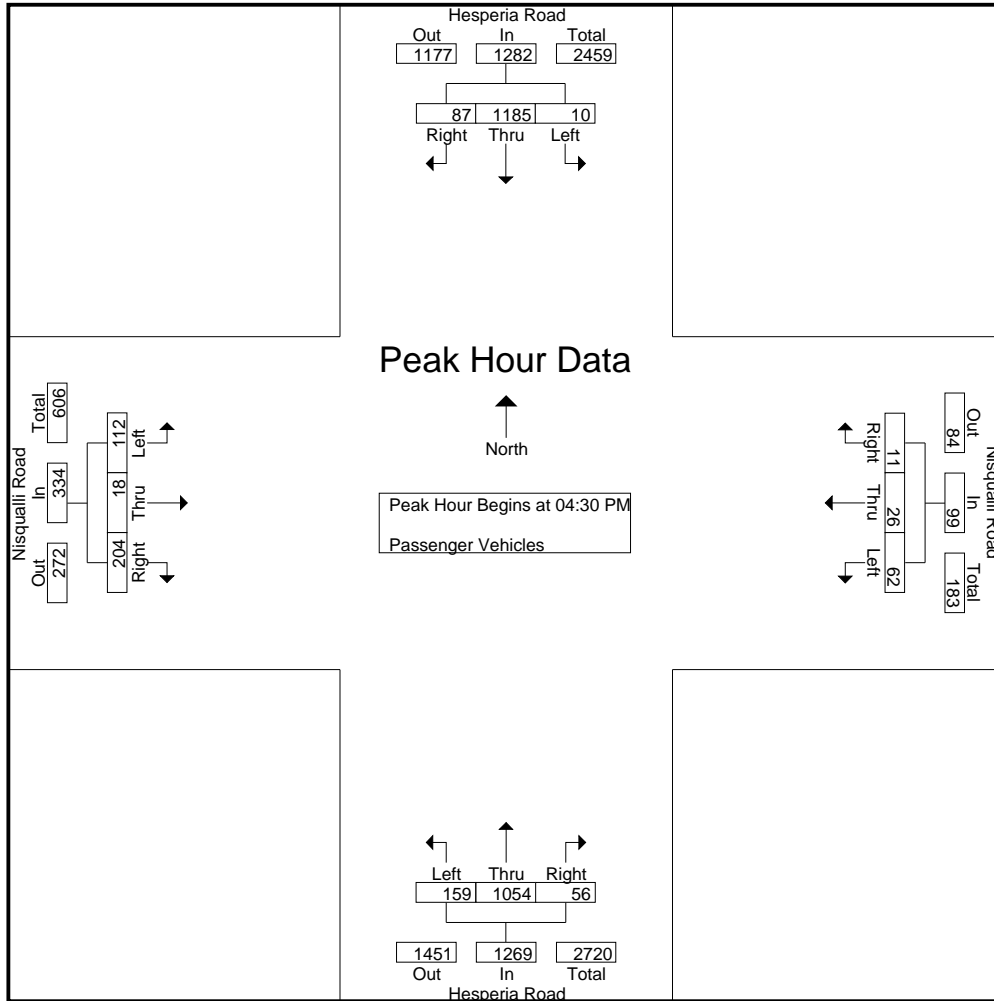
City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIPM  
 Site Code : 9220001  
 Start Date : 8/18/2009  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|-------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|             | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 04:00 PM    | 1                        | 278  | 11    | 290        | 6                        | 6    | 3     | 15         | 21                       | 241  | 5     | 267        | 18                       | 9    | 30    | 57         | 629        |
| 04:15 PM    | 1                        | 276  | 15    | 292        | 10                       | 7    | 0     | 17         | 37                       | 241  | 11    | 289        | 23                       | 1    | 36    | 60         | 658        |
| 04:30 PM    | 1                        | 269  | 23    | 293        | 22                       | 8    | 2     | 32         | 32                       | 237  | 9     | 278        | 28                       | 5    | 44    | 77         | 680        |
| 04:45 PM    | 7                        | 318  | 18    | 343        | 12                       | 8    | 2     | 22         | 41                       | 243  | 13    | 297        | 21                       | 7    | 54    | 82         | 744        |
| Total       | 10                       | 1141 | 67    | 1218       | 50                       | 29   | 7     | 86         | 131                      | 962  | 38    | 1131       | 90                       | 22   | 164   | 276        | 2711       |
| 05:00 PM    | 1                        | 284  | 22    | 307        | 17                       | 7    | 2     | 26         | 52                       | 294  | 17    | 363        | 30                       | 0    | 62    | 92         | 788        |
| 05:15 PM    | 1                        | 314  | 24    | 339        | 11                       | 3    | 5     | 19         | 34                       | 280  | 17    | 331        | 33                       | 6    | 44    | 83         | 772        |
| 05:30 PM    | 2                        | 243  | 20    | 265        | 22                       | 5    | 4     | 31         | 39                       | 221  | 14    | 274        | 18                       | 3    | 61    | 82         | 652        |
| 05:45 PM    | 0                        | 223  | 14    | 237        | 5                        | 8    | 2     | 15         | 28                       | 205  | 7     | 240        | 16                       | 1    | 46    | 63         | 555        |
| Total       | 4                        | 1064 | 80    | 1148       | 55                       | 23   | 13    | 91         | 153                      | 1000 | 55    | 1208       | 97                       | 10   | 213   | 320        | 2767       |
| Grand Total | 14                       | 2205 | 147   | 2366       | 105                      | 52   | 20    | 177        | 284                      | 1962 | 93    | 2339       | 187                      | 32   | 377   | 596        | 5478       |
| Apprch %    | 0.6                      | 93.2 | 6.2   |            | 59.3                     | 29.4 | 11.3  |            | 12.1                     | 83.9 | 4     |            | 31.4                     | 5.4  | 63.3  |            |            |
| Total %     | 0.3                      | 40.3 | 2.7   | 43.2       | 1.9                      | 0.9  | 0.4   | 3.2        | 5.2                      | 35.8 | 1.7   | 42.7       | 3.4                      | 0.6  | 6.9   | 10.9       |            |

| Start Time   | Hesperia Road Southbound |            |           |            | Nisqualli Road Westbound |          |          |            | Hesperia Road Northbound |            |           |            | Nisqualli Road Eastbound |          |           |            | Int. Total |
|--|--------------------------|------------|-----------|------------|--------------------------|----------|----------|------------|--------------------------|------------|-----------|------------|--------------------------|----------|-----------|------------|------------|
|  | Left                     | Thru       | Right     | App. Total | Left                     | Thru     | Right    | App. Total | Left                     | Thru       | Right     | App. Total | Left                     | Thru     | Right     | App. Total |            |
| Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1 |                          |            |           |            |                          |          |          |            |                          |            |           |            |                          |          |           |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                          |            |           |            |                          |          |          |            |                          |            |           |            |                          |          |           |            |            |
| 04:30 PM   | 1                        | 269        | 23        | 293        | <b>22</b>                | <b>8</b> | 2        | <b>32</b>  | 32                       | 237        | 9         | 278        | 28                       | 5        | 44        | 77         | 680        |
| 04:45 PM   | <b>7</b>                 | <b>318</b> | 18        | <b>343</b> | 12                       | 8        | 2        | 22         | 41                       | 243        | 13        | 297        | 21                       | <b>7</b> | 54        | 82         | 744        |
| 05:00 PM   | 1                        | 284        | 22        | 307        | 17                       | 7        | 2        | 26         | <b>52</b>                | <b>294</b> | <b>17</b> | <b>363</b> | 30                       | 0        | <b>62</b> | <b>92</b>  | <b>788</b> |
| 05:15 PM   | 1                        | 314        | <b>24</b> | 339        | 11                       | 3        | <b>5</b> | 19         | 34                       | 280        | 17        | 331        | <b>33</b>                | 6        | 44        | 83         | 772        |
| Total Volume   | 10                       | 1185       | 87        | 1282       | 62                       | 26       | 11       | 99         | 159                      | 1054       | 56        | 1269       | 112                      | 18       | 204       | 334        | 2984       |
| % App. Total   | 0.8                      | 92.4       | 6.8       |            | 62.6                     | 26.3     | 11.1     |            | 12.5                     | 83.1       | 4.4       |            | 33.5                     | 5.4      | 61.1      |            |            |
| PHF  | .357                     | .932       | .906      | .934       | .705                     | .813     | .550     | .773       | .764                     | .896       | .824      | .874       | .848                     | .643     | .823      | .908       | .947       |



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |            |           |            | 04:30 PM  |          |          |           | 04:30 PM  |            |           |            | 04:30 PM  |          |           |           |
|--------------|----------|------------|-----------|------------|-----------|----------|----------|-----------|-----------|------------|-----------|------------|-----------|----------|-----------|-----------|
| +0 mins.     | 1        | 269        | 23        | 293        | <b>22</b> | <b>8</b> | 2        | <b>32</b> | 32        | 237        | 9         | 278        | 28        | 5        | 44        | 77        |
| +15 mins.    | <b>7</b> | <b>318</b> | 18        | <b>343</b> | 12        | 8        | 2        | 22        | 41        | 243        | 13        | 297        | 21        | <b>7</b> | 54        | 82        |
| +30 mins.    | 1        | 284        | 22        | 307        | 17        | 7        | 2        | 26        | <b>52</b> | <b>294</b> | <b>17</b> | <b>363</b> | 30        | 0        | <b>62</b> | <b>92</b> |
| +45 mins.    | 1        | 314        | <b>24</b> | 339        | 11        | 3        | <b>5</b> | 19        | 34        | 280        | 17        | 331        | <b>33</b> | 6        | 44        | 83        |
| Total Volume | 10       | 1185       | 87        | 1282       | 62        | 26       | 11       | 99        | 159       | 1054       | 56        | 1269       | 112       | 18       | 204       | 334       |
| % App. Total | 0.8      | 92.4       | 6.8       |            | 62.6      | 26.3     | 11.1     |           | 12.5      | 83.1       | 4.4       |            | 33.5      | 5.4      | 61.1      |           |
| PHF          | .357     | .932       | .906      | .934       | .705      | .813     | .550     | .773      | .764      | .896       | .824      | .874       | .848      | .643     | .823      | .908      |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIPM  
 Site Code : 9220001  
 Start Date : 8/18/2009  
 Page No : 1

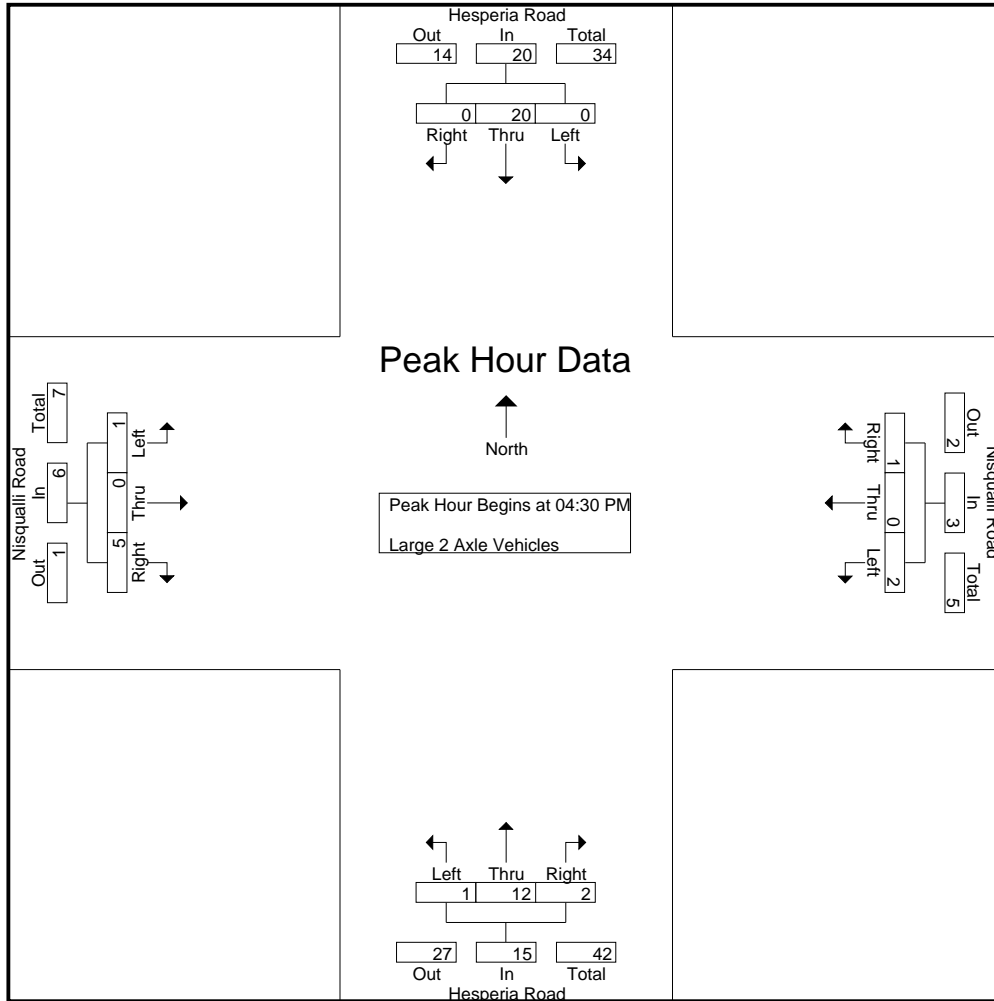
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|-------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|             | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 04:00 PM    | 0                        | 8    | 0     | 8          | 1                        | 0    | 0     | 1          | 1                        | 3    | 2     | 6          | 2                        | 0    | 2     | 4          | 19         |
| 04:15 PM    | 0                        | 5    | 1     | 6          | 0                        | 0    | 0     | 0          | 2                        | 2    | 1     | 5          | 1                        | 0    | 2     | 3          | 14         |
| 04:30 PM    | 0                        | 8    | 0     | 8          | 0                        | 0    | 0     | 0          | 0                        | 4    | 0     | 4          | 1                        | 0    | 1     | 2          | 14         |
| 04:45 PM    | 0                        | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 1                        | 4    | 0     | 5          | 0                        | 0    | 1     | 1          | 11         |
| Total       | 0                        | 26   | 1     | 27         | 1                        | 0    | 0     | 1          | 4                        | 13   | 3     | 20         | 4                        | 0    | 6     | 10         | 58         |
| 05:00 PM    | 0                        | 6    | 0     | 6          | 1                        | 0    | 0     | 1          | 0                        | 2    | 0     | 2          | 0                        | 0    | 1     | 1          | 10         |
| 05:15 PM    | 0                        | 1    | 0     | 1          | 1                        | 0    | 1     | 2          | 0                        | 2    | 2     | 4          | 0                        | 0    | 2     | 2          | 9          |
| 05:30 PM    | 0                        | 5    | 0     | 5          | 0                        | 0    | 1     | 1          | 0                        | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 8          |
| 05:45 PM    | 0                        | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                        | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 6          |
| Total       | 0                        | 15   | 0     | 15         | 2                        | 0    | 2     | 4          | 0                        | 9    | 2     | 11         | 0                        | 0    | 3     | 3          | 33         |
| Grand Total | 0                        | 41   | 1     | 42         | 3                        | 0    | 2     | 5          | 4                        | 22   | 5     | 31         | 4                        | 0    | 9     | 13         | 91         |
| Apprch %    | 0                        | 97.6 | 2.4   |            | 60                       | 0    | 40    |            | 12.9                     | 71   | 16.1  |            | 30.8                     | 0    | 69.2  |            |            |
| Total %     | 0                        | 45.1 | 1.1   | 46.2       | 3.3                      | 0    | 2.2   | 5.5        | 4.4                      | 24.2 | 5.5   | 34.1       | 4.4                      | 0    | 9.9   | 14.3       |            |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|--------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|              | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 04:30 PM     | 0                        | 8    | 0     | 8          | 0                        | 0    | 0     | 0          | 0                        | 4    | 0     | 4          | 1                        | 0    | 1     | 2          | 14         |
| 04:45 PM     | 0                        | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 1                        | 4    | 0     | 5          | 0                        | 0    | 1     | 1          | 11         |
| 05:00 PM     | 0                        | 6    | 0     | 6          | 1                        | 0    | 0     | 1          | 0                        | 2    | 0     | 2          | 0                        | 0    | 1     | 1          | 10         |
| 05:15 PM     | 0                        | 1    | 0     | 1          | 1                        | 0    | 1     | 2          | 0                        | 2    | 2     | 4          | 0                        | 0    | 2     | 2          | 9          |
| Total Volume | 0                        | 20   | 0     | 20         | 2                        | 0    | 1     | 3          | 1                        | 12   | 2     | 15         | 1                        | 0    | 5     | 6          | 44         |
| % App. Total | 0                        | 100  | 0     |            | 66.7                     | 0    | 33.3  |            | 6.7                      | 80   | 13.3  |            | 16.7                     | 0    | 83.3  |            |            |
| PHF          | .000                     | .625 | .000  | .625       | .500                     | .000 | .250  | .375       | .250                     | .750 | .250  | .750       | .250                     | .000 | .625  | .750       | .786       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      |      | 04:30 PM |      |      |      | 04:30 PM |      |      |      | 04:30 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 8    | 0    | 8    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 1        | 0    | 1    | 2    |
| +15 mins.    | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 1        | 4    | 0    | 5    | 0        | 0    | 1    | 1    |
| +30 mins.    | 0        | 6    | 0    | 6    | 1        | 0    | 0    | 1    | 0        | 2    | 0    | 2    | 0        | 0    | 1    | 1    |
| +45 mins.    | 0        | 1    | 0    | 1    | 1        | 0    | 1    | 2    | 0        | 2    | 2    | 4    | 0        | 0    | 2    | 2    |
| Total Volume | 0        | 20   | 0    | 20   | 2        | 0    | 1    | 3    | 1        | 12   | 2    | 15   | 1        | 0    | 5    | 6    |
| % App. Total | 0        | 100  | 0    |      | 66.7     | 0    | 33.3 |      | 6.7      | 80   | 13.3 |      | 16.7     | 0    | 83.3 |      |
| PHF          | .000     | .625 | .000 | .625 | .500     | .000 | .250 | .375 | .250     | .750 | .250 | .750 | .250     | .000 | .625 | .750 |

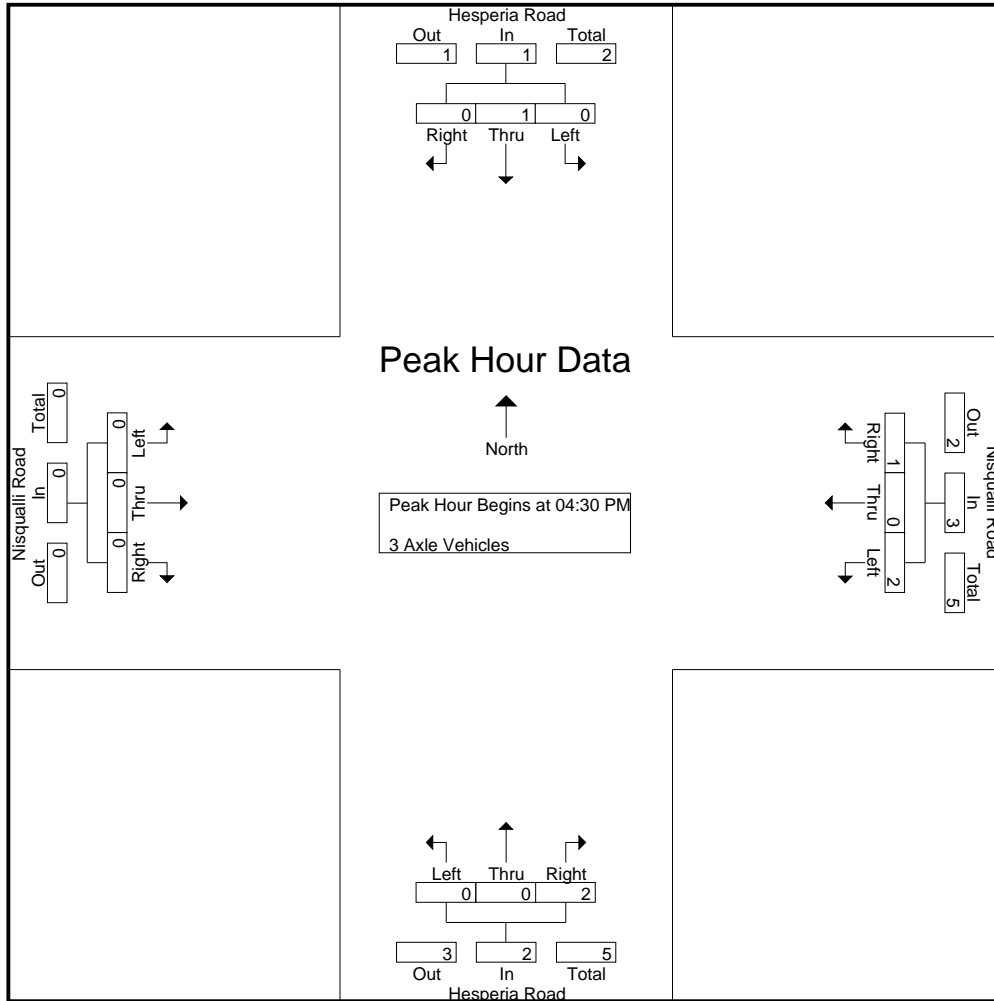
City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIPM  
 Site Code : 9220001  
 Start Date : 8/18/2009  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |    |
|-------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|----|
|             | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |    |
| 04:00 PM    | 1                        | 0    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0          | 1  |
| 04:15 PM    | 0                        | 0    | 0     | 0          | 1                        | 0    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0          | 1  |
| 04:30 PM    | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0          | 0  |
| 04:45 PM    | 0                        | 0    | 0     | 0          | 1                        | 0    | 0     | 1          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 0          | 2  |
| Total       | 1                        | 0    | 0     | 1          | 2                        | 0    | 0     | 2          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 0          | 4  |
| 05:00 PM    | 0                        | 0    | 0     | 0          | 1                        | 0    | 1     | 2          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0          | 2  |
| 05:15 PM    | 0                        | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 0          | 2  |
| 05:30 PM    | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0          | 0  |
| 05:45 PM    | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 0    | 2     | 2          | 0                        | 0    | 0     | 0          | 0          | 2  |
| Total       | 0                        | 1    | 0     | 1          | 1                        | 0    | 1     | 2          | 0                        | 0    | 3     | 3          | 0                        | 0    | 0     | 0          | 0          | 6  |
| Grand Total | 1                        | 1    | 0     | 2          | 3                        | 0    | 1     | 4          | 0                        | 0    | 4     | 4          | 0                        | 0    | 0     | 0          | 0          | 10 |
| Apprch %    | 50                       | 50   | 0     |            | 75                       | 0    | 25    |            | 0                        | 0    | 100   |            | 0                        | 0    | 0     |            |            |    |
| Total %     | 10                       | 10   | 0     | 20         | 30                       | 0    | 10    | 40         | 0                        | 0    | 40    | 40         | 0                        | 0    | 0     | 0          | 0          |    |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |      |
|--|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|------|
|  | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |      |
| Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1 |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |      |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |      |
| 04:30 PM   | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0          | 0    |
| 04:45 PM   | 0                        | 0    | 0     | 0          | 1                        | 0    | 0     | 1          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 0          | 2    |
| 05:00 PM   | 0                        | 0    | 0     | 0          | 1                        | 0    | 1     | 2          | 0                        | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0          | 2    |
| 05:15 PM   | 0                        | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 0          | 2    |
| Total Volume   | 0                        | 1    | 0     | 1          | 2                        | 0    | 1     | 3          | 0                        | 0    | 2     | 2          | 0                        | 0    | 0     | 0          | 0          | 6    |
| % App. Total   | 0                        | 100  | 0     |            | 66.7                     | 0    | 33.3  |            | 0                        | 0    | 100   |            | 0                        | 0    | 0     |            |            |      |
| PHF  | .000                     | .250 | .000  | .250       | .500                     | .000 | .250  | .375       | .000                     | .000 | .500  | .500       | .000                     | .000 | .000  | .000       | .000       | .750 |



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      |      | 04:30 PM |      |      |      | 04:30 PM |      |      |      | 04:30 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 0    | 0    | 0    | 1        | 0    | 0    | 1    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 0    | 0    | 0    | 1        | 0    | 1    | 2    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 1    | 0    | 1    | 2        | 0    | 1    | 3    | 0        | 0    | 2    | 2    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 66.7     | 0    | 33.3 | 0    | 0        | 0    | 100  | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .250 | .000 | .250 | .500     | .000 | .250 | .375 | .000     | .000 | .500 | .500 | .000     | .000 | .000 | .000 |

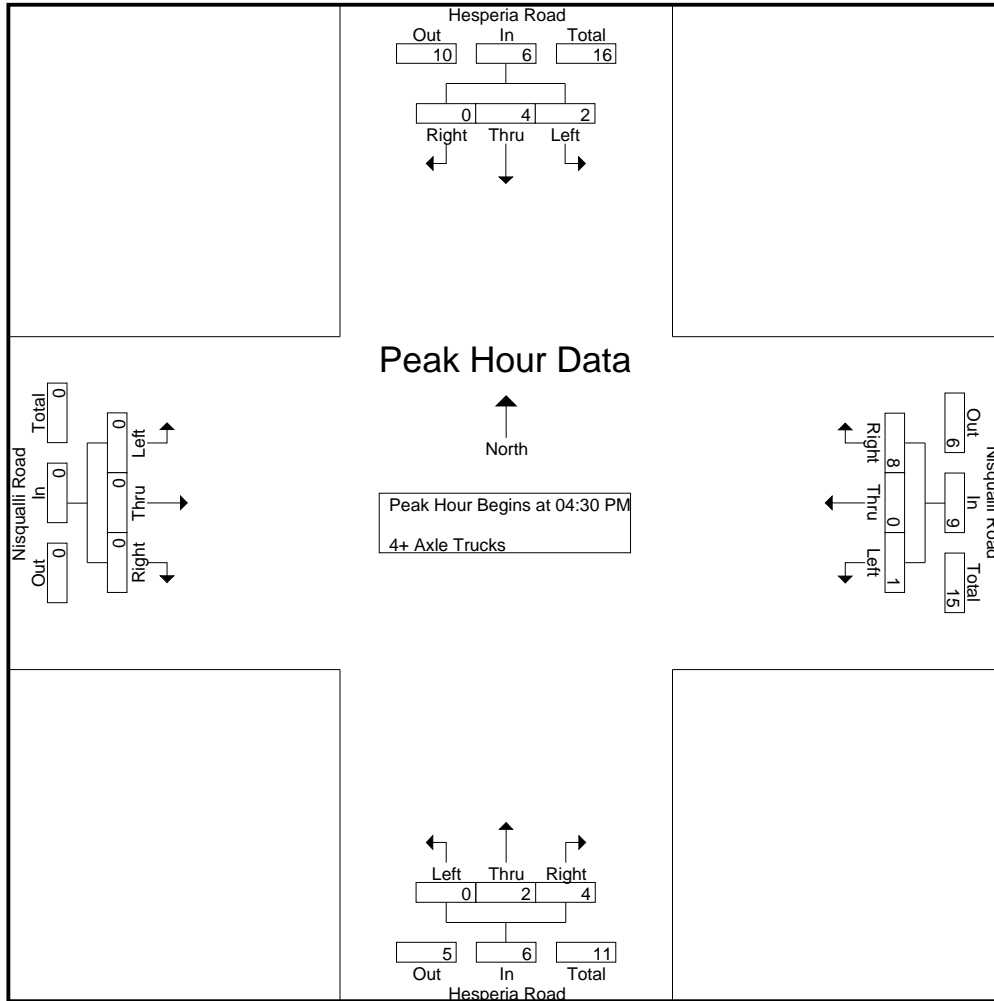
City of Victorville  
 N/S: Hesperia Road  
 E/W: Nisqualli Road  
 Weather: Sunny

File Name : VICHENIPM  
 Site Code : 9220001  
 Start Date : 8/18/2009  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|-------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|             | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| 04:00 PM    | 1                        | 1    | 0     | 2          | 0                        | 0    | 3     | 3          | 0                        | 2    | 1     | 3          | 0                        | 0    | 0     | 0          | 8          |
| 04:15 PM    | 1                        | 0    | 0     | 1          | 0                        | 0    | 2     | 2          | 0                        | 1    | 1     | 2          | 0                        | 0    | 0     | 0          | 5          |
| 04:30 PM    | 0                        | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                        | 1    | 1     | 2          | 0                        | 0    | 0     | 0          | 4          |
| 04:45 PM    | 1                        | 1    | 0     | 2          | 1                        | 0    | 1     | 2          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 5          |
| Total       | 3                        | 4    | 0     | 7          | 1                        | 0    | 6     | 7          | 0                        | 4    | 4     | 8          | 0                        | 0    | 0     | 0          | 22         |
| 05:00 PM    | 0                        | 1    | 0     | 1          | 0                        | 0    | 5     | 5          | 0                        | 1    | 1     | 2          | 0                        | 0    | 0     | 0          | 8          |
| 05:15 PM    | 1                        | 0    | 0     | 1          | 0                        | 0    | 2     | 2          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 4          |
| 05:30 PM    | 0                        | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                        | 0    | 2     | 2          | 0                        | 0    | 0     | 0          | 3          |
| 05:45 PM    | 0                        | 2    | 0     | 2          | 0                        | 0    | 1     | 1          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 4          |
| Total       | 1                        | 3    | 0     | 4          | 0                        | 0    | 9     | 9          | 0                        | 1    | 5     | 6          | 0                        | 0    | 0     | 0          | 19         |
| Grand Total | 4                        | 7    | 0     | 11         | 1                        | 0    | 15    | 16         | 0                        | 5    | 9     | 14         | 0                        | 0    | 0     | 0          | 41         |
| Apprch %    | 36.4                     | 63.6 | 0     |            | 6.2                      | 0    | 93.8  |            | 0                        | 35.7 | 64.3  |            | 0                        | 0    | 0     |            |            |
| Total %     | 9.8                      | 17.1 | 0     | 26.8       | 2.4                      | 0    | 36.6  | 39         | 0                        | 12.2 | 22    | 34.1       | 0                        | 0    | 0     | 0          |            |

| Start Time   | Hesperia Road Southbound |      |       |            | Nisqualli Road Westbound |      |       |            | Hesperia Road Northbound |      |       |            | Nisqualli Road Eastbound |      |       |            | Int. Total |
|--|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
|  | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                     | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1 |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                          |      |       |            |                          |      |       |            |                          |      |       |            |                          |      |       |            |            |
| 04:30 PM   | 0                        | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                        | 1    | 1     | 2          | 0                        | 0    | 0     | 0          | 4          |
| 04:45 PM   | 1                        | 1    | 0     | 2          | 1                        | 0    | 1     | 2          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 5          |
| 05:00 PM   | 0                        | 1    | 0     | 1          | 0                        | 0    | 5     | 5          | 0                        | 1    | 1     | 2          | 0                        | 0    | 0     | 0          | 8          |
| 05:15 PM   | 1                        | 0    | 0     | 1          | 0                        | 0    | 2     | 2          | 0                        | 0    | 1     | 1          | 0                        | 0    | 0     | 0          | 4          |
| Total Volume   | 2                        | 4    | 0     | 6          | 1                        | 0    | 8     | 9          | 0                        | 2    | 4     | 6          | 0                        | 0    | 0     | 0          | 21         |
| % App. Total   | 33.3                     | 66.7 | 0     |            | 11.1                     | 0    | 88.9  |            | 0                        | 33.3 | 66.7  |            | 0                        | 0    | 0     |            |            |
| PHF  | .500                     | .500 | .000  | .750       | .250                     | .000 | .400  | .450       | .000                     | .500 | 1.000 | .750       | .000                     | .000 | .000  | .000       | .656       |



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      |      | 04:30 PM |      |      |      | 04:30 PM |      |       |      | 04:30 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|-------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 1     | 2    | 0        | 0    | 0    | 0    |
| +15 mins.    | 1        | 1    | 0    | 2    | 1        | 0    | 1    | 2    | 0        | 0    | 1     | 1    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 5    | 5    | 0        | 1    | 1     | 2    | 0        | 0    | 0    | 0    |
| +45 mins.    | 1        | 0    | 0    | 1    | 0        | 0    | 2    | 2    | 0        | 0    | 1     | 1    | 0        | 0    | 0    | 0    |
| Total Volume | 2        | 4    | 0    | 6    | 1        | 0    | 8    | 9    | 0        | 2    | 4     | 6    | 0        | 0    | 0    | 0    |
| % App. Total | 33.3     | 66.7 | 0    |      | 11.1     | 0    | 88.9 |      | 0        | 33.3 | 66.7  |      | 0        | 0    | 0    |      |
| PHF          | .500     | .500 | .000 | .750 | .250     | .000 | .400 | .450 | .000     | .500 | 1.000 | .750 | .000     | .000 | .000 | .000 |



City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
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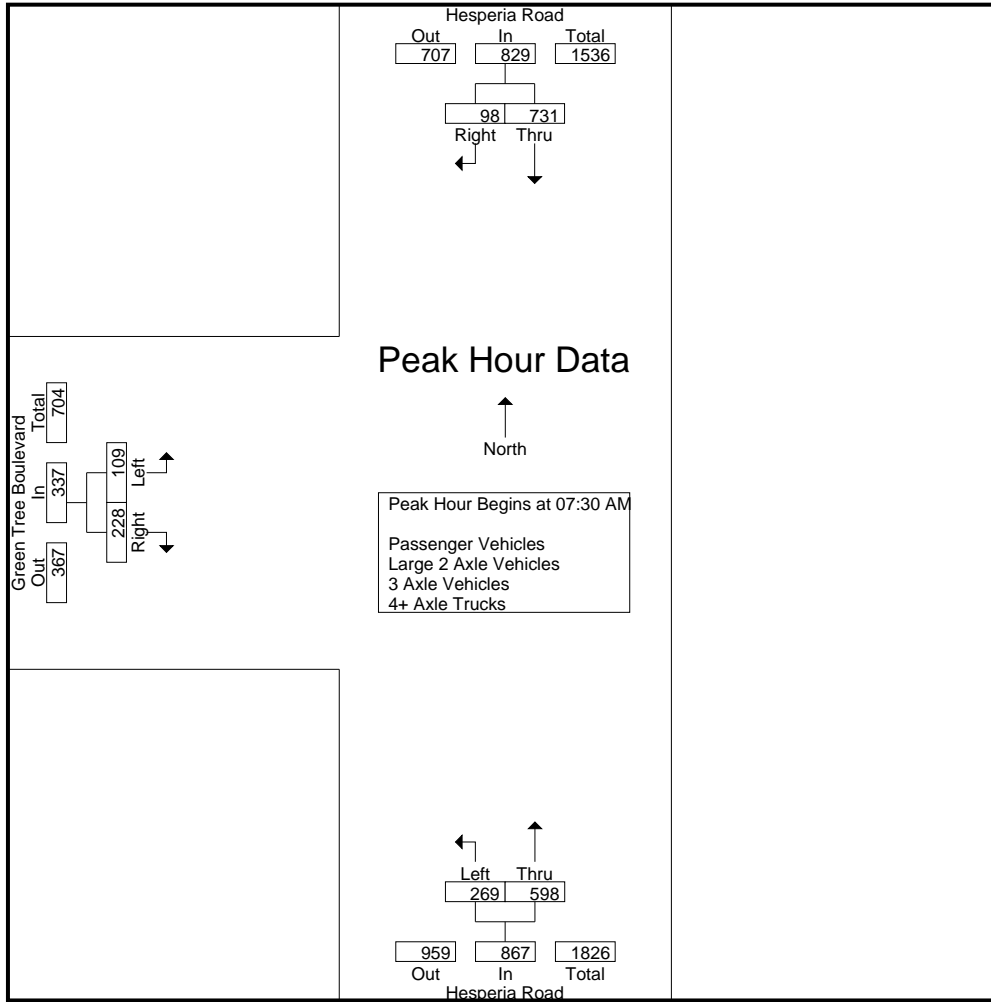
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Hesperia Road Southbound |             |           |             | Hesperia Road Northbound |             |             | Green Tree Boulevard Eastbound |             |            |             | Exclu. Total | Inclu. Total | Int. Total  |
|-------------------------|--------------------------|-------------|-----------|-------------|--------------------------|-------------|-------------|--------------------------------|-------------|------------|-------------|--------------|--------------|-------------|
|                         | Thru                     | Right       | RTOR      | App. Total  | Left                     | Thru        | App. Total  | Left                           | Right       | RTOR       | App. Total  |              |              |             |
| 07:00 AM                | 101                      | 25          | 5         | 126         | 58                       | 107         | 165         | 17                             | 41          | 16         | 58          | 21           | 349          | 370         |
| 07:15 AM                | 124                      | 28          | 9         | 152         | 74                       | 113         | 187         | 43                             | 39          | 17         | 82          | 26           | 421          | 447         |
| 07:30 AM                | 176                      | 34          | 12        | 210         | 61                       | 143         | 204         | 41                             | 49          | 21         | 90          | 33           | 504          | 537         |
| 07:45 AM                | 192                      | 22          | 9         | 214         | 68                       | 164         | 232         | 33                             | 70          | 24         | 103         | 33           | 549          | 582         |
| <b>Total</b>            | <b>593</b>               | <b>109</b>  | <b>35</b> | <b>702</b>  | <b>261</b>               | <b>527</b>  | <b>788</b>  | <b>134</b>                     | <b>199</b>  | <b>78</b>  | <b>333</b>  | <b>113</b>   | <b>1823</b>  | <b>1936</b> |
| 08:00 AM                | 166                      | 27          | 7         | 193         | 73                       | 150         | 223         | 18                             | 51          | 39         | 69          | 46           | 485          | 531         |
| 08:15 AM                | 197                      | 15          | 5         | 212         | 67                       | 141         | 208         | 17                             | 58          | 29         | 75          | 34           | 495          | 529         |
| 08:30 AM                | 185                      | 10          | 3         | 195         | 75                       | 157         | 232         | 15                             | 51          | 29         | 66          | 32           | 493          | 525         |
| 08:45 AM                | 213                      | 15          | 7         | 228         | 85                       | 146         | 231         | 20                             | 62          | 39         | 82          | 46           | 541          | 587         |
| <b>Total</b>            | <b>761</b>               | <b>67</b>   | <b>22</b> | <b>828</b>  | <b>300</b>               | <b>594</b>  | <b>894</b>  | <b>70</b>                      | <b>222</b>  | <b>136</b> | <b>292</b>  | <b>158</b>   | <b>2014</b>  | <b>2172</b> |
| <b>Grand Total</b>      | <b>1354</b>              | <b>176</b>  | <b>57</b> | <b>1530</b> | <b>561</b>               | <b>1121</b> | <b>1682</b> | <b>204</b>                     | <b>421</b>  | <b>214</b> | <b>625</b>  | <b>271</b>   | <b>3837</b>  | <b>4108</b> |
| <b>Apprch %</b>         | <b>88.5</b>              | <b>11.5</b> |           |             | <b>33.4</b>              | <b>66.6</b> |             | <b>32.6</b>                    | <b>67.4</b> |            |             |              |              |             |
| <b>Total %</b>          | <b>35.3</b>              | <b>4.6</b>  |           | <b>39.9</b> | <b>14.6</b>              | <b>29.2</b> | <b>43.8</b> | <b>5.3</b>                     | <b>11</b>   |            | <b>16.3</b> | <b>6.6</b>   | <b>93.4</b>  |             |
| Passenger Vehicles      | 1291                     | 166         |           | 1511        | 545                      | 1049        | 1594        | 192                            | 401         |            | 801         | 0            | 0            | 3906        |
| % Passenger Vehicles    | 95.3                     | 94.3        | 94.7      | 95.2        | 97.1                     | 93.6        | 94.8        | 94.1                           | 95.2        | 97.2       | 95.5        | 0            | 0            | 95.1        |
| Large 2 Axle Vehicles   | 42                       | 9           |           | 53          | 16                       | 58          | 74          | 12                             | 19          |            | 36          | 0            | 0            | 163         |
| % Large 2 Axle Vehicles | 3.1                      | 5.1         | 3.5       | 3.3         | 2.9                      | 5.2         | 4.4         | 5.9                            | 4.5         | 2.3        | 4.3         | 0            | 0            | 4           |
| 3 Axle Vehicles         | 11                       | 1           |           | 13          | 0                        | 7           | 7           | 0                              | 0           |            | 0           | 0            | 0            | 20          |
| % 3 Axle Vehicles       | 0.8                      | 0.6         | 1.8       | 0.8         | 0                        | 0.6         | 0.4         | 0                              | 0           | 0          | 0           | 0            | 0            | 0.5         |
| 4+ Axle Trucks          | 10                       | 0           |           | 10          | 0                        | 7           | 7           | 0                              | 1           |            | 2           | 0            | 0            | 19          |
| % 4+ Axle Trucks        | 0.7                      | 0           | 0         | 0.6         | 0                        | 0.6         | 0.4         | 0                              | 0.2         | 0.5        | 0.2         | 0            | 0            | 0.5         |

| Start Time   | Hesperia Road Southbound |           |            | Hesperia Road Northbound |            |            | Green Tree Boulevard Eastbound |           |            | Int. Total |
|--|--------------------------|-----------|------------|--------------------------|------------|------------|--------------------------------|-----------|------------|------------|
|  | Thru                     | Right     | App. Total | Left                     | Thru       | App. Total | Left                           | Right     | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                          |           |            |                          |            |            |                                |           |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                          |           |            |                          |            |            |                                |           |            |            |
| 07:30 AM   | 176                      | <b>34</b> | 210        | 61                       | 143        | 204        | <b>41</b>                      | 49        | 90         | 504        |
| 07:45 AM   | 192                      | 22        | <b>214</b> | 68                       | <b>164</b> | <b>232</b> | 33                             | <b>70</b> | <b>103</b> | <b>549</b> |
| 08:00 AM   | 166                      | 27        | 193        | <b>73</b>                | 150        | 223        | 18                             | 51        | 69         | 485        |
| 08:15 AM   | <b>197</b>               | 15        | 212        | 67                       | 141        | 208        | 17                             | 58        | 75         | 495        |
| Total Volume   | 731                      | 98        | 829        | 269                      | 598        | 867        | 109                            | 228       | 337        | 2033       |
| % App. Total   | 88.2                     | 11.8      |            | 31                       | 69         |            | 32.3                           | 67.7      |            |            |
| PHF  | .928                     | .721      | .968       | .921                     | .912       | .934       | .665                           | .814      | .818       | .926       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM   |           |            | 07:45 AM  |            |            | 07:15 AM  |           |            |
|--------------|------------|-----------|------------|-----------|------------|------------|-----------|-----------|------------|
| +0 mins.     | 176        | <b>34</b> | 210        | 68        | <b>164</b> | <b>232</b> | <b>43</b> | 39        | 82         |
| +15 mins.    | 192        | 22        | <b>214</b> | 73        | 150        | 223        | 41        | 49        | 90         |
| +30 mins.    | 166        | 27        | 193        | 67        | 141        | 208        | 33        | <b>70</b> | <b>103</b> |
| +45 mins.    | <b>197</b> | 15        | 212        | <b>75</b> | 157        | 232        | 18        | 51        | 69         |
| Total Volume | 731        | 98        | 829        | 283       | 612        | 895        | 135       | 209       | 344        |
| % App. Total | 88.2       | 11.8      |            | 31.6      | 68.4       |            | 39.2      | 60.8      |            |
| PHF          | .928       | .721      | .968       | .943      | .933       | .964       | .785      | .746      | .835       |

City of Victorville  
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 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

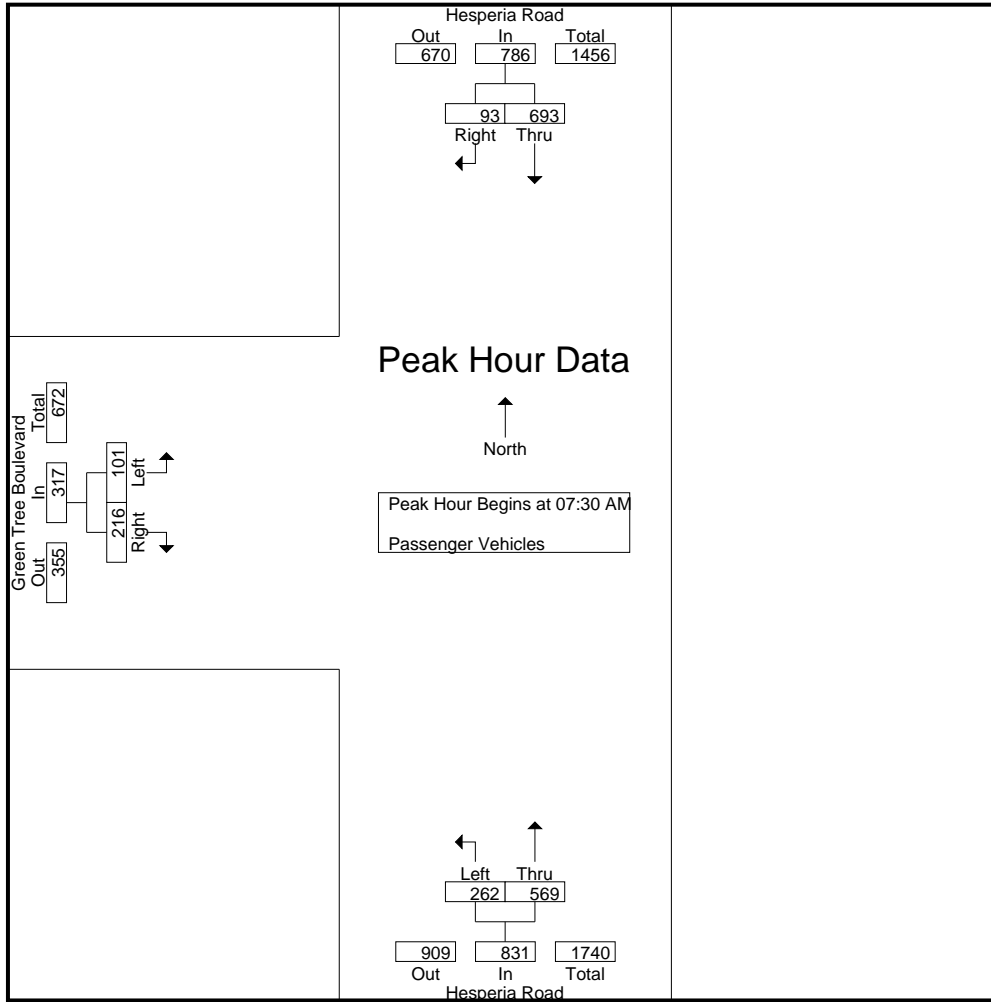
Groups Printed- Passenger Vehicles

| Start Time  | Hesperia Road Southbound |       |      |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |      |            | Exclu. Total | Inclu. Total | Int. Total |
|-------------|--------------------------|-------|------|------------|--------------------------|------|------------|--------------------------------|-------|------|------------|--------------|--------------|------------|
|             | Thru                     | Right | RTOR | App. Total | Left                     | Thru | App. Total | Left                           | Right | RTOR | App. Total |              |              |            |
| 07:00 AM    | 97                       | 23    | 4    | 120        | 56                       | 94   | 150        | 17                             | 39    | 16   | 56         | 20           | 326          | 346        |
| 07:15 AM    | 120                      | 25    | 8    | 145        | 69                       | 107  | 176        | 41                             | 35    | 15   | 76         | 23           | 397          | 420        |
| 07:30 AM    | 173                      | 34    | 12   | 207        | 59                       | 134  | 193        | 37                             | 48    | 21   | 85         | 33           | 485          | 518        |
| 07:45 AM    | 183                      | 21    | 9    | 204        | 68                       | 157  | 225        | 33                             | 66    | 23   | 99         | 32           | 528          | 560        |
| Total       | 573                      | 103   | 33   | 676        | 252                      | 492  | 744        | 128                            | 188   | 75   | 316        | 108          | 1736         | 1844       |
| 08:00 AM    | 164                      | 26    | 6    | 190        | 71                       | 144  | 215        | 14                             | 50    | 38   | 64         | 44           | 469          | 513        |
| 08:15 AM    | 173                      | 12    | 5    | 185        | 64                       | 134  | 198        | 17                             | 52    | 28   | 69         | 33           | 452          | 485        |
| 08:30 AM    | 180                      | 10    | 3    | 190        | 74                       | 150  | 224        | 14                             | 49    | 28   | 63         | 31           | 477          | 508        |
| 08:45 AM    | 201                      | 15    | 7    | 216        | 84                       | 129  | 213        | 19                             | 62    | 39   | 81         | 46           | 510          | 556        |
| Total       | 718                      | 63    | 21   | 781        | 293                      | 557  | 850        | 64                             | 213   | 133  | 277        | 154          | 1908         | 2062       |
| Grand Total | 1291                     | 166   | 54   | 1457       | 545                      | 1049 | 1594       | 192                            | 401   | 208  | 593        | 262          | 3644         | 3906       |
| Apprch %    | 88.6                     | 11.4  |      |            | 34.2                     | 65.8 |            | 32.4                           | 67.6  |      |            |              |              |            |
| Total %     | 35.4                     | 4.6   |      | 40         | 15                       | 28.8 | 43.7       | 5.3                            | 11    |      | 16.3       | 6.7          | 93.3         |            |

| Start Time   | Hesperia Road Southbound |           |            | Hesperia Road Northbound |            |            | Green Tree Boulevard Eastbound |           |            | Int. Total |
|--------------|--------------------------|-----------|------------|--------------------------|------------|------------|--------------------------------|-----------|------------|------------|
|              | Thru                     | Right     | App. Total | Left                     | Thru       | App. Total | Left                           | Right     | App. Total |            |
| 07:30 AM     | 173                      | <b>34</b> | <b>207</b> | 59                       | 134        | 193        | <b>37</b>                      | 48        | 85         | 485        |
| 07:45 AM     | <b>183</b>               | 21        | 204        | 68                       | <b>157</b> | <b>225</b> | 33                             | <b>66</b> | <b>99</b>  | <b>528</b> |
| 08:00 AM     | 164                      | 26        | 190        | <b>71</b>                | 144        | 215        | 14                             | 50        | 64         | 469        |
| 08:15 AM     | 173                      | 12        | 185        | 64                       | 134        | 198        | 17                             | 52        | 69         | 452        |
| Total Volume | 693                      | 93        | 786        | 262                      | 569        | 831        | 101                            | 216       | 317        | 1934       |
| % App. Total | 88.2                     | 11.8      |            | 31.5                     | 68.5       |            | 31.9                           | 68.1      |            |            |
| PHF          | .947                     | .684      | .949       | .923                     | .906       | .923       | .682                           | .818      | .801       | .916       |

City of Victorville  
 N/S: Hesperia Road  
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 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM   |           |            | 07:30 AM  |            |            | 07:30 AM  |           |           |
|--------------|------------|-----------|------------|-----------|------------|------------|-----------|-----------|-----------|
| +0 mins.     | 173        | <b>34</b> | <b>207</b> | 59        | 134        | 193        | <b>37</b> | 48        | 85        |
| +15 mins.    | <b>183</b> | 21        | 204        | 68        | <b>157</b> | <b>225</b> | 33        | <b>66</b> | <b>99</b> |
| +30 mins.    | 164        | 26        | 190        | <b>71</b> | 144        | 215        | 14        | 50        | 64        |
| +45 mins.    | 173        | 12        | 185        | 64        | 134        | 198        | 17        | 52        | 69        |
| Total Volume | 693        | 93        | 786        | 262       | 569        | 831        | 101       | 216       | 317       |
| % App. Total | 88.2       | 11.8      |            | 31.5      | 68.5       |            | 31.9      | 68.1      |           |
| PHF          | .947       | .684      | .949       | .923      | .906       | .923       | .682      | .818      | .801      |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

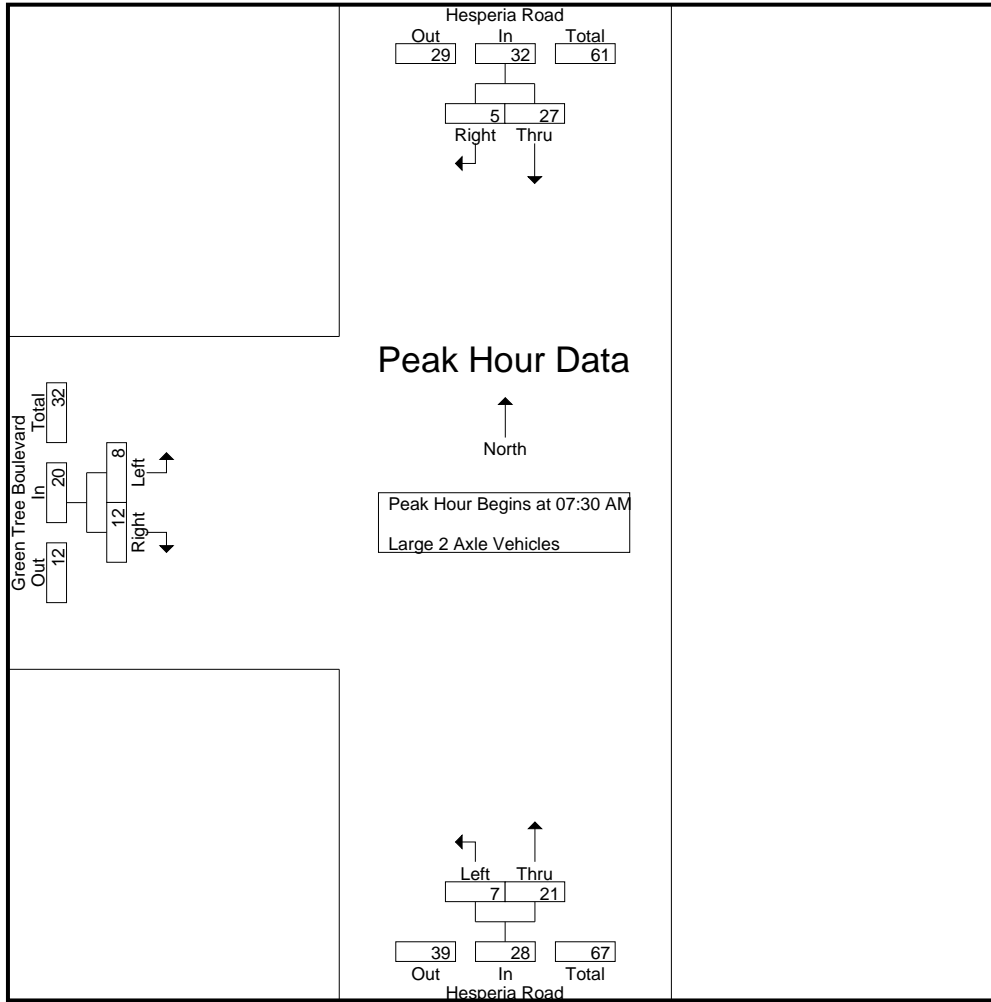
Groups Printed- Large 2 Axle Vehicles

| Start Time         | Hesperia Road Southbound |          |          |            | Hesperia Road Northbound |           |            | Green Tree Boulevard Eastbound |           |          |            | Exclu. Total | Inclu. Total | Int. Total |
|--------------------|--------------------------|----------|----------|------------|--------------------------|-----------|------------|--------------------------------|-----------|----------|------------|--------------|--------------|------------|
|                    | Thru                     | Right    | RTOR     | App. Total | Left                     | Thru      | App. Total | Left                           | Right     | RTOR     | App. Total |              |              |            |
| 07:00 AM           | 1                        | 1        | 0        | 2          | 2                        | 10        | 12         | 0                              | 2         | 0        | 2          | 0            | 16           | 16         |
| 07:15 AM           | 3                        | 3        | 1        | 6          | 5                        | 4         | 9          | 2                              | 3         | 1        | 5          | 2            | 20           | 22         |
| 07:30 AM           | 2                        | 0        | 0        | 2          | 2                        | 4         | 6          | 4                              | 1         | 0        | 5          | 0            | 13           | 13         |
| 07:45 AM           | 7                        | 1        | 0        | 8          | 0                        | 4         | 4          | 0                              | 4         | 1        | 4          | 1            | 16           | 17         |
| <b>Total</b>       | <b>13</b>                | <b>5</b> | <b>1</b> | <b>18</b>  | <b>9</b>                 | <b>22</b> | <b>31</b>  | <b>6</b>                       | <b>10</b> | <b>2</b> | <b>16</b>  | <b>3</b>     | <b>65</b>    | <b>68</b>  |
| 08:00 AM           | 1                        | 1        | 1        | 2          | 2                        | 6         | 8          | 4                              | 1         | 1        | 5          | 2            | 15           | 17         |
| 08:15 AM           | 17                       | 3        | 0        | 20         | 3                        | 7         | 10         | 0                              | 6         | 1        | 6          | 1            | 36           | 37         |
| 08:30 AM           | 4                        | 0        | 0        | 4          | 1                        | 6         | 7          | 1                              | 2         | 1        | 3          | 1            | 14           | 15         |
| 08:45 AM           | 7                        | 0        | 0        | 7          | 1                        | 17        | 18         | 1                              | 0         | 0        | 1          | 0            | 26           | 26         |
| <b>Total</b>       | <b>29</b>                | <b>4</b> | <b>1</b> | <b>33</b>  | <b>7</b>                 | <b>36</b> | <b>43</b>  | <b>6</b>                       | <b>9</b>  | <b>3</b> | <b>15</b>  | <b>4</b>     | <b>91</b>    | <b>95</b>  |
| <b>Grand Total</b> | <b>42</b>                | <b>9</b> | <b>2</b> | <b>51</b>  | <b>16</b>                | <b>58</b> | <b>74</b>  | <b>12</b>                      | <b>19</b> | <b>5</b> | <b>31</b>  | <b>7</b>     | <b>156</b>   | <b>163</b> |
| Apprch %           | 82.4                     | 17.6     |          |            | 21.6                     | 78.4      |            | 38.7                           | 61.3      |          |            |              |              |            |
| Total %            | 26.9                     | 5.8      |          | 32.7       | 10.3                     | 37.2      | 47.4       | 7.7                            | 12.2      |          | 19.9       | 4.3          | 95.7         |            |

| Start Time          | Hesperia Road Southbound |             |            | Hesperia Road Northbound |           |            | Green Tree Boulevard Eastbound |           |            | Int. Total |
|---------------------|--------------------------|-------------|------------|--------------------------|-----------|------------|--------------------------------|-----------|------------|------------|
|                     | Thru                     | Right       | App. Total | Left                     | Thru      | App. Total | Left                           | Right     | App. Total |            |
| 07:30 AM            | 2                        | 0           | 2          | 2                        | 4         | 6          | 4                              | 1         | 5          | 13         |
| 07:45 AM            | 7                        | 1           | 8          | 0                        | 4         | 4          | 0                              | 4         | 4          | 16         |
| 08:00 AM            | 1                        | 1           | 2          | 2                        | 6         | 8          | 4                              | 1         | 5          | 15         |
| 08:15 AM            | 17                       | 3           | 20         | 3                        | 7         | 10         | 0                              | 6         | 6          | 36         |
| <b>Total Volume</b> | <b>27</b>                | <b>5</b>    | <b>32</b>  | <b>7</b>                 | <b>21</b> | <b>28</b>  | <b>8</b>                       | <b>12</b> | <b>20</b>  | <b>80</b>  |
| <b>% App. Total</b> | <b>84.4</b>              | <b>15.6</b> |            | <b>25</b>                | <b>75</b> |            | <b>40</b>                      | <b>60</b> |            |            |
| PHF                 | .397                     | .417        | .400       | .583                     | .750      | .700       | .500                           | .500      | .833       | .556       |

City of Victorville  
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File Name : VIC\_Hesp\_Green AM  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 0    | 2    | 2        | 4    | 6    | 4        | 1    | 5    |
| +15 mins.    | 7        | 1    | 8    | 0        | 4    | 4    | 0        | 4    | 4    |
| +30 mins.    | 1        | 1    | 2    | 2        | 6    | 8    | 4        | 1    | 5    |
| +45 mins.    | 17       | 3    | 20   | 3        | 7    | 10   | 0        | 6    | 6    |
| Total Volume | 27       | 5    | 32   | 7        | 21   | 28   | 8        | 12   | 20   |
| % App. Total | 84.4     | 15.6 |      | 25       | 75   |      | 40       | 60   |      |
| PHF          | .397     | .417 | .400 | .583     | .750 | .700 | .500     | .500 | .833 |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

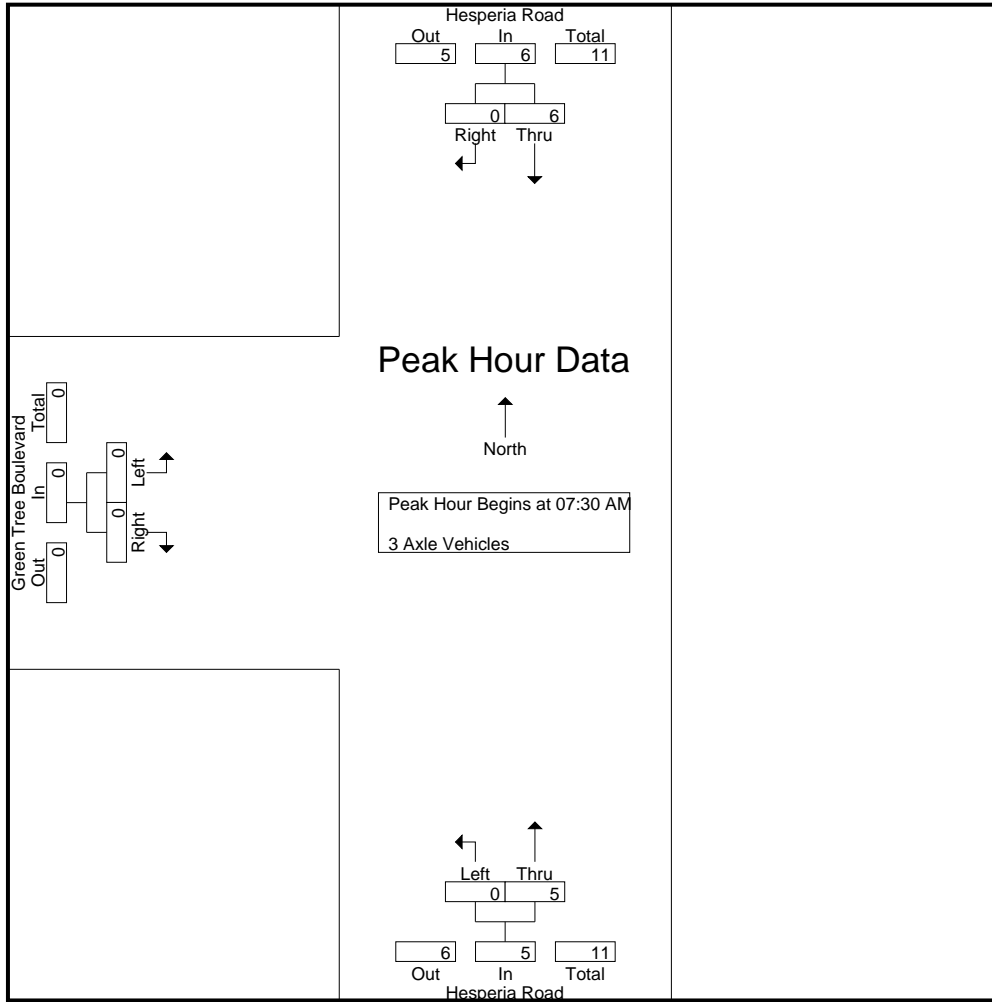
Groups Printed- 3 Axle Vehicles

| Start Time  | Hesperia Road Southbound |       |      |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |      |            | Exclu. Total | Inclu. Total | Int. Total |
|-------------|--------------------------|-------|------|------------|--------------------------|------|------------|--------------------------------|-------|------|------------|--------------|--------------|------------|
|             | Thru                     | Right | RTOR | App. Total | Left                     | Thru | App. Total | Left                           | Right | RTOR | App. Total |              |              |            |
| 07:00 AM    | 2                        | 1     | 1    | 3          | 0                        | 1    | 1          | 0                              | 0     | 0    | 0          | 1            | 4            | 5          |
| 07:15 AM    | 0                        | 0     | 0    | 0          | 0                        | 1    | 1          | 0                              | 0     | 0    | 0          | 0            | 1            | 1          |
| 07:30 AM    | 0                        | 0     | 0    | 0          | 0                        | 2    | 2          | 0                              | 0     | 0    | 0          | 0            | 2            | 2          |
| 07:45 AM    | 1                        | 0     | 0    | 1          | 0                        | 3    | 3          | 0                              | 0     | 0    | 0          | 0            | 4            | 4          |
| Total       | 3                        | 1     | 1    | 4          | 0                        | 7    | 7          | 0                              | 0     | 0    | 0          | 1            | 11           | 12         |
| 08:00 AM    | 1                        | 0     | 0    | 1          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 1            | 1          |
| 08:15 AM    | 4                        | 0     | 0    | 4          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 4            | 4          |
| 08:30 AM    | 1                        | 0     | 0    | 1          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 1            | 1          |
| 08:45 AM    | 2                        | 0     | 0    | 2          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 2            | 2          |
| Total       | 8                        | 0     | 0    | 8          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 8            | 8          |
| Grand Total | 11                       | 1     | 1    | 12         | 0                        | 7    | 7          | 0                              | 0     | 0    | 0          | 1            | 19           | 20         |
| Apprch %    | 91.7                     | 8.3   |      |            | 0                        | 100  |            | 0                              | 0     |      |            |              |              |            |
| Total %     | 57.9                     | 5.3   |      | 63.2       | 0                        | 36.8 | 36.8       | 0                              | 0     |      | 0          | 5            | 95           |            |

| Start Time   | Hesperia Road Southbound |       |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |            | Int. Total |
|--------------|--------------------------|-------|------------|--------------------------|------|------------|--------------------------------|-------|------------|------------|
|              | Thru                     | Right | App. Total | Left                     | Thru | App. Total | Left                           | Right | App. Total |            |
| 07:30 AM     | 0                        | 0     | 0          | 0                        | 2    | 2          | 0                              | 0     | 0          | 2          |
| 07:45 AM     | 1                        | 0     | 1          | 0                        | 3    | 3          | 0                              | 0     | 0          | 4          |
| 08:00 AM     | 1                        | 0     | 1          | 0                        | 0    | 0          | 0                              | 0     | 0          | 1          |
| 08:15 AM     | 4                        | 0     | 4          | 0                        | 0    | 0          | 0                              | 0     | 0          | 4          |
| Total Volume | 6                        | 0     | 6          | 0                        | 5    | 5          | 0                              | 0     | 0          | 11         |
| % App. Total | 100                      | 0     |            | 0                        | 100  |            | 0                              | 0     |            |            |
| PHF          | .375                     | .000  | .375       | .000                     | .417 | .417       | .000                           | .000  | .000       | .688       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 2    | 2    | 0        | 0    | 0    |
| +15 mins.    | 1        | 0    | 1    | 0        | 3    | 3    | 0        | 0    | 0    |
| +30 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +45 mins.    | 4        | 0    | 4    | 0        | 0    | 0    | 0        | 0    | 0    |
| Total Volume | 6        | 0    | 6    | 0        | 5    | 5    | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .375     | .000 | .375 | .000     | .417 | .417 | .000     | .000 | .000 |



City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

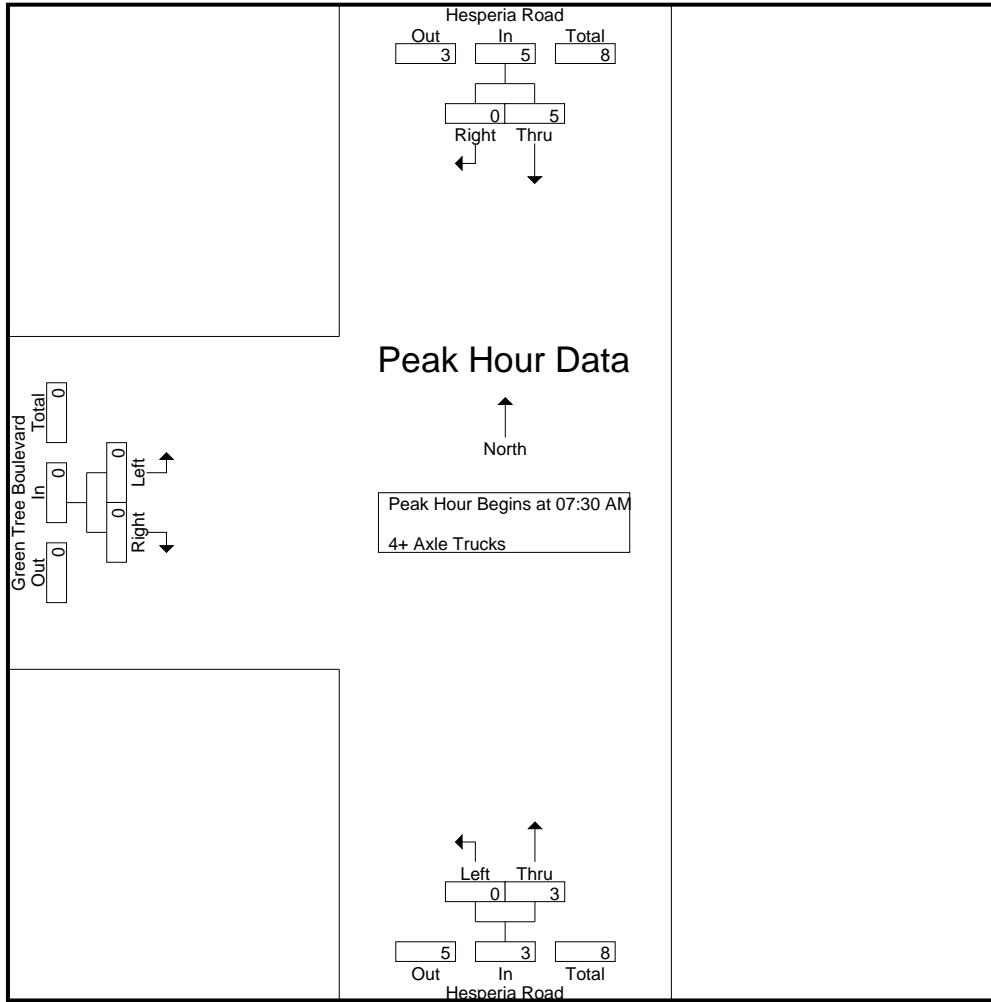
Groups Printed- 4+ Axle Trucks

| Start Time  | Hesperia Road Southbound |       |      |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |      |            | Exclu. Total | Inclu. Total | Int. Total |    |
|-------------|--------------------------|-------|------|------------|--------------------------|------|------------|--------------------------------|-------|------|------------|--------------|--------------|------------|----|
|             | Thru                     | Right | RTOR | App. Total | Left                     | Thru | App. Total | Left                           | Right | RTOR | App. Total |              |              |            |    |
| 07:00 AM    | 1                        | 0     | 0    | 1          | 0                        | 2    | 2          | 0                              | 0     | 0    | 0          | 0            | 0            | 3          | 3  |
| 07:15 AM    | 1                        | 0     | 0    | 1          | 0                        | 1    | 1          | 0                              | 1     | 1    | 1          | 1            | 1            | 3          | 4  |
| 07:30 AM    | 1                        | 0     | 0    | 1          | 0                        | 3    | 3          | 0                              | 0     | 0    | 0          | 0            | 0            | 4          | 4  |
| 07:45 AM    | 1                        | 0     | 0    | 1          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 1          | 1  |
| Total       | 4                        | 0     | 0    | 4          | 0                        | 6    | 6          | 0                              | 1     | 1    | 1          | 1            | 1            | 11         | 12 |
| 08:00 AM    | 0                        | 0     | 0    | 0          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 0          | 0  |
| 08:15 AM    | 3                        | 0     | 0    | 3          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 3          | 3  |
| 08:30 AM    | 0                        | 0     | 0    | 0          | 0                        | 1    | 1          | 0                              | 0     | 0    | 0          | 0            | 0            | 1          | 1  |
| 08:45 AM    | 3                        | 0     | 0    | 3          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 3          | 3  |
| Total       | 6                        | 0     | 0    | 6          | 0                        | 1    | 1          | 0                              | 0     | 0    | 0          | 0            | 0            | 7          | 7  |
| Grand Total | 10                       | 0     | 0    | 10         | 0                        | 7    | 7          | 0                              | 1     | 1    | 1          | 1            | 1            | 18         | 19 |
| Apprch %    | 100                      | 0     |      |            | 0                        | 100  |            | 0                              | 100   |      |            |              |              |            |    |
| Total %     | 55.6                     | 0     |      | 55.6       | 0                        | 38.9 | 38.9       | 0                              | 5.6   |      | 5.6        | 5.3          | 94.7         |            |    |

| Start Time   | Hesperia Road Southbound |       |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |            | Int. Total |
|--------------|--------------------------|-------|------------|--------------------------|------|------------|--------------------------------|-------|------------|------------|
|              | Thru                     | Right | App. Total | Left                     | Thru | App. Total | Left                           | Right | App. Total |            |
| 07:30 AM     | 1                        | 0     | 1          | 0                        | 3    | 3          | 0                              | 0     | 0          | 4          |
| 07:45 AM     | 1                        | 0     | 1          | 0                        | 0    | 0          | 0                              | 0     | 0          | 1          |
| 08:00 AM     | 0                        | 0     | 0          | 0                        | 0    | 0          | 0                              | 0     | 0          | 0          |
| 08:15 AM     | 3                        | 0     | 3          | 0                        | 0    | 0          | 0                              | 0     | 0          | 3          |
| Total Volume | 5                        | 0     | 5          | 0                        | 3    | 3          | 0                              | 0     | 0          | 8          |
| % App. Total | 100                      | 0     |            | 0                        | 100  |            | 0                              | 0     |            |            |
| PHF          | .417                     | .000  | .417       | .000                     | .250 | .250       | .000                           | .000  | .000       | .500       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green AM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 1        | 0    | 1    | 0        | 3    | 3    | 0        | 0    | 0    |
| +15 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +30 mins.    | 0        | 0    | 0    | 0        | 0    | 0    | 0        | 0    | 0    |
| +45 mins.    | 3        | 0    | 3    | 0        | 0    | 0    | 0        | 0    | 0    |
| Total Volume | 5        | 0    | 5    | 0        | 3    | 3    | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .417     | .000 | .417 | .000     | .250 | .250 | .000     | .000 | .000 |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

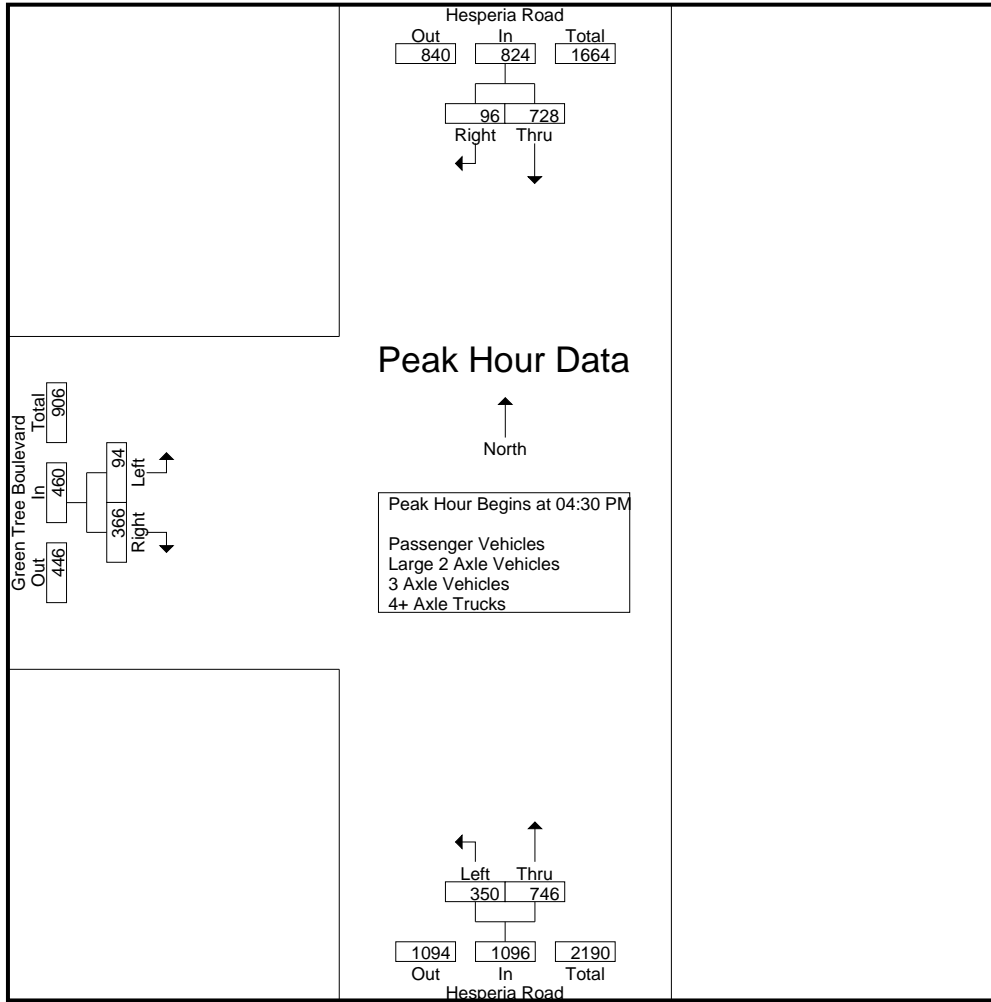
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Hesperia Road Southbound |       |      |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |      |            | Exclu. Total | Inclu. Total | Int. Total |
|-------------------------|--------------------------|-------|------|------------|--------------------------|------|------------|--------------------------------|-------|------|------------|--------------|--------------|------------|
|                         | Thru                     | Right | RTOR | App. Total | Left                     | Thru | App. Total | Left                           | Right | RTOR | App. Total |              |              |            |
| 04:00 PM                | 195                      | 22    | 1    | 217        | 95                       | 184  | 279        | 28                             | 68    | 38   | 96         | 39           | 592          | 631        |
| 04:15 PM                | 185                      | 27    | 13   | 212        | 75                       | 168  | 243        | 31                             | 98    | 17   | 129        | 30           | 584          | 614        |
| 04:30 PM                | 183                      | 36    | 6    | 219        | 96                       | 215  | 311        | 21                             | 86    | 32   | 107        | 38           | 637          | 675        |
| 04:45 PM                | 157                      | 18    | 6    | 175        | 86                       | 162  | 248        | 24                             | 95    | 37   | 119        | 43           | 542          | 585        |
| Total                   | 720                      | 103   | 26   | 823        | 352                      | 729  | 1081       | 104                            | 347   | 124  | 451        | 150          | 2355         | 2505       |
| 05:00 PM                | 200                      | 20    | 5    | 220        | 63                       | 181  | 244        | 29                             | 95    | 39   | 124        | 44           | 588          | 632        |
| 05:15 PM                | 188                      | 22    | 5    | 210        | 105                      | 188  | 293        | 20                             | 90    | 51   | 110        | 56           | 613          | 669        |
| 05:30 PM                | 166                      | 20    | 6    | 186        | 48                       | 156  | 204        | 20                             | 79    | 40   | 99         | 46           | 489          | 535        |
| 05:45 PM                | 126                      | 18    | 7    | 144        | 61                       | 158  | 219        | 14                             | 89    | 44   | 103        | 51           | 466          | 517        |
| Total                   | 680                      | 80    | 23   | 760        | 277                      | 683  | 960        | 83                             | 353   | 174  | 436        | 197          | 2156         | 2353       |
| Grand Total             | 1400                     | 183   | 49   | 1583       | 629                      | 1412 | 2041       | 187                            | 700   | 298  | 887        | 347          | 4511         | 4858       |
| Apprch %                | 88.4                     | 11.6  |      |            | 30.8                     | 69.2 |            | 21.1                           | 78.9  |      |            |              |              |            |
| Total %                 | 31                       | 4.1   |      | 35.1       | 13.9                     | 31.3 | 45.2       | 4.1                            | 15.5  |      | 19.7       | 7.1          | 92.9         |            |
| Passenger Vehicles      | 1353                     | 179   |      | 1581       | 617                      | 1379 | 1996       | 182                            | 689   |      | 1167       | 0            | 0            | 4744       |
| % Passenger Vehicles    | 96.6                     | 97.8  | 100  | 96.9       | 98.1                     | 97.7 | 97.8       | 97.3                           | 98.4  | 99.3 | 98.5       | 0            | 0            | 97.7       |
| Large 2 Axle Vehicles   | 24                       | 4     |      | 28         | 9                        | 23   | 32         | 3                              | 11    |      | 16         | 0            | 0            | 76         |
| % Large 2 Axle Vehicles | 1.7                      | 2.2   | 0    | 1.7        | 1.4                      | 1.6  | 1.6        | 1.6                            | 1.6   | 0.7  | 1.4        | 0            | 0            | 1.6        |
| 3 Axle Vehicles         | 7                        | 0     |      | 7          | 0                        | 4    | 4          | 1                              | 0     |      | 1          | 0            | 0            | 12         |
| % 3 Axle Vehicles       | 0.5                      | 0     | 0    | 0.4        | 0                        | 0.3  | 0.2        | 0.5                            | 0     | 0    | 0.1        | 0            | 0            | 0.2        |
| 4+ Axle Trucks          | 16                       | 0     |      | 16         | 3                        | 6    | 9          | 1                              | 0     |      | 1          | 0            | 0            | 26         |
| % 4+ Axle Trucks        | 1.1                      | 0     | 0    | 1          | 0.5                      | 0.4  | 0.4        | 0.5                            | 0     | 0    | 0.1        | 0            | 0            | 0.5        |

| Start Time   | Hesperia Road Southbound |       |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |            | Int. Total |
|--|--------------------------|-------|------------|--------------------------|------|------------|--------------------------------|-------|------------|------------|
|  | Thru                     | Right | App. Total | Left                     | Thru | App. Total | Left                           | Right | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                          |       |            |                          |      |            |                                |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                          |       |            |                          |      |            |                                |       |            |            |
| 04:30 PM   | 183                      | 36    | 219        | 96                       | 215  | 311        | 21                             | 86    | 107        | 637        |
| 04:45 PM   | 157                      | 18    | 175        | 86                       | 162  | 248        | 24                             | 95    | 119        | 542        |
| 05:00 PM   | 200                      | 20    | 220        | 63                       | 181  | 244        | 29                             | 95    | 124        | 588        |
| 05:15 PM   | 188                      | 22    | 210        | 105                      | 188  | 293        | 20                             | 90    | 110        | 613        |
| Total Volume   | 728                      | 96    | 824        | 350                      | 746  | 1096       | 94                             | 366   | 460        | 2380       |
| % App. Total   | 88.3                     | 11.7  |            | 31.9                     | 68.1 |            | 20.4                           | 79.6  |            |            |
| PHF  | .910                     | .667  | .936       | .833                     | .867 | .881       | .810                           | .963  | .927       | .934       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:15 PM   |           |            | 04:30 PM   |            |            | 04:45 PM  |           |            |
|--------------|------------|-----------|------------|------------|------------|------------|-----------|-----------|------------|
| +0 mins.     | 185        | 27        | 212        | 96         | <b>215</b> | <b>311</b> | <b>31</b> | <b>98</b> | <b>129</b> |
| +15 mins.    | 183        | <b>36</b> | 219        | 86         | 162        | 248        | 21        | 86        | 107        |
| +30 mins.    | 157        | 18        | 175        | 63         | 181        | 244        | 24        | 95        | 119        |
| +45 mins.    | <b>200</b> | 20        | <b>220</b> | <b>105</b> | 188        | 293        | 29        | 95        | 124        |
| Total Volume | 725        | 101       | 826        | 350        | 746        | 1096       | 105       | 374       | 479        |
| % App. Total | 87.8       | 12.2      |            | 31.9       | 68.1       |            | 21.9      | 78.1      |            |
| PHF          | .906       | .701      | .939       | .833       | .867       | .881       | .847      | .954      | .928       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

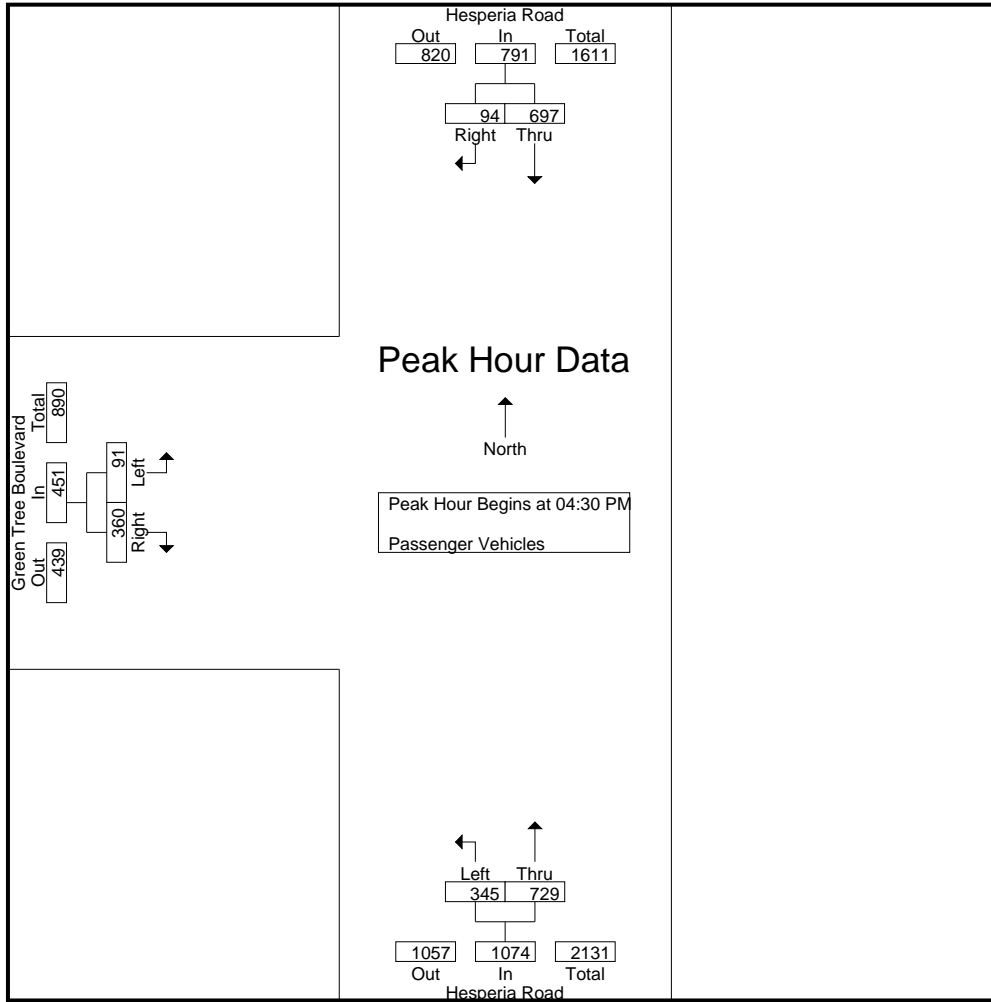
Groups Printed- Passenger Vehicles

| Start Time  | Hesperia Road Southbound |       |      |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |      |            | Exclu. Total | Inclu. Total | Int. Total |
|-------------|--------------------------|-------|------|------------|--------------------------|------|------------|--------------------------------|-------|------|------------|--------------|--------------|------------|
|             | Thru                     | Right | RTOR | App. Total | Left                     | Thru | App. Total | Left                           | Right | RTOR | App. Total |              |              |            |
| 04:00 PM    | 189                      | 21    | 1    | 210        | 95                       | 178  | 273        | 28                             | 68    | 38   | 96         | 39           | 579          | 618        |
| 04:15 PM    | 179                      | 26    | 13   | 205        | 73                       | 162  | 235        | 29                             | 97    | 17   | 126        | 30           | 566          | 596        |
| 04:30 PM    | 178                      | 35    | 6    | 213        | 96                       | 207  | 303        | 21                             | 86    | 32   | 107        | 38           | 623          | 661        |
| 04:45 PM    | 146                      | 18    | 6    | 164        | 84                       | 161  | 245        | 24                             | 94    | 37   | 118        | 43           | 527          | 570        |
| Total       | 692                      | 100   | 26   | 792        | 348                      | 708  | 1056       | 102                            | 345   | 124  | 447        | 150          | 2295         | 2445       |
| 05:00 PM    | 190                      | 20    | 5    | 210        | 61                       | 174  | 235        | 28                             | 94    | 39   | 122        | 44           | 567          | 611        |
| 05:15 PM    | 183                      | 21    | 5    | 204        | 104                      | 187  | 291        | 18                             | 86    | 51   | 104        | 56           | 599          | 655        |
| 05:30 PM    | 165                      | 20    | 6    | 185        | 47                       | 154  | 201        | 20                             | 77    | 39   | 97         | 45           | 483          | 528        |
| 05:45 PM    | 123                      | 18    | 7    | 141        | 57                       | 156  | 213        | 14                             | 87    | 43   | 101        | 50           | 455          | 505        |
| Total       | 661                      | 79    | 23   | 740        | 269                      | 671  | 940        | 80                             | 344   | 172  | 424        | 195          | 2104         | 2299       |
| Grand Total | 1353                     | 179   | 49   | 1532       | 617                      | 1379 | 1996       | 182                            | 689   | 296  | 871        | 345          | 4399         | 4744       |
| Apprch %    | 88.3                     | 11.7  |      |            | 30.9                     | 69.1 |            | 20.9                           | 79.1  |      |            |              |              |            |
| Total %     | 30.8                     | 4.1   |      | 34.8       | 14                       | 31.3 | 45.4       | 4.1                            | 15.7  |      | 19.8       | 7.3          | 92.7         |            |

| Start Time   | Hesperia Road Southbound |           |            | Hesperia Road Northbound |            |            | Green Tree Boulevard Eastbound |           |            | Int. Total |
|--------------|--------------------------|-----------|------------|--------------------------|------------|------------|--------------------------------|-----------|------------|------------|
|              | Thru                     | Right     | App. Total | Left                     | Thru       | App. Total | Left                           | Right     | App. Total |            |
| 04:30 PM     | 178                      | <b>35</b> | <b>213</b> | 96                       | <b>207</b> | <b>303</b> | 21                             | 86        | 107        | <b>623</b> |
| 04:45 PM     | 146                      | 18        | 164        | 84                       | 161        | 245        | 24                             | <b>94</b> | 118        | 527        |
| 05:00 PM     | <b>190</b>               | 20        | 210        | 61                       | 174        | 235        | <b>28</b>                      | 94        | <b>122</b> | 567        |
| 05:15 PM     | 183                      | 21        | 204        | <b>104</b>               | 187        | 291        | 18                             | 86        | 104        | 599        |
| Total Volume | 697                      | 94        | 791        | 345                      | 729        | 1074       | 91                             | 360       | 451        | 2316       |
| % App. Total | 88.1                     | 11.9      |            | 32.1                     | 67.9       |            | 20.2                           | 79.8      |            |            |
| PHF          | .917                     | .671      | .928       | .829                     | .880       | .886       | .813                           | .957      | .924       | .929       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM   |           |            | 04:30 PM   |            |            | 04:30 PM  |           |            |
|--------------|------------|-----------|------------|------------|------------|------------|-----------|-----------|------------|
| +0 mins.     | 178        | <b>35</b> | <b>213</b> | 96         | <b>207</b> | <b>303</b> | 21        | 86        | 107        |
| +15 mins.    | 146        | 18        | 164        | 84         | 161        | 245        | 24        | <b>94</b> | 118        |
| +30 mins.    | <b>190</b> | 20        | 210        | 61         | 174        | 235        | <b>28</b> | 94        | <b>122</b> |
| +45 mins.    | 183        | 21        | 204        | <b>104</b> | 187        | 291        | 18        | 86        | 104        |
| Total Volume | 697        | 94        | 791        | 345        | 729        | 1074       | 91        | 360       | 451        |
| % App. Total | 88.1       | 11.9      |            | 32.1       | 67.9       |            | 20.2      | 79.8      |            |
| PHF          | .917       | .671      | .928       | .829       | .880       | .886       | .813      | .957      | .924       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

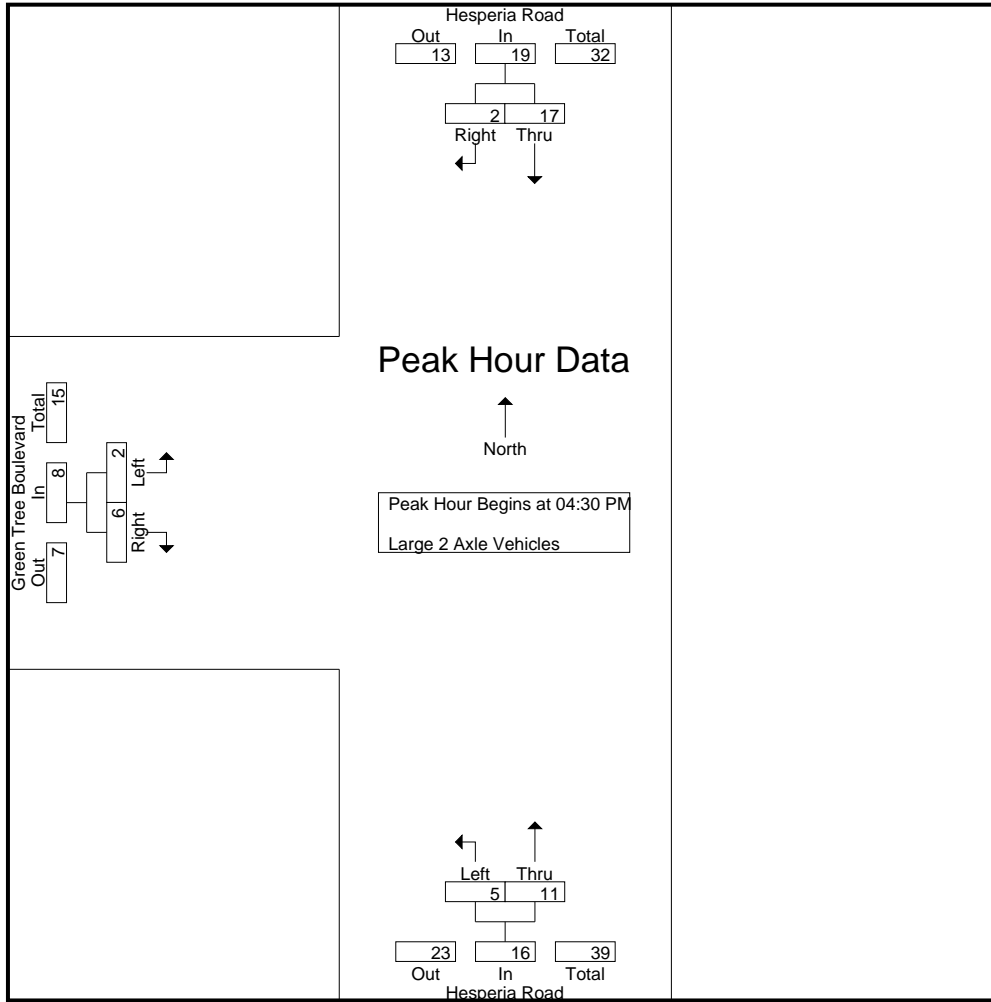
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Hesperia Road Southbound |       |      |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |      |            | Exclu. Total | Inclu. Total | Int. Total |
|-------------|--------------------------|-------|------|------------|--------------------------|------|------------|--------------------------------|-------|------|------------|--------------|--------------|------------|
|             | Thru                     | Right | RTOR | App. Total | Left                     | Thru | App. Total | Left                           | Right | RTOR | App. Total |              |              |            |
| 04:00 PM    | 2                        | 1     | 0    | 3          | 0                        | 6    | 6          | 0                              | 0     | 0    | 0          | 0            | 9            | 9          |
| 04:15 PM    | 2                        | 1     | 0    | 3          | 1                        | 3    | 4          | 1                              | 1     | 0    | 2          | 0            | 9            | 9          |
| 04:30 PM    | 2                        | 1     | 0    | 3          | 0                        | 6    | 6          | 0                              | 0     | 0    | 0          | 0            | 9            | 9          |
| 04:45 PM    | 7                        | 0     | 0    | 7          | 2                        | 0    | 2          | 0                              | 1     | 0    | 1          | 0            | 10           | 10         |
| Total       | 13                       | 3     | 0    | 16         | 3                        | 15   | 18         | 1                              | 2     | 0    | 3          | 0            | 37           | 37         |
| 05:00 PM    | 5                        | 0     | 0    | 5          | 2                        | 5    | 7          | 1                              | 1     | 0    | 2          | 0            | 14           | 14         |
| 05:15 PM    | 3                        | 1     | 0    | 4          | 1                        | 0    | 1          | 1                              | 4     | 0    | 5          | 0            | 10           | 10         |
| 05:30 PM    | 0                        | 0     | 0    | 0          | 1                        | 2    | 3          | 0                              | 2     | 1    | 2          | 1            | 5            | 6          |
| 05:45 PM    | 3                        | 0     | 0    | 3          | 2                        | 1    | 3          | 0                              | 2     | 1    | 2          | 1            | 8            | 9          |
| Total       | 11                       | 1     | 0    | 12         | 6                        | 8    | 14         | 2                              | 9     | 2    | 11         | 2            | 37           | 39         |
| Grand Total | 24                       | 4     | 0    | 28         | 9                        | 23   | 32         | 3                              | 11    | 2    | 14         | 2            | 74           | 76         |
| Apprch %    | 85.7                     | 14.3  |      |            | 28.1                     | 71.9 |            | 21.4                           | 78.6  |      |            |              |              |            |
| Total %     | 32.4                     | 5.4   |      | 37.8       | 12.2                     | 31.1 | 43.2       | 4.1                            | 14.9  |      | 18.9       | 2.6          | 97.4         |            |

| Start Time   | Hesperia Road Southbound |       |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |            | Int. Total |
|--------------|--------------------------|-------|------------|--------------------------|------|------------|--------------------------------|-------|------------|------------|
|              | Thru                     | Right | App. Total | Left                     | Thru | App. Total | Left                           | Right | App. Total |            |
| 04:30 PM     | 2                        | 1     | 3          | 0                        | 6    | 6          | 0                              | 0     | 0          | 9          |
| 04:45 PM     | 7                        | 0     | 7          | 2                        | 0    | 2          | 0                              | 1     | 1          | 10         |
| 05:00 PM     | 5                        | 0     | 5          | 2                        | 5    | 7          | 1                              | 1     | 2          | 14         |
| 05:15 PM     | 3                        | 1     | 4          | 1                        | 0    | 1          | 1                              | 4     | 5          | 10         |
| Total Volume | 17                       | 2     | 19         | 5                        | 11   | 16         | 2                              | 6     | 8          | 43         |
| % App. Total | 89.5                     | 10.5  |            | 31.2                     | 68.8 |            | 25                             | 75    |            |            |
| PHF          | .607                     | .500  | .679       | .625                     | .458 | .571       | .500                           | .375  | .400       | .768       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 1    | 3    | 0        | 6    | 6    | 0        | 0    | 0    |
| +15 mins.    | 7        | 0    | 7    | 2        | 0    | 2    | 0        | 1    | 1    |
| +30 mins.    | 5        | 0    | 5    | 2        | 5    | 7    | 1        | 1    | 2    |
| +45 mins.    | 3        | 1    | 4    | 1        | 0    | 1    | 1        | 4    | 5    |
| Total Volume | 17       | 2    | 19   | 5        | 11   | 16   | 2        | 6    | 8    |
| % App. Total | 89.5     | 10.5 |      | 31.2     | 68.8 |      | 25       | 75   |      |
| PHF          | .607     | .500 | .679 | .625     | .458 | .571 | .500     | .375 | .400 |



City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

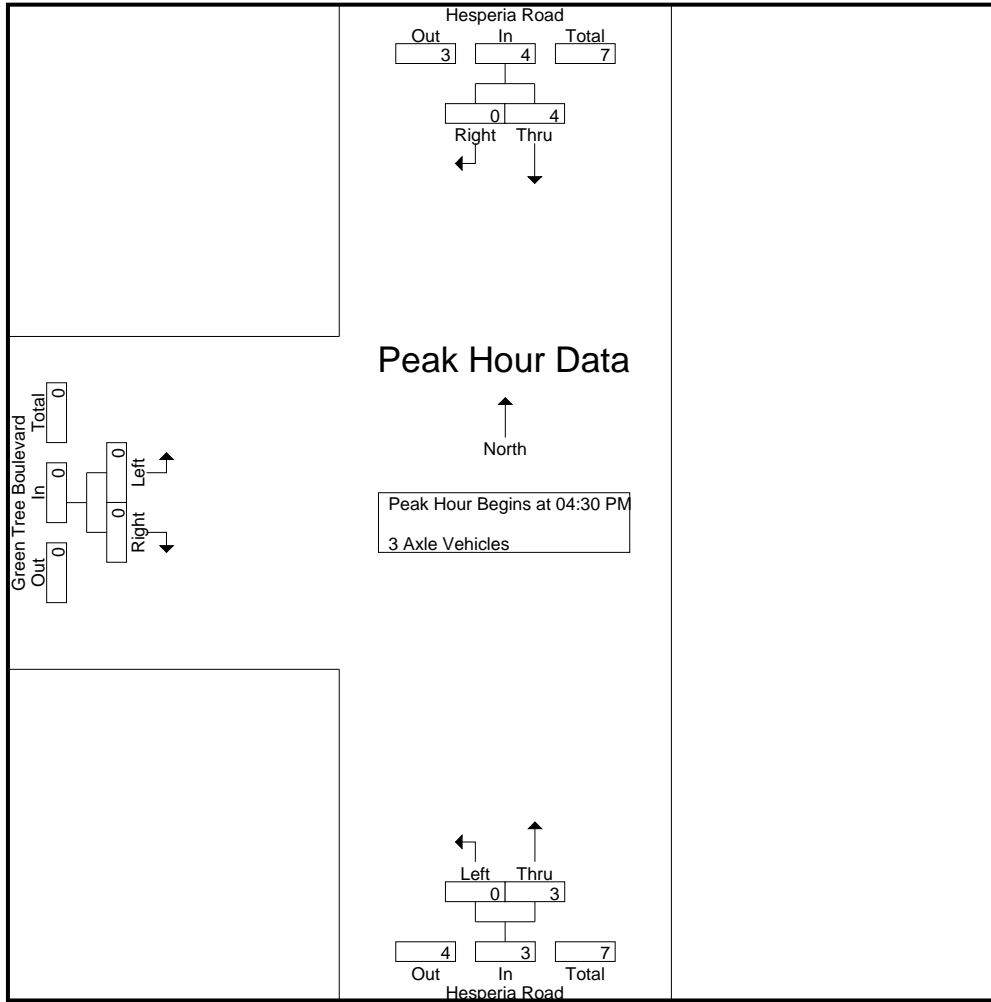
Groups Printed- 3 Axle Vehicles

| Start Time  | Hesperia Road Southbound |       |      |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |      |            | Exclu. Total | Inclu. Total | Int. Total |    |
|-------------|--------------------------|-------|------|------------|--------------------------|------|------------|--------------------------------|-------|------|------------|--------------|--------------|------------|----|
|             | Thru                     | Right | RTOR | App. Total | Left                     | Thru | App. Total | Left                           | Right | RTOR | App. Total |              |              |            |    |
| 04:00 PM    | 1                        | 0     | 0    | 1          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 1          | 1  |
| 04:15 PM    | 2                        | 0     | 0    | 2          | 0                        | 1    | 1          | 1                              | 0     | 0    | 1          | 0            | 0            | 4          | 4  |
| 04:30 PM    | 2                        | 0     | 0    | 2          | 0                        | 2    | 2          | 0                              | 0     | 0    | 0          | 0            | 0            | 4          | 4  |
| 04:45 PM    | 1                        | 0     | 0    | 1          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 1          | 1  |
| Total       | 6                        | 0     | 0    | 6          | 0                        | 3    | 3          | 1                              | 0     | 0    | 1          | 0            | 0            | 10         | 10 |
| 05:00 PM    | 1                        | 0     | 0    | 1          | 0                        | 1    | 1          | 0                              | 0     | 0    | 0          | 0            | 0            | 2          | 2  |
| 05:15 PM    | 0                        | 0     | 0    | 0          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 0          | 0  |
| 05:30 PM    | 0                        | 0     | 0    | 0          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 0          | 0  |
| 05:45 PM    | 0                        | 0     | 0    | 0          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 0          | 0  |
| Total       | 1                        | 0     | 0    | 1          | 0                        | 1    | 1          | 0                              | 0     | 0    | 0          | 0            | 0            | 2          | 2  |
| Grand Total | 7                        | 0     | 0    | 7          | 0                        | 4    | 4          | 1                              | 0     | 0    | 1          | 0            | 0            | 12         | 12 |
| Apprch %    | 100                      | 0     |      |            | 0                        | 100  |            | 100                            | 0     |      |            |              |              |            |    |
| Total %     | 58.3                     | 0     |      | 58.3       | 0                        | 33.3 | 33.3       | 8.3                            | 0     |      | 8.3        | 0            | 0            | 100        |    |

| Start Time   | Hesperia Road Southbound |       |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |            | Int. Total |
|--------------|--------------------------|-------|------------|--------------------------|------|------------|--------------------------------|-------|------------|------------|
|              | Thru                     | Right | App. Total | Left                     | Thru | App. Total | Left                           | Right | App. Total |            |
| 04:30 PM     | 2                        | 0     | 2          | 0                        | 2    | 2          | 0                              | 0     | 0          | 4          |
| 04:45 PM     | 1                        | 0     | 1          | 0                        | 0    | 0          | 0                              | 0     | 0          | 1          |
| 05:00 PM     | 1                        | 0     | 1          | 0                        | 1    | 1          | 0                              | 0     | 0          | 2          |
| 05:15 PM     | 0                        | 0     | 0          | 0                        | 0    | 0          | 0                              | 0     | 0          | 0          |
| Total Volume | 4                        | 0     | 4          | 0                        | 3    | 3          | 0                              | 0     | 0          | 7          |
| % App. Total | 100                      | 0     |            | 0                        | 100  |            | 0                              | 0     |            |            |
| PHF          | .500                     | .000  | .500       | .000                     | .375 | .375       | .000                           | .000  | .000       | .438       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 0    | 2    | 0        | 2    | 2    | 0        | 0    | 0    |
| +15 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +30 mins.    | 1        | 0    | 1    | 0        | 1    | 1    | 0        | 0    | 0    |
| +45 mins.    | 0        | 0    | 0    | 0        | 0    | 0    | 0        | 0    | 0    |
| Total Volume | 4        | 0    | 4    | 0        | 3    | 3    | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .500     | .000 | .500 | .000     | .375 | .375 | .000     | .000 | .000 |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 1

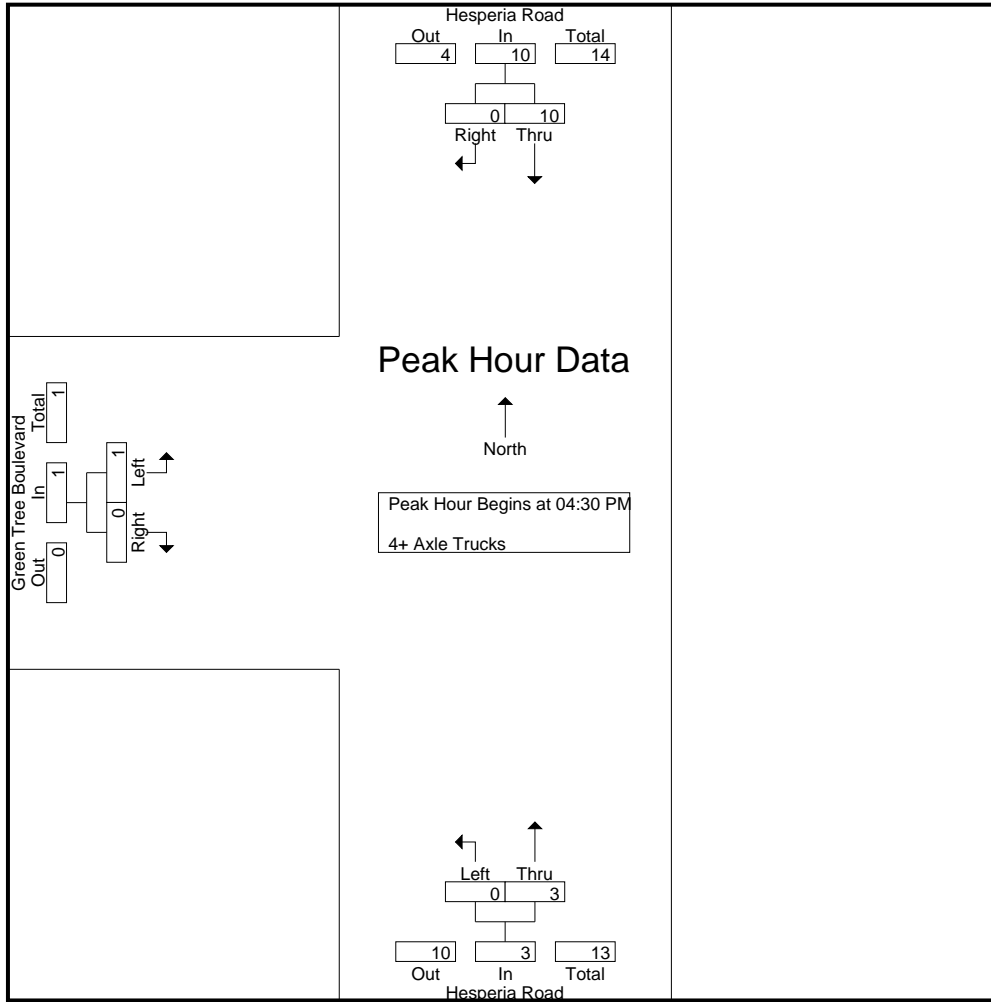
Groups Printed- 4+ Axle Trucks

| Start Time  | Hesperia Road Southbound |       |      |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |      |            | Exclu. Total | Inclu. Total | Int. Total |    |
|-------------|--------------------------|-------|------|------------|--------------------------|------|------------|--------------------------------|-------|------|------------|--------------|--------------|------------|----|
|             | Thru                     | Right | RTOR | App. Total | Left                     | Thru | App. Total | Left                           | Right | RTOR | App. Total |              |              |            |    |
| 04:00 PM    | 3                        | 0     | 0    | 3          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 3          | 3  |
| 04:15 PM    | 2                        | 0     | 0    | 2          | 1                        | 2    | 3          | 0                              | 0     | 0    | 0          | 0            | 0            | 5          | 5  |
| 04:30 PM    | 1                        | 0     | 0    | 1          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 1          | 1  |
| 04:45 PM    | 3                        | 0     | 0    | 3          | 0                        | 1    | 1          | 0                              | 0     | 0    | 0          | 0            | 0            | 4          | 4  |
| Total       | 9                        | 0     | 0    | 9          | 1                        | 3    | 4          | 0                              | 0     | 0    | 0          | 0            | 0            | 13         | 13 |
| 05:00 PM    | 4                        | 0     | 0    | 4          | 0                        | 1    | 1          | 0                              | 0     | 0    | 0          | 0            | 0            | 5          | 5  |
| 05:15 PM    | 2                        | 0     | 0    | 2          | 0                        | 1    | 1          | 1                              | 0     | 0    | 1          | 0            | 0            | 4          | 4  |
| 05:30 PM    | 1                        | 0     | 0    | 1          | 0                        | 0    | 0          | 0                              | 0     | 0    | 0          | 0            | 0            | 1          | 1  |
| 05:45 PM    | 0                        | 0     | 0    | 0          | 2                        | 1    | 3          | 0                              | 0     | 0    | 0          | 0            | 0            | 3          | 3  |
| Total       | 7                        | 0     | 0    | 7          | 2                        | 3    | 5          | 1                              | 0     | 0    | 1          | 0            | 0            | 13         | 13 |
| Grand Total | 16                       | 0     | 0    | 16         | 3                        | 6    | 9          | 1                              | 0     | 0    | 1          | 0            | 0            | 26         | 26 |
| Apprch %    | 100                      | 0     |      |            | 33.3                     | 66.7 |            | 100                            | 0     |      |            |              |              |            |    |
| Total %     | 61.5                     | 0     |      | 61.5       | 11.5                     | 23.1 | 34.6       | 3.8                            | 0     |      | 3.8        | 0            | 0            | 100        |    |

| Start Time   | Hesperia Road Southbound |       |            | Hesperia Road Northbound |      |            | Green Tree Boulevard Eastbound |       |            | Int. Total |
|--------------|--------------------------|-------|------------|--------------------------|------|------------|--------------------------------|-------|------------|------------|
|              | Thru                     | Right | App. Total | Left                     | Thru | App. Total | Left                           | Right | App. Total |            |
| 04:30 PM     | 1                        | 0     | 1          | 0                        | 0    | 0          | 0                              | 0     | 0          | 1          |
| 04:45 PM     | 3                        | 0     | 3          | 0                        | 1    | 1          | 0                              | 0     | 0          | 4          |
| 05:00 PM     | 4                        | 0     | 4          | 0                        | 1    | 1          | 0                              | 0     | 0          | 5          |
| 05:15 PM     | 2                        | 0     | 2          | 0                        | 1    | 1          | 1                              | 0     | 1          | 4          |
| Total Volume | 10                       | 0     | 10         | 0                        | 3    | 3          | 1                              | 0     | 1          | 14         |
| % App. Total | 100                      | 0     |            | 0                        | 100  |            | 100                            | 0     |            |            |
| PHF          | .625                     | .000  | .625       | .000                     | .750 | .750       | .250                           | .000  | .250       | .700       |

City of Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard  
 Weather: Clear

File Name : VIC\_Hesp\_Green PM  
 Site Code : 05121691  
 Start Date : 11/16/2021  
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 3        | 0    | 3    | 0        | 1    | 1    | 0        | 0    | 0    |
| +30 mins.    | 4        | 0    | 4    | 0        | 1    | 1    | 0        | 0    | 0    |
| +45 mins.    | 2        | 0    | 2    | 0        | 1    | 1    | 1        | 0    | 1    |
| Total Volume | 10       | 0    | 10   | 0        | 3    | 3    | 1        | 0    | 1    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 100      | 0    |      |
| PHF          | .625     | .000 | .625 | .000     | .750 | .750 | .250     | .000 | .250 |

Location: Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard



Date: 11/16/2021  
 Day: Tuesday

**PEDESTRIANS**

|                       | North Leg<br>Hesperia Road | East Leg<br>Green Tree Boulevard | South Leg<br>Hesperia Road | West Leg<br>Green Tree Boulevard |   |
|-----------------------|----------------------------|----------------------------------|----------------------------|----------------------------------|---|
|                       | Pedestrians                | Pedestrians                      | Pedestrians                | Pedestrians                      |   |
| 7:00 AM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 7:15 AM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 7:30 AM               | 0                          | 0                                | 0                          | 1                                | 1 |
| 7:45 AM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 8:00 AM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 8:15 AM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 8:30 AM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 8:45 AM               | 0                          | 0                                | 0                          | 0                                | 0 |
| <b>TOTAL VOLUMES:</b> | 0                          | 0                                | 0                          | 1                                | 1 |

|                       | North Leg<br>Hesperia Road | East Leg<br>Green Tree Boulevard | South Leg<br>Hesperia Road | West Leg<br>Green Tree Boulevard |   |
|-----------------------|----------------------------|----------------------------------|----------------------------|----------------------------------|---|
|                       | Pedestrians                | Pedestrians                      | Pedestrians                | Pedestrians                      |   |
| 4:00 PM               | 0                          | 0                                | 0                          | 1                                | 1 |
| 4:15 PM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 4:30 PM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 4:45 PM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 5:00 PM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 5:15 PM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 5:30 PM               | 0                          | 0                                | 0                          | 0                                | 0 |
| 5:45 PM               | 0                          | 0                                | 0                          | 0                                | 0 |
| <b>TOTAL VOLUMES:</b> | 0                          | 0                                | 0                          | 1                                | 1 |

Location: Victorville  
 N/S: Hesperia Road  
 E/W: Green Tree Boulevard



Date: 11/16/2021  
 Day: Tuesday

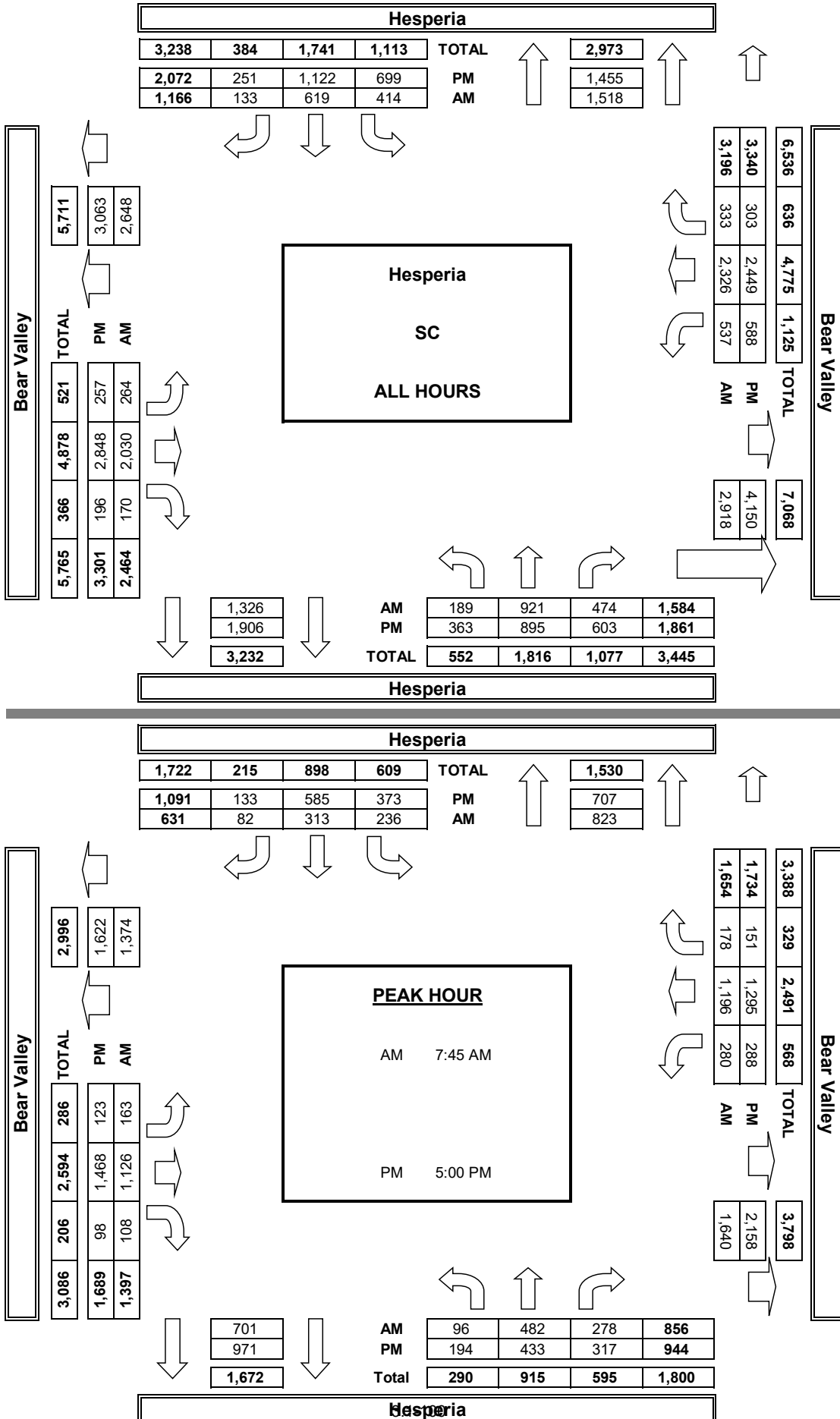
BICYCLES

|                | Southbound<br>Hesperia Road |      |       | Westbound<br>Green Tree Boulevard |      |       | Northbound<br>Hesperia Road |      |       | Eastbound<br>Green Tree Boulevard |      |       |   |
|----------------|-----------------------------|------|-------|-----------------------------------|------|-------|-----------------------------|------|-------|-----------------------------------|------|-------|---|
|                | Left                        | Thru | Right | Left                              | Thru | Right | Left                        | Thru | Right | Left                              | Thru | Right |   |
| 7:00 AM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 1    | 0     | 0                                 | 0    | 0     | 1 |
| 7:15 AM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 7:30 AM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 7:45 AM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 8:00 AM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 8:15 AM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 8:30 AM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 8:45 AM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| TOTAL VOLUMES: | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 1    | 0     | 0                                 | 0    | 0     | 1 |

|                | Southbound<br>Hesperia Road |      |       | Westbound<br>Green Tree Boulevard |      |       | Northbound<br>Hesperia Road |      |       | Eastbound<br>Green Tree Boulevard |      |       |   |
|----------------|-----------------------------|------|-------|-----------------------------------|------|-------|-----------------------------|------|-------|-----------------------------------|------|-------|---|
|                | Left                        | Thru | Right | Left                              | Thru | Right | Left                        | Thru | Right | Left                              | Thru | Right |   |
| 4:00 PM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 4:15 PM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 4:30 PM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 4:45 PM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 5:00 PM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 5:15 PM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 5:30 PM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| 5:45 PM        | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |
| TOTAL VOLUMES: | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0                           | 0    | 0     | 0                                 | 0    | 0     | 0 |



**AimTD LLC**  
TURNING MOVEMENT COUNTS





**APPENDIX 3.2:**

**EXISTING (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS**

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Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

03/24/2022

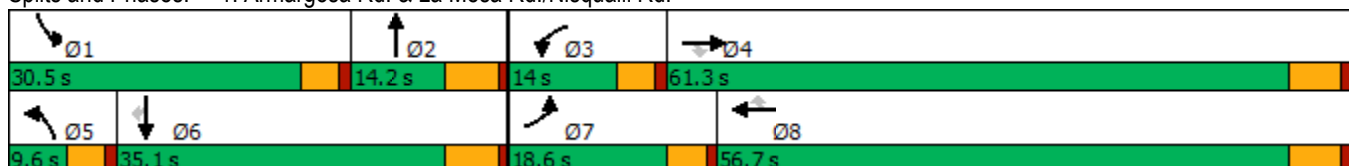


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR  | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↕     | ↗     | ↖↗    | ↕↕↕   | ↗     | ↖↗   | ↕↕    | ↗    | ↖↗    | ↕↕    | ↗     |
| Traffic Volume (vph) | 177   | 798   | 69    | 104   | 461   | 579   | 23   | 110   | 76   | 360   | 201   | 107   |
| Future Volume (vph)  | 177   | 798   | 69    | 104   | 461   | 579   | 23   | 110   | 76   | 360   | 201   | 107   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot | NA    | Free | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5    | 2     |      | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |      |       | Free |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5    | 2     |      | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |      |       |      |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |      | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5  | 10.8  |      | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 18.6  | 61.3  | 61.3  | 14.0  | 56.7  | 56.7  | 9.6  | 14.2  |      | 30.5  | 35.1  | 35.1  |
| Total Split (%)      | 15.5% | 51.1% | 51.1% | 11.7% | 47.3% | 47.3% | 8.0% | 11.8% |      | 25.4% | 29.3% | 29.3% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5  | 4.8   |      | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |      | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |      | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5  | 5.8   |      | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead | Lag   |      | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |      | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | None | Max   |      | None  | Max   | Max   |
| Act Effct Green (s)  | 10.0  | 28.0  | 28.0  | 7.5   | 25.6  | 25.6  | 5.2  | 13.3  | 85.3 | 15.4  | 30.0  | 30.0  |
| Actuated g/C Ratio   | 0.12  | 0.33  | 0.33  | 0.09  | 0.30  | 0.30  | 0.06 | 0.16  | 1.00 | 0.18  | 0.35  | 0.35  |
| v/c Ratio            | 0.54  | 0.73  | 0.12  | 0.42  | 0.31  | 0.70  | 0.14 | 0.21  | 0.05 | 0.71  | 0.17  | 0.18  |
| Control Delay        | 43.4  | 29.6  | 0.4   | 44.8  | 23.9  | 7.0   | 45.3 | 36.5  | 0.1  | 41.9  | 22.6  | 3.2   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Delay          | 43.4  | 29.6  | 0.4   | 44.8  | 23.9  | 7.0   | 45.3 | 36.5  | 0.1  | 41.9  | 22.6  | 3.2   |
| LOS                  | D     | C     | A     | D     | C     | A     | D    | D     | A    | D     | C     | A     |
| Approach Delay       |       | 30.0  |       |       | 17.2  |       |      | 24.2  |      |       | 29.9  |       |
| Approach LOS         |       | C     |       |       | B     |       |      | C     |      |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 85.3  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 24.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 61.4%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 177  | 798  | 69   | 104  | 461  | 579  | 23   | 110  | 76   | 360  | 201  | 107  |
| Future Volume (veh/h)        | 177  | 798  | 69   | 104  | 461  | 579  | 23   | 110  | 76   | 360  | 201  | 107  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 192  | 867  | 75   | 113  | 501  | 493  | 25   | 120  | 0    | 391  | 218  | 116  |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 255  | 1441 | 611  | 167  | 2007 | 567  | 77   | 643  |      | 462  | 1098 | 465  |
| Arrive On Green              | 0.08 | 0.40 | 0.40 | 0.05 | 0.37 | 0.37 | 0.03 | 0.18 | 0.00 | 0.15 | 0.30 | 0.30 |
| Sat Flow, veh/h              | 3048 | 3600 | 1525 | 3048 | 5400 | 1525 | 3048 | 3600 | 1525 | 3048 | 3600 | 1525 |
| Grp Volume(v), veh/h         | 192  | 867  | 75   | 113  | 501  | 493  | 25   | 120  | 0    | 391  | 218  | 116  |
| Grp Sat Flow(s),veh/h/ln     | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 |
| Q Serve(g_s), s              | 5.9  | 18.3 | 3.0  | 3.5  | 6.2  | 28.8 | 0.8  | 2.7  | 0.0  | 12.0 | 4.3  | 5.5  |
| Cycle Q Clear(g_c), s        | 5.9  | 18.3 | 3.0  | 3.5  | 6.2  | 28.8 | 0.8  | 2.7  | 0.0  | 12.0 | 4.3  | 5.5  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 255  | 1441 | 611  | 167  | 2007 | 567  | 77   | 643  |      | 462  | 1098 | 465  |
| V/C Ratio(X)                 | 0.75 | 0.60 | 0.12 | 0.68 | 0.25 | 0.87 | 0.32 | 0.19 |      | 0.85 | 0.20 | 0.25 |
| Avail Cap(c_a), veh/h        | 447  | 2080 | 881  | 301  | 2861 | 808  | 162  | 643  |      | 825  | 1098 | 465  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 43.1 | 22.8 | 18.2 | 44.6 | 20.9 | 28.0 | 46.0 | 33.5 | 0.0  | 39.7 | 24.7 | 25.1 |
| Incr Delay (d2), s/veh       | 1.7  | 0.4  | 0.1  | 1.8  | 0.1  | 7.3  | 0.9  | 0.6  | 0.0  | 1.7  | 0.4  | 1.3  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.2  | 7.2  | 1.0  | 1.3  | 2.4  | 10.8 | 0.3  | 1.2  | 0.0  | 4.4  | 1.8  | 2.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 44.8 | 23.2 | 18.3 | 46.3 | 21.0 | 35.3 | 46.9 | 34.2 | 0.0  | 41.3 | 25.1 | 26.4 |
| LnGrp LOS                    | D    | C    | B    | D    | C    | D    | D    | C    |      | D    | C    | C    |
| Approach Vol, veh/h          |      | 1134 |      |      | 1107 |      |      | 145  | A    |      | 725  |      |
| Approach Delay, s/veh        |      | 26.5 |      |      | 30.0 |      |      | 36.4 |      |      | 34.1 |      |
| Approach LOS                 |      | C    |      |      | C    |      |      | D    |      |      | C    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 19.1 | 23.0 | 9.8  | 44.3 | 6.9  | 35.1 | 12.5 | 41.5 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 26.0 | 8.4  | 9.5  | 55.5 | 5.1  | 29.3 | 14.1 | 50.9 |      |      |      |      |
| Max Q Clear Time (g_c+1), s  | 14.0 | 4.7  | 5.5  | 20.3 | 2.8  | 7.5  | 7.9  | 30.8 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.6  | 0.2  | 0.1  | 6.6  | 0.0  | 1.5  | 0.2  | 4.9  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 29.9 |
| HCM 6th LOS        | C    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

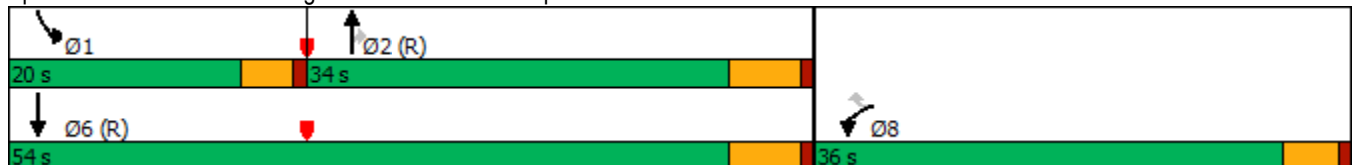
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↖↖    | ↖     | ↖↖    | ↖     | ↖     | ↖↖    |
| Traffic Volume (vph) | 757   | 36    | 640   | 289   | 137   | 750   |
| Future Volume (vph)  | 757   | 36    | 640   | 289   | 137   | 750   |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 36.0  | 36.0  | 34.0  | 34.0  | 20.0  | 54.0  |
| Total Split (%)      | 40.0% | 40.0% | 37.8% | 37.8% | 22.2% | 60.0% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 25.6  | 25.6  | 37.1  | 37.1  | 12.3  | 53.9  |
| Actuated g/C Ratio   | 0.28  | 0.28  | 0.41  | 0.41  | 0.14  | 0.60  |
| v/c Ratio            | 0.83  | 0.08  | 0.47  | 0.37  | 0.61  | 0.38  |
| Control Delay        | 37.5  | 7.4   | 22.1  | 4.1   | 46.7  | 10.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 37.5  | 7.4   | 22.1  | 4.1   | 46.7  | 10.6  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 36.2  |       | 16.5  |       |       | 16.2  |
| Approach LOS         | D     |       | B     |       |       | B     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 22.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 59.4%  
 ICU Level of Service B  
 Analysis Period (min) 15













Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement                     | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations          |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 757   | 36  | 640   | 289   | 137   | 750   |
| Future Volume (veh/h)        | 757   | 36  | 640   | 289   | 137   | 750   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        | No  |   | No  |   |   | No  |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 823   | 39  | 696   | 314   | 149   | 815   |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 921   | 423   | 1692  | 755   | 185   | 2242  |
| Arrive On Green              | 0.26  | 0.26  | 0.47  | 0.47  | 0.10  | 0.62  |
| Sat Flow, veh/h              | 3510  | 1610  | 3705  | 1610  | 1810  | 3705  |
| Grp Volume(v), veh/h         | 823   | 39  | 696   | 314   | 149   | 815   |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1610  | 1805  | 1610  | 1810  | 1805  |
| Q Serve(g_s), s              | 20.3  | 1.6   | 11.4  | 11.6  | 7.3   | 9.9   |
| Cycle Q Clear(g_c), s        | 20.3  | 1.6   | 11.4  | 11.6  | 7.3   | 9.9   |
| Prop In Lane                 | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Lane Grp Cap(c), veh/h       | 921   | 423   | 1692  | 755   | 185   | 2242  |
| V/C Ratio(X)                 | 0.89  | 0.09  | 0.41  | 0.42  | 0.81  | 0.36  |
| Avail Cap(c_a), veh/h        | 1221  | 560   | 1692  | 755   | 312   | 2242  |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Upstream Filter(I)           | 1.00  | 1.00  | 0.76  | 0.76  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 32.0  | 25.1  | 15.7  | 15.8  | 39.5  | 8.4   |
| Incr Delay (d2), s/veh       | 5.8   | 0.0   | 0.6   | 1.3   | 8.0   | 0.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 8.5   | 0.6   | 4.3   | 4.1   | 3.5   | 3.3   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 37.8  | 25.1  | 16.3  | 17.1  | 47.5  | 8.8   |
| LnGrp LOS                    | D   | C   | B   | B   | D   | A   |
| Approach Vol, veh/h          | 862   |   | 1010  |   |   | 964   |
| Approach Delay, s/veh        | 37.3  |   | 16.5  |   |   | 14.8  |
| Approach LOS                 | D   |   | B   |   |   | B   |
| Timer - Assigned Phs         | 1   | 2   |   |   | 6   | 8   |
| Phs Duration (G+Y+Rc), s     | 13.7  | 48.0  |   |   | 61.7  | 28.3  |
| Change Period (Y+Rc), s      | 4.5   | 5.8   |   |   | 5.8   | 4.7   |
| Max Green Setting (Gmax), s  | 15.5  | 28.2  |   |   | 48.2  | 31.3  |
| Max Q Clear Time (g_c+11), s | 9.3   | 13.6  |   |   | 11.9  | 22.3  |
| Green Ext Time (p_c), s      | 0.2   | 4.8   |   |   | 5.9   | 1.3   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 22.2  |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

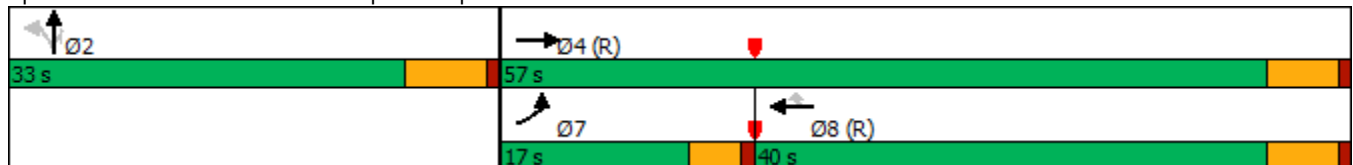


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↶↶    | ↶↶↶   | ↶↶↶   | ↷     | ↶     | ↶     | ↷     |
| Traffic Volume (vph) | 195   | 1162  | 976   | 288   | 177   | 1     | 236   |
| Future Volume (vph)  | 195   | 1162  | 976   | 288   | 177   | 1     | 236   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 17.0  | 57.0  | 40.0  | 40.0  | 33.0  | 33.0  | 33.0  |
| Total Split (%)      | 18.9% | 63.3% | 44.4% | 44.4% | 36.7% | 36.7% | 36.7% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 10.0  | 61.9  | 47.4  | 47.4  | 15.8  | 15.8  | 15.8  |
| Actuated g/C Ratio   | 0.11  | 0.69  | 0.53  | 0.53  | 0.18  | 0.18  | 0.18  |
| v/c Ratio            | 0.57  | 0.37  | 0.40  | 0.32  | 0.33  | 0.33  | 0.74  |
| Control Delay        | 43.4  | 6.9   | 14.7  | 3.0   | 33.3  | 33.5  | 35.3  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 43.4  | 6.9   | 14.7  | 3.0   | 33.3  | 33.5  | 35.3  |
| LOS                  | D     | A     | B     | A     | C     | C     | D     |
| Approach Delay       |       | 12.2  | 12.0  |       |       | 34.5  |       |
| Approach LOS         |       | B     | B     |       |       | C     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 15.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 47.3%  
 ICU Level of Service A  
 Analysis Period (min) 15

























Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|  |    |    |  |  |    |  |  |  |  |  |  |  |
|--|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement   | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations  |   |    |   |   |    |  |  |  |  |   |   |   |
| Traffic Volume (veh/h)   | 195   | 1162  | 0   | 0   | 976   | 288   | 177  | 1   | 236   | 0   | 0   | 0   |
| Future Volume (veh/h)  | 195   | 1162  | 0   | 0   | 976   | 288   | 177  | 1   | 236   | 0   | 0   | 0   |
| Initial Q (Qb), veh  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Ped-Bike Adj(A_pbT)  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Parking Bus, Adj   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Work Zone On Approach  |   | No  |   |   | No  |   |  | No  |   |   |   |   |
| Adj Sat Flow, veh/h/ln   | 1900  | 1900  | 0   | 0   | 1900  | 1900  | 1900   | 1900  | 1900  |   |   |   |
| Adj Flow Rate, veh/h   | 219   | 1306  | 0   | 0   | 1097  | 324   | 200  | 0   | 265   |   |   |   |
| Peak Hour Factor   | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89   | 0.89  | 0.89  |   |   |   |
| Percent Heavy Veh, %   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Cap, veh/h   | 297   | 3473  | 0   | 0   | 2774  | 861   | 701  | 0   | 312   |   |   |   |
| Arrive On Green  | 0.08  | 0.67  | 0.00  | 0.00  | 0.53  | 0.53  | 0.19   | 0.00  | 0.19  |   |   |   |
| Sat Flow, veh/h  | 3510  | 5358  | 0   | 0   | 5358  | 1610  | 3619   | 0   | 1610  |   |   |   |
| Grp Volume(v), veh/h   | 219   | 1306  | 0   | 0   | 1097  | 324   | 200  | 0   | 265   |   |   |   |
| Grp Sat Flow(s),veh/h/ln   | 1755  | 1729  | 0   | 0   | 1729  | 1610  | 1810   | 0   | 1610  |   |   |   |
| Q Serve(g_s), s  | 5.5   | 10.0  | 0.0   | 0.0   | 11.2  | 10.5  | 4.2  | 0.0   | 14.3  |   |   |   |
| Cycle Q Clear(g_c), s  | 5.5   | 10.0  | 0.0   | 0.0   | 11.2  | 10.5  | 4.2  | 0.0   | 14.3  |   |   |   |
| Prop In Lane   | 1.00  |   | 0.00  | 0.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Lane Grp Cap(c), veh/h   | 297   | 3473  | 0   | 0   | 2774  | 861   | 701  | 0   | 312   |   |   |   |
| V/C Ratio(X)   | 0.74  | 0.38  | 0.00  | 0.00  | 0.40  | 0.38  | 0.29   | 0.00  | 0.85  |   |   |   |
| Avail Cap(c_a), veh/h  | 488   | 3473  | 0   | 0   | 2774  | 861   | 1066   | 0   | 474   |   |   |   |
| HCM Platoon Ratio  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Upstream Filter(I)   | 0.67  | 0.67  | 0.00  | 0.00  | 0.89  | 0.89  | 1.00   | 0.00  | 1.00  |   |   |   |
| Uniform Delay (d), s/veh   | 40.2  | 6.6   | 0.0   | 0.0   | 12.3  | 12.2  | 31.0   | 0.0   | 35.0  |   |   |   |
| Incr Delay (d2), s/veh   | 0.9   | 0.2   | 0.0   | 0.0   | 0.4   | 1.1   | 0.2  | 0.0   | 8.9   |   |   |   |
| Initial Q Delay(d3),s/veh  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |   |   |   |
| %ile BackOfQ(50%),veh/ln   | 2.3   | 2.8   | 0.0   | 0.0   | 3.8   | 3.5   | 1.7  | 0.0   | 5.9   |   |   |   |
| Unsig. Movement Delay, s/veh   |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh   | 41.1  | 6.8   | 0.0   | 0.0   | 12.7  | 13.3  | 31.2   | 0.0   | 43.9  |   |   |   |
| LnGrp LOS  | D   | A   | A   | A   | B   | B   | C  | A   | D   |   |   |   |
| Approach Vol, veh/h  |   | 1525  |   |   | 1421  |   |  | 465   |   |   |   |   |
| Approach Delay, s/veh  |   | 11.7  |   |   | 12.9  |   |  | 38.4  |   |   |   |   |
| Approach LOS   |   | B   |   |   | B   |   |  | D   |   |   |   |   |
| Timer - Assigned Phs   |   | 2   |   | 4   |   |   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s   |   | 23.9  |   | 66.1  |   |   | 12.1   | 53.9  |   |   |   |   |
| Change Period (Y+Rc), s  |   | 6.5   |   | 5.8   |   |   | 4.5  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  |   | 26.5  |   | 51.2  |   |   | 12.5   | 34.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s   |   | 16.3  |   | 12.0  |   |   | 7.5  | 13.2  |   |   |   |   |
| Green Ext Time (p_c), s  |   | 1.1   |   | 11.1  |   |   | 0.2  | 8.6   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay   |   |   |   | 15.8  |   |   |  |   |   |   |   |   |
| HCM 6th LOS  |   |   |   | B   |   |   |  |   |   |   |   |   |
| <b>Notes</b>   |   |   |   |   |   |   |  |   |   |   |   |   |
| User approved volume balancing among the lanes for turning movement. |   |   |   |   |   |   |  |   |   |   |   |   |



Timings

4: Mariposa & Nisqualli Rd.

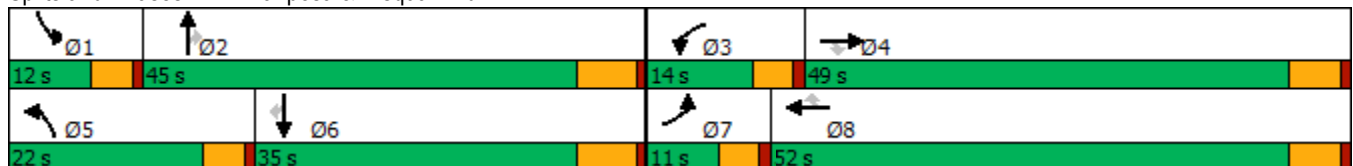
03/24/2022

| Lane Group           | EBL  | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |      |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 48   | 1111  | 238   | 89    | 1001  | 84    | 200   | 124   | 77    | 58    | 88    | 62    |
| Future Volume (vph)  | 48   | 1111  | 238   | 89    | 1001  | 84    | 200   | 124   | 77    | 58    | 88    | 62    |
| Turn Type            | Prot | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7    | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |      |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7    | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |      |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6  | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 11.0 | 49.0  | 49.0  | 14.0  | 52.0  | 52.0  | 22.0  | 45.0  | 45.0  | 12.0  | 35.0  | 35.0  |
| Total Split (%)      | 9.2% | 40.8% | 40.8% | 11.7% | 43.3% | 43.3% | 18.3% | 37.5% | 37.5% | 10.0% | 29.2% | 29.2% |
| Yellow Time (s)      | 3.6  | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6  | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.1  | 31.4  | 31.4  | 7.5   | 34.7  | 34.7  | 12.6  | 14.6  | 14.6  | 6.5   | 10.9  | 10.9  |
| Actuated g/C Ratio   | 0.08 | 0.41  | 0.41  | 0.10  | 0.46  | 0.46  | 0.17  | 0.19  | 0.19  | 0.09  | 0.14  | 0.14  |
| v/c Ratio            | 0.22 | 0.59  | 0.33  | 0.33  | 0.48  | 0.12  | 0.44  | 0.20  | 0.22  | 0.25  | 0.19  | 0.19  |
| Control Delay        | 41.6 | 20.3  | 3.6   | 40.8  | 16.6  | 0.6   | 36.9  | 31.6  | 5.5   | 41.1  | 36.7  | 1.2   |
| Queue Delay          | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 41.6 | 20.3  | 3.6   | 40.8  | 16.6  | 0.6   | 36.9  | 31.6  | 5.5   | 41.1  | 36.7  | 1.2   |
| LOS                  | D    | C     | A     | D     | B     | A     | D     | C     | A     | D     | D     | A     |
| Approach Delay       |      | 18.2  |       |       | 17.3  |       |       | 29.2  |       |       | 27.3  |       |
| Approach LOS         |      | B     |       |       | B     |       |       | C     |       |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 76.1  
 Natural Cycle: 95  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 19.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 59.6%  
 ICU Level of Service B  
 Analysis Period (min) 15



































Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 48  | 1111  | 238   | 89  | 1001  | 84  | 200   | 124   | 77  | 58  | 88  | 62  |
| Future Volume (veh/h)        | 48  | 1111  | 238   | 89  | 1001  | 84  | 200   | 124   | 77  | 58  | 88  | 62  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 52  | 1195  | 256   | 96  | 1076  | 90  | 215   | 133   | 83  | 62  | 95  | 67  |
| Peak Hour Factor             | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 136   | 1858  | 577   | 182   | 1935  | 601   | 301   | 678   | 302   | 150   | 502   | 224   |
| Arrive On Green              | 0.05  | 0.38  | 0.38  | 0.06  | 0.39  | 0.39  | 0.10  | 0.20  | 0.20  | 0.05  | 0.15  | 0.15  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956  | 3420  | 1525  | 2956  | 3420  | 1525  |
| Grp Volume(v), veh/h         | 52  | 1195  | 256   | 96  | 1076  | 90  | 215   | 133   | 83  | 62  | 95  | 67  |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478  | 1710  | 1525  | 1478  | 1710  | 1525  |
| Q Serve(g_s), s              | 1.2   | 13.6  | 8.5   | 2.1   | 11.6  | 2.6   | 4.8   | 2.2   | 3.1   | 1.4   | 1.7   | 2.7   |
| Cycle Q Clear(g_c), s        | 1.2   | 13.6  | 8.5   | 2.1   | 11.6  | 2.6   | 4.8   | 2.2   | 3.1   | 1.4   | 1.7   | 2.7   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 136   | 1858  | 577   | 182   | 1935  | 601   | 301   | 678   | 302   | 150   | 502   | 224   |
| V/C Ratio(X)                 | 0.38  | 0.64  | 0.44  | 0.53  | 0.56  | 0.15  | 0.71  | 0.20  | 0.27  | 0.41  | 0.19  | 0.30  |
| Avail Cap(c_a), veh/h        | 278   | 3119  | 968   | 408   | 3336  | 1036  | 756   | 1950  | 870   | 321   | 1447  | 646   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 31.5  | 17.4  | 15.8  | 31.0  | 16.0  | 13.3  | 29.6  | 22.8  | 23.1  | 31.3  | 25.5  | 25.9  |
| Incr Delay (d2), s/veh       | 0.7   | 0.4   | 0.5   | 0.9   | 0.3   | 0.1   | 1.2   | 0.1   | 0.5   | 0.7   | 0.2   | 0.7   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.4   | 4.4   | 2.6   | 0.7   | 3.7   | 0.8   | 1.6   | 0.8   | 1.1   | 0.5   | 0.6   | 0.9   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 32.2  | 17.8  | 16.3  | 31.9  | 16.3  | 13.4  | 30.8  | 22.9  | 23.6  | 32.0  | 25.7  | 26.6  |
| LnGrp LOS                    | C   | B   | B   | C   | B   | B   | C   | C   | C   | C   | C   | C   |
| Approach Vol, veh/h          |   | 1503  |   |   | 1262  |   |   | 431   |   |   | 224   |   |
| Approach Delay, s/veh        |   | 18.0  |   |   | 17.2  |   |   | 27.0  |   |   | 27.7  |   |
| Approach LOS                 |   | B   |   |   | B   |   |   | C   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 8.1   | 19.7  | 8.8   | 31.5  | 11.5  | 16.2  | 7.7   | 32.6  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 7.4   | 38.8  | 9.4   | 43.2  | 17.4  | 28.8  | 6.4   | 46.2  |   |   |   |   |
| Max Q Clear Time (g_c+1), s  | 3.4   | 5.1   | 4.1   | 15.6  | 6.8   | 4.7   | 3.2   | 13.6  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.0   | 0.1   | 10.1  | 0.3   | 0.6   | 0.0   | 8.6   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 19.5  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | B   |   |   |   |   |   |   |   |   |   |

Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

03/24/2022

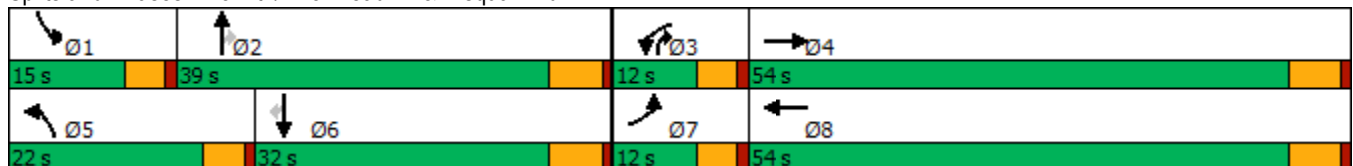


| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 27    | 742   | 23    | 482   | 96    | 214   | 18    | 40    | 164   | 48    |
| Future Volume (vph)  | 27    | 742   | 23    | 482   | 96    | 214   | 18    | 40    | 164   | 48    |
| Turn Type            | Prot  | NA    | Prot  | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |       |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6   | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 12.0  | 54.0  | 12.0  | 54.0  | 22.0  | 39.0  | 12.0  | 15.0  | 32.0  | 32.0  |
| Total Split (%)      | 10.0% | 45.0% | 10.0% | 45.0% | 18.3% | 32.5% | 10.0% | 12.5% | 26.7% | 26.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 6.8   | 32.7  | 6.7   | 32.6  | 11.2  | 22.2  | 35.6  | 7.8   | 16.3  | 16.3  |
| Actuated g/C Ratio   | 0.08  | 0.41  | 0.08  | 0.41  | 0.14  | 0.28  | 0.44  | 0.10  | 0.20  | 0.20  |
| v/c Ratio            | 0.23  | 0.72  | 0.20  | 0.45  | 0.50  | 0.51  | 0.03  | 0.30  | 0.53  | 0.13  |
| Control Delay        | 50.2  | 25.6  | 49.9  | 20.6  | 47.8  | 34.3  | 0.1   | 49.0  | 40.9  | 0.6   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 50.2  | 25.6  | 49.9  | 20.6  | 47.8  | 34.3  | 0.1   | 49.0  | 40.9  | 0.6   |
| LOS                  | D     | C     | D     | C     | D     | C     | A     | D     | D     | A     |
| Approach Delay       |       | 26.3  |       | 21.8  |       | 36.4  |       |       | 34.6  |       |
| Approach LOS         |       | C     |       | C     |       | D     |       |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 80.3  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 27.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 54.6%  
 ICU Level of Service A  
 Analysis Period (min) 15























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 27  | 742   | 98  | 23  | 482   | 44  | 96  | 214   | 18  | 40  | 164   | 48  |
| Future Volume (veh/h)        | 27  | 742   | 98  | 23  | 482   | 44  | 96  | 214   | 18  | 40  | 164   | 48  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 32  | 873   | 115   | 27  | 567   | 52  | 113   | 252   | 21  | 47  | 193   | 56  |
| Peak Hour Factor             | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 55  | 1172  | 154   | 49  | 1209  | 111   | 142   | 367   | 357   | 72  | 290   | 246   |
| Arrive On Green              | 0.03  | 0.39  | 0.39  | 0.03  | 0.38  | 0.38  | 0.09  | 0.20  | 0.20  | 0.04  | 0.16  | 0.16  |
| Sat Flow, veh/h              | 1619  | 3038  | 400   | 1619  | 3168  | 290   | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Grp Volume(v), veh/h         | 32  | 491   | 497   | 27  | 306   | 313   | 113   | 252   | 21  | 47  | 193   | 56  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1710  | 1728  | 1619  | 1710  | 1748  | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Q Serve(g_s), s              | 1.2   | 15.4  | 15.4  | 1.0   | 8.3   | 8.4   | 4.2   | 8.0   | 0.7   | 1.8   | 6.2   | 2.0   |
| Cycle Q Clear(g_c), s        | 1.2   | 15.4  | 15.4  | 1.0   | 8.3   | 8.4   | 4.2   | 8.0   | 0.7   | 1.8   | 6.2   | 2.0   |
| Prop In Lane                 | 1.00  |   | 0.23  | 1.00  |   | 0.17  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 55  | 660   | 667   | 49  | 653   | 667   | 142   | 367   | 357   | 72  | 290   | 246   |
| V/C Ratio(X)                 | 0.58  | 0.74  | 0.74  | 0.56  | 0.47  | 0.47  | 0.80  | 0.69  | 0.06  | 0.65  | 0.66  | 0.23  |
| Avail Cap(c_a), veh/h        | 193   | 1329  | 1343  | 193   | 1329  | 1358  | 454   | 964   | 862   | 271   | 760   | 644   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 29.5  | 16.4  | 16.4  | 29.7  | 14.4  | 14.4  | 27.8  | 22.8  | 18.4  | 29.1  | 24.4  | 22.6  |
| Incr Delay (d2), s/veh       | 3.5   | 1.7   | 1.7   | 3.7   | 0.5   | 0.5   | 3.8   | 2.3   | 0.1   | 3.6   | 2.6   | 0.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.5   | 5.1   | 5.2   | 0.4   | 2.7   | 2.8   | 1.7   | 3.3   | 0.2   | 0.7   | 2.5   | 0.7   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 33.0  | 18.1  | 18.1  | 33.3  | 15.0  | 15.0  | 31.6  | 25.1  | 18.5  | 32.7  | 27.1  | 23.1  |
| LnGrp LOS                    | C   | B   | B   | C   | B   | B   | C   | C   | B   | C   | C   | C   |
| Approach Vol, veh/h          |   | 1020  |   |   | 646   |   |   | 386   |   |   | 296   |   |
| Approach Delay, s/veh        |   | 18.6  |   |   | 15.7  |   |   | 26.7  |   |   | 27.2  |   |
| Approach LOS                 |   | B   |   |   | B   |   |   | C   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 7.4   | 18.5  | 6.5   | 29.7  | 10.0  | 15.8  | 6.7   | 29.5  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 10.4  | 33.2  | 7.4   | 48.2  | 17.4  | 26.2  | 7.4   | 48.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.8   | 10.0  | 3.0   | 17.4  | 6.2   | 8.2   | 3.2   | 10.4  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.4   | 0.0   | 6.6   | 0.1   | 1.0   | 0.0   | 3.7   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 20.2  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | C   |   |   |   |   |   |   |   |   |

Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖     | ↖↖    | ↖↖    | ↑↑    | ↑↗    |
| Traffic Volume (vph) | 129   | 266   | 313   | 724   | 870   |
| Future Volume (vph)  | 129   | 266   | 313   | 724   | 870   |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 29.0  | 29.0  | 29.0  | 91.0  | 62.0  |
| Total Split (%)      | 24.2% | 24.2% | 24.2% | 75.8% | 51.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 12.1  | 32.5  | 15.5  | 55.9  | 34.2  |
| Actuated g/C Ratio   | 0.15  | 0.41  | 0.20  | 0.70  | 0.43  |
| v/c Ratio            | 0.57  | 0.24  | 0.59  | 0.32  | 0.73  |
| Control Delay        | 44.3  | 9.5   | 35.9  | 5.0   | 22.2  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 44.3  | 9.5   | 35.9  | 5.0   | 22.2  |
| LOS                  | D     | A     | D     | A     | C     |
| Approach Delay       | 20.9  |       |       | 14.3  | 22.2  |
| Approach LOS         | C     |       |       | B     | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 79.4  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 18.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 61.6%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)  
03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 129  | 266  | 313  | 724  | 870  | 114  |
| Future Volume (veh/h)        | 129  | 266  | 313  | 724  | 870  | 114  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1800 | 1600 | 1800 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 139  | 221  | 337  | 778  | 935  | 91   |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 199  | 773  | 487  | 2389 | 1379 | 134  |
| Arrive On Green              | 0.12 | 0.12 | 0.16 | 0.70 | 0.44 | 0.44 |
| Sat Flow, veh/h              | 1619 | 2685 | 2956 | 3510 | 3238 | 306  |
| Grp Volume(v), veh/h         | 139  | 221  | 337  | 778  | 508  | 518  |
| Grp Sat Flow(s),veh/h/ln     | 1619 | 1342 | 1478 | 1710 | 1710 | 1745 |
| Q Serve(g_s), s              | 5.0  | 3.9  | 6.5  | 5.4  | 14.4 | 14.4 |
| Cycle Q Clear(g_c), s        | 5.0  | 3.9  | 6.5  | 5.4  | 14.4 | 14.4 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.18 |
| Lane Grp Cap(c), veh/h       | 199  | 773  | 487  | 2389 | 749  | 764  |
| V/C Ratio(X)                 | 0.70 | 0.29 | 0.69 | 0.33 | 0.68 | 0.68 |
| Avail Cap(c_a), veh/h        | 653  | 1524 | 1133 | 4791 | 1576 | 1608 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 25.5 | 16.7 | 23.8 | 3.6  | 13.6 | 13.6 |
| Incr Delay (d2), s/veh       | 1.6  | 0.1  | 1.8  | 0.1  | 1.1  | 1.1  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 1.8  | 0.0  | 2.1  | 0.7  | 4.3  | 4.4  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 27.1 | 16.8 | 25.6 | 3.6  | 14.7 | 14.7 |
| LnGrp LOS                    | C    | B    | C    | A    | B    | B    |
| Approach Vol, veh/h          | 360  |      |      | 1115 | 1026 |      |
| Approach Delay, s/veh        | 20.8 |      |      | 10.3 | 14.7 |      |
| Approach LOS                 | C    |      |      | B    | B    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 48.5 |      | 12.1 | 15.8 | 32.7 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 84.8 |      | 24.4 | 23.2 | 55.8 |
| Max Q Clear Time (g_c+I1), s |      | 7.4  |      | 7.0  | 8.5  | 16.4 |
| Green Ext Time (p_c), s      |      | 8.1  |      | 0.5  | 0.9  | 10.1 |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 13.6 |      |      |      |
| HCM 6th LOS                  |      |      | B    |      |      |      |

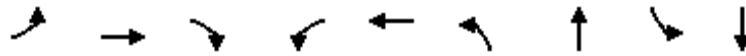
| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.2  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 5    | 0    | 8    | 0    | 0    | 5    | 10   | 1028 | 6    | 9    | 1125 | 1    |
| Future Vol, veh/h        | 5    | 0    | 8    | 0    | 0    | 5    | 10   | 1028 | 6    | 9    | 1125 | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 6    | 0    | 9    | 0    | 0    | 6    | 11   | 1168 | 7    | 10   | 1278 | 1    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |     | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|-----|--------|---|---|------|---|---|
| Conflicting Flow All | 1905   | 2496 | 640    | 1853 | 2493   | 588 | 1279   | 0 | 0 | 1175 | 0 | 0 |
| Stage 1              | 1299   | 1299 | -      | 1194 | 1194   | -   | -      | - | - | -    | - | - |
| Stage 2              | 606    | 1197 | -      | 659  | 1299   | -   | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9 | 4.1    | - | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3 | 2.2    | - | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 43     | 29   | 423    | 47   | 30     | 457 | 550    | - | - | 602  | - | - |
| Stage 1              | 174    | 234  | -      | 201  | 262    | -   | -      | - | - | -    | - | - |
| Stage 2              | 456    | 261  | -      | 424  | 234    | -   | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |     |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 41     | 28   | 423    | 45   | 29     | 457 | 550    | - | - | 602  | - | - |
| Mov Cap-2 Maneuver   | 153    | 159  | -      | 170  | 158    | -   | -      | - | - | -    | - | - |
| Stage 1              | 171    | 230  | -      | 197  | 257    | -   | -      | - | - | -    | - | - |
| Stage 2              | 441    | 256  | -      | 408  | 230    | -   | -      | - | - | -    | - | - |

| Approach             | EB   |  | WB |  | NB  |  | SB  |  |
|----------------------|------|--|----|--|-----|--|-----|--|
| HCM Control Delay, s | 20.2 |  | 13 |  | 0.1 |  | 0.1 |  |
| HCM LOS              | C    |  | B  |  |     |  |     |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1 | WBLn1 | SBL   | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-----|-----|
| Capacity (veh/h)      | 550   | -   | -   | 252   | 457   | 602   | -   | -   |
| HCM Lane V/C Ratio    | 0.021 | -   | -   | 0.059 | 0.012 | 0.017 | -   | -   |
| HCM Control Delay (s) | 11.7  | -   | -   | 20.2  | 13    | 11.1  | -   | -   |
| HCM Lane LOS          | B     | -   | -   | C     | B     | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0.2   | 0     | 0.1   | -   | -   |

Timings  
8: Hesperia Rd. & Nisqualli Rd.



| Lane Group           | EBL   | EBT   | EBR   | WBL  | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|------|-------|-------|-------|------|-------|
| Lane Configurations  | ↔↔    | ↑     | ↔↔    | ↔    | ↔↔    | ↔↔    | ↔↔    | ↔    | ↔↔    |
| Traffic Volume (vph) | 125   | 69    | 385   | 78   | 68    | 256   | 1096  | 15   | 1030  |
| Future Volume (vph)  | 125   | 69    | 385   | 78   | 68    | 256   | 1096  | 15   | 1030  |
| Turn Type            | Prot  | NA    | pm+ov | Prot | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |      |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |      |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0  | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6  | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 13.2  | 33.0  | 20.2  | 11.0 | 30.8  | 20.2  | 66.2  | 9.8  | 55.8  |
| Total Split (%)      | 11.0% | 27.5% | 16.8% | 9.2% | 25.7% | 16.8% | 55.2% | 8.2% | 46.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6  | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6  | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 8.0   | 11.9  | 28.6  | 10.1 | 10.3  | 14.5  | 56.6  | 5.2  | 41.1  |
| Actuated g/C Ratio   | 0.08  | 0.12  | 0.30  | 0.11 | 0.11  | 0.15  | 0.59  | 0.05 | 0.43  |
| v/c Ratio            | 0.57  | 0.35  | 0.54  | 0.51 | 0.31  | 0.64  | 0.66  | 0.20 | 0.83  |
| Control Delay        | 53.4  | 45.4  | 30.3  | 59.0 | 29.4  | 46.8  | 15.5  | 52.5 | 29.5  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 53.4  | 45.4  | 30.3  | 59.0 | 29.4  | 46.8  | 15.5  | 52.5 | 29.5  |
| LOS                  | D     | D     | C     | E    | C     | D     | B     | D    | C     |
| Approach Delay       |       | 37.1  |       |      | 41.8  |       | 21.1  |      | 29.9  |
| Approach LOS         |       | D     |       |      | D     |       | C     |      | C     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 95.3             |                        |
| Natural Cycle: 100                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.83                 |                        |
| Intersection Signal Delay: 28.0         | Intersection LOS: C    |
| Intersection Capacity Utilization 65.8% | ICU Level of Service C |
| Analysis Period (min) 15                |                        |

Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.
































HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |    |  |    |    |  |  |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |   |   |   |   |   |  |   |   |
| Traffic Volume (veh/h)       | 125   | 69  | 385   | 78  | 68  | 41  | 256  | 1096  | 90  | 15  | 1030  | 52  |
| Future Volume (veh/h)        | 125   | 69  | 385   | 78  | 68  | 41  | 256  | 1096  | 90  | 15  | 1030  | 52  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1700  | 1800  | 1800  | 1600   | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 140   | 78  | 433   | 88  | 76  | 46  | 288  | 1231  | 101   | 17  | 1157  | 58  |
| Peak Hour Factor             | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89   | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 197   | 316   | 791   | 109   | 373   | 209   | 352  | 1637  | 134   | 31  | 1364  | 68  |
| Arrive On Green              | 0.07  | 0.18  | 0.18  | 0.07  | 0.18  | 0.18  | 0.12   | 0.51  | 0.51  | 0.02  | 0.41  | 0.41  |
| Sat Flow, veh/h              | 2956  | 1800  | 2685  | 1619  | 2112  | 1185  | 2956   | 3201  | 262   | 1619  | 3314  | 166   |
| Grp Volume(v), veh/h         | 140   | 78  | 433   | 88  | 60  | 62  | 288  | 657   | 675   | 17  | 597   | 618   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1800  | 1342  | 1619  | 1710  | 1587  | 1478   | 1710  | 1753  | 1619  | 1710  | 1770  |
| Q Serve(g_s), s              | 4.3   | 3.5   | 12.7  | 5.0   | 2.8   | 3.1   | 8.9  | 28.5  | 28.7  | 1.0   | 29.5  | 29.5  |
| Cycle Q Clear(g_c), s        | 4.3   | 3.5   | 12.7  | 5.0   | 2.8   | 3.1   | 8.9  | 28.5  | 28.7  | 1.0   | 29.5  | 29.5  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.75  | 1.00   |   | 0.15  | 1.00  |   | 0.09  |
| Lane Grp Cap(c), veh/h       | 197   | 316   | 791   | 109   | 302   | 280   | 352  | 874   | 896   | 31  | 704   | 728   |
| V/C Ratio(X)                 | 0.71  | 0.25  | 0.55  | 0.81  | 0.20  | 0.22  | 0.82   | 0.75  | 0.75  | 0.55  | 0.85  | 0.85  |
| Avail Cap(c_a), veh/h        | 272   | 523   | 1100  | 111   | 457   | 424   | 493  | 1097  | 1124  | 90  | 907   | 939   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 42.8  | 33.2  | 27.8  | 43.0  | 32.9  | 33.0  | 40.2   | 18.1  | 18.2  | 45.5  | 24.9  | 24.9  |
| Incr Delay (d2), s/veh       | 2.4   | 0.4   | 0.6   | 31.5  | 0.3   | 0.4   | 5.1  | 2.3   | 2.3   | 5.6   | 6.1   | 5.9   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 1.6   | 1.5   | 3.9   | 2.9   | 1.1   | 1.2   | 3.3  | 10.0  | 10.4  | 0.4   | 11.7  | 12.1  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 45.2  | 33.6  | 28.3  | 74.5  | 33.2  | 33.4  | 45.4   | 20.4  | 20.4  | 51.0  | 31.0  | 30.8  |
| LnGrp LOS                    | D   | C   | C   | E   | C   | C   | D  | C   | C   | D   | C   | C   |
| Approach Vol, veh/h          |   | 651   |   |   | 210   |   |  | 1620  |   |   | 1232  |   |
| Approach Delay, s/veh        |   | 32.6  |   |   | 50.6  |   |  | 24.8  |   |   | 31.2  |   |
| Approach LOS                 |   | C   |   |   | D   |   |  | C   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.4   | 54.0  | 10.9  | 22.2  | 15.7  | 44.7  | 10.8   | 22.3  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.2   | 60.0  | 6.4   | 27.2  | 15.6  | 49.6  | 8.6  | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.0   | 30.7  | 7.0   | 14.7  | 10.9  | 31.5  | 6.3  | 5.1   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 9.6   | 0.0   | 1.7   | 0.2   | 6.9   | 0.0  | 0.5   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 29.8  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |  |   |   |   |   |   |

Timings

9: Hesperia Rd. & Bear Valley Rd.

03/24/2022

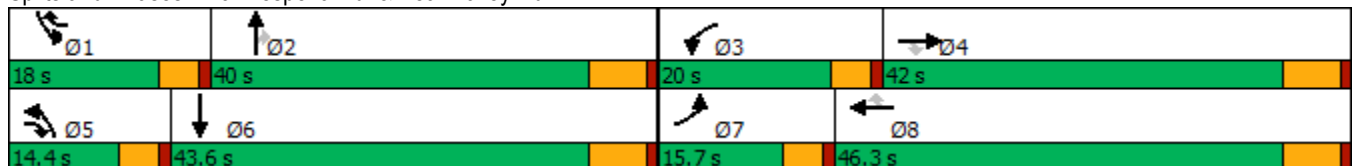


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑    | ↖     | ↖↗    | ↑↘    |
| Traffic Volume (vph) | 175   | 1206  | 116   | 300   | 1281  | 191   | 103   | 516   | 298   | 253   | 335   |
| Future Volume (vph)  | 175   | 1206  | 116   | 300   | 1281  | 191   | 103   | 516   | 298   | 253   | 335   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 15.7  | 42.0  | 14.4  | 20.0  | 46.3  | 18.0  | 14.4  | 40.0  | 40.0  | 18.0  | 43.6  |
| Total Split (%)      | 13.1% | 35.0% | 12.0% | 16.7% | 38.6% | 15.0% | 12.0% | 33.3% | 33.3% | 15.0% | 36.3% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 10.1  | 34.1  | 43.9  | 14.4  | 38.5  | 52.8  | 8.1   | 25.0  | 25.0  | 12.6  | 29.5  |
| Actuated g/C Ratio   | 0.09  | 0.32  | 0.41  | 0.13  | 0.36  | 0.49  | 0.07  | 0.23  | 0.23  | 0.12  | 0.27  |
| v/c Ratio            | 0.68  | 0.83  | 0.19  | 0.81  | 0.78  | 0.26  | 0.50  | 0.69  | 0.61  | 0.78  | 0.49  |
| Control Delay        | 62.5  | 40.6  | 8.3   | 63.8  | 35.6  | 10.0  | 58.3  | 43.3  | 17.0  | 64.7  | 32.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 62.5  | 40.6  | 8.3   | 63.8  | 35.6  | 10.0  | 58.3  | 43.3  | 17.0  | 64.7  | 32.9  |
| LOS                  | E     | D     | A     | E     | D     | B     | E     | D     | B     | E     | C     |
| Approach Delay       |       | 40.6  |       |       | 37.6  |       |       | 36.4  |       |       | 44.8  |
| Approach LOS         |       | D     |       |       | D     |       |       | D     |       |       | D     |

Intersection Summary

































Cycle Length: 120  
 Actuated Cycle Length: 108.1  
 Natural Cycle: 105  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 39.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 77.2%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)  
 03/24/2022

|                              |    |    |  |    |    |    |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |   |
| Traffic Volume (veh/h)       | 175   | 1206  | 116   | 300   | 1281  | 191   | 103   | 516   | 298   | 253   | 335   | 88  |
| Future Volume (veh/h)        | 175   | 1206  | 116   | 300   | 1281  | 191   | 103   | 516   | 298   | 253   | 335   | 88  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 186   | 1283  | 91  | 319   | 1363  | 150   | 110   | 549   | 237   | 269   | 356   | 73  |
| Peak Hour Factor             | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 243   | 1603  | 580   | 376   | 1825  | 734   | 161   | 748   | 333   | 326   | 778   | 158   |
| Arrive On Green              | 0.08  | 0.33  | 0.33  | 0.13  | 0.37  | 0.37  | 0.05  | 0.22  | 0.22  | 0.11  | 0.27  | 0.27  |
| Sat Flow, veh/h              | 2956  | 4914  | 1524  | 2956  | 4914  | 1523  | 2956  | 3420  | 1521  | 2956  | 2832  | 574   |
| Grp Volume(v), veh/h         | 186   | 1283  | 91  | 319   | 1363  | 150   | 110   | 549   | 237   | 269   | 213   | 216   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1524  | 1478  | 1638  | 1523  | 1478  | 1710  | 1521  | 1478  | 1710  | 1697  |
| Q Serve(g_s), s              | 6.1   | 23.6  | 3.9   | 10.5  | 24.0  | 5.6   | 3.6   | 14.8  | 14.3  | 8.8   | 10.3  | 10.5  |
| Cycle Q Clear(g_c), s        | 6.1   | 23.6  | 3.9   | 10.5  | 24.0  | 5.6   | 3.6   | 14.8  | 14.3  | 8.8   | 10.3  | 10.5  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 0.34  |
| Lane Grp Cap(c), veh/h       | 243   | 1603  | 580   | 376   | 1825  | 734   | 161   | 748   | 333   | 326   | 470   | 466   |
| V/C Ratio(X)                 | 0.77  | 0.80  | 0.16  | 0.85  | 0.75  | 0.20  | 0.68  | 0.73  | 0.71  | 0.83  | 0.45  | 0.46  |
| Avail Cap(c_a), veh/h        | 330   | 1772  | 632   | 459   | 1985  | 783   | 292   | 1164  | 518   | 399   | 644   | 639   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 44.6  | 30.5  | 20.3  | 42.4  | 27.1  | 14.8  | 46.1  | 36.1  | 35.9  | 43.2  | 29.8  | 29.9  |
| Incr Delay (d2), s/veh       | 4.6   | 2.5   | 0.1   | 10.2  | 1.5   | 0.1   | 1.9   | 1.4   | 2.8   | 9.3   | 0.7   | 0.7   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.3   | 8.9   | 1.3   | 4.2   | 8.8   | 1.8   | 1.3   | 6.0   | 5.3   | 3.5   | 4.0   | 4.1   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 49.2  | 33.0  | 20.4  | 52.6  | 28.6  | 14.9  | 48.0  | 37.5  | 38.7  | 52.6  | 30.5  | 30.6  |
| LnGrp LOS                    | D   | C   | C   | D   | C   | B   | D   | D   | D   | D   | C   | C   |
| Approach Vol, veh/h          |   | 1560  |   |   | 1832  |   |   | 896   |   |   | 698   |   |
| Approach Delay, s/veh        |   | 34.2  |   |   | 31.7  |   |   | 39.1  |   |   | 39.1  |   |
| Approach LOS                 |   | C   |   |   | C   |   |   | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 15.5  | 27.9  | 17.2  | 38.6  | 10.0  | 33.5  | 12.7  | 43.1  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 13.4  | 33.8  | 15.4  | 35.8  | 9.8   | 37.4  | 11.1  | 40.1  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 10.8  | 16.8  | 12.5  | 25.6  | 5.6   | 12.5  | 8.1   | 26.0  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.1   | 4.6   | 0.2   | 6.7   | 0.0   | 3.1   | 0.1   | 9.2   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 34.8  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |   |   |   |   |   |   |

Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

03/24/2022

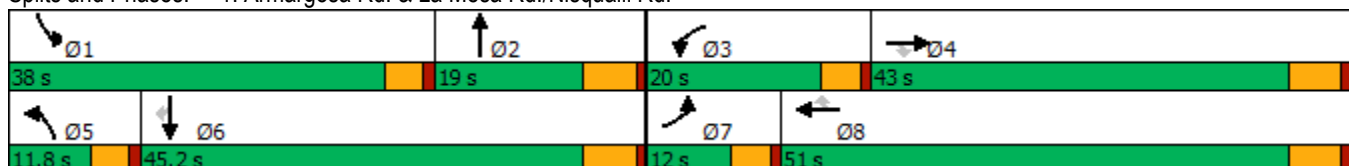


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↕     | ↗     | ↖↗    | ↕↕↕   | ↗     | ↖↗   | ↕↕    | ↗     | ↖↗    | ↕↕    | ↗     |
| Traffic Volume (vph) | 140   | 917   | 136   | 352   | 1440  | 652   | 131  | 316   | 394   | 798   | 632   | 402   |
| Future Volume (vph)  | 140   | 917   | 136   | 352   | 1440  | 652   | 131  | 316   | 394   | 798   | 632   | 402   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot | NA    | Free  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5    | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |      |       | Free  |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5    | 2     |       | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |      |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |       | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5  | 10.8  |       | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 12.0  | 43.0  | 43.0  | 20.0  | 51.0  | 51.0  | 11.8 | 19.0  |       | 38.0  | 45.2  | 45.2  |
| Total Split (%)      | 10.0% | 35.8% | 35.8% | 16.7% | 42.5% | 42.5% | 9.8% | 15.8% |       | 31.7% | 37.7% | 37.7% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5  | 4.8   |       | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |       | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5  | 5.8   |       | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead | Lag   |       | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |       | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | None | Max   |       | None  | Max   | Max   |
| Act Effct Green (s)  | 7.4   | 35.7  | 35.7  | 15.3  | 43.6  | 43.6  | 7.2  | 13.9  | 118.2 | 32.8  | 39.4  | 39.4  |
| Actuated g/C Ratio   | 0.06  | 0.30  | 0.30  | 0.13  | 0.37  | 0.37  | 0.06 | 0.12  | 1.00  | 0.28  | 0.33  | 0.33  |
| v/c Ratio            | 0.75  | 0.86  | 0.23  | 0.92  | 0.74  | 0.68  | 0.73 | 0.76  | 0.26  | 0.97  | 0.54  | 0.67  |
| Control Delay        | 79.3  | 48.2  | 2.3   | 80.1  | 35.0  | 6.4   | 77.7 | 63.9  | 0.4   | 66.7  | 34.3  | 26.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 79.3  | 48.2  | 2.3   | 80.1  | 35.0  | 6.4   | 77.7 | 63.9  | 0.4   | 66.7  | 34.3  | 26.6  |
| LOS                  | E     | D     | A     | F     | C     | A     | E    | E     | A     | E     | C     | C     |
| Approach Delay       |       | 46.6  |       |       | 33.9  |       |      | 36.3  |       |       | 46.7  |       |
| Approach LOS         |       | D     |       |       | C     |       |      | D     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 118.2  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 40.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 92.1%  
 ICU Level of Service F  
 Analysis Period (min) 15


































Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |    |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |   |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 140   | 917   | 136   | 352   | 1440  | 652   | 131  | 316   | 394   | 798   | 632   | 402   |
| Future Volume (veh/h)        | 140   | 917   | 136   | 352   | 1440  | 652   | 131  | 316   | 394   | 798   | 632   | 402   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600   | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 143   | 936   | 119   | 359   | 1469  | 486   | 134  | 322   | 0   | 814   | 645   | 308   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 191   | 1070  | 453   | 402   | 1980  | 559   | 182  | 412   |   | 856   | 1209  | 512   |
| Arrive On Green              | 0.06  | 0.30  | 0.30  | 0.13  | 0.37  | 0.37  | 0.06   | 0.11  | 0.00  | 0.28  | 0.34  | 0.34  |
| Sat Flow, veh/h              | 3048  | 3600  | 1525  | 3048  | 5400  | 1525  | 3048   | 3600  | 1525  | 3048  | 3600  | 1525  |
| Grp Volume(v), veh/h         | 143   | 936   | 119   | 359   | 1469  | 486   | 134  | 322   | 0   | 814   | 645   | 308   |
| Grp Sat Flow(s),veh/h/ln     | 1524  | 1800  | 1525  | 1524  | 1800  | 1525  | 1524   | 1800  | 1525  | 1524  | 1800  | 1525  |
| Q Serve(g_s), s              | 5.4   | 29.0  | 7.0   | 13.6  | 27.8  | 34.8  | 5.1  | 10.2  | 0.0   | 30.8  | 17.0  | 19.7  |
| Cycle Q Clear(g_c), s        | 5.4   | 29.0  | 7.0   | 13.6  | 27.8  | 34.8  | 5.1  | 10.2  | 0.0   | 30.8  | 17.0  | 19.7  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 191   | 1070  | 453   | 402   | 1980  | 559   | 182  | 412   |   | 856   | 1209  | 512   |
| V/C Ratio(X)                 | 0.75  | 0.87  | 0.26  | 0.89  | 0.74  | 0.87  | 0.74   | 0.78  |   | 0.95  | 0.53  | 0.60  |
| Avail Cap(c_a), veh/h        | 195   | 1141  | 483   | 402   | 2080  | 587   | 190  | 412   |   | 870   | 1209  | 512   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 0.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 54.1  | 39.2  | 31.4  | 50.1  | 32.3  | 34.6  | 54.3   | 50.5  | 0.0   | 41.4  | 31.5  | 32.4  |
| Incr Delay (d2), s/veh       | 12.9  | 7.5   | 0.3   | 20.7  | 1.4   | 12.8  | 11.7   | 13.7  | 0.0   | 19.2  | 1.7   | 5.2   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.4   | 13.3  | 2.5   | 6.2   | 11.8  | 14.2  | 2.2  | 5.3   | 0.0   | 13.3  | 7.4   | 7.7   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 67.0  | 46.6  | 31.7  | 70.9  | 33.7  | 47.3  | 66.0   | 64.3  | 0.0   | 60.7  | 33.2  | 37.6  |
| LnGrp LOS                    | E   | D   | C   | E   | C   | D   | E  | E   |   | E   | C   | D   |
| Approach Vol, veh/h          |   | 1198  |   |   | 2314  |   |  | 456   | A   |   | 1767  |   |
| Approach Delay, s/veh        |   | 47.6  |   |   | 42.4  |   |  | 64.8  |   |   | 46.6  |   |
| Approach LOS                 |   | D   |   |   | D   |   |  | E   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 37.5  | 19.2  | 20.0  | 40.7  | 11.5  | 45.2  | 11.8   | 48.8  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.5   | 5.8   | 4.5   | 5.8   | 4.5   | 5.8   | 4.5  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 33.5  | 13.2  | 15.5  | 37.2  | 7.3   | 39.4  | 7.5  | 45.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 32.8  | 12.2  | 15.6  | 31.0  | 7.1   | 21.7  | 7.4  | 36.8  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.2   | 0.2   | 0.0   | 3.2   | 0.0   | 4.8   | 0.0  | 6.3   |   |   |   |   |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 46.5 |
| HCM 6th LOS        | D    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

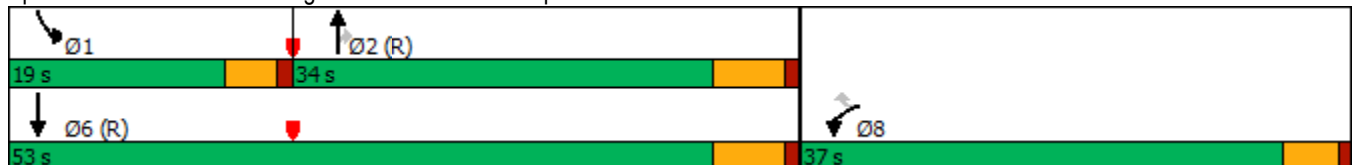
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↗↘    | ↗     | ↗↘    | ↗     | ↘     | ↗↘    |
| Traffic Volume (vph) | 933   | 46    | 783   | 321   | 164   | 927   |
| Future Volume (vph)  | 933   | 46    | 783   | 321   | 164   | 927   |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 37.0  | 37.0  | 34.0  | 34.0  | 19.0  | 53.0  |
| Total Split (%)      | 41.1% | 41.1% | 37.8% | 37.8% | 21.1% | 58.9% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 29.6  | 29.6  | 32.6  | 32.6  | 12.8  | 49.9  |
| Actuated g/C Ratio   | 0.33  | 0.33  | 0.36  | 0.36  | 0.14  | 0.55  |
| v/c Ratio            | 0.89  | 0.09  | 0.66  | 0.44  | 0.70  | 0.51  |
| Control Delay        | 39.1  | 6.3   | 28.1  | 4.6   | 51.7  | 14.1  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 39.1  | 6.3   | 28.1  | 4.6   | 51.7  | 14.1  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 37.5  |       | 21.3  |       |       | 19.7  |
| Approach LOS         | D     |       | C     |       |       | B     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 25.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 69.8%  
 ICU Level of Service C  
 Analysis Period (min) 15
















Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |  |    |
|------------------------------|---|---|---|---|---|---|
| Movement                     | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations          |   |  |   |  |  |   |
| Traffic Volume (veh/h)       | 933   | 46  | 783   | 321   | 164   | 927   |
| Future Volume (veh/h)        | 933   | 46  | 783   | 321   | 164   | 927   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        | No  |   | No  |   |   | No  |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 1025  | 51  | 860   | 353   | 180   | 1019  |
| Peak Hour Factor             | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 1115  | 511   | 1430  | 638   | 217   | 2042  |
| Arrive On Green              | 0.32  | 0.32  | 0.40  | 0.40  | 0.12  | 0.57  |
| Sat Flow, veh/h              | 3510  | 1610  | 3705  | 1610  | 1810  | 3705  |
| Grp Volume(v), veh/h         | 1025  | 51  | 860   | 353   | 180   | 1019  |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1610  | 1805  | 1610  | 1810  | 1805  |
| Q Serve(g_s), s              | 25.3  | 2.0   | 17.0  | 15.3  | 8.8   | 15.4  |
| Cycle Q Clear(g_c), s        | 25.3  | 2.0   | 17.0  | 15.3  | 8.8   | 15.4  |
| Prop In Lane                 | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Lane Grp Cap(c), veh/h       | 1115  | 511   | 1430  | 638   | 217   | 2042  |
| V/C Ratio(X)                 | 0.92  | 0.10  | 0.60  | 0.55  | 0.83  | 0.50  |
| Avail Cap(c_a), veh/h        | 1260  | 578   | 1430  | 638   | 292   | 2042  |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Upstream Filter(I)           | 1.00  | 1.00  | 0.63  | 0.63  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 29.6  | 21.6  | 21.6  | 21.0  | 38.7  | 11.8  |
| Incr Delay (d2), s/veh       | 9.6   | 0.0   | 1.2   | 2.2   | 13.8  | 0.9   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 11.0  | 0.7   | 6.8   | 5.6   | 4.5   | 5.4   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 39.2  | 21.7  | 22.7  | 23.2  | 52.5  | 12.7  |
| LnGrp LOS                    | D   | C   | C   | C   | D   | B   |
| Approach Vol, veh/h          | 1076  |   | 1213  |   |   | 1199  |
| Approach Delay, s/veh        | 38.4  |   | 22.9  |   |   | 18.7  |
| Approach LOS                 | D   |   | C   |   |   | B   |
| Timer - Assigned Phs         | 1   | 2   |   |   | 6   | 8   |
| Phs Duration (G+Y+Rc), s     | 15.3  | 41.4  |   |   | 56.7  | 33.3  |
| Change Period (Y+Rc), s      | 4.5   | 5.8   |   |   | 5.8   | 4.7   |
| Max Green Setting (Gmax), s  | 14.5  | 28.2  |   |   | 47.2  | 32.3  |
| Max Q Clear Time (g_c+11), s | 10.8  | 19.0  |   |   | 17.4  | 27.3  |
| Green Ext Time (p_c), s      | 0.2   | 4.5   |   |   | 7.6   | 1.2   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 26.2  |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

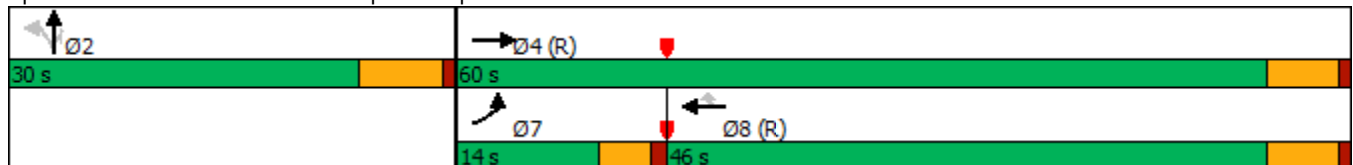


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↶↷    | ↑↑↑   | ↶↷↶   | ↷     | ↶     | ↑     | ↷     |
| Traffic Volume (vph) | 287   | 1818  | 1952  | 382   | 489   | 0     | 409   |
| Future Volume (vph)  | 287   | 1818  | 1952  | 382   | 489   | 0     | 409   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 14.0  | 60.0  | 46.0  | 46.0  | 30.0  | 30.0  | 30.0  |
| Total Split (%)      | 15.6% | 66.7% | 51.1% | 51.1% | 33.3% | 33.3% | 33.3% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 9.4   | 55.6  | 41.7  | 41.7  | 22.1  | 22.1  | 22.1  |
| Actuated g/C Ratio   | 0.10  | 0.62  | 0.46  | 0.46  | 0.25  | 0.25  | 0.25  |
| v/c Ratio            | 0.80  | 0.58  | 0.83  | 0.41  | 0.59  | 0.60  | 0.90  |
| Control Delay        | 57.0  | 11.4  | 25.3  | 3.1   | 36.1  | 36.2  | 50.4  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 57.0  | 11.4  | 25.3  | 3.1   | 36.1  | 36.2  | 50.4  |
| LOS                  | E     | B     | C     | A     | D     | D     | D     |
| Approach Delay       |       | 17.6  | 21.7  |       |       | 42.6  |       |
| Approach LOS         |       | B     | C     |       |       | D     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 23.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 73.4%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.





























HCM 6th Signalized Intersection Summary  
3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)

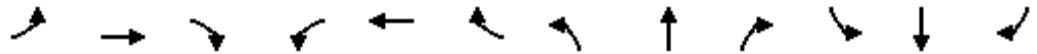
03/24/2022

|  |    |    |  |  |    |  |  |  |  |  |  |  |
|--|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement   | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations  |   |    |   |   |    |  |  |  |  |   |   |   |
| Traffic Volume (veh/h)   | 287   | 1818  | 0   | 0   | 1952  | 382   | 489  | 0   | 409   | 0   | 0   | 0   |
| Future Volume (veh/h)  | 287   | 1818  | 0   | 0   | 1952  | 382   | 489  | 0   | 409   | 0   | 0   | 0   |
| Initial Q (Qb), veh  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Ped-Bike Adj(A_pbT)  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Parking Bus, Adj   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Work Zone On Approach  |   | No  |   |   | No  |   |  | No  |   |   |   |   |
| Adj Sat Flow, veh/h/ln   | 1900  | 1900  | 0   | 0   | 1900  | 1900  | 1900   | 1900  | 1900  |   |   |   |
| Adj Flow Rate, veh/h   | 293   | 1855  | 0   | 0   | 1992  | 390   | 499  | 0   | 417   |   |   |   |
| Peak Hour Factor   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  |   |   |   |
| Percent Heavy Veh, %   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Cap, veh/h   | 365   | 3124  | 0   | 0   | 2326  | 722   | 945  | 0   | 420   |   |   |   |
| Arrive On Green  | 0.10  | 0.60  | 0.00  | 0.00  | 0.45  | 0.45  | 0.26   | 0.00  | 0.26  |   |   |   |
| Sat Flow, veh/h  | 3510  | 5358  | 0   | 0   | 5358  | 1610  | 3619   | 0   | 1610  |   |   |   |
| Grp Volume(v), veh/h   | 293   | 1855  | 0   | 0   | 1992  | 390   | 499  | 0   | 417   |   |   |   |
| Grp Sat Flow(s),veh/h/ln   | 1755  | 1729  | 0   | 0   | 1729  | 1610  | 1810   | 0   | 1610  |   |   |   |
| Q Serve(g_s), s  | 7.3   | 19.9  | 0.0   | 0.0   | 31.0  | 15.9  | 10.6   | 0.0   | 23.2  |   |   |   |
| Cycle Q Clear(g_c), s  | 7.3   | 19.9  | 0.0   | 0.0   | 31.0  | 15.9  | 10.6   | 0.0   | 23.2  |   |   |   |
| Prop In Lane   | 1.00  |   | 0.00  | 0.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Lane Grp Cap(c), veh/h   | 365   | 3124  | 0   | 0   | 2326  | 722   | 945  | 0   | 420   |   |   |   |
| V/C Ratio(X)   | 0.80  | 0.59  | 0.00  | 0.00  | 0.86  | 0.54  | 0.53   | 0.00  | 0.99  |   |   |   |
| Avail Cap(c_a), veh/h  | 371   | 3124  | 0   | 0   | 2326  | 722   | 945  | 0   | 420   |   |   |   |
| HCM Platoon Ratio  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Upstream Filter(I)   | 0.52  | 0.52  | 0.00  | 0.00  | 0.44  | 0.44  | 1.00   | 0.00  | 1.00  |   |   |   |
| Uniform Delay (d), s/veh   | 39.4  | 11.1  | 0.0   | 0.0   | 22.2  | 18.1  | 28.5   | 0.0   | 33.2  |   |   |   |
| Incr Delay (d2), s/veh   | 6.0   | 0.4   | 0.0   | 0.0   | 2.0   | 1.3   | 0.6  | 0.0   | 41.6  |   |   |   |
| Initial Q Delay(d3),s/veh  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |   |   |   |
| %ile BackOfQ(50%),veh/ln   | 3.3   | 6.3   | 0.0   | 0.0   | 11.5  | 5.5   | 4.3  | 0.0   | 13.0  |   |   |   |
| Unsig. Movement Delay, s/veh   |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh   | 45.5  | 11.5  | 0.0   | 0.0   | 24.2  | 19.4  | 29.1   | 0.0   | 74.8  |   |   |   |
| LnGrp LOS  | D   | B   | A   | A   | C   | B   | C  | A   | E   |   |   |   |
| Approach Vol, veh/h  |   | 2148  |   |   | 2382  |   |  | 916   |   |   |   |   |
| Approach Delay, s/veh  |   | 16.2  |   |   | 23.4  |   |  | 49.9  |   |   |   |   |
| Approach LOS   |   | B   |   |   | C   |   |  | D   |   |   |   |   |
| Timer - Assigned Phs   |   | 2   |   | 4   |   |   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s   |   | 30.0  |   | 60.0  |   |   | 13.8   | 46.2  |   |   |   |   |
| Change Period (Y+Rc), s  |   | 6.5   |   | 5.8   |   |   | 4.5  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  |   | 23.5  |   | 54.2  |   |   | 9.5  | 40.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s   |   | 25.2  |   | 21.9  |   |   | 9.3  | 33.0  |   |   |   |   |
| Green Ext Time (p_c), s  |   | 0.0   |   | 17.1  |   |   | 0.0  | 6.3   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay   |   |   |   | 25.0  |   |   |  |   |   |   |   |   |
| HCM 6th LOS  |   |   |   | C   |   |   |  |   |   |   |   |   |
| <b>Notes</b>   |   |   |   |   |   |   |  |   |   |   |   |   |
| User approved volume balancing among the lanes for turning movement. |   |   |   |   |   |   |  |   |   |   |   |   |

Timings

4: Mariposa & Nisqualli Rd.

03/24/2022

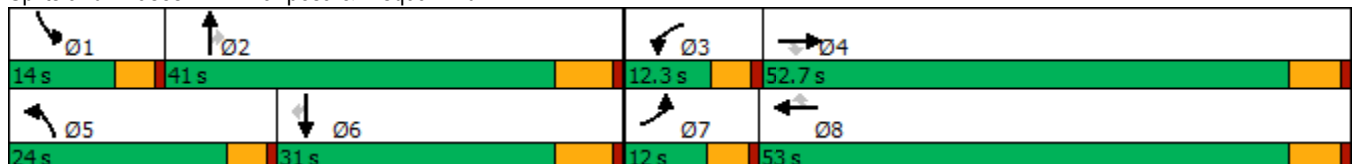


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↗     | ↖↗    | ↑↑↑   | ↗     | ↖↗    | ↑↑    | ↗     | ↖↗    | ↑↑    | ↗     |
| Traffic Volume (vph) | 144   | 1644  | 456   | 128   | 1784  | 136   | 418   | 297   | 175   | 177   | 298   | 103   |
| Future Volume (vph)  | 144   | 1644  | 456   | 128   | 1784  | 136   | 418   | 297   | 175   | 177   | 298   | 103   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 12.0  | 52.7  | 52.7  | 12.3  | 53.0  | 53.0  | 24.0  | 41.0  | 41.0  | 14.0  | 31.0  | 31.0  |
| Total Split (%)      | 10.0% | 43.9% | 43.9% | 10.3% | 44.2% | 44.2% | 20.0% | 34.2% | 34.2% | 11.7% | 25.8% | 25.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 7.4   | 46.0  | 46.0  | 7.4   | 46.0  | 46.0  | 18.4  | 24.3  | 24.3  | 9.1   | 15.0  | 15.0  |
| Actuated g/C Ratio   | 0.07  | 0.43  | 0.43  | 0.07  | 0.43  | 0.43  | 0.17  | 0.22  | 0.22  | 0.08  | 0.14  | 0.14  |
| v/c Ratio            | 0.72  | 0.79  | 0.54  | 0.64  | 0.86  | 0.19  | 0.84  | 0.39  | 0.39  | 0.72  | 0.64  | 0.30  |
| Control Delay        | 71.3  | 31.0  | 8.1   | 65.4  | 33.9  | 3.1   | 60.2  | 37.2  | 12.8  | 66.8  | 50.7  | 4.3   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 71.3  | 31.0  | 8.1   | 65.4  | 33.9  | 3.1   | 60.2  | 37.2  | 12.8  | 66.8  | 50.7  | 4.3   |
| LOS                  | E     | C     | A     | E     | C     | A     | E     | D     | B     | E     | D     | A     |
| Approach Delay       |       | 28.9  |       |       | 33.8  |       |       | 43.2  |       |       | 47.4  |       |
| Approach LOS         |       | C     |       |       | C     |       |       | D     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 108.1  
 Natural Cycle: 105  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 34.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 81.8%  
 ICU Level of Service D  
 Analysis Period (min) 15



































Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 144   | 1644  | 456   | 128   | 1784  | 136   | 418   | 297   | 175   | 177   | 298   | 103   |
| Future Volume (veh/h)        | 144   | 1644  | 456   | 128   | 1784  | 136   | 418   | 297   | 175   | 177   | 298   | 103   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 145   | 1661  | 461   | 129   | 1802  | 137   | 422   | 300   | 177   | 179   | 301   | 104   |
| Peak Hour Factor             | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 198   | 2176  | 675   | 181   | 2148  | 667   | 481   | 701   | 313   | 234   | 416   | 185   |
| Arrive On Green              | 0.07  | 0.44  | 0.44  | 0.06  | 0.44  | 0.44  | 0.16  | 0.20  | 0.20  | 0.08  | 0.12  | 0.12  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956  | 3420  | 1525  | 2956  | 3420  | 1525  |
| Grp Volume(v), veh/h         | 145   | 1661  | 461   | 129   | 1802  | 137   | 422   | 300   | 177   | 179   | 301   | 104   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478  | 1710  | 1525  | 1478  | 1710  | 1525  |
| Q Serve(g_s), s              | 4.8   | 28.5  | 24.2  | 4.3   | 32.6  | 5.6   | 14.0  | 7.7   | 10.4  | 5.9   | 8.5   | 6.4   |
| Cycle Q Clear(g_c), s        | 4.8   | 28.5  | 24.2  | 4.3   | 32.6  | 5.6   | 14.0  | 7.7   | 10.4  | 5.9   | 8.5   | 6.4   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 198   | 2176  | 675   | 181   | 2148  | 667   | 481   | 701   | 313   | 234   | 416   | 185   |
| V/C Ratio(X)                 | 0.73  | 0.76  | 0.68  | 0.71  | 0.84  | 0.21  | 0.88  | 0.43  | 0.57  | 0.76  | 0.72  | 0.56  |
| Avail Cap(c_a), veh/h        | 219   | 2302  | 715   | 227   | 2317  | 719   | 573   | 1189  | 530   | 278   | 847   | 378   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 45.8  | 23.5  | 22.3  | 46.1  | 25.0  | 17.4  | 40.9  | 34.7  | 35.8  | 45.2  | 42.4  | 41.5  |
| Incr Delay (d2), s/veh       | 8.8   | 1.5   | 2.5   | 4.8   | 2.7   | 0.2   | 11.5  | 0.4   | 1.6   | 8.0   | 2.4   | 2.6   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 1.9   | 10.3  | 8.4   | 1.6   | 12.0  | 1.8   | 5.6   | 3.1   | 3.9   | 2.3   | 3.5   | 2.5   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 54.6  | 25.0  | 24.8  | 50.9  | 27.8  | 17.6  | 52.4  | 35.1  | 37.4  | 53.2  | 44.8  | 44.1  |
| LnGrp LOS                    | D   | C   | C   | D   | C   | B   | D   | D   | D   | D   | D   | D   |
| Approach Vol, veh/h          |   | 2267  |   |   | 2068  |   |   | 899   |   |   | 584   |   |
| Approach Delay, s/veh        |   | 26.8  |   |   | 28.6  |   |   | 43.7  |   |   | 47.2  |   |
| Approach LOS                 |   | C   |   |   | C   |   |   | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 12.5  | 26.7  | 10.7  | 50.1  | 20.9  | 18.4  | 11.3  | 49.6  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 9.4   | 34.8  | 7.7   | 46.9  | 19.4  | 24.8  | 7.4   | 47.2  |   |   |   |   |
| Max Q Clear Time (g_c+1), s  | 7.9   | 12.4  | 6.3   | 30.5  | 16.0  | 10.5  | 6.8   | 34.6  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 2.3   | 0.0   | 11.4  | 0.3   | 1.7   | 0.0   | 9.1   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 32.1  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |   |   |   |   |   |   |

Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

03/24/2022

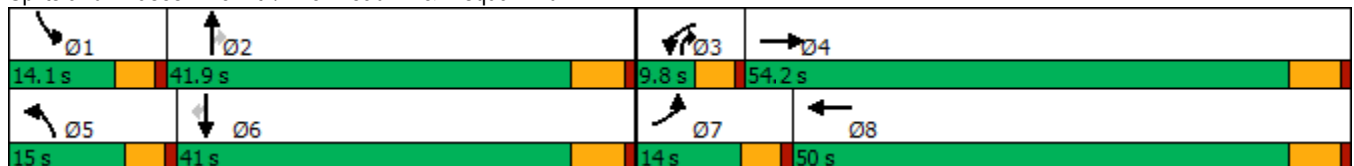


| Lane Group           | EBL   | EBT   | WBL  | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |      |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 99    | 875   | 34   | 1097  | 217   | 241   | 43    | 46    | 296   | 83    |
| Future Volume (vph)  | 99    | 875   | 34   | 1097  | 217   | 241   | 43    | 46    | 296   | 83    |
| Turn Type            | Prot  | NA    | Prot | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3    | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |      |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3    | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |      |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0  | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6  | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 14.0  | 54.2  | 9.8  | 50.0  | 15.0  | 41.9  | 9.8   | 14.1  | 41.0  | 41.0  |
| Total Split (%)      | 11.7% | 45.2% | 8.2% | 41.7% | 12.5% | 34.9% | 8.2%  | 11.8% | 34.2% | 34.2% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6  | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6  | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 9.1   | 49.7  | 5.2  | 43.6  | 10.5  | 29.2  | 40.2  | 7.4   | 24.0  | 24.0  |
| Actuated g/C Ratio   | 0.08  | 0.46  | 0.05 | 0.40  | 0.10  | 0.27  | 0.37  | 0.07  | 0.22  | 0.22  |
| v/c Ratio            | 0.76  | 0.72  | 0.47 | 0.90  | 1.46  | 0.52  | 0.07  | 0.44  | 0.78  | 0.21  |
| Control Delay        | 84.3  | 28.1  | 72.8 | 41.1  | 276.4 | 39.1  | 2.7   | 62.8  | 53.8  | 4.8   |
| Queue Delay          | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 84.3  | 28.1  | 72.8 | 41.1  | 276.4 | 39.1  | 2.7   | 62.8  | 53.8  | 4.8   |
| LOS                  | F     | C     | E    | D     | F     | D     | A     | E     | D     | A     |
| Approach Delay       |       | 32.9  |      | 42.0  |       | 138.6 |       |       | 45.2  |       |
| Approach LOS         |       | C     |      | D     |       | F     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 108  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.46  
 Intersection Signal Delay: 53.9  
 Intersection LOS: D  
 Intersection Capacity Utilization 87.8%  
 ICU Level of Service E  
 Analysis Period (min) 15























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 99  | 875   | 184   | 34  | 1097  | 73  | 217   | 241   | 43  | 46  | 296   | 83  |
| Future Volume (veh/h)        | 99  | 875   | 184   | 34  | 1097  | 73  | 217   | 241   | 43  | 46  | 296   | 83  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 104   | 921   | 194   | 36  | 1155  | 77  | 228   | 254   | 45  | 48  | 312   | 87  |
| Peak Hour Factor             | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 128   | 1260  | 265   | 51  | 1306  | 87  | 171   | 490   | 464   | 60  | 367   | 311   |
| Arrive On Green              | 0.08  | 0.45  | 0.45  | 0.03  | 0.40  | 0.40  | 0.11  | 0.27  | 0.27  | 0.04  | 0.20  | 0.20  |
| Sat Flow, veh/h              | 1619  | 2812  | 592   | 1619  | 3254  | 217   | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Grp Volume(v), veh/h         | 104   | 560   | 555   | 36  | 606   | 626   | 228   | 254   | 45  | 48  | 312   | 87  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1710  | 1693  | 1619  | 1710  | 1761  | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Q Serve(g_s), s              | 6.2   | 26.5  | 26.6  | 2.2   | 32.5  | 32.6  | 10.4  | 11.8  | 2.1   | 2.9   | 16.5  | 4.8   |
| Cycle Q Clear(g_c), s        | 6.2   | 26.5  | 26.6  | 2.2   | 32.5  | 32.6  | 10.4  | 11.8  | 2.1   | 2.9   | 16.5  | 4.8   |
| Prop In Lane                 | 1.00  |   | 0.35  | 1.00  |   | 0.12  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 128   | 766   | 759   | 51  | 686   | 706   | 171   | 490   | 464   | 60  | 367   | 311   |
| V/C Ratio(X)                 | 0.82  | 0.73  | 0.73  | 0.70  | 0.88  | 0.89  | 1.34  | 0.52  | 0.10  | 0.80  | 0.85  | 0.28  |
| Avail Cap(c_a), veh/h        | 154   | 838   | 830   | 85  | 766   | 788   | 171   | 658   | 606   | 156   | 642   | 544   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 44.8  | 22.3  | 22.4  | 47.3  | 27.4  | 27.5  | 44.2  | 30.4  | 24.6  | 47.2  | 37.8  | 33.2  |
| Incr Delay (d2), s/veh       | 20.1  | 3.0   | 3.0   | 6.3   | 11.1  | 11.0  | 185.8   | 0.9   | 0.1   | 8.8   | 5.5   | 0.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.1   | 10.2  | 10.2  | 0.9   | 14.2  | 14.6  | 12.8  | 5.0   | 0.7   | 1.3   | 7.4   | 1.7   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 64.9  | 25.3  | 25.4  | 53.6  | 38.5  | 38.4  | 229.9   | 31.3  | 24.7  | 55.9  | 43.4  | 33.7  |
| LnGrp LOS                    | E   | C   | C   | D   | D   | D   | F   | C   | C   | E   | D   | C   |
| Approach Vol, veh/h          |   | 1219  |   |   | 1268  |   |   | 527   |   |   | 447   |   |
| Approach Delay, s/veh        |   | 28.7  |   |   | 38.9  |   |   | 116.7   |   |   | 42.8  |   |
| Approach LOS                 |   | C   |   |   | D   |   |   | F   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 8.3   | 32.7  | 7.7   | 50.0  | 15.0  | 25.9  | 12.4  | 45.4  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 9.5   | 36.1  | 5.2   | 48.4  | 10.4  | 35.2  | 9.4   | 44.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 4.9   | 13.8  | 4.2   | 28.6  | 12.4  | 18.5  | 8.2   | 34.6  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.4   | 0.0   | 6.8   | 0.0   | 1.7   | 0.0   | 5.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 47.7  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | D   |   |   |   |   |   |   |   |   |

Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖     | ↖↖    | ↖↖    | ↑↑    | ↑↗    |
| Traffic Volume (vph) | 136   | 519   | 497   | 1086  | 1071  |
| Future Volume (vph)  | 136   | 519   | 497   | 1086  | 1071  |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 26.6  | 36.0  | 36.0  | 93.4  | 57.4  |
| Total Split (%)      | 22.2% | 30.0% | 30.0% | 77.8% | 47.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 14.0  | 43.1  | 24.4  | 78.2  | 47.8  |
| Actuated g/C Ratio   | 0.14  | 0.42  | 0.24  | 0.76  | 0.46  |
| v/c Ratio            | 0.67  | 0.48  | 0.77  | 0.45  | 0.83  |
| Control Delay        | 59.9  | 21.3  | 45.8  | 5.5   | 30.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 59.9  | 21.3  | 45.8  | 5.5   | 30.9  |
| LOS                  | E     | C     | D     | A     | C     |
| Approach Delay       | 29.3  |       |       | 18.2  | 30.9  |
| Approach LOS         | C     |       |       | B     | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 103.2  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 24.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 74.9%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)  
03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 136  | 519  | 497  | 1086 | 1071 | 136  |
| Future Volume (veh/h)        | 136  | 519  | 497  | 1086 | 1071 | 136  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1800 | 1600 | 1800 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 146  | 424  | 534  | 1168 | 1152 | 119  |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 242  | 967  | 622  | 2514 | 1448 | 149  |
| Arrive On Green              | 0.15 | 0.15 | 0.21 | 0.74 | 0.46 | 0.46 |
| Sat Flow, veh/h              | 1619 | 2685 | 2956 | 3510 | 3219 | 323  |
| Grp Volume(v), veh/h         | 146  | 424  | 534  | 1168 | 629  | 642  |
| Grp Sat Flow(s),veh/h/ln     | 1619 | 1342 | 1478 | 1710 | 1710 | 1742 |
| Q Serve(g_s), s              | 7.9  | 11.2 | 16.3 | 12.9 | 29.3 | 29.4 |
| Cycle Q Clear(g_c), s        | 7.9  | 11.2 | 16.3 | 12.9 | 29.3 | 29.4 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.19 |
| Lane Grp Cap(c), veh/h       | 242  | 967  | 622  | 2514 | 791  | 806  |
| V/C Ratio(X)                 | 0.60 | 0.44 | 0.86 | 0.46 | 0.79 | 0.80 |
| Avail Cap(c_a), veh/h        | 380  | 1196 | 953  | 3184 | 935  | 952  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 37.2 | 22.8 | 35.6 | 5.0  | 21.4 | 21.4 |
| Incr Delay (d2), s/veh       | 0.9  | 0.1  | 5.0  | 0.1  | 4.1  | 4.1  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.1  | 9.1  | 6.2  | 3.6  | 11.9 | 12.2 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 38.1 | 22.9 | 40.6 | 5.1  | 25.5 | 25.5 |
| LnGrp LOS                    | D    | C    | D    | A    | C    | C    |
| Approach Vol, veh/h          | 570  |      |      | 1702 | 1271 |      |
| Approach Delay, s/veh        | 26.8 |      |      | 16.3 | 25.5 |      |
| Approach LOS                 | C    |      |      | B    | C    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 75.1 |      | 18.6 | 25.5 | 49.5 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 87.2 |      | 22.0 | 30.2 | 51.2 |
| Max Q Clear Time (g_c+11), s |      | 14.9 |      | 13.2 | 18.3 | 31.4 |
| Green Ext Time (p_c), s      |      | 19.6 |      | 0.8  | 1.4  | 11.9 |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 21.3 |      |      |      |
| HCM 6th LOS                  |      |      | C    |      |      |      |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.5  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 6    | 0    | 15   | 1    | 0    | 14   | 28   | 1564 | 0    | 7    | 1578 | 4    |
| Future Vol, veh/h        | 6    | 0    | 15   | 1    | 0    | 14   | 28   | 1564 | 0    | 7    | 1578 | 4    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 6    | 0    | 16   | 1    | 0    | 15   | 30   | 1682 | 0    | 8    | 1697 | 4    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |     | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|-----|--------|---|---|------|---|---|
| Conflicting Flow All | 2616   | 3457 | 851    | 2607 | 3459   | 841 | 1701   | 0 | 0 | 1682 | 0 | 0 |
| Stage 1              | 1715   | 1715 | -      | 1742 | 1742   | -   | -      | - | - | -    | - | - |
| Stage 2              | 901    | 1742 | -      | 865  | 1717   | -   | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9 | 4.1    | - | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3 | 2.2    | - | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 12     | 7    | 308    | 12   | 7      | 312 | 379    | - | - | 386  | - | - |
| Stage 1              | 96     | 147  | -      | 92   | 142    | -   | -      | - | - | -    | - | - |
| Stage 2              | 303    | 142  | -      | 319  | 146    | -   | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |     |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 11     | 6    | 308    | 11   | 6      | 312 | 379    | - | - | 386  | - | - |
| Mov Cap-2 Maneuver   | 78     | 86   | -      | 76   | 79     | -   | -      | - | - | -    | - | - |
| Stage 1              | 88     | 144  | -      | 85   | 131    | -   | -      | - | - | -    | - | - |
| Stage 2              | 266    | 131  | -      | 296  | 143    | -   | -      | - | - | -    | - | - |

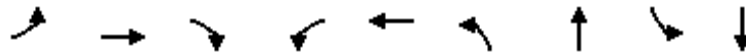
| Approach             | EB   |  | WB   |  | NB  |  | SB  |  |
|----------------------|------|--|------|--|-----|--|-----|--|
| HCM Control Delay, s | 29.9 |  | 19.9 |  | 0.3 |  | 0.1 |  |
| HCM LOS              | D    |  | C    |  |     |  |     |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL   | SBT   | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h)      | 379   | -   | -   | 167        | 258   | 386   | -   |
| HCM Lane V/C Ratio    | 0.079 | -   | -   | 0.135      | 0.063 | 0.019 | -   |
| HCM Control Delay (s) | 15.3  | -   | -   | 29.9       | 19.9  | 14.5  | -   |
| HCM Lane LOS          | C     | -   | -   | D          | C     | B     | -   |
| HCM 95th %tile Q(veh) | 0.3   | -   | -   | 0.5        | 0.2   | 0.1   | -   |



Timings

8: Hesperia Rd. & Nisqualli Rd.

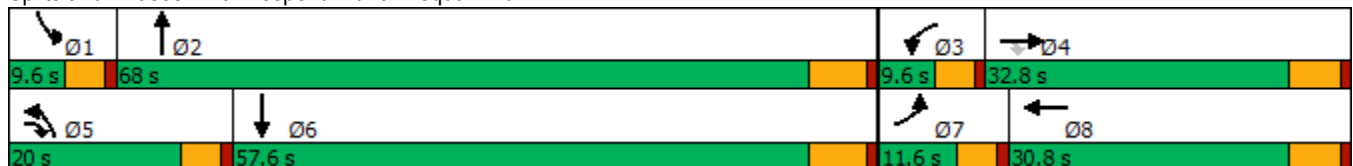


| Lane Group           | EBL  | EBT   | EBR   | WBL  | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|------|-------|-------|------|-------|-------|-------|------|-------|
| Lane Configurations  | ↖↗   | ↑     | ↖↗    | ↖    | ↖↗    | ↖↗    | ↖↗    | ↖    | ↖↗    |
| Traffic Volume (vph) | 142  | 57    | 400   | 92   | 61    | 438   | 1327  | 18   | 1511  |
| Future Volume (vph)  | 142  | 57    | 400   | 92   | 61    | 438   | 1327  | 18   | 1511  |
| Turn Type            | Prot | NA    | pm+ov | Prot | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7    | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |      |       | 4     |      |       |       |       |      |       |
| Detector Phase       | 7    | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |      |       |       |      |       |       |       |      |       |
| Minimum Initial (s)  | 5.0  | 10.0  | 5.0   | 5.0  | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6  | 32.8  | 9.6   | 9.6  | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 11.6 | 32.8  | 20.0  | 9.6  | 30.8  | 20.0  | 68.0  | 9.6  | 57.6  |
| Total Split (%)      | 9.7% | 27.3% | 16.7% | 8.0% | 25.7% | 16.7% | 56.7% | 8.0% | 48.0% |
| Yellow Time (s)      | 3.6  | 4.8   | 3.6   | 3.6  | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0  | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0  | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6  | 5.8   | 4.6   | 4.6  | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead | Lag   | Lead  | Lead | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes  | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None | None  | None  | None | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 7.0  | 11.6  | 29.6  | 8.6  | 10.0  | 15.4  | 67.6  | 5.0  | 51.4  |
| Actuated g/C Ratio   | 0.07 | 0.11  | 0.28  | 0.08 | 0.10  | 0.15  | 0.64  | 0.05 | 0.49  |
| v/c Ratio            | 0.74 | 0.30  | 0.54  | 0.73 | 0.32  | 1.05  | 0.67  | 0.25 | 1.01  |
| Control Delay        | 71.4 | 47.0  | 34.0  | 81.9 | 28.7  | 100.1 | 14.4  | 56.4 | 50.8  |
| Queue Delay          | 0.0  | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 71.4 | 47.0  | 34.0  | 81.9 | 28.7  | 100.1 | 14.4  | 56.4 | 50.8  |
| LOS                  | E    | D     | C     | F    | C     | F     | B     | E    | D     |
| Approach Delay       |      | 44.1  |       |      | 53.1  |       | 34.6  |      | 50.8  |
| Approach LOS         |      | D     |       |      | D     |       | C     |      | D     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 105  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.05  
 Intersection Signal Delay: 43.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 88.8%  
 ICU Level of Service E  
 Analysis Period (min) 15




























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |    |  |    |    |  |  |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |   |   |   |   |   |  |   |   |
| Traffic Volume (veh/h)       | 142   | 57  | 400   | 92  | 61  | 48  | 438  | 1327  | 92  | 18  | 1511  | 109   |
| Future Volume (veh/h)        | 142   | 57  | 400   | 92  | 61  | 48  | 438  | 1327  | 92  | 18  | 1511  | 109   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1700  | 1800  | 1800  | 1600   | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 146   | 59  | 309   | 95  | 63  | 39  | 452  | 1368  | 74  | 19  | 1558  | 86  |
| Peak Hour Factor             | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97   | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 195   | 226   | 726   | 76  | 224   | 128   | 428  | 2006  | 108   | 33  | 1593  | 88  |
| Arrive On Green              | 0.07  | 0.13  | 0.13  | 0.05  | 0.11  | 0.11  | 0.14   | 0.61  | 0.61  | 0.02  | 0.48  | 0.48  |
| Sat Flow, veh/h              | 2956  | 1800  | 2685  | 1619  | 2098  | 1197  | 2956   | 3300  | 178   | 1619  | 3296  | 181   |
| Grp Volume(v), veh/h         | 146   | 59  | 309   | 95  | 50  | 52  | 452  | 707   | 735   | 19  | 805   | 839   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1800  | 1342  | 1619  | 1710  | 1585  | 1478   | 1710  | 1768  | 1619  | 1710  | 1767  |
| Q Serve(g_s), s              | 5.2   | 3.2   | 10.1  | 5.0   | 2.9   | 3.2   | 15.4   | 29.4  | 29.6  | 1.2   | 48.9  | 49.7  |
| Cycle Q Clear(g_c), s        | 5.2   | 3.2   | 10.1  | 5.0   | 2.9   | 3.2   | 15.4   | 29.4  | 29.6  | 1.2   | 48.9  | 49.7  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.76  | 1.00   |   | 0.10  | 1.00  |   | 0.10  |
| Lane Grp Cap(c), veh/h       | 195   | 226   | 726   | 76  | 183   | 169   | 428  | 1039  | 1075  | 33  | 826   | 854   |
| V/C Ratio(X)                 | 0.75  | 0.26  | 0.43  | 1.25  | 0.28  | 0.30  | 1.06   | 0.68  | 0.68  | 0.58  | 0.97  | 0.98  |
| Avail Cap(c_a), veh/h        | 195   | 457   | 1070  | 76  | 402   | 372   | 428  | 1039  | 1075  | 76  | 826   | 854   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 48.8  | 42.0  | 32.0  | 50.7  | 43.7  | 43.9  | 45.5   | 14.0  | 14.0  | 51.7  | 26.8  | 27.0  |
| Incr Delay (d2), s/veh       | 13.4  | 0.6   | 0.4   | 183.9   | 0.8   | 1.0   | 59.1   | 1.8   | 1.8   | 5.9   | 25.0  | 26.4  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.2   | 1.4   | 3.2   | 5.9   | 1.2   | 1.3   | 8.9  | 10.0  | 10.4  | 0.5   | 23.2  | 24.6  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 62.3  | 42.6  | 32.4  | 234.6   | 44.5  | 44.9  | 104.5  | 15.8  | 15.8  | 57.6  | 51.8  | 53.5  |
| LnGrp LOS                    | E   | D   | C   | F   | D   | D   | F  | B   | B   | E   | D   | D   |
| Approach Vol, veh/h          |   | 514   |   |   | 197   |   |  | 1894  |   |   | 1663  |   |
| Approach Delay, s/veh        |   | 42.0  |   |   | 136.3   |   |  | 37.0  |   |   | 52.7  |   |
| Approach LOS                 |   | D   |   |   | F   |   |  | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.7   | 70.9  | 9.6   | 19.2  | 20.0  | 57.6  | 11.6   | 17.2  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.0   | 61.8  | 5.0   | 27.0  | 15.4  | 51.4  | 7.0  | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.2   | 31.6  | 7.0   | 12.1  | 17.4  | 51.7  | 7.2  | 5.2   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 10.9  | 0.0   | 1.3   | 0.0   | 0.0   | 0.0  | 0.4   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 48.3  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |  |   |   |   |   |   |

Timings

9: Hesperia Rd. & Bear Valley Rd.

03/24/2022

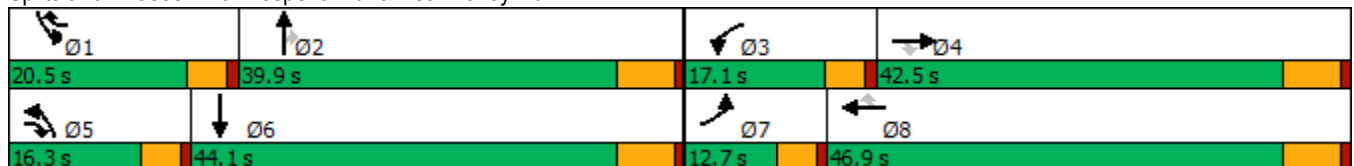


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑    | ↖     | ↖↗    | ↑↔    |
| Traffic Volume (vph) | 132   | 1573  | 105   | 309   | 1388  | 162   | 208   | 464   | 340   | 400   | 627   |
| Future Volume (vph)  | 132   | 1573  | 105   | 309   | 1388  | 162   | 208   | 464   | 340   | 400   | 627   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 12.7  | 42.5  | 16.3  | 17.1  | 46.9  | 20.5  | 16.3  | 39.9  | 39.9  | 20.5  | 44.1  |
| Total Split (%)      | 10.6% | 35.4% | 13.6% | 14.3% | 39.1% | 17.1% | 13.6% | 33.3% | 33.3% | 17.1% | 36.8% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 7.8   | 36.4  | 53.5  | 12.5  | 41.2  | 63.3  | 10.9  | 27.9  | 27.9  | 15.9  | 32.9  |
| Actuated g/C Ratio   | 0.07  | 0.32  | 0.47  | 0.11  | 0.36  | 0.55  | 0.10  | 0.24  | 0.24  | 0.14  | 0.29  |
| v/c Ratio            | 0.68  | 1.03  | 0.14  | 0.98  | 0.80  | 0.18  | 0.76  | 0.57  | 0.70  | 1.00  | 0.81  |
| Control Delay        | 70.5  | 69.0  | 8.1   | 96.3  | 38.1  | 5.9   | 68.8  | 40.5  | 28.5  | 93.3  | 43.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 70.5  | 69.0  | 8.1   | 96.3  | 38.1  | 5.9   | 68.8  | 40.5  | 28.5  | 93.3  | 43.9  |
| LOS                  | E     | E     | A     | F     | D     | A     | E     | D     | C     | F     | D     |
| Approach Delay       |       | 65.6  |       |       | 44.9  |       |       | 42.3  |       |       | 60.8  |
| Approach LOS         |       | E     |       |       | D     |       |       | D     |       |       | E     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 114.4            |                        |
| Natural Cycle: 125                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 1.03                 |                        |
| Intersection Signal Delay: 54.0         | Intersection LOS: D    |
| Intersection Capacity Utilization 90.7% | ICU Level of Service E |
| Analysis Period (min) 15                |                        |



































Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |    |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 132   | 1573  | 105   | 309   | 1388  | 162   | 208  | 464   | 340   | 400   | 627   | 143   |
| Future Volume (veh/h)        | 132   | 1573  | 105   | 309   | 1388  | 162   | 208  | 464   | 340   | 400   | 627   | 143   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600   | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 135   | 1605  | 107   | 315   | 1416  | 165   | 212  | 473   | 347   | 408   | 640   | 146   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 182   | 1532  | 610   | 317   | 1758  | 754   | 260  | 885   | 395   | 404   | 850   | 194   |
| Arrive On Green              | 0.06  | 0.31  | 0.31  | 0.11  | 0.36  | 0.36  | 0.09   | 0.26  | 0.26  | 0.14  | 0.31  | 0.31  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956   | 3420  | 1525  | 2956  | 2766  | 630   |
| Grp Volume(v), veh/h         | 135   | 1605  | 107   | 315   | 1416  | 165   | 212  | 473   | 347   | 408   | 395   | 391   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478   | 1710  | 1525  | 1478  | 1710  | 1687  |
| Q Serve(g_s), s              | 5.2   | 36.3  | 5.3   | 12.4  | 30.3  | 7.1   | 8.2  | 13.9  | 25.4  | 15.9  | 24.2  | 24.3  |
| Cycle Q Clear(g_c), s        | 5.2   | 36.3  | 5.3   | 12.4  | 30.3  | 7.1   | 8.2  | 13.9  | 25.4  | 15.9  | 24.2  | 24.3  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 0.37  |
| Lane Grp Cap(c), veh/h       | 182   | 1532  | 610   | 317   | 1758  | 754   | 260  | 885   | 395   | 404   | 526   | 518   |
| V/C Ratio(X)                 | 0.74  | 1.05  | 0.18  | 0.99  | 0.81  | 0.22  | 0.81   | 0.53  | 0.88  | 1.01  | 0.75  | 0.75  |
| Avail Cap(c_a), veh/h        | 206   | 1532  | 610   | 317   | 1758  | 754   | 297  | 990   | 442   | 404   | 557   | 549   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 53.7  | 40.1  | 22.6  | 51.9  | 33.7  | 16.7  | 52.2   | 37.1  | 41.4  | 50.3  | 36.3  | 36.4  |
| Incr Delay (d2), s/veh       | 9.7   | 36.6  | 0.1   | 48.3  | 2.9   | 0.1   | 12.5   | 0.5   | 16.8  | 47.5  | 5.4   | 5.6   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.2   | 19.6  | 1.9   | 6.7   | 12.3  | 2.5   | 3.5  | 5.8   | 11.3  | 8.5   | 10.8  | 10.7  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 63.5  | 76.6  | 22.7  | 100.2   | 36.6  | 16.8  | 64.7   | 37.6  | 58.2  | 97.7  | 41.7  | 41.9  |
| LnGrp LOS                    | E   | F   | C   | F   | D   | B   | E  | D   | E   | F   | D   | D   |
| Approach Vol, veh/h          |   | 1847  |   |   | 1896  |   |  | 1032  |   |   | 1194  |   |
| Approach Delay, s/veh        |   | 72.5  |   |   | 45.4  |   |  | 50.1  |   |   | 60.9  |   |
| Approach LOS                 |   | E   |   |   | D   |   |  | D   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 20.5  | 36.3  | 17.1  | 42.5  | 14.8  | 42.0  | 11.8   | 47.8  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6  | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 15.9  | 33.7  | 12.5  | 36.3  | 11.7  | 37.9  | 8.1  | 40.7  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 17.9  | 27.4  | 14.4  | 38.3  | 10.2  | 26.3  | 7.2  | 32.3  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 2.7   | 0.0   | 0.0   | 0.1   | 5.1   | 0.0  | 6.7   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 57.7  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | E   |   |   |   |  |   |   |   |   |   |

**APPENDIX 3.3:**

**EXISTING (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS**

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### Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2021) Conditions - Weekday PM Peak Hour**

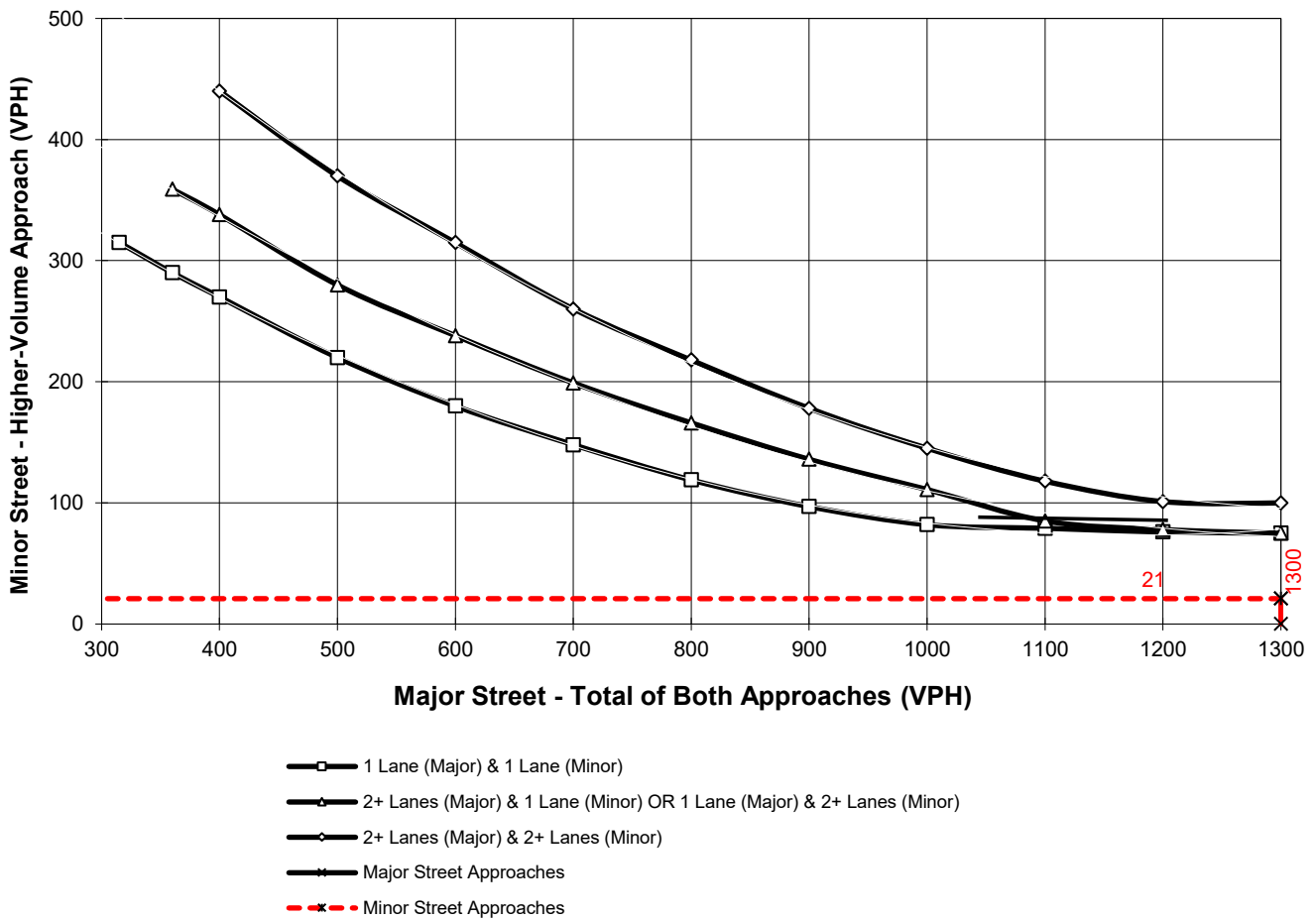
Major Street Name = **Hesperia Road**

Total of Both Approaches (VPH) = **3091**  
 Number of Approach Lanes Major Street = **2**

Minor Street Name = **Ottawa Street**

High Volume Approach (VPH) = **21**  
 Number of Approach Lanes Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



\*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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**APPENDIX 3.4:**

**EXISTING (2021) CONDITIONS QUEUING ANALYSIS WORKSHEETS**

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## Queues

## 2: Armargosa Rd. &amp; I-15 SB Ramps

03/24/2022



| Lane Group                  | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-----------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)       | 823  | 39   | 696  | 314  | 149  | 815  |
| v/c Ratio                   | 0.83 | 0.08 | 0.47 | 0.37 | 0.61 | 0.38 |
| Control Delay               | 37.5 | 7.4  | 22.1 | 4.1  | 46.7 | 10.6 |
| Queue Delay                 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay                 | 37.5 | 7.4  | 22.1 | 4.1  | 46.7 | 10.6 |
| Queue Length 50th (ft)      | 224  | 0    | 149  | 0    | 80   | 116  |
| Queue Length 95th (ft)      | 267  | 21   | 235  | 57   | 137  | 181  |
| Internal Link Dist (ft)     | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)        | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)         | 1217 | 587  | 1488 | 850  | 310  | 2161 |
| Starvation Cap Reductn      | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn       | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn         | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio           | 0.68 | 0.07 | 0.47 | 0.37 | 0.48 | 0.38 |
| <b>Intersection Summary</b> |      |      |      |      |      |      |



| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 219  | 1306 | 1097 | 324  | 99   | 101  | 265  |
| v/c Ratio               | 0.57 | 0.37 | 0.40 | 0.32 | 0.33 | 0.33 | 0.74 |
| Control Delay           | 43.4 | 6.9  | 14.7 | 3.0  | 33.3 | 33.5 | 35.3 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 43.4 | 6.9  | 14.7 | 3.0  | 33.3 | 33.5 | 35.3 |
| Queue Length 50th (ft)  | 61   | 97   | 128  | 0    | 52   | 53   | 96   |
| Queue Length 95th (ft)  | 93   | 162  | 207  | 47   | 88   | 89   | 158  |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |      |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915  |
| Base Capacity (vph)     | 490  | 3565 | 2731 | 1004 | 504  | 506  | 537  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.45 | 0.37 | 0.40 | 0.32 | 0.20 | 0.20 | 0.49 |

## Intersection Summary

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.2  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 5    | 0    | 8    | 0    | 0    | 5    | 10   | 1028 | 6    | 9    | 1125 | 1    |
| Future Vol, veh/h        | 5    | 0    | 8    | 0    | 0    | 5    | 10   | 1028 | 6    | 9    | 1125 | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 6    | 0    | 9    | 0    | 0    | 6    | 11   | 1168 | 7    | 10   | 1278 | 1    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |     | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|-----|--------|---|---|------|---|---|
| Conflicting Flow All | 1905   | 2496 | 640    | 1853 | 2493   | 588 | 1279   | 0 | 0 | 1175 | 0 | 0 |
| Stage 1              | 1299   | 1299 | -      | 1194 | 1194   | -   | -      | - | - | -    | - | - |
| Stage 2              | 606    | 1197 | -      | 659  | 1299   | -   | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9 | 4.1    | - | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3 | 2.2    | - | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 43     | 29   | 423    | 47   | 30     | 457 | 550    | - | - | 602  | - | - |
| Stage 1              | 174    | 234  | -      | 201  | 262    | -   | -      | - | - | -    | - | - |
| Stage 2              | 456    | 261  | -      | 424  | 234    | -   | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |     |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 41     | 28   | 423    | 45   | 29     | 457 | 550    | - | - | 602  | - | - |
| Mov Cap-2 Maneuver   | 153    | 159  | -      | 170  | 158    | -   | -      | - | - | -    | - | - |
| Stage 1              | 171    | 230  | -      | 197  | 257    | -   | -      | - | - | -    | - | - |
| Stage 2              | 441    | 256  | -      | 408  | 230    | -   | -      | - | - | -    | - | - |

| Approach             | EB   | WB | NB  | SB  |
|----------------------|------|----|-----|-----|
| HCM Control Delay, s | 20.2 | 13 | 0.1 | 0.1 |
| HCM LOS              | C    | B  |     |     |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL   | SBT   | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h)      | 550   | -   | -   | 252        | 457   | 602   | -   |
| HCM Lane V/C Ratio    | 0.021 | -   | -   | 0.059      | 0.012 | 0.017 | -   |
| HCM Control Delay (s) | 11.7  | -   | -   | 20.2       | 13    | 11.1  | -   |
| HCM Lane LOS          | B     | -   | -   | C          | B     | B     | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0.2        | 0     | 0.1   | -   |

Queues

2: Armargosa Rd. & I-15 SB Ramps



| Lane Group                  | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-----------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)       | 1025 | 51   | 860  | 353  | 180  | 1019 |
| v/c Ratio                   | 0.89 | 0.09 | 0.66 | 0.44 | 0.70 | 0.51 |
| Control Delay               | 39.1 | 6.3  | 28.1 | 4.6  | 51.7 | 14.1 |
| Queue Delay                 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay                 | 39.1 | 6.3  | 28.1 | 4.6  | 51.7 | 14.1 |
| Queue Length 50th (ft)      | 276  | 0    | 222  | 0    | 97   | 183  |
| Queue Length 95th (ft)      | 347  | 23   | 302  | 60   | 166  | 246  |
| Internal Link Dist (ft)     | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)        | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)         | 1256 | 612  | 1306 | 809  | 290  | 2000 |
| Starvation Cap Reductn      | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn       | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn         | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio           | 0.82 | 0.08 | 0.66 | 0.44 | 0.62 | 0.51 |
| <b>Intersection Summary</b> |      |      |      |      |      |      |

Queues

3: I-15 NB Ramps & Nisqualli Rd.



| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 293  | 1855 | 1992 | 390  | 249  | 250  | 417  |
| v/c Ratio               | 0.80 | 0.58 | 0.83 | 0.41 | 0.59 | 0.60 | 0.90 |
| Control Delay           | 57.0 | 11.4 | 25.3 | 3.1  | 36.1 | 36.2 | 50.4 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 57.0 | 11.4 | 25.3 | 3.1  | 36.1 | 36.2 | 50.4 |
| Queue Length 50th (ft)  | 85   | 219  | 360  | 0    | 128  | 129  | 181  |
| Queue Length 95th (ft)  | #147 | 261  | 429  | 49   | 210  | 210  | #347 |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |      |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915  |
| Base Capacity (vph)     | 372  | 3206 | 2404 | 958  | 447  | 447  | 486  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.79 | 0.58 | 0.83 | 0.41 | 0.56 | 0.56 | 0.86 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.5  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 6    | 0    | 15   | 1    | 0    | 14   | 28   | 1564 | 0    | 7    | 1578 | 4    |
| Future Vol, veh/h        | 6    | 0    | 15   | 1    | 0    | 14   | 28   | 1564 | 0    | 7    | 1578 | 4    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 6    | 0    | 16   | 1    | 0    | 15   | 30   | 1682 | 0    | 8    | 1697 | 4    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |     | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|-----|--------|---|---|------|---|---|
| Conflicting Flow All | 2616   | 3457 | 851    | 2607 | 3459   | 841 | 1701   | 0 | 0 | 1682 | 0 | 0 |
| Stage 1              | 1715   | 1715 | -      | 1742 | 1742   | -   | -      | - | - | -    | - | - |
| Stage 2              | 901    | 1742 | -      | 865  | 1717   | -   | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9 | 4.1    | - | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3 | 2.2    | - | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 12     | 7    | 308    | 12   | 7      | 312 | 379    | - | - | 386  | - | - |
| Stage 1              | 96     | 147  | -      | 92   | 142    | -   | -      | - | - | -    | - | - |
| Stage 2              | 303    | 142  | -      | 319  | 146    | -   | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |     |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 11     | 6    | 308    | 11   | 6      | 312 | 379    | - | - | 386  | - | - |
| Mov Cap-2 Maneuver   | 78     | 86   | -      | 76   | 79     | -   | -      | - | - | -    | - | - |
| Stage 1              | 88     | 144  | -      | 85   | 131    | -   | -      | - | - | -    | - | - |
| Stage 2              | 266    | 131  | -      | 296  | 143    | -   | -      | - | - | -    | - | - |

| Approach             | EB   |  | WB   |  | NB  |  | SB  |  |
|----------------------|------|--|------|--|-----|--|-----|--|
| HCM Control Delay, s | 29.9 |  | 19.9 |  | 0.3 |  | 0.1 |  |
| HCM LOS              | D    |  | C    |  |     |  |     |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL   | SBT   | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h)      | 379   | -   | -   | 167        | 258   | 386   | -   |
| HCM Lane V/C Ratio    | 0.079 | -   | -   | 0.135      | 0.063 | 0.019 | -   |
| HCM Control Delay (s) | 15.3  | -   | -   | 29.9       | 19.9  | 14.5  | -   |
| HCM Lane LOS          | C     | -   | -   | D          | C     | B     | -   |
| HCM 95th %tile Q(veh) | 0.3   | -   | -   | 0.5        | 0.2   | 0.1   | -   |



**APPENDIX 5.1:**

**OPENING YEAR CUMULATIVE (2024) WITHOUT PROJECT CONDITIONS INTERSECTION  
OPERATIONS ANALYSIS WORKSHEETS**

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Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

03/24/2022

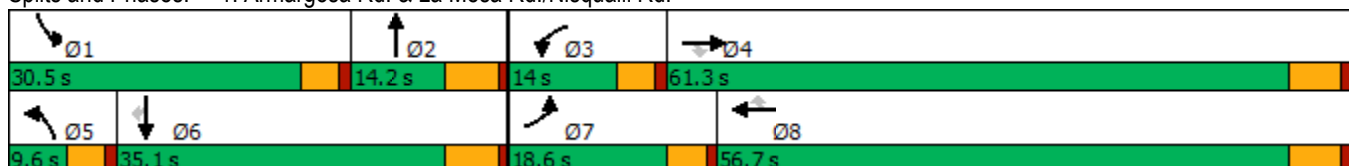


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR  | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↕     | ↗     | ↖↗    | ↕↕↕   | ↗     | ↖↗   | ↕↕    | ↗    | ↖↗    | ↕↕    | ↗     |
| Traffic Volume (vph) | 188   | 847   | 74    | 110   | 489   | 655   | 24   | 116   | 81   | 408   | 214   | 114   |
| Future Volume (vph)  | 188   | 847   | 74    | 110   | 489   | 655   | 24   | 116   | 81   | 408   | 214   | 114   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot | NA    | Free | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5    | 2     |      | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |      |       | Free |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5    | 2     |      | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |      |       |      |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |      | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5  | 10.8  |      | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 18.6  | 61.3  | 61.3  | 14.0  | 56.7  | 56.7  | 9.6  | 14.2  |      | 30.5  | 35.1  | 35.1  |
| Total Split (%)      | 15.5% | 51.1% | 51.1% | 11.7% | 47.3% | 47.3% | 8.0% | 11.8% |      | 25.4% | 29.3% | 29.3% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5  | 4.8   |      | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |      | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |      | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5  | 5.8   |      | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead | Lag   |      | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |      | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | None | Max   |      | None  | Max   | Max   |
| Act Effct Green (s)  | 10.4  | 31.2  | 31.2  | 7.8   | 28.6  | 28.6  | 5.2  | 11.6  | 89.2 | 17.4  | 30.4  | 30.4  |
| Actuated g/C Ratio   | 0.12  | 0.35  | 0.35  | 0.09  | 0.32  | 0.32  | 0.06 | 0.13  | 1.00 | 0.20  | 0.34  | 0.34  |
| v/c Ratio            | 0.58  | 0.73  | 0.13  | 0.45  | 0.31  | 0.77  | 0.15 | 0.27  | 0.06 | 0.75  | 0.19  | 0.20  |
| Control Delay        | 46.7  | 29.1  | 0.4   | 47.9  | 23.3  | 10.0  | 48.4 | 41.9  | 0.1  | 43.3  | 24.9  | 4.3   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Delay          | 46.7  | 29.1  | 0.4   | 47.9  | 23.3  | 10.0  | 48.4 | 41.9  | 0.1  | 43.3  | 24.9  | 4.3   |
| LOS                  | D     | C     | A     | D     | C     | A     | D    | D     | A    | D     | C     | A     |
| Approach Delay       |       | 30.1  |       |       | 18.5  |       |      | 27.2  |      |       | 31.9  |       |
| Approach LOS         |       | C     |       |       | B     |       |      | C     |      |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 89.2  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 25.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 66.8%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↔↔   | ↑↑   | ↗    | ↔↔   | ↑↑↑  | ↗    | ↔↔   | ↑↑   | ↗    | ↔↔   | ↑↑   | ↗    |
| Traffic Volume (veh/h)       | 188  | 847  | 74   | 110  | 489  | 655  | 24   | 116  | 81   | 408  | 214  | 114  |
| Future Volume (veh/h)        | 188  | 847  | 74   | 110  | 489  | 655  | 24   | 116  | 81   | 408  | 214  | 114  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 204  | 921  | 53   | 120  | 532  | 522  | 26   | 126  | 0    | 443  | 233  | 86   |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 265  | 1504 | 637  | 174  | 2095 | 592  | 78   | 544  |      | 512  | 1056 | 447  |
| Arrive On Green              | 0.09 | 0.42 | 0.42 | 0.06 | 0.39 | 0.39 | 0.03 | 0.15 | 0.00 | 0.17 | 0.29 | 0.29 |
| Sat Flow, veh/h              | 3048 | 3600 | 1525 | 3048 | 5400 | 1525 | 3048 | 3600 | 1525 | 3048 | 3600 | 1525 |
| Grp Volume(v), veh/h         | 204  | 921  | 53   | 120  | 532  | 522  | 26   | 126  | 0    | 443  | 233  | 86   |
| Grp Sat Flow(s),veh/h/ln     | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 |
| Q Serve(g_s), s              | 6.5  | 20.0 | 2.1  | 3.9  | 6.7  | 31.8 | 0.8  | 3.1  | 0.0  | 14.1 | 4.9  | 4.2  |
| Cycle Q Clear(g_c), s        | 6.5  | 20.0 | 2.1  | 3.9  | 6.7  | 31.8 | 0.8  | 3.1  | 0.0  | 14.1 | 4.9  | 4.2  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 265  | 1504 | 637  | 174  | 2095 | 592  | 78   | 544  |      | 512  | 1056 | 447  |
| V/C Ratio(X)                 | 0.77 | 0.61 | 0.08 | 0.69 | 0.25 | 0.88 | 0.33 | 0.23 |      | 0.87 | 0.22 | 0.19 |
| Avail Cap(c_a), veh/h        | 430  | 2000 | 847  | 290  | 2751 | 777  | 156  | 544  |      | 793  | 1056 | 447  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 44.6 | 22.8 | 17.5 | 46.2 | 20.8 | 28.4 | 47.8 | 37.3 | 0.0  | 40.5 | 26.7 | 26.4 |
| Incr Delay (d2), s/veh       | 1.8  | 0.4  | 0.1  | 1.8  | 0.1  | 9.4  | 0.9  | 1.0  | 0.0  | 4.0  | 0.5  | 1.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.4  | 7.9  | 0.7  | 1.5  | 2.6  | 12.2 | 0.3  | 1.4  | 0.0  | 5.3  | 2.1  | 1.6  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 46.4 | 23.2 | 17.6 | 48.1 | 20.8 | 37.8 | 48.7 | 38.3 | 0.0  | 44.5 | 27.2 | 27.4 |
| LnGrp LOS                    | D    | C    | B    | D    | C    | D    | D    | D    |      | D    | C    | C    |
| Approach Vol, veh/h          |      | 1178 |      |      | 1174 |      |      | 152  | A    |      | 762  |      |
| Approach Delay, s/veh        |      | 26.9 |      |      | 31.2 |      |      | 40.1 |      |      | 37.3 |      |
| Approach LOS                 |      | C    |      |      | C    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 21.3 | 20.9 | 10.2 | 47.5 | 7.1  | 35.1 | 13.2 | 44.6 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 26.0 | 8.4  | 9.5  | 55.5 | 5.1  | 29.3 | 14.1 | 50.9 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 16.1 | 5.1  | 5.9  | 22.0 | 2.8  | 6.9  | 8.5  | 33.8 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.6  | 0.2  | 0.1  | 7.0  | 0.0  | 1.5  | 0.2  | 5.0  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 31.5 |
| HCM 6th LOS        | C    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

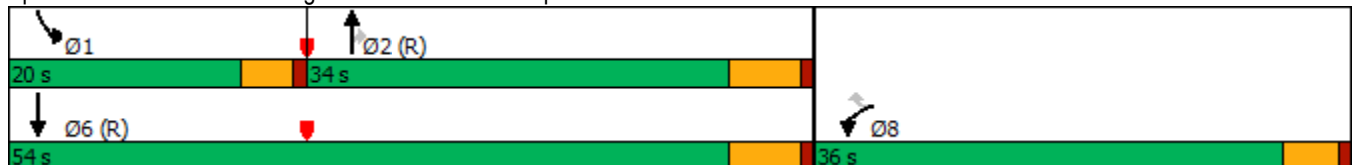
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↖↗    | ↖     | ↖↗    | ↖     | ↖     | ↖↗    |
| Traffic Volume (vph) | 830   | 39    | 679   | 347   | 145   | 795   |
| Future Volume (vph)  | 830   | 39    | 679   | 347   | 145   | 795   |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 36.0  | 36.0  | 34.0  | 34.0  | 20.0  | 54.0  |
| Total Split (%)      | 40.0% | 40.0% | 37.8% | 37.8% | 22.2% | 60.0% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 27.1  | 27.1  | 35.3  | 35.3  | 12.6  | 52.4  |
| Actuated g/C Ratio   | 0.30  | 0.30  | 0.39  | 0.39  | 0.14  | 0.58  |
| v/c Ratio            | 0.86  | 0.08  | 0.52  | 0.44  | 0.63  | 0.41  |
| Control Delay        | 38.3  | 7.1   | 24.0  | 4.3   | 47.3  | 11.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 38.3  | 7.1   | 24.0  | 4.3   | 47.3  | 11.6  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 36.9  |       | 17.3  |       |       | 17.1  |
| Approach LOS         | D     |       | B     |       |       | B     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 23.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 63.0%  
 ICU Level of Service B  
 Analysis Period (min) 15













Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement                     | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations          |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 830   | 39  | 679   | 347   | 145   | 795   |
| Future Volume (veh/h)        | 830   | 39  | 679   | 347   | 145   | 795   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        | No  |   | No  |   |   | No  |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 902   | 42  | 738   | 377   | 158   | 864   |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 997   | 457   | 1595  | 711   | 194   | 2163  |
| Arrive On Green              | 0.28  | 0.28  | 0.44  | 0.44  | 0.11  | 0.60  |
| Sat Flow, veh/h              | 3510  | 1610  | 3705  | 1610  | 1810  | 3705  |
| Grp Volume(v), veh/h         | 902   | 42  | 738   | 377   | 158   | 864   |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1610  | 1805  | 1610  | 1810  | 1805  |
| Q Serve(g_s), s              | 22.3  | 1.7   | 12.9  | 15.4  | 7.7   | 11.3  |
| Cycle Q Clear(g_c), s        | 22.3  | 1.7   | 12.9  | 15.4  | 7.7   | 11.3  |
| Prop In Lane                 | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Lane Grp Cap(c), veh/h       | 997   | 457   | 1595  | 711   | 194   | 2163  |
| V/C Ratio(X)                 | 0.90  | 0.09  | 0.46  | 0.53  | 0.81  | 0.40  |
| Avail Cap(c_a), veh/h        | 1221  | 560   | 1595  | 711   | 312   | 2163  |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Upstream Filter(I)           | 1.00  | 1.00  | 0.69  | 0.69  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 31.0  | 23.7  | 17.6  | 18.3  | 39.3  | 9.5   |
| Incr Delay (d2), s/veh       | 7.5   | 0.0   | 0.7   | 2.0   | 8.3   | 0.6   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 9.5   | 0.6   | 5.0   | 5.5   | 3.7   | 3.8   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 38.6  | 23.7  | 18.3  | 20.3  | 47.6  | 10.1  |
| LnGrp LOS                    | D   | C   | B   | C   | D   | B   |
| Approach Vol, veh/h          | 944   |   | 1115  |   |   | 1022  |
| Approach Delay, s/veh        | 37.9  |   | 19.0  |   |   | 15.9  |
| Approach LOS                 | D   |   | B   |   |   | B   |
| Timer - Assigned Phs         | 1   | 2   |   |   | 6   | 8   |
| Phs Duration (G+Y+Rc), s     | 14.2  | 45.6  |   |   | 59.7  | 30.3  |
| Change Period (Y+Rc), s      | 4.5   | 5.8   |   |   | 5.8   | 4.7   |
| Max Green Setting (Gmax), s  | 15.5  | 28.2  |   |   | 48.2  | 31.3  |
| Max Q Clear Time (g_c+11), s | 9.7   | 17.4  |   |   | 13.3  | 24.3  |
| Green Ext Time (p_c), s      | 0.2   | 4.5   |   |   | 6.3   | 1.3   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 23.7  |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

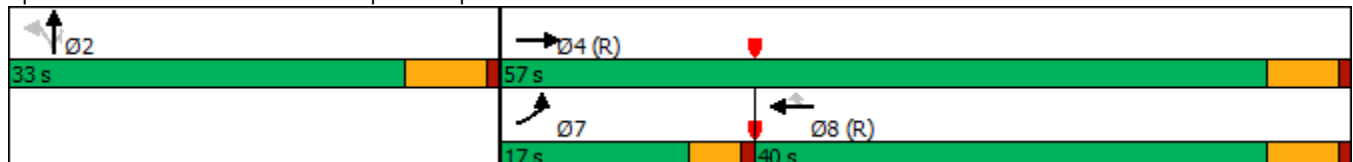


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↶↶    | ↶↶↶   | ↶↶↶   | ↷     | ↶     | ↶     | ↷     |
| Traffic Volume (vph) | 207   | 1260  | 1076  | 345   | 188   | 1     | 276   |
| Future Volume (vph)  | 207   | 1260  | 1076  | 345   | 188   | 1     | 276   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 17.0  | 57.0  | 40.0  | 40.0  | 33.0  | 33.0  | 33.0  |
| Total Split (%)      | 18.9% | 63.3% | 44.4% | 44.4% | 36.7% | 36.7% | 36.7% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 10.1  | 59.3  | 44.6  | 44.6  | 18.4  | 18.4  | 18.4  |
| Actuated g/C Ratio   | 0.11  | 0.66  | 0.50  | 0.50  | 0.20  | 0.20  | 0.20  |
| v/c Ratio            | 0.59  | 0.41  | 0.47  | 0.39  | 0.30  | 0.30  | 0.78  |
| Control Delay        | 44.1  | 8.5   | 17.1  | 3.3   | 30.5  | 30.6  | 36.5  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 44.1  | 8.5   | 17.1  | 3.3   | 30.5  | 30.6  | 36.5  |
| LOS                  | D     | A     | B     | A     | C     | C     | D     |
| Approach Delay       |       | 13.5  | 13.8  |       |       | 34.1  |       |
| Approach LOS         |       | B     | B     |       |       | C     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 16.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 51.7%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)  
 03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| Lane Configurations          | ↖↗   | ↑↑↑  |      |      | ↑↑↑  | ↖    | ↖    | ↖    | ↖    |     |     |     |
| Traffic Volume (veh/h)       | 207  | 1260 | 0    | 0    | 1076 | 345  | 188  | 1    | 276  | 0   | 0   | 0   |
| Future Volume (veh/h)        | 207  | 1260 | 0    | 0    | 1076 | 345  | 188  | 1    | 276  | 0   | 0   | 0   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     |     |     |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |     |     |     |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     |     |     |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |     |     |     |
| Adj Sat Flow, veh/h/ln       | 1900 | 1900 | 0    | 0    | 1900 | 1900 | 1900 | 1900 | 1900 |     |     |     |
| Adj Flow Rate, veh/h         | 233  | 1416 | 0    | 0    | 1209 | 388  | 212  | 0    | 310  |     |     |     |
| Peak Hour Factor             | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |     |     |     |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     |     |     |
| Cap, veh/h                   | 311  | 3333 | 0    | 0    | 2614 | 811  | 799  | 0    | 355  |     |     |     |
| Arrive On Green              | 0.09 | 0.64 | 0.00 | 0.00 | 0.50 | 0.50 | 0.22 | 0.00 | 0.22 |     |     |     |
| Sat Flow, veh/h              | 3510 | 5358 | 0    | 0    | 5358 | 1610 | 3619 | 0    | 1610 |     |     |     |
| Grp Volume(v), veh/h         | 233  | 1416 | 0    | 0    | 1209 | 388  | 212  | 0    | 310  |     |     |     |
| Grp Sat Flow(s),veh/h/ln     | 1755 | 1729 | 0    | 0    | 1729 | 1610 | 1810 | 0    | 1610 |     |     |     |
| Q Serve(g_s), s              | 5.8  | 12.1 | 0.0  | 0.0  | 13.6 | 14.2 | 4.4  | 0.0  | 16.7 |     |     |     |
| Cycle Q Clear(g_c), s        | 5.8  | 12.1 | 0.0  | 0.0  | 13.6 | 14.2 | 4.4  | 0.0  | 16.7 |     |     |     |
| Prop In Lane                 | 1.00 |      | 0.00 | 0.00 |      | 1.00 | 1.00 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h       | 311  | 3333 | 0    | 0    | 2614 | 811  | 799  | 0    | 355  |     |     |     |
| V/C Ratio(X)                 | 0.75 | 0.42 | 0.00 | 0.00 | 0.46 | 0.48 | 0.27 | 0.00 | 0.87 |     |     |     |
| Avail Cap(c_a), veh/h        | 488  | 3333 | 0    | 0    | 2614 | 811  | 1066 | 0    | 474  |     |     |     |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(I)           | 0.66 | 0.66 | 0.00 | 0.00 | 0.81 | 0.81 | 1.00 | 0.00 | 1.00 |     |     |     |
| Uniform Delay (d), s/veh     | 40.0 | 7.9  | 0.0  | 0.0  | 14.4 | 14.6 | 29.0 | 0.0  | 33.8 |     |     |     |
| Incr Delay (d2), s/veh       | 0.9  | 0.3  | 0.0  | 0.0  | 0.5  | 1.6  | 0.2  | 0.0  | 12.9 |     |     |     |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |     |     |     |
| %ile BackOfQ(50%),veh/ln     | 2.4  | 3.6  | 0.0  | 0.0  | 4.8  | 4.9  | 1.8  | 0.0  | 7.2  |     |     |     |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |     |     |     |
| LnGrp Delay(d),s/veh         | 40.9 | 8.2  | 0.0  | 0.0  | 14.9 | 16.2 | 29.2 | 0.0  | 46.7 |     |     |     |
| LnGrp LOS                    | D    | A    | A    | A    | B    | B    | C    | A    | D    |     |     |     |
| Approach Vol, veh/h          |      | 1649 |      |      | 1597 |      |      | 522  |      |     |     |     |
| Approach Delay, s/veh        |      | 12.8 |      |      | 15.2 |      |      | 39.6 |      |     |     |     |
| Approach LOS                 |      | B    |      |      | B    |      |      | D    |      |     |     |     |
| Timer - Assigned Phs         |      | 2    |      | 4    |      |      | 7    | 8    |      |     |     |     |
| Phs Duration (G+Y+Rc), s     |      | 26.4 |      | 63.6 |      |      | 12.5 | 51.1 |      |     |     |     |
| Change Period (Y+Rc), s      |      | 6.5  |      | 5.8  |      |      | 4.5  | 5.8  |      |     |     |     |
| Max Green Setting (Gmax), s  |      | 26.5 |      | 51.2 |      |      | 12.5 | 34.2 |      |     |     |     |
| Max Q Clear Time (g_c+I1), s |      | 18.7 |      | 14.1 |      |      | 7.8  | 16.2 |      |     |     |     |
| Green Ext Time (p_c), s      |      | 1.1  |      | 12.3 |      |      | 0.2  | 9.0  |      |     |     |     |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 17.5 |
| HCM 6th LOS        | B    |

Notes

User approved volume balancing among the lanes for turning movement.



Timings

4: Mariposa & Nisqualli Rd.

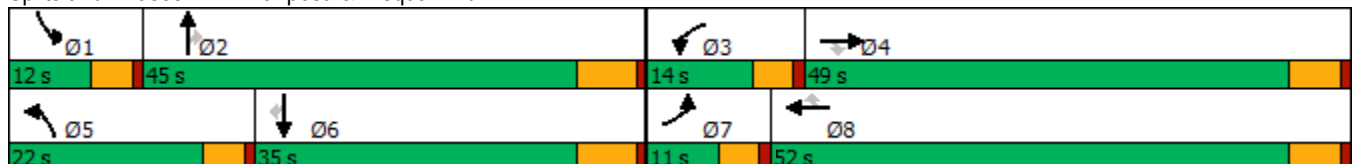
03/24/2022

| Lane Group           | EBL  | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |      |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 51   | 1198  | 285   | 94    | 1120  | 89    | 235   | 141   | 82    | 62    | 93    | 66    |
| Future Volume (vph)  | 51   | 1198  | 285   | 94    | 1120  | 89    | 235   | 141   | 82    | 62    | 93    | 66    |
| Turn Type            | Prot | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7    | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |      |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7    | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |      |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6  | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 11.0 | 49.0  | 49.0  | 14.0  | 52.0  | 52.0  | 22.0  | 45.0  | 45.0  | 12.0  | 35.0  | 35.0  |
| Total Split (%)      | 9.2% | 40.8% | 40.8% | 11.7% | 43.3% | 43.3% | 18.3% | 37.5% | 37.5% | 10.0% | 29.2% | 29.2% |
| Yellow Time (s)      | 3.6  | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6  | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.0  | 34.0  | 34.0  | 7.5   | 35.4  | 35.4  | 12.2  | 18.9  | 18.9  | 6.5   | 10.4  | 10.4  |
| Actuated g/C Ratio   | 0.07 | 0.41  | 0.41  | 0.09  | 0.42  | 0.42  | 0.15  | 0.23  | 0.23  | 0.08  | 0.12  | 0.12  |
| v/c Ratio            | 0.26 | 0.64  | 0.38  | 0.38  | 0.58  | 0.13  | 0.59  | 0.20  | 0.20  | 0.29  | 0.23  | 0.22  |
| Control Delay        | 44.9 | 22.0  | 4.2   | 44.2  | 19.8  | 0.9   | 41.3  | 31.9  | 5.9   | 44.4  | 39.5  | 1.6   |
| Queue Delay          | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 44.9 | 22.0  | 4.2   | 44.2  | 19.8  | 0.9   | 41.3  | 31.9  | 5.9   | 44.4  | 39.5  | 1.6   |
| LOS                  | D    | C     | A     | D     | B     | A     | D     | C     | A     | D     | D     | A     |
| Approach Delay       |      | 19.5  |       |       | 20.2  |       |       | 32.1  |       |       | 29.6  |       |
| Approach LOS         |      | B     |       |       | C     |       |       | C     |       |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 83.3  
 Natural Cycle: 95  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.64  
 Intersection Signal Delay: 22.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 62.6%  
 ICU Level of Service B  
 Analysis Period (min) 15




































Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |   |    |  |    |    |    |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |   |
| Traffic Volume (veh/h)       | 51  | 1198  | 285   | 94  | 1120  | 89  | 235   | 141   | 82  | 62  | 93  | 66  |
| Future Volume (veh/h)        | 51  | 1198  | 285   | 94  | 1120  | 89  | 235   | 141   | 82  | 62  | 93  | 66  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 55  | 1288  | 306   | 101   | 1204  | 96  | 253   | 152   | 88  | 67  | 100   | 71  |
| Peak Hour Factor             | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 137   | 1939  | 602   | 177   | 2007  | 623   | 337   | 688   | 307   | 151   | 473   | 211   |
| Arrive On Green              | 0.05  | 0.39  | 0.39  | 0.06  | 0.41  | 0.41  | 0.11  | 0.20  | 0.20  | 0.05  | 0.14  | 0.14  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956  | 3420  | 1525  | 2956  | 3420  | 1525  |
| Grp Volume(v), veh/h         | 55  | 1288  | 306   | 101   | 1204  | 96  | 253   | 152   | 88  | 67  | 100   | 71  |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478  | 1710  | 1525  | 1478  | 1710  | 1525  |
| Q Serve(g_s), s              | 1.3   | 15.6  | 11.0  | 2.4   | 13.9  | 2.9   | 6.0   | 2.7   | 3.5   | 1.6   | 1.9   | 3.0   |
| Cycle Q Clear(g_c), s        | 1.3   | 15.6  | 11.0  | 2.4   | 13.9  | 2.9   | 6.0   | 2.7   | 3.5   | 1.6   | 1.9   | 3.0   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 137   | 1939  | 602   | 177   | 2007  | 623   | 337   | 688   | 307   | 151   | 473   | 211   |
| V/C Ratio(X)                 | 0.40  | 0.66  | 0.51  | 0.57  | 0.60  | 0.15  | 0.75  | 0.22  | 0.29  | 0.44  | 0.21  | 0.34  |
| Avail Cap(c_a), veh/h        | 262   | 2934  | 911   | 384   | 3138  | 974   | 711   | 1834  | 818   | 302   | 1361  | 607   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 33.5  | 18.0  | 16.6  | 33.1  | 16.8  | 13.5  | 31.0  | 24.2  | 24.5  | 33.3  | 27.7  | 28.2  |
| Incr Delay (d2), s/veh       | 0.7   | 0.4   | 0.7   | 1.1   | 0.3   | 0.1   | 1.3   | 0.2   | 0.5   | 0.8   | 0.2   | 0.9   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.5   | 5.1   | 3.4   | 0.8   | 4.5   | 0.9   | 2.0   | 1.0   | 1.2   | 0.5   | 0.7   | 1.1   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 34.2  | 18.4  | 17.2  | 34.2  | 17.1  | 13.6  | 32.3  | 24.3  | 25.0  | 34.1  | 27.9  | 29.1  |
| LnGrp LOS                    | C   | B   | B   | C   | B   | B   | C   | C   | C   | C   | C   | C   |
| Approach Vol, veh/h          |   | 1649  |   |   | 1401  |   |   | 493   |   |   | 238   |   |
| Approach Delay, s/veh        |   | 18.7  |   |   | 18.1  |   |   | 28.5  |   |   | 30.0  |   |
| Approach LOS                 |   | B   |   |   | B   |   |   | C   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 8.3   | 20.8  | 8.9   | 34.4  | 12.9  | 16.2  | 7.9   | 35.3  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 7.4   | 38.8  | 9.4   | 43.2  | 17.4  | 28.8  | 6.4   | 46.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.6   | 5.5   | 4.4   | 17.6  | 8.0   | 5.0   | 3.3   | 15.9  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.1   | 0.1   | 11.0  | 0.3   | 0.7   | 0.0   | 9.7   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 20.4  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | C   |   |   |   |   |   |   |   |   |

Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

03/24/2022

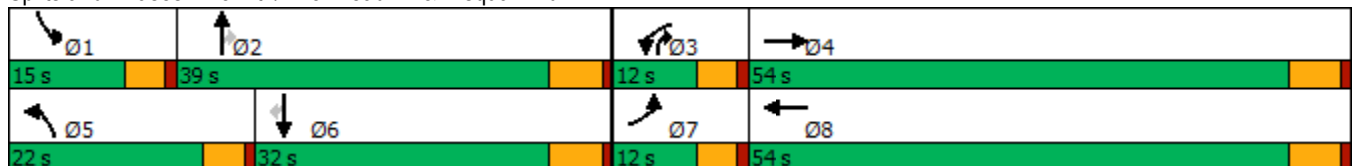


| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↙     | ↕     | ↙     | ↕     | ↙     | ↕     | ↗     | ↙     | ↕     | ↗     |
| Traffic Volume (vph) | 28    | 788   | 24    | 512   | 102   | 244   | 19    | 42    | 183   | 51    |
| Future Volume (vph)  | 28    | 788   | 24    | 512   | 102   | 244   | 19    | 42    | 183   | 51    |
| Turn Type            | Prot  | NA    | Prot  | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |       |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6   | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 12.0  | 54.0  | 12.0  | 54.0  | 22.0  | 39.0  | 12.0  | 15.0  | 32.0  | 32.0  |
| Total Split (%)      | 10.0% | 45.0% | 10.0% | 45.0% | 18.3% | 32.5% | 10.0% | 12.5% | 26.7% | 26.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 6.6   | 34.5  | 6.5   | 34.4  | 11.5  | 27.1  | 40.0  | 7.6   | 17.2  | 17.2  |
| Actuated g/C Ratio   | 0.08  | 0.40  | 0.07  | 0.40  | 0.13  | 0.31  | 0.46  | 0.09  | 0.20  | 0.20  |
| v/c Ratio            | 0.27  | 0.78  | 0.23  | 0.49  | 0.56  | 0.51  | 0.03  | 0.35  | 0.60  | 0.14  |
| Control Delay        | 53.8  | 28.8  | 53.1  | 22.2  | 52.2  | 34.4  | 0.1   | 52.9  | 43.8  | 0.7   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 53.8  | 28.8  | 53.1  | 22.2  | 52.2  | 34.4  | 0.1   | 52.9  | 43.8  | 0.7   |
| LOS                  | D     | C     | D     | C     | D     | C     | A     | D     | D     | A     |
| Approach Delay       |       | 29.6  |       | 23.4  |       | 37.6  |       |       | 37.2  |       |
| Approach LOS         |       | C     |       | C     |       | D     |       |       | D     |       |

Intersection Summary























Cycle Length: 120  
 Actuated Cycle Length: 86.8  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 30.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 57.7%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)  
03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 28  | 788   | 104   | 24  | 512   | 46  | 102   | 244   | 19  | 42  | 183   | 51  |
| Future Volume (veh/h)        | 28  | 788   | 104   | 24  | 512   | 46  | 102   | 244   | 19  | 42  | 183   | 51  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 33  | 927   | 122   | 28  | 602   | 54  | 120   | 287   | 22  | 49  | 215   | 60  |
| Peak Hour Factor             | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 56  | 1217  | 160   | 49  | 1259  | 113   | 150   | 375   | 364   | 73  | 289   | 245   |
| Arrive On Green              | 0.03  | 0.40  | 0.40  | 0.03  | 0.40  | 0.40  | 0.09  | 0.21  | 0.21  | 0.04  | 0.16  | 0.16  |
| Sat Flow, veh/h              | 1619  | 3038  | 400   | 1619  | 3175  | 284   | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Grp Volume(v), veh/h         | 33  | 522   | 527   | 28  | 324   | 332   | 120   | 287   | 22  | 49  | 215   | 60  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1710  | 1728  | 1619  | 1710  | 1749  | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Q Serve(g_s), s              | 1.3   | 17.3  | 17.3  | 1.1   | 9.3   | 9.3   | 4.8   | 9.9   | 0.7   | 2.0   | 7.5   | 2.3   |
| Cycle Q Clear(g_c), s        | 1.3   | 17.3  | 17.3  | 1.1   | 9.3   | 9.3   | 4.8   | 9.9   | 0.7   | 2.0   | 7.5   | 2.3   |
| Prop In Lane                 | 1.00  |   | 0.23  | 1.00  |   | 0.16  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 56  | 685   | 692   | 49  | 678   | 693   | 150   | 375   | 364   | 73  | 289   | 245   |
| V/C Ratio(X)                 | 0.59  | 0.76  | 0.76  | 0.57  | 0.48  | 0.48  | 0.80  | 0.77  | 0.06  | 0.67  | 0.74  | 0.25  |
| Avail Cap(c_a), veh/h        | 182   | 1252  | 1265  | 182   | 1252  | 1280  | 428   | 907   | 815   | 256   | 716   | 607   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 31.3  | 17.0  | 17.0  | 31.5  | 14.8  | 14.8  | 29.3  | 24.6  | 19.4  | 31.0  | 26.4  | 24.2  |
| Incr Delay (d2), s/veh       | 3.7   | 1.8   | 1.8   | 3.8   | 0.5   | 0.5   | 3.7   | 3.3   | 0.1   | 4.0   | 3.8   | 0.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.5   | 5.9   | 6.0   | 0.5   | 3.1   | 3.2   | 1.9   | 4.1   | 0.2   | 0.8   | 3.1   | 0.8   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 35.0  | 18.8  | 18.8  | 35.3  | 15.3  | 15.3  | 32.9  | 27.8  | 19.4  | 35.0  | 30.2  | 24.7  |
| LnGrp LOS                    | D   | B   | B   | D   | B   | B   | C   | C   | B   | C   | C   | C   |
| Approach Vol, veh/h          |   | 1082  |   |   | 684   |   |   | 429   |   |   | 324   |   |
| Approach Delay, s/veh        |   | 19.3  |   |   | 16.1  |   |   | 28.8  |   |   | 29.9  |   |
| Approach LOS                 |   | B   |   |   | B   |   |   | C   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 7.6   | 19.5  | 6.6   | 32.2  | 10.7  | 16.4  | 6.9   | 31.9  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 10.4  | 33.2  | 7.4   | 48.2  | 17.4  | 26.2  | 7.4   | 48.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 4.0   | 11.9  | 3.1   | 19.3  | 6.8   | 9.5   | 3.3   | 11.3  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.5   | 0.0   | 7.0   | 0.1   | 1.1   | 0.0   | 3.9   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 21.4  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | C   |   |   |   |   |   |   |   |   |

Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖     | ↗↗    | ↖↖    | ↑↑    | ↑↗    |
| Traffic Volume (vph) | 132   | 275   | 325   | 738   | 894   |
| Future Volume (vph)  | 132   | 275   | 325   | 738   | 894   |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 29.0  | 29.0  | 29.0  | 91.0  | 62.0  |
| Total Split (%)      | 24.2% | 24.2% | 24.2% | 75.8% | 51.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 12.7  | 33.8  | 16.2  | 61.4  | 39.1  |
| Actuated g/C Ratio   | 0.15  | 0.39  | 0.19  | 0.72  | 0.46  |
| v/c Ratio            | 0.59  | 0.26  | 0.62  | 0.32  | 0.71  |
| Control Delay        | 48.5  | 11.5  | 39.8  | 4.9   | 21.8  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 48.5  | 11.5  | 39.8  | 4.9   | 21.8  |
| LOS                  | D     | B     | D     | A     | C     |
| Approach Delay       | 23.5  |       |       | 15.6  | 21.8  |
| Approach LOS         | C     |       |       | B     | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 85.6  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 19.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 63.1%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)  
03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 132  | 275  | 325  | 738  | 894  | 118  |
| Future Volume (veh/h)        | 132  | 275  | 325  | 738  | 894  | 118  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1800 | 1600 | 1800 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 142  | 296  | 349  | 794  | 961  | 127  |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 207  | 760  | 459  | 2442 | 1439 | 190  |
| Arrive On Green              | 0.13 | 0.13 | 0.16 | 0.71 | 0.47 | 0.47 |
| Sat Flow, veh/h              | 1619 | 2685 | 2956 | 3510 | 3127 | 401  |
| Grp Volume(v), veh/h         | 142  | 296  | 349  | 794  | 541  | 547  |
| Grp Sat Flow(s),veh/h/ln     | 1619 | 1342 | 1478 | 1710 | 1710 | 1728 |
| Q Serve(g_s), s              | 5.7  | 6.1  | 7.7  | 5.9  | 16.6 | 16.6 |
| Cycle Q Clear(g_c), s        | 5.7  | 6.1  | 7.7  | 5.9  | 16.6 | 16.6 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.23 |
| Lane Grp Cap(c), veh/h       | 207  | 760  | 459  | 2442 | 810  | 819  |
| V/C Ratio(X)                 | 0.69 | 0.39 | 0.76 | 0.33 | 0.67 | 0.67 |
| Avail Cap(c_a), veh/h        | 578  | 1376 | 1004 | 4247 | 1397 | 1412 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 28.5 | 19.7 | 27.6 | 3.6  | 13.8 | 13.8 |
| Incr Delay (d2), s/veh       | 1.5  | 0.1  | 2.6  | 0.1  | 1.0  | 0.9  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.2  | 4.8  | 2.8  | 1.3  | 5.8  | 5.9  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 30.0 | 19.8 | 30.2 | 3.7  | 14.8 | 14.8 |
| LnGrp LOS                    | C    | B    | C    | A    | B    | B    |
| Approach Vol, veh/h          | 438  |      |      | 1143 | 1088 |      |
| Approach Delay, s/veh        | 23.1 |      |      | 11.8 | 14.8 |      |
| Approach LOS                 | C    |      |      | B    | B    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 55.0 |      | 13.3 | 16.4 | 38.6 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 84.8 |      | 24.4 | 23.2 | 55.8 |
| Max Q Clear Time (g_c+11), s |      | 7.9  |      | 8.1  | 9.7  | 18.6 |
| Green Ext Time (p_c), s      |      | 10.6 |      | 0.7  | 0.9  | 13.7 |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 14.9 |      |      |      |
| HCM 6th LOS                  |      |      | B    |      |      |      |

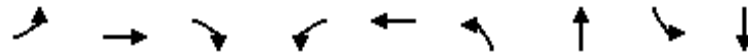
| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.2  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 5    | 0    | 8    | 0    | 0    | 5    | 11   | 1107 | 6    | 10   | 1206 | 1    |
| Future Vol, veh/h        | 5    | 0    | 8    | 0    | 0    | 5    | 11   | 1107 | 6    | 10   | 1206 | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 6    | 0    | 9    | 0    | 0    | 6    | 13   | 1258 | 7    | 11   | 1370 | 1    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |     | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|-----|--------|---|---|------|---|---|
| Conflicting Flow All | 2048   | 2684 | 686    | 1995 | 2681   | 633 | 1371   | 0 | 0 | 1265 | 0 | 0 |
| Stage 1              | 1393   | 1393 | -      | 1288 | 1288   | -   | -      | - | - | -    | - | - |
| Stage 2              | 655    | 1291 | -      | 707  | 1393   | -   | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9 | 4.1    | - | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3 | 2.2    | - | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 33     | 22   | 395    | 37   | 22     | 427 | 507    | - | - | 556  | - | - |
| Stage 1              | 152    | 211  | -      | 176  | 237    | -   | -      | - | - | -    | - | - |
| Stage 2              | 426    | 236  | -      | 397  | 211    | -   | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |     |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 31     | 21   | 395    | 35   | 21     | 427 | 507    | - | - | 556  | - | - |
| Mov Cap-2 Maneuver   | 133    | 141  | -      | 149  | 140    | -   | -      | - | - | -    | - | - |
| Stage 1              | 148    | 207  | -      | 171  | 231    | -   | -      | - | - | -    | - | - |
| Stage 2              | 410    | 230  | -      | 380  | 207    | -   | -      | - | - | -    | - | - |

| Approach             | EB   | WB   | NB  | SB  |
|----------------------|------|------|-----|-----|
| HCM Control Delay, s | 22.1 | 13.5 | 0.1 | 0.1 |
| HCM LOS              | C    | B    |     |     |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL   | SBT  | SBR |
|-----------------------|-------|-----|-----|------------|-------|------|-----|
| Capacity (veh/h)      | 507   | -   | -   | 225        | 427   | 556  | -   |
| HCM Lane V/C Ratio    | 0.025 | -   | -   | 0.066      | 0.013 | 0.02 | -   |
| HCM Control Delay (s) | 12.3  | -   | -   | 22.1       | 13.5  | 11.6 | -   |
| HCM Lane LOS          | B     | -   | -   | C          | B     | B    | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0.2        | 0     | 0.1  | -   |

Timings  
8: Hesperia Rd. & Nisqualli Rd.



| Lane Group           | EBL   | EBT   | EBR   | WBL  | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|------|-------|-------|-------|------|-------|
| Lane Configurations  | ↘↘    | ↑     | ↗↗    | ↘    | ↗↗    | ↘↘    | ↗↗    | ↘    | ↗↗    |
| Traffic Volume (vph) | 133   | 73    | 409   | 83   | 72    | 272   | 1163  | 16   | 1105  |
| Future Volume (vph)  | 133   | 73    | 409   | 83   | 72    | 272   | 1163  | 16   | 1105  |
| Turn Type            | Prot  | NA    | pm+ov | Prot | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |      |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |      |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0  | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6  | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 13.2  | 33.0  | 20.2  | 11.0 | 30.8  | 20.2  | 66.2  | 9.8  | 55.8  |
| Total Split (%)      | 11.0% | 27.5% | 16.8% | 9.2% | 25.7% | 16.8% | 55.2% | 8.2% | 46.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6  | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6  | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 8.2   | 12.1  | 29.5  | 10.1 | 10.4  | 15.2  | 61.3  | 5.1  | 45.1  |
| Actuated g/C Ratio   | 0.08  | 0.12  | 0.29  | 0.10 | 0.10  | 0.15  | 0.61  | 0.05 | 0.45  |
| v/c Ratio            | 0.62  | 0.38  | 0.58  | 0.57 | 0.34  | 0.68  | 0.68  | 0.22 | 0.85  |
| Control Delay        | 57.7  | 47.7  | 32.9  | 64.1 | 30.6  | 50.0  | 15.9  | 54.8 | 30.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 57.7  | 47.7  | 32.9  | 64.1 | 30.6  | 50.0  | 15.9  | 54.8 | 30.9  |
| LOS                  | E     | D     | C     | E    | C     | D     | B     | D    | C     |
| Approach Delay       |       | 40.0  |       |      | 44.6  |       | 21.9  |      | 31.2  |
| Approach LOS         |       | D     |       |      | D     |       | C     |      | C     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 100.2            |                        |
| Natural Cycle: 110                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.85                 |                        |
| Intersection Signal Delay: 29.5         | Intersection LOS: C    |
| Intersection Capacity Utilization 68.9% | ICU Level of Service C |
| Analysis Period (min) 15                |                        |

Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.





HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↔↔   | ↑    | ↔↔   | ↔     | ↔↔   |      | ↔↔   | ↔↔   |      | ↔    | ↔↔   |      |
| Traffic Volume (veh/h)       | 133  | 73   | 409  | 83    | 72   | 43   | 272  | 1163 | 96   | 16   | 1105 | 55   |
| Future Volume (veh/h)        | 133  | 73   | 409  | 83    | 72   | 43   | 272  | 1163 | 96   | 16   | 1105 | 55   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |       | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1600 | 1800 | 1800 | 1700  | 1800 | 1800 | 1600 | 1800 | 1800 | 1700 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 149  | 82   | 460  | 93    | 81   | 48   | 306  | 1307 | 108  | 18   | 1242 | 62   |
| Peak Hour Factor             | 0.89 | 0.89 | 0.89 | 0.89  | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 202  | 325  | 814  | 102   | 372  | 205  | 363  | 1691 | 139  | 32   | 1410 | 70   |
| Arrive On Green              | 0.07 | 0.18 | 0.18 | 0.06  | 0.18 | 0.18 | 0.12 | 0.53 | 0.53 | 0.02 | 0.43 | 0.43 |
| Sat Flow, veh/h              | 2956 | 1800 | 2685 | 1619  | 2128 | 1172 | 2956 | 3199 | 264  | 1619 | 3315 | 165  |
| Grp Volume(v), veh/h         | 149  | 82   | 460  | 93    | 64   | 65   | 306  | 697  | 718  | 18   | 640  | 664  |
| Grp Sat Flow(s),veh/h/ln     | 1478 | 1800 | 1342 | 1619  | 1710 | 1589 | 1478 | 1710 | 1753 | 1619 | 1710 | 1770 |
| Q Serve(g_s), s              | 5.0  | 4.0  | 14.7 | 5.8   | 3.3  | 3.6  | 10.3 | 33.0 | 33.3 | 1.1  | 35.0 | 35.1 |
| Cycle Q Clear(g_c), s        | 5.0  | 4.0  | 14.7 | 5.8   | 3.3  | 3.6  | 10.3 | 33.0 | 33.3 | 1.1  | 35.0 | 35.1 |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 0.74 | 1.00 |      | 0.15 | 1.00 |      | 0.09 |
| Lane Grp Cap(c), veh/h       | 202  | 325  | 814  | 102   | 299  | 278  | 363  | 904  | 926  | 32   | 727  | 753  |
| V/C Ratio(X)                 | 0.74 | 0.25 | 0.56 | 0.91  | 0.21 | 0.23 | 0.84 | 0.77 | 0.78 | 0.57 | 0.88 | 0.88 |
| Avail Cap(c_a), veh/h        | 250  | 481  | 1048 | 102   | 420  | 391  | 453  | 1009 | 1034 | 83   | 834  | 863  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 46.5 | 35.8 | 29.8 | 47.4  | 36.0 | 36.1 | 43.7 | 19.1 | 19.2 | 49.4 | 26.8 | 26.9 |
| Incr Delay (d2), s/veh       | 6.1  | 0.4  | 0.6  | 61.0  | 0.4  | 0.4  | 9.4  | 3.3  | 3.4  | 5.8  | 9.8  | 9.6  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.0  | 1.7  | 4.5  | 4.0   | 1.3  | 1.4  | 4.1  | 12.0 | 12.5 | 0.5  | 14.7 | 15.2 |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 52.6 | 36.2 | 30.4 | 108.3 | 36.3 | 36.5 | 53.1 | 22.4 | 22.5 | 55.2 | 36.6 | 36.5 |
| LnGrp LOS                    | D    | D    | C    | F     | D    | D    | D    | C    | C    | E    | D    | D    |
| Approach Vol, veh/h          |      | 691  |      |       | 222  |      |      | 1721 |      |      | 1322 |      |
| Approach Delay, s/veh        |      | 35.9 |      |       | 66.6 |      |      | 27.9 |      |      | 36.8 |      |
| Approach LOS                 |      | D    |      |       | E    |      |      | C    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4     | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 6.6  | 60.0 | 11.0 | 24.2  | 17.1 | 49.5 | 11.6 | 23.6 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.6  | 6.2  | 4.6  | 5.8   | 4.6  | 6.2  | 4.6  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 5.2  | 60.0 | 6.4  | 27.2  | 15.6 | 49.6 | 8.6  | 25.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 3.1  | 35.3 | 7.8  | 16.7  | 12.3 | 37.1 | 7.0  | 5.6  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 9.8  | 0.0  | 1.7   | 0.2  | 6.2  | 0.0  | 0.5  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |       |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 34.5 |       |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      | C    |       |      |      |      |      |      |      |      |      |

Timings

9: Hesperia Rd. & Bear Valley Rd.

03/24/2022

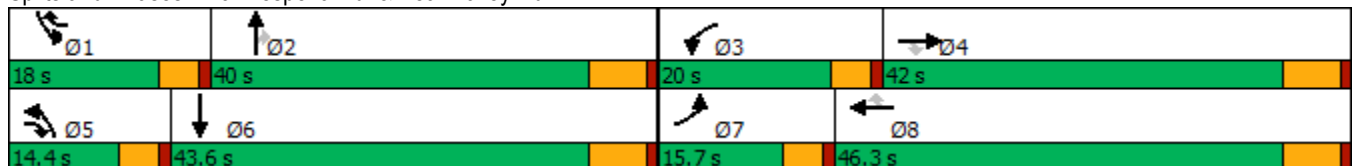


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↗     | ↖↗    | ↑↑↑   | ↗     | ↖↗    | ↑↑    | ↗     | ↖↗    | ↑↔    |
| Traffic Volume (vph) | 194   | 1311  | 123   | 318   | 1435  | 209   | 109   | 548   | 316   | 270   | 356   |
| Future Volume (vph)  | 194   | 1311  | 123   | 318   | 1435  | 209   | 109   | 548   | 316   | 270   | 356   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 15.7  | 42.0  | 14.4  | 20.0  | 46.3  | 18.0  | 14.4  | 40.0  | 40.0  | 18.0  | 43.6  |
| Total Split (%)      | 13.1% | 35.0% | 12.0% | 16.7% | 38.6% | 15.0% | 12.0% | 33.3% | 33.3% | 15.0% | 36.3% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 10.5  | 35.9  | 50.5  | 14.9  | 40.3  | 59.6  | 8.3   | 28.1  | 28.1  | 13.0  | 32.8  |
| Actuated g/C Ratio   | 0.09  | 0.32  | 0.44  | 0.13  | 0.35  | 0.52  | 0.07  | 0.25  | 0.25  | 0.11  | 0.29  |
| v/c Ratio            | 0.76  | 0.90  | 0.18  | 0.88  | 0.88  | 0.27  | 0.54  | 0.69  | 0.62  | 0.85  | 0.50  |
| Control Delay        | 69.6  | 46.7  | 8.6   | 72.8  | 42.0  | 11.8  | 61.5  | 43.3  | 18.1  | 73.7  | 33.2  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 69.6  | 46.7  | 8.6   | 72.8  | 42.0  | 11.8  | 61.5  | 43.3  | 18.1  | 73.7  | 33.2  |
| LOS                  | E     | D     | A     | E     | D     | B     | E     | D     | B     | E     | C     |
| Approach Delay       |       | 46.6  |       |       | 43.7  |       |       | 37.2  |       |       | 48.2  |
| Approach LOS         |       | D     |       |       | D     |       |       | D     |       |       | D     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.6  
 Natural Cycle: 105  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 44.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 80.6%  
 ICU Level of Service D  
 Analysis Period (min) 15



































Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |    |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 194   | 1311  | 123   | 318   | 1435  | 209   | 109  | 548   | 316   | 270   | 356   | 102   |
| Future Volume (veh/h)        | 194   | 1311  | 123   | 318   | 1435  | 209   | 109  | 548   | 316   | 270   | 356   | 102   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600   | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 206   | 1395  | 131   | 338   | 1527  | 222   | 116  | 583   | 336   | 287   | 379   | 109   |
| Peak Hour Factor             | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94   | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 255   | 1521  | 556   | 385   | 1737  | 712   | 163  | 886   | 395   | 334   | 833   | 237   |
| Arrive On Green              | 0.09  | 0.31  | 0.31  | 0.13  | 0.35  | 0.35  | 0.06   | 0.26  | 0.26  | 0.11  | 0.32  | 0.32  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956   | 3420  | 1525  | 2956  | 2629  | 747   |
| Grp Volume(v), veh/h         | 206   | 1395  | 131   | 338   | 1527  | 222   | 116  | 583   | 336   | 287   | 245   | 243   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478   | 1710  | 1525  | 1478  | 1710  | 1666  |
| Q Serve(g_s), s              | 7.8   | 31.4  | 6.8   | 12.9  | 33.4  | 10.4  | 4.4  | 17.5  | 24.0  | 10.9  | 13.1  | 13.4  |
| Cycle Q Clear(g_c), s        | 7.8   | 31.4  | 6.8   | 12.9  | 33.4  | 10.4  | 4.4  | 17.5  | 24.0  | 10.9  | 13.1  | 13.4  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 0.45  |
| Lane Grp Cap(c), veh/h       | 255   | 1521  | 556   | 385   | 1737  | 712   | 163  | 886   | 395   | 334   | 542   | 528   |
| V/C Ratio(X)                 | 0.81  | 0.92  | 0.24  | 0.88  | 0.88  | 0.31  | 0.71   | 0.66  | 0.85  | 0.86  | 0.45  | 0.46  |
| Avail Cap(c_a), veh/h        | 286   | 1535  | 560   | 397   | 1737  | 712   | 253  | 1009  | 450   | 346   | 558   | 543   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 51.4  | 38.2  | 25.3  | 49.0  | 34.8  | 19.1  | 53.3   | 37.9  | 40.4  | 49.9  | 31.2  | 31.3  |
| Incr Delay (d2), s/veh       | 12.6  | 9.1   | 0.2   | 18.4  | 5.6   | 0.2   | 2.2  | 1.3   | 13.1  | 17.6  | 0.6   | 0.6   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.3   | 13.7  | 2.5   | 5.7   | 14.0  | 3.7   | 1.7  | 7.4   | 10.4  | 4.8   | 5.5   | 5.5   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 64.1  | 47.2  | 25.5  | 67.4  | 40.3  | 19.3  | 55.4   | 39.3  | 53.5  | 67.6  | 31.8  | 31.9  |
| LnGrp LOS                    | E   | D   | C   | E   | D   | B   | E  | D   | D   | E   | C   | C   |
| Approach Vol, veh/h          |   | 1732  |   |   | 2087  |   |  | 1035  |   |   | 775   |   |
| Approach Delay, s/veh        |   | 47.6  |   |   | 42.5  |   |  | 45.7  |   |   | 45.1  |   |
| Approach LOS                 |   | D   |   |   | D   |   |  | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 17.6  | 35.9  | 19.5  | 41.7  | 10.9  | 42.5  | 14.5   | 46.7  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6  | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 13.4  | 33.8  | 15.4  | 35.8  | 9.8   | 37.4  | 11.1   | 40.1  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 12.9  | 26.0  | 14.9  | 33.4  | 6.4   | 15.4  | 9.8  | 35.4  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 3.7   | 0.0   | 2.1   | 0.0   | 4.3   | 0.0  | 4.1   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 45.0  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |  |   |   |   |   |   |

Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

03/24/2022

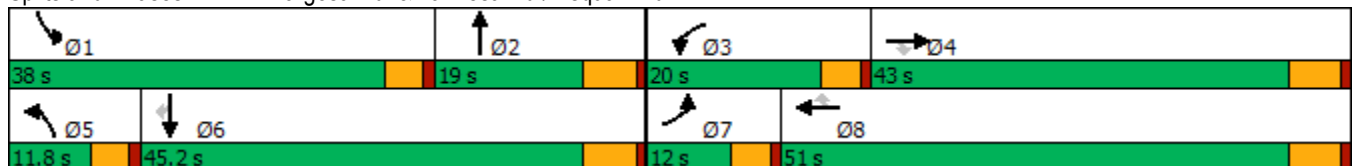


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↕     | ↗     | ↖↗    | ↕↕↕   | ↗     | ↖↗   | ↕↕    | ↗     | ↖↗    | ↕↕    | ↗     |
| Traffic Volume (vph) | 148   | 974   | 145   | 374   | 1528  | 728   | 140  | 335   | 418   | 894   | 671   | 427   |
| Future Volume (vph)  | 148   | 974   | 145   | 374   | 1528  | 728   | 140  | 335   | 418   | 894   | 671   | 427   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot | NA    | Free  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5    | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |      |       | Free  |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5    | 2     |       | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |      |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |       | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5  | 10.8  |       | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 12.0  | 43.0  | 43.0  | 20.0  | 51.0  | 51.0  | 11.8 | 19.0  |       | 38.0  | 45.2  | 45.2  |
| Total Split (%)      | 10.0% | 35.8% | 35.8% | 16.7% | 42.5% | 42.5% | 9.8% | 15.8% |       | 31.7% | 37.7% | 37.7% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5  | 4.8   |       | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |       | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5  | 5.8   |       | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead | Lag   |       | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |       | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | None | Max   |       | None  | Max   | Max   |
| Act Effct Green (s)  | 7.5   | 36.7  | 36.7  | 15.5  | 44.7  | 44.7  | 7.3  | 13.2  | 119.5 | 33.5  | 39.4  | 39.4  |
| Actuated g/C Ratio   | 0.06  | 0.31  | 0.31  | 0.13  | 0.37  | 0.37  | 0.06 | 0.11  | 1.00  | 0.28  | 0.33  | 0.33  |
| v/c Ratio            | 0.79  | 0.90  | 0.25  | 0.97  | 0.77  | 0.76  | 0.78 | 0.86  | 0.28  | 1.07  | 0.58  | 0.72  |
| Control Delay        | 83.4  | 51.7  | 2.7   | 90.6  | 36.1  | 10.4  | 82.5 | 73.5  | 0.5   | 92.8  | 35.6  | 29.7  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 83.4  | 51.7  | 2.7   | 90.6  | 36.1  | 10.4  | 82.5 | 73.5  | 0.5   | 92.8  | 35.6  | 29.7  |
| LOS                  | F     | D     | A     | F     | D     | B     | F    | E     | A     | F     | D     | C     |
| Approach Delay       |       | 49.8  |       |       | 36.7  |       |      | 40.7  |       |       | 60.0  |       |
| Approach LOS         |       | D     |       |       | D     |       |      | D     |       |       | E     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 119.5  
 Natural Cycle: 110  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 46.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 98.3%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖↗   | ↑↑   | ↖    | ↖↗   | ↑↑↑  | ↖    | ↖↗   | ↑↑   | ↖    | ↖↗   | ↑↑   | ↖    |
| Traffic Volume (veh/h)       | 148  | 974  | 145  | 374  | 1528 | 728  | 140  | 335  | 418  | 894  | 671  | 427  |
| Future Volume (veh/h)        | 148  | 974  | 145  | 374  | 1528 | 728  | 140  | 335  | 418  | 894  | 671  | 427  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 151  | 994  | 117  | 382  | 1559 | 513  | 143  | 342  | 0    | 912  | 685  | 308  |
| Peak Hour Factor             | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 192  | 1096 | 464  | 397  | 2007 | 567  | 187  | 399  |      | 858  | 1192 | 505  |
| Arrive On Green              | 0.06 | 0.30 | 0.30 | 0.13 | 0.37 | 0.37 | 0.06 | 0.11 | 0.00 | 0.28 | 0.33 | 0.33 |
| Sat Flow, veh/h              | 3048 | 3600 | 1525 | 3048 | 5400 | 1525 | 3048 | 3600 | 1525 | 3048 | 3600 | 1525 |
| Grp Volume(v), veh/h         | 151  | 994  | 117  | 382  | 1559 | 513  | 143  | 342  | 0    | 912  | 685  | 308  |
| Grp Sat Flow(s),veh/h/ln     | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 |
| Q Serve(g_s), s              | 5.8  | 31.6 | 6.9  | 14.8 | 30.4 | 37.9 | 5.5  | 11.1 | 0.0  | 33.5 | 18.7 | 20.1 |
| Cycle Q Clear(g_c), s        | 5.8  | 31.6 | 6.9  | 14.8 | 30.4 | 37.9 | 5.5  | 11.1 | 0.0  | 33.5 | 18.7 | 20.1 |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 192  | 1096 | 464  | 397  | 2007 | 567  | 187  | 399  |      | 858  | 1192 | 505  |
| V/C Ratio(X)                 | 0.79 | 0.91 | 0.25 | 0.96 | 0.78 | 0.90 | 0.77 | 0.86 |      | 1.06 | 0.57 | 0.61 |
| Avail Cap(c_a), veh/h        | 192  | 1125 | 477  | 397  | 2050 | 579  | 187  | 399  |      | 858  | 1192 | 505  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 55.0 | 39.8 | 31.2 | 51.5 | 33.0 | 35.4 | 55.0 | 52.0 | 0.0  | 42.8 | 32.9 | 33.4 |
| Incr Delay (d2), s/veh       | 17.7 | 10.5 | 0.3  | 35.2 | 1.9  | 17.6 | 15.5 | 20.5 | 0.0  | 49.0 | 2.0  | 5.4  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.6  | 14.9 | 2.5  | 7.4  | 12.9 | 16.1 | 2.5  | 6.0  | 0.0  | 17.9 | 8.2  | 7.9  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 72.7 | 50.3 | 31.5 | 86.7 | 35.0 | 53.0 | 70.6 | 72.5 | 0.0  | 91.8 | 34.9 | 38.8 |
| LnGrp LOS                    | E    | D    | C    | F    | C    | D    | E    | E    |      | F    | C    | D    |
| Approach Vol, veh/h          |      | 1262 |      |      | 2454 |      |      | 485  | A    |      | 1905 |      |
| Approach Delay, s/veh        |      | 51.2 |      |      | 46.8 |      |      | 71.9 |      |      | 62.8 |      |
| Approach LOS                 |      | D    |      |      | D    |      |      | E    |      |      | E    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 38.0 | 19.0 | 20.0 | 42.0 | 11.8 | 45.2 | 12.0 | 50.0 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 33.5 | 13.2 | 15.5 | 37.2 | 7.3  | 39.4 | 7.5  | 45.2 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 35.5 | 13.1 | 16.8 | 33.6 | 7.5  | 22.1 | 7.8  | 39.9 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 0.0  | 0.0  | 2.1  | 0.0  | 5.0  | 0.0  | 4.3  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 54.7 |
| HCM 6th LOS        | D    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

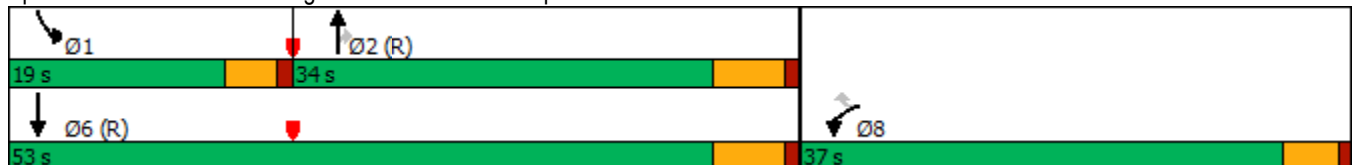
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↖↗    | ↖     | ↖↗    | ↖     | ↖     | ↖↗    |
| Traffic Volume (vph) | 1037  | 49    | 831   | 377   | 174   | 983   |
| Future Volume (vph)  | 1037  | 49    | 831   | 377   | 174   | 983   |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 37.0  | 37.0  | 34.0  | 34.0  | 19.0  | 53.0  |
| Total Split (%)      | 41.1% | 41.1% | 37.8% | 37.8% | 21.1% | 58.9% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 31.3  | 31.3  | 30.6  | 30.6  | 13.1  | 48.2  |
| Actuated g/C Ratio   | 0.35  | 0.35  | 0.34  | 0.34  | 0.15  | 0.54  |
| v/c Ratio            | 0.94  | 0.09  | 0.74  | 0.50  | 0.73  | 0.56  |
| Control Delay        | 43.3  | 6.1   | 31.6  | 4.9   | 53.3  | 15.5  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 43.3  | 6.1   | 31.6  | 4.9   | 53.3  | 15.5  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 41.7  |       | 23.3  |       |       | 21.2  |
| Approach LOS         | D     |       | C     |       |       | C     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 28.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 74.7%  
 ICU Level of Service D  
 Analysis Period (min) 15
















Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |  |    |
|------------------------------|---|---|---|---|---|---|
| Movement                     | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations          |   |  |   |  |  |   |
| Traffic Volume (veh/h)       | 1037  | 49  | 831   | 377   | 174   | 983   |
| Future Volume (veh/h)        | 1037  | 49  | 831   | 377   | 174   | 983   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        | No  |   | No  |   |   | No  |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 1140  | 54  | 913   | 414   | 191   | 1080  |
| Peak Hour Factor             | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 1211  | 556   | 1308  | 583   | 228   | 1943  |
| Arrive On Green              | 0.35  | 0.35  | 0.36  | 0.36  | 0.13  | 0.54  |
| Sat Flow, veh/h              | 3510  | 1610  | 3705  | 1610  | 1810  | 3705  |
| Grp Volume(v), veh/h         | 1140  | 54  | 913   | 414   | 191   | 1080  |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1610  | 1805  | 1610  | 1810  | 1805  |
| Q Serve(g_s), s              | 28.3  | 2.0   | 19.4  | 19.9  | 9.3   | 17.7  |
| Cycle Q Clear(g_c), s        | 28.3  | 2.0   | 19.4  | 19.9  | 9.3   | 17.7  |
| Prop In Lane                 | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Lane Grp Cap(c), veh/h       | 1211  | 556   | 1308  | 583   | 228   | 1943  |
| V/C Ratio(X)                 | 0.94  | 0.10  | 0.70  | 0.71  | 0.84  | 0.56  |
| Avail Cap(c_a), veh/h        | 1260  | 578   | 1308  | 583   | 292   | 1943  |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Upstream Filter(I)           | 1.00  | 1.00  | 0.51  | 0.51  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 28.6  | 20.0  | 24.5  | 24.6  | 38.4  | 13.7  |
| Incr Delay (d2), s/veh       | 13.1  | 0.0   | 1.6   | 3.7   | 15.5  | 1.2   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 12.6  | 0.7   | 7.8   | 7.5   | 4.9   | 6.5   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 41.7  | 20.0  | 26.1  | 28.4  | 53.9  | 14.8  |
| LnGrp LOS                    | D   | B   | C   | C   | D   | B   |
| Approach Vol, veh/h          | 1194  |   | 1327  |   |   | 1271  |
| Approach Delay, s/veh        | 40.7  |   | 26.8  |   |   | 20.7  |
| Approach LOS                 | D   |   | C   |   |   | C   |
| Timer - Assigned Phs         | 1   | 2   |   |   | 6   | 8   |
| Phs Duration (G+Y+Rc), s     | 15.8  | 38.4  |   |   | 54.2  | 35.8  |
| Change Period (Y+Rc), s      | 4.5   | 5.8   |   |   | 5.8   | 4.7   |
| Max Green Setting (Gmax), s  | 14.5  | 28.2  |   |   | 47.2  | 32.3  |
| Max Q Clear Time (g_c+I1), s | 11.3  | 21.9  |   |   | 19.7  | 30.3  |
| Green Ext Time (p_c), s      | 0.1   | 3.7   |   |   | 8.0   | 0.7   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 29.1  |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

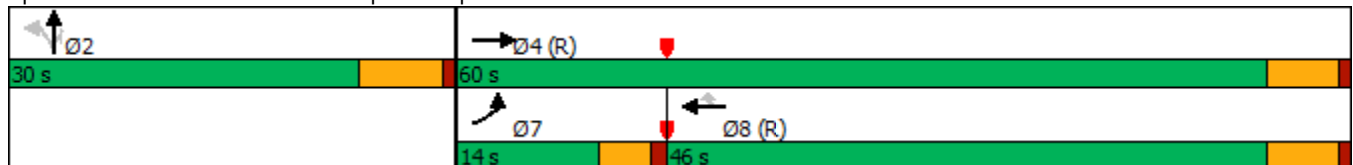


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↖    | ↑↑↑   | ↑↑↑   | ↗     | ↖     | ↖     | ↗     |
| Traffic Volume (vph) | 304   | 1976  | 2107  | 442   | 519   | 0     | 481   |
| Future Volume (vph)  | 304   | 1976  | 2107  | 442   | 519   | 0     | 481   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 14.0  | 60.0  | 46.0  | 46.0  | 30.0  | 30.0  | 30.0  |
| Total Split (%)      | 15.6% | 66.7% | 51.1% | 51.1% | 33.3% | 33.3% | 33.3% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 9.5   | 54.2  | 40.2  | 40.2  | 23.5  | 23.5  | 23.5  |
| Actuated g/C Ratio   | 0.11  | 0.60  | 0.45  | 0.45  | 0.26  | 0.26  | 0.26  |
| v/c Ratio            | 0.84  | 0.65  | 0.93  | 0.46  | 0.59  | 0.59  | 1.01  |
| Control Delay        | 60.9  | 12.9  | 32.1  | 3.3   | 35.5  | 35.5  | 72.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 60.9  | 12.9  | 32.1  | 3.3   | 35.5  | 35.5  | 72.6  |
| LOS                  | E     | B     | C     | A     | D     | D     | E     |
| Approach Delay       |       | 19.3  | 27.1  |       |       | 53.3  |       |
| Approach LOS         |       | B     | C     |       |       | D     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 28.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 78.2%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.





























HCM 6th Signalized Intersection Summary  
 3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|  |    |    |  |  |    |    |   |  |  |  |  |  |
|--|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement   | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations  |   |    |   |   |    |  |  |  |  |   |   |   |
| Traffic Volume (veh/h)   | 304   | 1976  | 0   | 0   | 2107  | 442   | 519   | 0   | 481   | 0   | 0   | 0   |
| Future Volume (veh/h)  | 304   | 1976  | 0   | 0   | 2107  | 442   | 519   | 0   | 481   | 0   | 0   | 0   |
| Initial Q (Qb), veh  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |   |   |   |
| Ped-Bike Adj(A_pbT)  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |   |   |   |
| Parking Bus, Adj   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |   |   |   |
| Work Zone On Approach  |   | No  |   |   | No  |   |   | No  |   |   |   |   |
| Adj Sat Flow, veh/h/ln   | 1900  | 1900  | 0   | 0   | 1900  | 1900  | 1900  | 1900  | 1900  |   |   |   |
| Adj Flow Rate, veh/h   | 310   | 2016  | 0   | 0   | 2150  | 451   | 530   | 0   | 491   |   |   |   |
| Peak Hour Factor   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |   |   |   |
| Percent Heavy Veh, %   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |   |   |   |
| Cap, veh/h   | 371   | 3124  | 0   | 0   | 2317  | 719   | 945   | 0   | 420   |   |   |   |
| Arrive On Green  | 0.11  | 0.60  | 0.00  | 0.00  | 0.45  | 0.45  | 0.26  | 0.00  | 0.26  |   |   |   |
| Sat Flow, veh/h  | 3510  | 5358  | 0   | 0   | 5358  | 1610  | 3619  | 0   | 1610  |   |   |   |
| Grp Volume(v), veh/h   | 310   | 2016  | 0   | 0   | 2150  | 451   | 530   | 0   | 491   |   |   |   |
| Grp Sat Flow(s),veh/h/ln   | 1755  | 1729  | 0   | 0   | 1729  | 1610  | 1810  | 0   | 1610  |   |   |   |
| Q Serve(g_s), s  | 7.8   | 22.8  | 0.0   | 0.0   | 35.3  | 19.4  | 11.4  | 0.0   | 23.5  |   |   |   |
| Cycle Q Clear(g_c), s  | 7.8   | 22.8  | 0.0   | 0.0   | 35.3  | 19.4  | 11.4  | 0.0   | 23.5  |   |   |   |
| Prop In Lane   | 1.00  |   | 0.00  | 0.00  |   | 1.00  | 1.00  |   | 1.00  |   |   |   |
| Lane Grp Cap(c), veh/h   | 371   | 3124  | 0   | 0   | 2317  | 719   | 945   | 0   | 420   |   |   |   |
| V/C Ratio(X)   | 0.84  | 0.65  | 0.00  | 0.00  | 0.93  | 0.63  | 0.56  | 0.00  | 1.17  |   |   |   |
| Avail Cap(c_a), veh/h  | 371   | 3124  | 0   | 0   | 2317  | 719   | 945   | 0   | 420   |   |   |   |
| HCM Platoon Ratio  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |   |   |   |
| Upstream Filter(I)   | 0.41  | 0.41  | 0.00  | 0.00  | 0.30  | 0.30  | 1.00  | 0.00  | 1.00  |   |   |   |
| Uniform Delay (d), s/veh   | 39.5  | 11.6  | 0.0   | 0.0   | 23.5  | 19.1  | 28.8  | 0.0   | 33.3  |   |   |   |
| Incr Delay (d2), s/veh   | 6.5   | 0.4   | 0.0   | 0.0   | 2.8   | 1.3   | 0.8   | 0.0   | 98.4  |   |   |   |
| Initial Q Delay(d3),s/veh  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |   |   |   |
| %ile BackOfQ(50%),veh/ln   | 3.5   | 7.1   | 0.0   | 0.0   | 13.1  | 6.7   | 4.6   | 0.0   | 19.7  |   |   |   |
| Unsig. Movement Delay, s/veh   |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh   | 46.0  | 12.1  | 0.0   | 0.0   | 26.3  | 20.4  | 29.5  | 0.0   | 131.6   |   |   |   |
| LnGrp LOS  | D   | B   | A   | A   | C   | C   | C   | A   | F   |   |   |   |
| Approach Vol, veh/h  |   | 2326  |   |   | 2601  |   |   | 1021  |   |   |   |   |
| Approach Delay, s/veh  |   | 16.6  |   |   | 25.3  |   |   | 78.6  |   |   |   |   |
| Approach LOS   |   | B   |   |   | C   |   |   | E   |   |   |   |   |
| Timer - Assigned Phs   |   | 2   |   | 4   |   |   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s   |   | 30.0  |   | 60.0  |   |   | 14.0  | 46.0  |   |   |   |   |
| Change Period (Y+Rc), s  |   | 6.5   |   | 5.8   |   |   | 4.5   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  |   | 23.5  |   | 54.2  |   |   | 9.5   | 40.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s   |   | 25.5  |   | 24.8  |   |   | 9.8   | 37.3  |   |   |   |   |
| Green Ext Time (p_c), s  |   | 0.0   |   | 18.1  |   |   | 0.0   | 2.8   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay   |   |   |   | 31.0  |   |   |   |   |   |   |   |   |
| HCM 6th LOS  |   |   |   | C   |   |   |   |   |   |   |   |   |
| <b>Notes</b>   |   |   |   |   |   |   |   |   |   |   |   |   |
| User approved volume balancing among the lanes for turning movement. |   |   |   |   |   |   |   |   |   |   |   |   |

Timings

4: Mariposa & Nisqualli Rd.

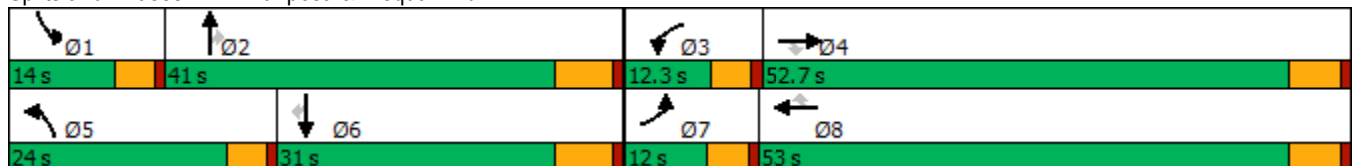
03/24/2022

| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 153   | 1801  | 520   | 136   | 1929  | 144   | 478   | 316   | 186   | 188   | 316   | 109   |
| Future Volume (vph)  | 153   | 1801  | 520   | 136   | 1929  | 144   | 478   | 316   | 186   | 188   | 316   | 109   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 12.0  | 52.7  | 52.7  | 12.3  | 53.0  | 53.0  | 24.0  | 41.0  | 41.0  | 14.0  | 31.0  | 31.0  |
| Total Split (%)      | 10.0% | 43.9% | 43.9% | 10.3% | 44.2% | 44.2% | 20.0% | 34.2% | 34.2% | 11.7% | 25.8% | 25.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 7.4   | 47.2  | 47.2  | 7.5   | 47.2  | 47.2  | 19.4  | 25.9  | 25.9  | 9.2   | 15.7  | 15.7  |
| Actuated g/C Ratio   | 0.07  | 0.43  | 0.43  | 0.07  | 0.43  | 0.43  | 0.17  | 0.23  | 0.23  | 0.08  | 0.14  | 0.14  |
| v/c Ratio            | 0.79  | 0.87  | 0.61  | 0.69  | 0.93  | 0.20  | 0.94  | 0.40  | 0.41  | 0.78  | 0.66  | 0.32  |
| Control Delay        | 79.1  | 35.3  | 10.4  | 69.5  | 40.1  | 3.6   | 72.9  | 37.5  | 14.3  | 72.1  | 51.9  | 4.9   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 79.1  | 35.3  | 10.4  | 69.5  | 40.1  | 3.6   | 72.9  | 37.5  | 14.3  | 72.1  | 51.9  | 4.9   |
| LOS                  | E     | D     | B     | E     | D     | A     | E     | D     | B     | E     | D     | A     |
| Approach Delay       |       | 32.8  |       |       | 39.6  |       |       | 50.4  |       |       | 49.8  |       |
| Approach LOS         |       | C     |       |       | D     |       |       | D     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 111  
 Natural Cycle: 115  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 39.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 87.6%  
 ICU Level of Service E  
 Analysis Period (min) 15



































Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

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|                              |    |    |  |    |    |  |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 153   | 1801  | 520   | 136   | 1929  | 144   | 478   | 316   | 186   | 188   | 316   | 109   |
| Future Volume (veh/h)        | 153   | 1801  | 520   | 136   | 1929  | 144   | 478   | 316   | 186   | 188   | 316   | 109   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 155   | 1819  | 525   | 137   | 1948  | 145   | 483   | 319   | 188   | 190   | 319   | 110   |
| Peak Hour Factor             | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 203   | 2146  | 666   | 187   | 2119  | 658   | 529   | 760   | 339   | 241   | 426   | 190   |
| Arrive On Green              | 0.07  | 0.44  | 0.44  | 0.06  | 0.43  | 0.43  | 0.18  | 0.22  | 0.22  | 0.08  | 0.12  | 0.12  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956  | 3420  | 1525  | 2956  | 3420  | 1525  |
| Grp Volume(v), veh/h         | 155   | 1819  | 525   | 137   | 1948  | 145   | 483   | 319   | 188   | 190   | 319   | 110   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478  | 1710  | 1525  | 1478  | 1710  | 1525  |
| Q Serve(g_s), s              | 5.6   | 35.7  | 31.9  | 4.9   | 40.3  | 6.4   | 17.3  | 8.6   | 11.8  | 6.8   | 9.7   | 7.3   |
| Cycle Q Clear(g_c), s        | 5.6   | 35.7  | 31.9  | 4.9   | 40.3  | 6.4   | 17.3  | 8.6   | 11.8  | 6.8   | 9.7   | 7.3   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 203   | 2146  | 666   | 187   | 2119  | 658   | 529   | 760   | 339   | 241   | 426   | 190   |
| V/C Ratio(X)                 | 0.76  | 0.85  | 0.79  | 0.73  | 0.92  | 0.22  | 0.91  | 0.42  | 0.55  | 0.79  | 0.75  | 0.58  |
| Avail Cap(c_a), veh/h        | 203   | 2146  | 666   | 211   | 2150  | 668   | 532   | 1103  | 492   | 258   | 786   | 351   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 49.4  | 27.2  | 26.1  | 49.6  | 28.9  | 19.3  | 43.4  | 36.0  | 37.2  | 48.6  | 45.6  | 44.5  |
| Incr Delay (d2), s/veh       | 14.4  | 3.4   | 6.3   | 8.8   | 6.9   | 0.2   | 19.7  | 0.4   | 1.4   | 12.7  | 2.7   | 2.8   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.4   | 13.5  | 11.8  | 2.0   | 15.9  | 2.2   | 7.5   | 3.5   | 4.4   | 2.8   | 4.1   | 2.8   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 63.7  | 30.6  | 32.4  | 58.4  | 35.8  | 19.4  | 63.1  | 36.4  | 38.6  | 61.3  | 48.2  | 47.3  |
| LnGrp LOS                    | E   | C   | C   | E   | D   | B   | E   | D   | D   | E   | D   | D   |
| Approach Vol, veh/h          |   | 2499  |   |   | 2230  |   |   | 990   |   |   | 619   |   |
| Approach Delay, s/veh        |   | 33.0  |   |   | 36.2  |   |   | 49.9  |   |   | 52.1  |   |
| Approach LOS                 |   | C   |   |   | D   |   |   | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 13.4  | 30.2  | 11.4  | 52.9  | 23.9  | 19.6  | 12.0  | 52.3  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 9.4   | 34.8  | 7.7   | 46.9  | 19.4  | 24.8  | 7.4   | 47.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 8.8   | 13.8  | 6.9   | 37.7  | 19.3  | 11.7  | 7.6   | 42.3  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 2.4   | 0.0   | 7.6   | 0.0   | 1.7   | 0.0   | 4.2   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 38.6  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |   |   |   |   |   |   |

Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

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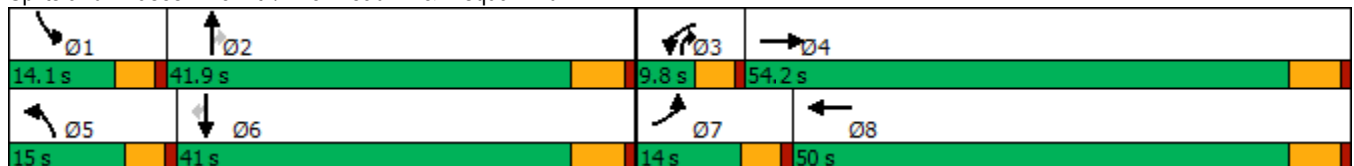


| Lane Group           | EBL   | EBT   | WBL  | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↙     | ↕     | ↙    | ↕     | ↙     | ↕     | ↙     | ↙     | ↕     | ↙     |
| Traffic Volume (vph) | 105   | 929   | 36   | 1164  | 230   | 263   | 46    | 49    | 322   | 88    |
| Future Volume (vph)  | 105   | 929   | 36   | 1164  | 230   | 263   | 46    | 49    | 322   | 88    |
| Turn Type            | Prot  | NA    | Prot | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3    | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |      |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3    | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |      |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0  | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6  | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 14.0  | 54.2  | 9.8  | 50.0  | 15.0  | 41.9  | 9.8   | 14.1  | 41.0  | 41.0  |
| Total Split (%)      | 11.7% | 45.2% | 8.2% | 41.7% | 12.5% | 34.9% | 8.2%  | 11.8% | 34.2% | 34.2% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6  | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6  | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 9.3   | 50.6  | 5.2  | 44.3  | 10.4  | 30.6  | 41.6  | 7.6   | 25.6  | 25.6  |
| Actuated g/C Ratio   | 0.08  | 0.46  | 0.05 | 0.40  | 0.09  | 0.28  | 0.38  | 0.07  | 0.23  | 0.23  |
| v/c Ratio            | 0.82  | 0.77  | 0.51 | 0.96  | 1.59  | 0.56  | 0.08  | 0.47  | 0.81  | 0.21  |
| Control Delay        | 92.3  | 30.6  | 76.9 | 49.8  | 330.0 | 40.0  | 3.2   | 65.2  | 55.9  | 5.5   |
| Queue Delay          | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 92.3  | 30.6  | 76.9 | 49.8  | 330.0 | 40.0  | 3.2   | 65.2  | 55.9  | 5.5   |
| LOS                  | F     | C     | E    | D     | F     | D     | A     | E     | E     | A     |
| Approach Delay       |       | 35.9  |      | 50.6  |       | 160.7 |       |       | 47.2  |       |
| Approach LOS         |       | D     |      | D     |       | F     |       |       | D     |       |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 110.6            |                        |
| Natural Cycle: 110                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 1.59                 |                        |
| Intersection Signal Delay: 61.9         | Intersection LOS: E    |
| Intersection Capacity Utilization 92.5% | ICU Level of Service F |
| Analysis Period (min) 15                |                        |























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 105   | 929   | 195   | 36  | 1164  | 78  | 230   | 263   | 46  | 49  | 322   | 88  |
| Future Volume (veh/h)        | 105   | 929   | 195   | 36  | 1164  | 78  | 230   | 263   | 46  | 49  | 322   | 88  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 111   | 978   | 205   | 38  | 1225  | 82  | 242   | 277   | 48  | 52  | 339   | 93  |
| Peak Hour Factor             | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 135   | 1284  | 269   | 51  | 1317  | 88  | 159   | 496   | 469   | 65  | 390   | 331   |
| Arrive On Green              | 0.08  | 0.46  | 0.46  | 0.03  | 0.40  | 0.40  | 0.10  | 0.28  | 0.28  | 0.04  | 0.22  | 0.22  |
| Sat Flow, veh/h              | 1619  | 2815  | 589   | 1619  | 3253  | 217   | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Grp Volume(v), veh/h         | 111   | 593   | 590   | 38  | 643   | 664   | 242   | 277   | 48  | 52  | 339   | 93  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1710  | 1694  | 1619  | 1710  | 1761  | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Q Serve(g_s), s              | 7.1   | 30.6  | 30.7  | 2.5   | 37.9  | 38.1  | 10.4  | 13.9  | 2.4   | 3.4   | 19.2  | 5.4   |
| Cycle Q Clear(g_c), s        | 7.1   | 30.6  | 30.7  | 2.5   | 37.9  | 38.1  | 10.4  | 13.9  | 2.4   | 3.4   | 19.2  | 5.4   |
| Prop In Lane                 | 1.00  |   | 0.35  | 1.00  |   | 0.12  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 135   | 780   | 773   | 51  | 692   | 713   | 159   | 496   | 469   | 65  | 390   | 331   |
| V/C Ratio(X)                 | 0.82  | 0.76  | 0.76  | 0.74  | 0.93  | 0.93  | 1.52  | 0.56  | 0.10  | 0.81  | 0.87  | 0.28  |
| Avail Cap(c_a), veh/h        | 144   | 783   | 776   | 80  | 715   | 736   | 159   | 615   | 569   | 146   | 599   | 508   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 47.7  | 23.9  | 24.0  | 50.7  | 30.0  | 30.0  | 47.6  | 32.8  | 26.2  | 50.3  | 39.9  | 34.5  |
| Incr Delay (d2), s/veh       | 27.1  | 4.4   | 4.5   | 7.4   | 18.2  | 18.2  | 263.0   | 1.0   | 0.1   | 8.5   | 8.5   | 0.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.8   | 12.2  | 12.2  | 1.1   | 17.9  | 18.5  | 15.7  | 6.0   | 0.8   | 1.5   | 8.9   | 2.0   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 74.8  | 28.3  | 28.5  | 58.2  | 48.2  | 48.3  | 310.6   | 33.8  | 26.3  | 58.8  | 48.4  | 35.0  |
| LnGrp LOS                    | E   | C   | C   | E   | D   | D   | F   | C   | C   | E   | D   | C   |
| Approach Vol, veh/h          |   | 1294  |   |   | 1345  |   |   | 567   |   |   | 484   |   |
| Approach Delay, s/veh        |   | 32.4  |   |   | 48.5  |   |   | 151.3   |   |   | 47.0  |   |
| Approach LOS                 |   | C   |   |   | D   |   |   | F   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 8.8   | 34.9  | 8.0   | 54.0  | 15.0  | 28.7  | 13.4  | 48.6  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 9.5   | 36.1  | 5.2   | 48.4  | 10.4  | 35.2  | 9.4   | 44.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 5.4   | 15.9  | 4.5   | 32.7  | 12.4  | 21.2  | 9.1   | 40.1  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.5   | 0.0   | 6.6   | 0.0   | 1.7   | 0.0   | 2.7   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 58.4  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | E   |   |   |   |   |   |   |   |   |   |

Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖     | ↗↗    | ↖↖    | ↑↑    | ↑↗    |
| Traffic Volume (vph) | 140   | 546   | 522   | 1125  | 1101  |
| Future Volume (vph)  | 140   | 546   | 522   | 1125  | 1101  |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 26.6  | 36.0  | 36.0  | 93.4  | 57.4  |
| Total Split (%)      | 22.2% | 30.0% | 30.0% | 77.8% | 47.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 14.3  | 44.3  | 25.3  | 76.0  | 44.7  |
| Actuated g/C Ratio   | 0.14  | 0.44  | 0.25  | 0.75  | 0.44  |
| v/c Ratio            | 0.67  | 0.49  | 0.76  | 0.47  | 0.79  |
| Control Delay        | 58.6  | 20.6  | 44.5  | 5.9   | 29.7  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 58.6  | 20.6  | 44.5  | 5.9   | 29.7  |
| LOS                  | E     | C     | D     | A     | C     |
| Approach Delay       | 28.4  |       |       | 18.1  | 29.7  |
| Approach LOS         | C     |       |       | B     | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 101.4  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 23.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 72.3%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 140  | 546  | 522  | 1125 | 1101 | 0    |
| Future Volume (veh/h)        | 140  | 546  | 522  | 1125 | 1101 | 0    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1800 | 1600 | 1800 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 151  | 587  | 561  | 1210 | 1184 | 0    |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 309  | 1094 | 640  | 2404 | 1469 | 0    |
| Arrive On Green              | 0.19 | 0.19 | 0.22 | 0.70 | 0.43 | 0.00 |
| Sat Flow, veh/h              | 1619 | 2685 | 2956 | 3510 | 3600 | 0    |
| Grp Volume(v), veh/h         | 151  | 587  | 561  | 1210 | 1184 | 0    |
| Grp Sat Flow(s),veh/h/ln     | 1619 | 1342 | 1478 | 1710 | 1710 | 0    |
| Q Serve(g_s), s              | 8.5  | 16.9 | 18.7 | 16.6 | 30.8 | 0.0  |
| Cycle Q Clear(g_c), s        | 8.5  | 16.9 | 18.7 | 16.6 | 30.8 | 0.0  |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.00 |
| Lane Grp Cap(c), veh/h       | 309  | 1094 | 640  | 2404 | 1469 | 0    |
| V/C Ratio(X)                 | 0.49 | 0.54 | 0.88 | 0.50 | 0.81 | 0.00 |
| Avail Cap(c_a), veh/h        | 350  | 1161 | 876  | 2928 | 1719 | 0    |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh     | 36.8 | 22.9 | 38.6 | 7.0  | 25.4 | 0.0  |
| Incr Delay (d2), s/veh       | 0.4  | 0.2  | 7.6  | 0.2  | 2.5  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.4  | 13.2 | 7.4  | 5.2  | 12.5 | 0.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 37.2 | 23.0 | 46.2 | 7.1  | 27.9 | 0.0  |
| LnGrp LOS                    | D    | C    | D    | A    | C    | A    |
| Approach Vol, veh/h          | 738  |      |      | 1771 | 1184 |      |
| Approach Delay, s/veh        | 25.9 |      |      | 19.5 | 27.9 |      |
| Approach LOS                 | C    |      |      | B    | C    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 77.8 |      | 24.1 | 27.9 | 49.9 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 87.2 |      | 22.0 | 30.2 | 51.2 |
| Max Q Clear Time (g_c+11), s |      | 18.6 |      | 18.9 | 20.7 | 32.8 |
| Green Ext Time (p_c), s      |      | 20.6 |      | 0.6  | 1.4  | 11.0 |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 23.5 |      |      |      |
| HCM 6th LOS                  |      |      | C    |      |      |      |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.5  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 6    | 0    | 16   | 1    | 0    | 15   | 30   | 1671 | 0    | 7    | 1690 | 4    |
| Future Vol, veh/h        | 6    | 0    | 16   | 1    | 0    | 15   | 30   | 1671 | 0    | 7    | 1690 | 4    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 6    | 0    | 17   | 1    | 0    | 16   | 32   | 1797 | 0    | 8    | 1817 | 4    |

| Major/Minor          | Minor2 |      | Minor1 |      |      | Major1 |      |   | Major2 |      |   |   |
|----------------------|--------|------|--------|------|------|--------|------|---|--------|------|---|---|
| Conflicting Flow All | 2798   | 3696 | 911    | 2786 | 3698 | 899    | 1821 | 0 | 0      | 1797 | 0 | 0 |
| Stage 1              | 1835   | 1835 | -      | 1861 | 1861 | -      | -    | - | -      | -    | - | - |
| Stage 2              | 963    | 1861 | -      | 925  | 1837 | -      | -    | - | -      | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5  | 6.9    | 4.1  | - | -      | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5  | -      | -    | - | -      | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5  | -      | -    | - | -      | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4    | 3.3    | 2.2  | - | -      | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 9      | 5    | 281    | 9    | 5    | 286    | 341  | - | -      | 348  | - | - |
| Stage 1              | 80     | 128  | -      | 77   | 124  | -      | -    | - | -      | -    | - | - |
| Stage 2              | 278    | 124  | -      | 294  | 128  | -      | -    | - | -      | -    | - | - |
| Platoon blocked, %   | -      | -    | -      | -    | -    | -      | -    | - | -      | -    | - | - |
| Mov Cap-1 Maneuver   | 8      | 4    | 281    | 8    | 4    | 286    | 341  | - | -      | 348  | - | - |
| Mov Cap-2 Maneuver   | 65     | 73   | -      | 63   | 65   | -      | -    | - | -      | -    | - | - |
| Stage 1              | 72     | 125  | -      | 70   | 112  | -      | -    | - | -      | -    | - | - |
| Stage 2              | 238    | 112  | -      | 270  | 125  | -      | -    | - | -      | -    | - | - |

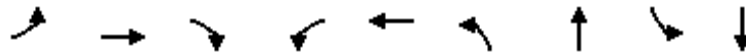
| Approach             | EB   |  | WB   |  |  | NB  |  |  | SB  |  |  |
|----------------------|------|--|------|--|--|-----|--|--|-----|--|--|
| HCM Control Delay, s | 34.1 |  | 21.6 |  |  | 0.3 |  |  | 0.1 |  |  |
| HCM LOS              | D    |  | C    |  |  |     |  |  |     |  |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL   | SBT   | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h)      | 341   | -   | -   | 147        | 234   | 348   | -   |
| HCM Lane V/C Ratio    | 0.095 | -   | -   | 0.161      | 0.074 | 0.022 | -   |
| HCM Control Delay (s) | 16.7  | -   | -   | 34.1       | 21.6  | 15.6  | -   |
| HCM Lane LOS          | C     | -   | -   | D          | C     | C     | -   |
| HCM 95th %tile Q(veh) | 0.3   | -   | -   | 0.6        | 0.2   | 0.1   | -   |



Timings

8: Hesperia Rd. & Nisqualli Rd.

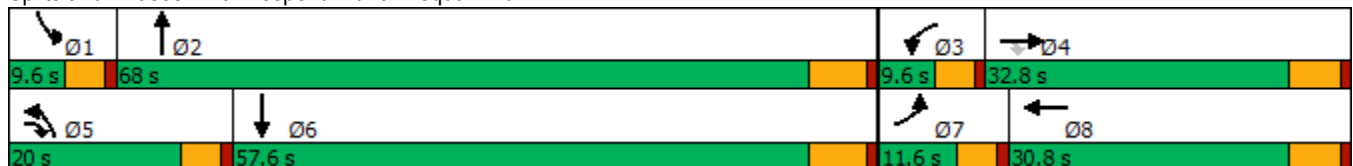


| Lane Group           | EBL  | EBT   | EBR   | WBL  | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|------|-------|-------|------|-------|-------|-------|------|-------|
| Lane Configurations  | ↖↖   | ↑     | ↗↗    | ↖    | ↕↕    | ↗↗    | ↕↕    | ↖    | ↕↕    |
| Traffic Volume (vph) | 150  | 60    | 424   | 97   | 65    | 465   | 1420  | 19   | 1618  |
| Future Volume (vph)  | 150  | 60    | 424   | 97   | 65    | 465   | 1420  | 19   | 1618  |
| Turn Type            | Prot | NA    | pm+ov | Prot | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7    | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |      |       | 4     |      |       |       |       |      |       |
| Detector Phase       | 7    | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |      |       |       |      |       |       |       |      |       |
| Minimum Initial (s)  | 5.0  | 10.0  | 5.0   | 5.0  | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6  | 32.8  | 9.6   | 9.6  | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 11.6 | 32.8  | 20.0  | 9.6  | 30.8  | 20.0  | 68.0  | 9.6  | 57.6  |
| Total Split (%)      | 9.7% | 27.3% | 16.7% | 8.0% | 25.7% | 16.7% | 56.7% | 8.0% | 48.0% |
| Yellow Time (s)      | 3.6  | 4.8   | 3.6   | 3.6  | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0  | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0  | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6  | 5.8   | 4.6   | 4.6  | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead | Lag   | Lead  | Lead | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes  | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None | None  | None  | None | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 7.0  | 11.6  | 29.7  | 8.6  | 10.0  | 15.4  | 67.5  | 5.0  | 51.4  |
| Actuated g/C Ratio   | 0.07 | 0.11  | 0.28  | 0.08 | 0.10  | 0.15  | 0.64  | 0.05 | 0.49  |
| v/c Ratio            | 0.79 | 0.31  | 0.57  | 0.76 | 0.34  | 1.11  | 0.72  | 0.26 | 1.08  |
| Control Delay        | 76.2 | 47.4  | 34.8  | 86.5 | 28.6  | 118.5 | 15.6  | 57.1 | 73.1  |
| Queue Delay          | 0.0  | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 76.2 | 47.4  | 34.8  | 86.5 | 28.6  | 118.5 | 15.6  | 57.1 | 73.1  |
| LOS                  | E    | D     | C     | F    | C     | F     | B     | E    | E     |
| Approach Delay       |      | 45.8  |       |      | 54.9  |       | 39.7  |      | 72.9  |
| Approach LOS         |      | D     |       |      | D     |       | D     |      | E     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 105  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.11  
 Intersection Signal Delay: 54.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 93.4%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT   | WBR  | NBL   | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|-------|------|-------|------|------|------|------|------|
| Lane Configurations          | ↔↔   | ↑    | ↔↔   | ↔     | ↔↔    |      | ↔↔    | ↔↔   |      | ↔    | ↔↔   |      |
| Traffic Volume (veh/h)       | 150  | 60   | 424  | 97    | 65    | 51   | 465   | 1420 | 98   | 19   | 1618 | 116  |
| Future Volume (veh/h)        | 150  | 60   | 424  | 97    | 65    | 51   | 465   | 1420 | 98   | 19   | 1618 | 116  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0     | 0    | 0     | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00  |       | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |       | No    |      |       | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1600 | 1800 | 1800 | 1700  | 1800  | 1800 | 1600  | 1800 | 1800 | 1700 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 155  | 62   | 334  | 100   | 67    | 53   | 479   | 1464 | 101  | 20   | 1668 | 120  |
| Peak Hour Factor             | 0.97 | 0.97 | 0.97 | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0     | 0     | 0    | 0     | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 193  | 241  | 744  | 75    | 219   | 157  | 424   | 1952 | 134  | 34   | 1550 | 111  |
| Arrive On Green              | 0.07 | 0.13 | 0.13 | 0.05  | 0.12  | 0.12 | 0.14  | 0.60 | 0.60 | 0.02 | 0.48 | 0.48 |
| Sat Flow, veh/h              | 2956 | 1800 | 2685 | 1619  | 1902  | 1363 | 2956  | 3247 | 223  | 1619 | 3238 | 231  |
| Grp Volume(v), veh/h         | 155  | 62   | 334  | 100   | 60    | 60   | 479   | 768  | 797  | 20   | 874  | 914  |
| Grp Sat Flow(s),veh/h/ln     | 1478 | 1800 | 1342 | 1619  | 1710  | 1555 | 1478  | 1710 | 1760 | 1619 | 1710 | 1758 |
| Q Serve(g_s), s              | 5.6  | 3.3  | 11.0 | 5.0   | 3.4   | 3.8  | 15.4  | 34.9 | 35.4 | 1.3  | 51.4 | 51.4 |
| Cycle Q Clear(g_c), s        | 5.6  | 3.3  | 11.0 | 5.0   | 3.4   | 3.8  | 15.4  | 34.9 | 35.4 | 1.3  | 51.4 | 51.4 |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |       | 0.88 | 1.00  |      | 0.13 | 1.00 |      | 0.13 |
| Lane Grp Cap(c), veh/h       | 193  | 241  | 744  | 75    | 197   | 179  | 424   | 1028 | 1058 | 34   | 819  | 842  |
| V/C Ratio(X)                 | 0.80 | 0.26 | 0.45 | 1.33  | 0.30  | 0.34 | 1.13  | 0.75 | 0.75 | 0.59 | 1.07 | 1.09 |
| Avail Cap(c_a), veh/h        | 193  | 453  | 1060 | 75    | 398   | 362  | 424   | 1028 | 1058 | 75   | 819  | 842  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 49.5 | 41.7 | 32.0 | 51.2  | 43.5  | 43.7 | 46.0  | 15.5 | 15.6 | 52.1 | 28.0 | 28.0 |
| Incr Delay (d2), s/veh       | 20.0 | 0.6  | 0.4  | 213.6 | 0.9   | 1.1  | 84.1  | 3.0  | 3.1  | 6.0  | 51.2 | 56.9 |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.5  | 1.5  | 3.5  | 6.4   | 1.5   | 1.5  | 10.3  | 12.2 | 12.7 | 0.6  | 30.1 | 32.3 |
| Unsig. Movement Delay, s/veh |      |      |      |       |       |      |       |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 69.5 | 42.3 | 32.4 | 264.8 | 44.4  | 44.8 | 130.1 | 18.5 | 18.7 | 58.1 | 79.2 | 84.9 |
| LnGrp LOS                    | E    | D    | C    | F     | D     | D    | F     | B    | B    | E    | F    | F    |
| Approach Vol, veh/h          |      | 551  |      |       | 220   |      |       | 2044 |      |      | 1808 |      |
| Approach Delay, s/veh        |      | 44.0 |      |       | 144.7 |      |       | 44.7 |      |      | 81.8 |      |
| Approach LOS                 |      | D    |      |       | F     |      |       | D    |      |      | F    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4     | 5     | 6    | 7     | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 6.8  | 70.8 | 9.6  | 20.2  | 20.0  | 57.6 | 11.6  | 18.2 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.6  | 6.2  | 4.6  | 5.8   | 4.6   | 6.2  | 4.6   | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 5.0  | 61.8 | 5.0  | 27.0  | 15.4  | 51.4 | 7.0   | 25.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 3.3  | 37.4 | 7.0  | 13.0  | 17.4  | 53.4 | 7.6   | 5.8  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 11.3 | 0.0  | 1.3   | 0.0   | 0.0  | 0.0   | 0.5  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |       |       |      |       |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 63.9 |       |       |      |       |      |      |      |      |      |
| HCM 6th LOS                  |      |      | E    |       |       |      |       |      |      |      |      |      |

Timings  
9: Hesperia Rd. & Bear Valley Rd.

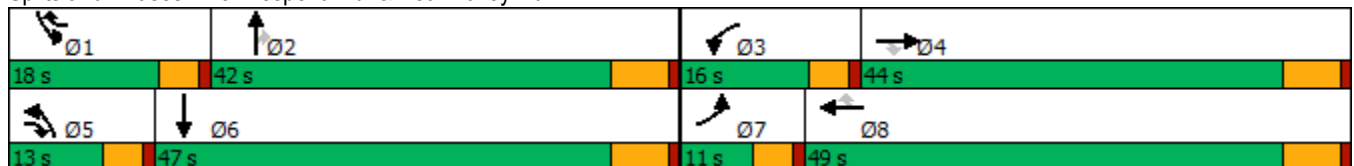


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑    | ↖     | ↖↗    | ↑↔    |
| Traffic Volume (vph) | 147   | 1742  | 111   | 327   | 1522  | 177   | 221   | 492   | 360   | 431   | 665   |
| Future Volume (vph)  | 147   | 1742  | 111   | 327   | 1522  | 177   | 221   | 492   | 360   | 431   | 665   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 11.0  | 44.0  | 13.0  | 16.0  | 49.0  | 18.0  | 13.0  | 42.0  | 42.0  | 18.0  | 47.0  |
| Total Split (%)      | 9.2%  | 36.7% | 10.8% | 13.3% | 40.8% | 15.0% | 10.8% | 35.0% | 35.0% | 15.0% | 39.2% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.4   | 37.9  | 52.5  | 11.4  | 42.9  | 62.5  | 8.4   | 30.5  | 30.5  | 13.4  | 35.6  |
| Actuated g/C Ratio   | 0.06  | 0.33  | 0.46  | 0.10  | 0.37  | 0.54  | 0.07  | 0.27  | 0.27  | 0.12  | 0.31  |
| v/c Ratio            | 0.91  | 1.10  | 0.14  | 1.14  | 0.85  | 0.21  | 1.05  | 0.55  | 0.67  | 1.28  | 0.80  |
| Control Delay        | 105.8 | 91.3  | 1.5   | 142.9 | 39.0  | 7.1   | 126.6 | 38.5  | 23.1  | 187.3 | 41.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 105.8 | 91.3  | 1.5   | 142.9 | 39.0  | 7.1   | 126.6 | 38.5  | 23.1  | 187.3 | 41.9  |
| LOS                  | F     | F     | A     | F     | D     | A     | F     | D     | C     | F     | D     |
| Approach Delay       |       | 87.4  |       |       | 53.0  |       |       | 51.5  |       |       | 91.8  |
| Approach LOS         |       | F     |       |       | D     |       |       | D     |       |       | F     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 114.9            |                        |
| Natural Cycle: 125                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 1.28                 |                        |
| Intersection Signal Delay: 71.3         | Intersection LOS: E    |
| Intersection Capacity Utilization 96.9% | ICU Level of Service F |
| Analysis Period (min) 15                |                        |































Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |    |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 147   | 1742  | 111   | 327   | 1522  | 177   | 221   | 492   | 360   | 431   | 665   | 159   |
| Future Volume (veh/h)        | 147   | 1742  | 111   | 327   | 1522  | 177   | 221   | 492   | 360   | 431   | 665   | 159   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 150   | 1778  | 113   | 334   | 1553  | 181   | 226   | 502   | 367   | 440   | 679   | 162   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 163   | 1601  | 607   | 290   | 1813  | 739   | 214   | 938   | 418   | 341   | 869   | 207   |
| Arrive On Green              | 0.06  | 0.33  | 0.33  | 0.10  | 0.37  | 0.37  | 0.07  | 0.27  | 0.27  | 0.12  | 0.32  | 0.32  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956  | 3420  | 1525  | 2956  | 2739  | 653   |
| Grp Volume(v), veh/h         | 150   | 1778  | 113   | 334   | 1553  | 181   | 226   | 502   | 367   | 440   | 424   | 417   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478  | 1710  | 1525  | 1478  | 1710  | 1682  |
| Q Serve(g_s), s              | 5.9   | 37.8  | 5.6   | 11.4  | 33.8  | 8.1   | 8.4   | 14.5  | 26.7  | 13.4  | 26.1  | 26.1  |
| Cycle Q Clear(g_c), s        | 5.9   | 37.8  | 5.6   | 11.4  | 33.8  | 8.1   | 8.4   | 14.5  | 26.7  | 13.4  | 26.1  | 26.1  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 0.39  |
| Lane Grp Cap(c), veh/h       | 163   | 1601  | 607   | 290   | 1813  | 739   | 214   | 938   | 418   | 341   | 543   | 534   |
| V/C Ratio(X)                 | 0.92  | 1.11  | 0.19  | 1.15  | 0.86  | 0.24  | 1.06  | 0.54  | 0.88  | 1.29  | 0.78  | 0.78  |
| Avail Cap(c_a), veh/h        | 163   | 1601  | 607   | 290   | 1813  | 739   | 214   | 1055  | 471   | 341   | 601   | 592   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 54.6  | 39.1  | 22.7  | 52.3  | 33.8  | 17.5  | 53.8  | 35.8  | 40.2  | 51.3  | 35.9  | 35.9  |
| Incr Delay (d2), s/veh       | 46.9  | 59.2  | 0.1   | 99.6  | 4.3   | 0.2   | 77.0  | 0.5   | 15.7  | 150.3   | 6.0   | 6.1   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.2   | 23.7  | 2.0   | 8.2   | 13.9  | 2.9   | 5.4   | 6.1   | 11.7  | 12.1  | 11.7  | 11.5  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 101.5   | 98.4  | 22.8  | 151.9   | 38.1  | 17.7  | 130.9   | 36.3  | 55.9  | 201.6   | 41.9  | 42.1  |
| LnGrp LOS                    | F   | F   | C   | F   | D   | B   | F   | D   | E   | F   | D   | D   |
| Approach Vol, veh/h          |   | 2041  |   |   | 2068  |   |   | 1095  |   |   | 1281  |   |
| Approach Delay, s/veh        |   | 94.4  |   |   | 54.7  |   |   | 62.4  |   |   | 96.8  |   |
| Approach LOS                 |   | F   |   |   | D   |   |   | E   |   |   | F   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 18.0  | 38.0  | 16.0  | 44.0  | 13.0  | 43.0  | 11.0  | 49.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 13.4  | 35.8  | 11.4  | 37.8  | 8.4   | 40.8  | 6.4   | 42.8  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 15.4  | 28.7  | 13.4  | 39.8  | 10.4  | 28.1  | 7.9   | 35.8  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 3.1   | 0.0   | 0.0   | 0.0   | 5.9   | 0.0   | 6.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 76.8  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | E   |   |   |   |   |   |   |   |   |   |

**APPENDIX 5.2:**

**OPENING YEAR CUMULATIVE (2024) WITH PROJECT CONDITIONS INTERSECTION  
OPERATIONS ANALYSIS WORKSHEETS**

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Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

03/24/2022

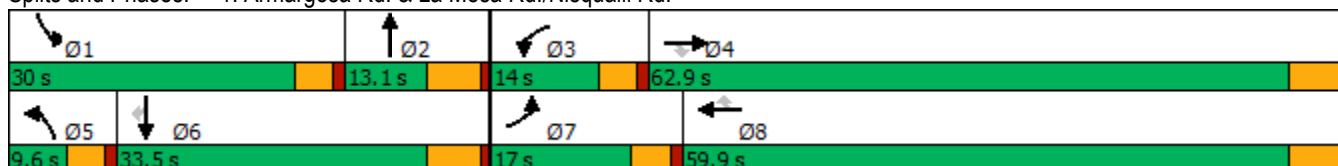


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR  | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|
| Lane Configurations  | ↗↘    | ↗↗    | ↗     | ↗↘    | ↗↗↗   | ↗     | ↗↘   | ↗↗    | ↗    | ↗↘    | ↗↗    | ↗     |
| Traffic Volume (vph) | 188   | 855   | 74    | 110   | 491   | 668   | 24   | 116   | 81   | 428   | 214   | 114   |
| Future Volume (vph)  | 188   | 855   | 74    | 110   | 491   | 668   | 24   | 116   | 81   | 428   | 214   | 114   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot | NA    | Free | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5    | 2     |      | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |      |       | Free |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5    | 2     |      | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |      |       |      |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |      | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5  | 10.8  |      | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 17.0  | 62.9  | 62.9  | 14.0  | 59.9  | 59.9  | 9.6  | 13.1  |      | 30.0  | 33.5  | 33.5  |
| Total Split (%)      | 14.2% | 52.4% | 52.4% | 11.7% | 49.9% | 49.9% | 8.0% | 10.9% |      | 25.0% | 27.9% | 27.9% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5  | 4.8   |      | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |      | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |      | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5  | 5.8   |      | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead | Lag   |      | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |      | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | None | Max   |      | None  | Max   | Max   |
| Act Effct Green (s)  | 10.1  | 31.1  | 31.1  | 7.8   | 28.7  | 28.7  | 5.2  | 10.0  | 87.6 | 17.6  | 28.9  | 28.9  |
| Actuated g/C Ratio   | 0.12  | 0.36  | 0.36  | 0.09  | 0.33  | 0.33  | 0.06 | 0.11  | 1.00 | 0.20  | 0.33  | 0.33  |
| v/c Ratio            | 0.58  | 0.73  | 0.13  | 0.45  | 0.30  | 0.78  | 0.14 | 0.31  | 0.06 | 0.76  | 0.20  | 0.21  |
| Control Delay        | 46.6  | 28.2  | 0.4   | 47.0  | 22.3  | 10.5  | 47.5 | 42.9  | 0.1  | 43.1  | 25.2  | 6.9   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Delay          | 46.6  | 28.2  | 0.4   | 47.0  | 22.3  | 10.5  | 47.5 | 42.9  | 0.1  | 43.1  | 25.2  | 6.9   |
| LOS                  | D     | C     | A     | D     | C     | B     | D    | D     | A    | D     | C     | A     |
| Approach Delay       |       | 29.4  |       |       | 18.3  |       |      | 27.7  |      |       | 32.5  |       |
| Approach LOS         |       | C     |       |       | B     |       |      | C     |      |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 87.6  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 25.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 67.6%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖↗   | ↑↑   | ↖    | ↖↗   | ↑↑↑  | ↖    | ↖↗   | ↑↑   | ↖    | ↖↗   | ↑↑   | ↖    |
| Traffic Volume (veh/h)       | 188  | 855  | 74   | 110  | 491  | 668  | 24   | 116  | 81   | 428  | 214  | 114  |
| Future Volume (veh/h)        | 188  | 855  | 74   | 110  | 491  | 668  | 24   | 116  | 81   | 428  | 214  | 114  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 204  | 929  | 80   | 120  | 534  | 726  | 26   | 126  | 0    | 465  | 233  | 124  |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 256  | 1799 | 762  | 169  | 2544 | 719  | 75   | 340  |      | 522  | 868  | 368  |
| Arrive On Green              | 0.08 | 0.50 | 0.50 | 0.06 | 0.47 | 0.47 | 0.02 | 0.09 | 0.00 | 0.17 | 0.24 | 0.24 |
| Sat Flow, veh/h              | 3048 | 3600 | 1525 | 3048 | 5400 | 1525 | 3048 | 3600 | 1525 | 3048 | 3600 | 1525 |
| Grp Volume(v), veh/h         | 204  | 929  | 80   | 120  | 534  | 726  | 26   | 126  | 0    | 465  | 233  | 124  |
| Grp Sat Flow(s),veh/h/ln     | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 |
| Q Serve(g_s), s              | 7.5  | 20.0 | 3.2  | 4.4  | 6.7  | 54.1 | 1.0  | 3.8  | 0.0  | 17.1 | 6.0  | 7.7  |
| Cycle Q Clear(g_c), s        | 7.5  | 20.0 | 3.2  | 4.4  | 6.7  | 54.1 | 1.0  | 3.8  | 0.0  | 17.1 | 6.0  | 7.7  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 256  | 1799 | 762  | 169  | 2544 | 719  | 75   | 340  |      | 522  | 868  | 368  |
| V/C Ratio(X)                 | 0.80 | 0.52 | 0.10 | 0.71 | 0.21 | 1.01 | 0.35 | 0.37 |      | 0.89 | 0.27 | 0.34 |
| Avail Cap(c_a), veh/h        | 332  | 1799 | 762  | 252  | 2544 | 719  | 135  | 340  |      | 677  | 868  | 368  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 51.7 | 19.4 | 15.2 | 53.4 | 17.8 | 30.4 | 55.1 | 48.8 | 0.0  | 46.5 | 35.4 | 36.0 |
| Incr Delay (d2), s/veh       | 7.5  | 0.3  | 0.1  | 2.1  | 0.0  | 36.2 | 1.0  | 3.1  | 0.0  | 9.9  | 0.8  | 2.5  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.1  | 7.8  | 1.1  | 1.7  | 2.6  | 25.3 | 0.4  | 1.8  | 0.0  | 7.0  | 2.7  | 3.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 59.2 | 19.6 | 15.2 | 55.4 | 17.9 | 66.5 | 56.1 | 51.9 | 0.0  | 56.5 | 36.1 | 38.5 |
| LnGrp LOS                    | E    | B    | B    | E    | B    | F    | E    | D    |      | E    | D    | D    |
| Approach Vol, veh/h          |      | 1213 |      |      | 1380 |      |      | 152  | A    |      | 822  |      |
| Approach Delay, s/veh        |      | 26.0 |      |      | 46.7 |      |      | 52.6 |      |      | 48.0 |      |
| Approach LOS                 |      | C    |      |      | D    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 24.2 | 16.6 | 10.9 | 63.2 | 7.3  | 33.5 | 14.1 | 59.9 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 25.5 | 7.3  | 9.5  | 57.1 | 5.1  | 27.7 | 12.5 | 54.1 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 19.1 | 5.8  | 6.4  | 22.0 | 3.0  | 9.7  | 9.5  | 56.1 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.5  | 0.1  | 0.0  | 7.3  | 0.0  | 1.6  | 0.1  | 0.0  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 40.2 |
| HCM 6th LOS        | D    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



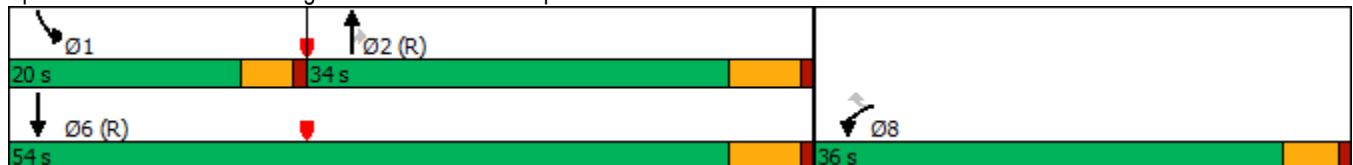
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↖↗    | ↖     | ↖↗    | ↖     | ↖     | ↖↗    |
| Traffic Volume (vph) | 850   | 39    | 679   | 360   | 145   | 795   |
| Future Volume (vph)  | 850   | 39    | 679   | 360   | 145   | 795   |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 36.0  | 36.0  | 34.0  | 34.0  | 20.0  | 54.0  |
| Total Split (%)      | 40.0% | 40.0% | 37.8% | 37.8% | 22.2% | 60.0% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effect Green (s) | 27.5  | 27.5  | 34.9  | 34.9  | 12.6  | 52.0  |
| Actuated g/C Ratio   | 0.31  | 0.31  | 0.39  | 0.39  | 0.14  | 0.58  |
| v/c Ratio            | 0.86  | 0.08  | 0.53  | 0.45  | 0.63  | 0.41  |
| Control Delay        | 38.5  | 7.0   | 24.3  | 4.4   | 47.3  | 11.8  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 38.5  | 7.0   | 24.3  | 4.4   | 47.3  | 11.8  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 37.1  |       | 17.4  |       |       | 17.3  |
| Approach LOS         | D     |       | B     |       |       | B     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 23.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 63.6%  
 ICU Level of Service B  
 Analysis Period (min) 15
















Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |  |   |
|------------------------------|---|---|---|---|---|--|
| Movement                     | WBL   | WBR   | NBT   | NBR   | SBL   | SBT  |
| Lane Configurations          |   |  |   |  |  |   |
| Traffic Volume (veh/h)       | 850   | 39  | 679   | 360   | 145   | 795  |
| Future Volume (veh/h)        | 850   | 39  | 679   | 360   | 145   | 795  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0  |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00  |   | 1.00  | 1.00  |  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   |
| Work Zone On Approach        | No  |   | No  |   |   | No   |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   |
| Adj Flow Rate, veh/h         | 924   | 42  | 738   | 391   | 158   | 864  |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92   |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0  |
| Cap, veh/h                   | 1018  | 467   | 1573  | 702   | 194   | 2142   |
| Arrive On Green              | 0.29  | 0.29  | 0.44  | 0.44  | 0.11  | 0.59   |
| Sat Flow, veh/h              | 3510  | 1610  | 3705  | 1610  | 1810  | 3705   |
| Grp Volume(v), veh/h         | 924   | 42  | 738   | 391   | 158   | 864  |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1610  | 1805  | 1610  | 1810  | 1805   |
| Q Serve(g_s), s              | 22.8  | 1.7   | 13.0  | 16.3  | 7.7   | 11.5   |
| Cycle Q Clear(g_c), s        | 22.8  | 1.7   | 13.0  | 16.3  | 7.7   | 11.5   |
| Prop In Lane                 | 1.00  | 1.00  |   | 1.00  | 1.00  |  |
| Lane Grp Cap(c), veh/h       | 1018  | 467   | 1573  | 702   | 194   | 2142   |
| V/C Ratio(X)                 | 0.91  | 0.09  | 0.47  | 0.56  | 0.81  | 0.40   |
| Avail Cap(c_a), veh/h        | 1221  | 560   | 1573  | 702   | 312   | 2142   |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   |
| Upstream Filter(I)           | 1.00  | 1.00  | 0.67  | 0.67  | 1.00  | 1.00   |
| Uniform Delay (d), s/veh     | 30.8  | 23.3  | 18.0  | 18.9  | 39.3  | 9.8  |
| Incr Delay (d2), s/veh       | 8.0   | 0.0   | 0.7   | 2.1   | 8.3   | 0.6  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 9.7   | 0.6   | 5.0   | 5.8   | 3.7   | 3.9  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |  |
| LnGrp Delay(d),s/veh         | 38.8  | 23.3  | 18.7  | 21.1  | 47.6  | 10.4   |
| LnGrp LOS                    | D   | C   | B   | C   | D   | B  |
| Approach Vol, veh/h          | 966   |   | 1129  |   |   | 1022   |
| Approach Delay, s/veh        | 38.1  |   | 19.5  |   |   | 16.1   |
| Approach LOS                 | D   |   | B   |   |   | B  |
| Timer - Assigned Phs         | 1   | 2   |   |   | 6   | 8  |
| Phs Duration (G+Y+Rc), s     | 14.2  | 45.0  |   |   | 59.2  | 30.8   |
| Change Period (Y+Rc), s      | 4.5   | 5.8   |   |   | 5.8   | 4.7  |
| Max Green Setting (Gmax), s  | 15.5  | 28.2  |   |   | 48.2  | 31.3   |
| Max Q Clear Time (g_c+11), s | 9.7   | 18.3  |   |   | 13.5  | 24.8   |
| Green Ext Time (p_c), s      | 0.2   | 4.3   |   |   | 6.3   | 1.3  |
| <b>Intersection Summary</b>  |   |   |   |   |   |  |
| HCM 6th Ctrl Delay           |   |   | 24.2  |   |   |  |
| HCM 6th LOS                  |   |   | C   |   |   |  |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

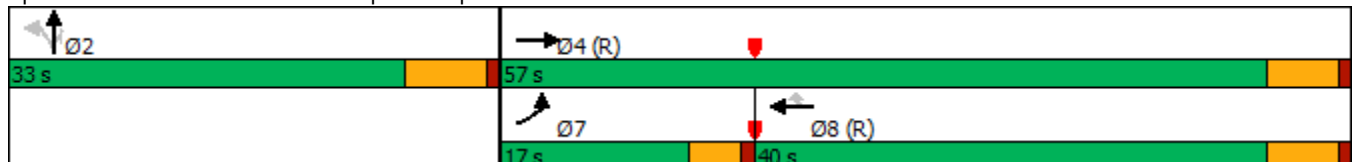


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↔↔    | ↑↑↑   | ↔↔↔   | ↔     | ↔     | ↔     | ↔     |
| Traffic Volume (vph) | 207   | 1288  | 1091  | 351   | 188   | 1     | 319   |
| Future Volume (vph)  | 207   | 1288  | 1091  | 351   | 188   | 1     | 319   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 17.0  | 57.0  | 40.0  | 40.0  | 33.0  | 33.0  | 33.0  |
| Total Split (%)      | 18.9% | 63.3% | 44.4% | 44.4% | 36.7% | 36.7% | 36.7% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 10.1  | 57.2  | 42.6  | 42.6  | 20.5  | 20.5  | 20.5  |
| Actuated g/C Ratio   | 0.11  | 0.64  | 0.47  | 0.47  | 0.23  | 0.23  | 0.23  |
| v/c Ratio            | 0.59  | 0.44  | 0.50  | 0.41  | 0.27  | 0.27  | 0.82  |
| Control Delay        | 44.1  | 9.5   | 18.6  | 3.5   | 28.5  | 28.6  | 39.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 44.1  | 9.5   | 18.6  | 3.5   | 28.5  | 28.6  | 39.9  |
| LOS                  | D     | A     | B     | A     | C     | C     | D     |
| Approach Delay       |       | 14.3  | 14.9  |       |       | 35.7  |       |
| Approach LOS         |       | B     | B     |       |       | D     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 17.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 54.9%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| Lane Configurations          | ↖↗   | ↑↑↑  |      |      | ↑↑↑  | ↖    | ↖    | ↖    | ↖    |     |     |     |
| Traffic Volume (veh/h)       | 207  | 1288 | 0    | 0    | 1091 | 351  | 188  | 1    | 319  | 0   | 0   | 0   |
| Future Volume (veh/h)        | 207  | 1288 | 0    | 0    | 1091 | 351  | 188  | 1    | 319  | 0   | 0   | 0   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     |     |     |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |     |     |     |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     |     |     |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |     |     |     |
| Adj Sat Flow, veh/h/ln       | 1900 | 1900 | 0    | 0    | 1900 | 1900 | 1900 | 1900 | 1900 |     |     |     |
| Adj Flow Rate, veh/h         | 233  | 1447 | 0    | 0    | 1226 | 394  | 212  | 0    | 358  |     |     |     |
| Peak Hour Factor             | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |     |     |     |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     |     |     |
| Cap, veh/h                   | 311  | 3191 | 0    | 0    | 2472 | 767  | 898  | 0    | 400  |     |     |     |
| Arrive On Green              | 0.09 | 0.62 | 0.00 | 0.00 | 0.48 | 0.48 | 0.25 | 0.00 | 0.25 |     |     |     |
| Sat Flow, veh/h              | 3510 | 5358 | 0    | 0    | 5358 | 1610 | 3619 | 0    | 1610 |     |     |     |
| Grp Volume(v), veh/h         | 233  | 1447 | 0    | 0    | 1226 | 394  | 212  | 0    | 358  |     |     |     |
| Grp Sat Flow(s),veh/h/ln     | 1755 | 1729 | 0    | 0    | 1729 | 1610 | 1810 | 0    | 1610 |     |     |     |
| Q Serve(g_s), s              | 5.8  | 13.4 | 0.0  | 0.0  | 14.6 | 15.3 | 4.2  | 0.0  | 19.3 |     |     |     |
| Cycle Q Clear(g_c), s        | 5.8  | 13.4 | 0.0  | 0.0  | 14.6 | 15.3 | 4.2  | 0.0  | 19.3 |     |     |     |
| Prop In Lane                 | 1.00 |      | 0.00 | 0.00 |      | 1.00 | 1.00 |      | 1.00 |     |     |     |
| Lane Grp Cap(c), veh/h       | 311  | 3191 | 0    | 0    | 2472 | 767  | 898  | 0    | 400  |     |     |     |
| V/C Ratio(X)                 | 0.75 | 0.45 | 0.00 | 0.00 | 0.50 | 0.51 | 0.24 | 0.00 | 0.90 |     |     |     |
| Avail Cap(c_a), veh/h        | 488  | 3191 | 0    | 0    | 2472 | 767  | 1066 | 0    | 474  |     |     |     |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     |     |     |
| Upstream Filter(I)           | 0.65 | 0.65 | 0.00 | 0.00 | 0.81 | 0.81 | 1.00 | 0.00 | 1.00 |     |     |     |
| Uniform Delay (d), s/veh     | 40.0 | 9.2  | 0.0  | 0.0  | 16.1 | 16.3 | 27.0 | 0.0  | 32.7 |     |     |     |
| Incr Delay (d2), s/veh       | 0.9  | 0.3  | 0.0  | 0.0  | 0.6  | 2.0  | 0.1  | 0.0  | 17.4 |     |     |     |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |     |     |     |
| %ile BackOfQ(50%),veh/ln     | 2.4  | 4.1  | 0.0  | 0.0  | 5.2  | 5.4  | 1.7  | 0.0  | 8.7  |     |     |     |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |     |     |     |
| LnGrp Delay(d),s/veh         | 40.9 | 9.5  | 0.0  | 0.0  | 16.7 | 18.3 | 27.2 | 0.0  | 50.1 |     |     |     |
| LnGrp LOS                    | D    | A    | A    | A    | B    | B    | C    | A    | D    |     |     |     |
| Approach Vol, veh/h          |      | 1680 |      |      | 1620 |      |      | 570  |      |     |     |     |
| Approach Delay, s/veh        |      | 13.9 |      |      | 17.1 |      |      | 41.6 |      |     |     |     |
| Approach LOS                 |      | B    |      |      | B    |      |      | D    |      |     |     |     |
| Timer - Assigned Phs         |      | 2    |      | 4    |      |      | 7    | 8    |      |     |     |     |
| Phs Duration (G+Y+Rc), s     |      | 28.8 |      | 61.2 |      |      | 12.5 | 48.7 |      |     |     |     |
| Change Period (Y+Rc), s      |      | 6.5  |      | 5.8  |      |      | 4.5  | 5.8  |      |     |     |     |
| Max Green Setting (Gmax), s  |      | 26.5 |      | 51.2 |      |      | 12.5 | 34.2 |      |     |     |     |
| Max Q Clear Time (g_c+I1), s |      | 21.3 |      | 15.4 |      |      | 7.8  | 17.3 |      |     |     |     |
| Green Ext Time (p_c), s      |      | 1.0  |      | 12.6 |      |      | 0.2  | 8.8  |      |     |     |     |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 19.3 |
| HCM 6th LOS        | B    |

Notes

User approved volume balancing among the lanes for turning movement.

Timings

4: Mariposa & Nisqualli Rd.

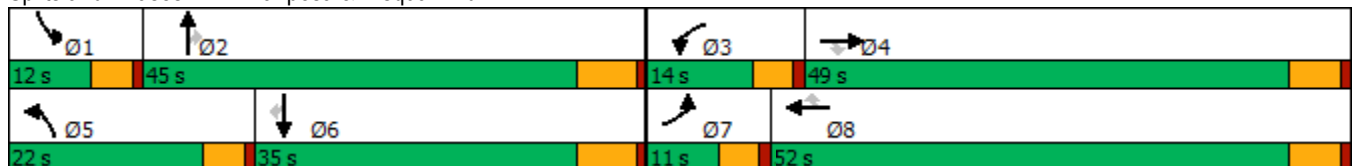
03/24/2022

| Lane Group           | EBL  | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |      |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 51   | 1268  | 285   | 94    | 1141  | 89    | 235   | 141   | 82    | 62    | 93    | 66    |
| Future Volume (vph)  | 51   | 1268  | 285   | 94    | 1141  | 89    | 235   | 141   | 82    | 62    | 93    | 66    |
| Turn Type            | Prot | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7    | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |      |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7    | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |      |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6  | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 11.0 | 49.0  | 49.0  | 14.0  | 52.0  | 52.0  | 22.0  | 45.0  | 45.0  | 12.0  | 35.0  | 35.0  |
| Total Split (%)      | 9.2% | 40.8% | 40.8% | 11.7% | 43.3% | 43.3% | 18.3% | 37.5% | 37.5% | 10.0% | 29.2% | 29.2% |
| Yellow Time (s)      | 3.6  | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6  | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.0  | 35.8  | 35.8  | 7.5   | 37.3  | 37.3  | 12.3  | 19.0  | 19.0  | 6.5   | 10.4  | 10.4  |
| Actuated g/C Ratio   | 0.07 | 0.42  | 0.42  | 0.09  | 0.44  | 0.44  | 0.14  | 0.22  | 0.22  | 0.08  | 0.12  | 0.12  |
| v/c Ratio            | 0.27 | 0.66  | 0.38  | 0.39  | 0.57  | 0.13  | 0.60  | 0.20  | 0.21  | 0.30  | 0.24  | 0.22  |
| Control Delay        | 45.9 | 22.1  | 4.7   | 45.4  | 19.5  | 0.9   | 42.5  | 32.8  | 5.9   | 45.5  | 40.5  | 1.6   |
| Queue Delay          | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 45.9 | 22.1  | 4.7   | 45.4  | 19.5  | 0.9   | 42.5  | 32.8  | 5.9   | 45.5  | 40.5  | 1.6   |
| LOS                  | D    | C     | A     | D     | B     | A     | D     | C     | A     | D     | D     | A     |
| Approach Delay       |      | 19.8  |       |       | 20.0  |       |       | 33.0  |       |       | 30.3  |       |
| Approach LOS         |      | B     |       |       | C     |       |       | C     |       |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 85.2  
 Natural Cycle: 95  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 22.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 64.0%  
 ICU Level of Service B  
 Analysis Period (min) 15



































Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 51  | 1268  | 285   | 94  | 1141  | 89  | 235   | 141   | 82  | 62  | 93  | 66  |
| Future Volume (veh/h)        | 51  | 1268  | 285   | 94  | 1141  | 89  | 235   | 141   | 82  | 62  | 93  | 66  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 55  | 1363  | 306   | 101   | 1227  | 96  | 253   | 152   | 88  | 67  | 100   | 71  |
| Peak Hour Factor             | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 135   | 2004  | 622   | 174   | 2069  | 642   | 335   | 676   | 301   | 149   | 460   | 205   |
| Arrive On Green              | 0.05  | 0.41  | 0.41  | 0.06  | 0.42  | 0.42  | 0.11  | 0.20  | 0.20  | 0.05  | 0.13  | 0.13  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956  | 3420  | 1525  | 2956  | 3420  | 1525  |
| Grp Volume(v), veh/h         | 55  | 1363  | 306   | 101   | 1227  | 96  | 253   | 152   | 88  | 67  | 100   | 71  |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478  | 1710  | 1525  | 1478  | 1710  | 1525  |
| Q Serve(g_s), s              | 1.3   | 16.9  | 11.0  | 2.5   | 14.3  | 2.9   | 6.2   | 2.8   | 3.7   | 1.6   | 1.9   | 3.1   |
| Cycle Q Clear(g_c), s        | 1.3   | 16.9  | 11.0  | 2.5   | 14.3  | 2.9   | 6.2   | 2.8   | 3.7   | 1.6   | 1.9   | 3.1   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 135   | 2004  | 622   | 174   | 2069  | 642   | 335   | 676   | 301   | 149   | 460   | 205   |
| V/C Ratio(X)                 | 0.41  | 0.68  | 0.49  | 0.58  | 0.59  | 0.15  | 0.75  | 0.23  | 0.29  | 0.45  | 0.22  | 0.35  |
| Avail Cap(c_a), veh/h        | 255   | 2857  | 887   | 374   | 3055  | 948   | 692   | 1786  | 797   | 294   | 1326  | 591   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 34.5  | 18.0  | 16.3  | 34.1  | 16.6  | 13.3  | 31.9  | 25.0  | 25.4  | 34.3  | 28.7  | 29.2  |
| Incr Delay (d2), s/veh       | 0.7   | 0.4   | 0.6   | 1.1   | 0.3   | 0.1   | 1.3   | 0.2   | 0.5   | 0.8   | 0.2   | 1.0   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.5   | 5.5   | 3.4   | 0.9   | 4.6   | 0.9   | 2.1   | 1.0   | 1.3   | 0.6   | 0.7   | 1.1   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 35.2  | 18.4  | 16.9  | 35.2  | 16.9  | 13.4  | 33.3  | 25.2  | 25.9  | 35.1  | 28.9  | 30.2  |
| LnGrp LOS                    | D   | B   | B   | D   | B   | B   | C   | C   | C   | D   | C   | C   |
| Approach Vol, veh/h          |   | 1724  |   |   | 1424  |   |   | 493   |   |   | 238   |   |
| Approach Delay, s/veh        |   | 18.7  |   |   | 17.9  |   |   | 29.5  |   |   | 31.0  |   |
| Approach LOS                 |   | B   |   |   | B   |   |   | C   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 8.3   | 20.9  | 9.0   | 36.1  | 13.0  | 16.2  | 8.0   | 37.1  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 7.4   | 38.8  | 9.4   | 43.2  | 17.4  | 28.8  | 6.4   | 46.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.6   | 5.7   | 4.5   | 18.9  | 8.2   | 5.1   | 3.3   | 16.3  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.1   | 0.1   | 11.4  | 0.3   | 0.7   | 0.0   | 9.9   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 20.5  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |   |   |   |   |   |   |

Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

03/24/2022

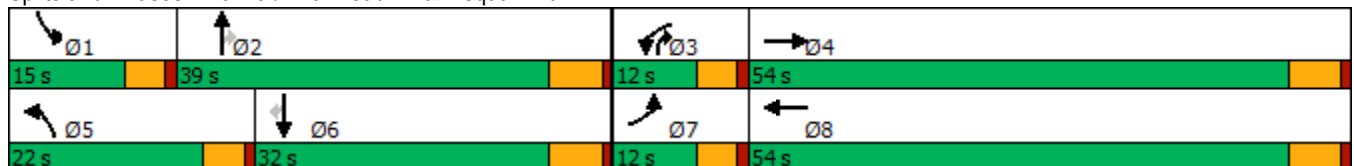


| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↘     | ↕     | ↘     | ↕     | ↘     | ↕     | ↗     | ↘     | ↕     | ↗     |
| Traffic Volume (vph) | 28    | 858   | 25    | 533   | 102   | 244   | 23    | 42    | 183   | 51    |
| Future Volume (vph)  | 28    | 858   | 25    | 533   | 102   | 244   | 23    | 42    | 183   | 51    |
| Turn Type            | Prot  | NA    | Prot  | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |       |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6   | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 12.0  | 54.0  | 12.0  | 54.0  | 22.0  | 39.0  | 12.0  | 15.0  | 32.0  | 32.0  |
| Total Split (%)      | 10.0% | 45.0% | 10.0% | 45.0% | 18.3% | 32.5% | 10.0% | 12.5% | 26.7% | 26.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 6.6   | 38.1  | 6.5   | 38.0  | 11.8  | 24.9  | 37.8  | 7.7   | 17.6  | 17.6  |
| Actuated g/C Ratio   | 0.07  | 0.42  | 0.07  | 0.42  | 0.13  | 0.27  | 0.42  | 0.08  | 0.19  | 0.19  |
| v/c Ratio            | 0.28  | 0.80  | 0.25  | 0.48  | 0.57  | 0.58  | 0.04  | 0.36  | 0.62  | 0.14  |
| Control Delay        | 55.6  | 29.6  | 55.1  | 21.9  | 54.7  | 39.0  | 0.1   | 54.9  | 46.0  | 0.7   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 55.6  | 29.6  | 55.1  | 21.9  | 54.7  | 39.0  | 0.1   | 54.9  | 46.0  | 0.7   |
| LOS                  | E     | C     | E     | C     | D     | D     | A     | D     | D     | A     |
| Approach Delay       |       | 30.3  |       | 23.2  |       | 40.9  |       |       | 39.0  |       |
| Approach LOS         |       | C     |       | C     |       | D     |       |       | D     |       |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 91               |                        |
| Natural Cycle: 80                       |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.80                 |                        |
| Intersection Signal Delay: 31.2         | Intersection LOS: C    |
| Intersection Capacity Utilization 59.8% | ICU Level of Service B |
| Analysis Period (min) 15                |                        |























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 28  | 858   | 104   | 25  | 533   | 46  | 102   | 244   | 23  | 42  | 183   | 51  |
| Future Volume (veh/h)        | 28  | 858   | 104   | 25  | 533   | 46  | 102   | 244   | 23  | 42  | 183   | 51  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 33  | 1009  | 122   | 29  | 627   | 54  | 120   | 287   | 27  | 49  | 215   | 60  |
| Peak Hour Factor             | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 55  | 1294  | 156   | 50  | 1332  | 115   | 150   | 372   | 362   | 71  | 284   | 241   |
| Arrive On Green              | 0.03  | 0.42  | 0.42  | 0.03  | 0.42  | 0.42  | 0.09  | 0.21  | 0.21  | 0.04  | 0.16  | 0.16  |
| Sat Flow, veh/h              | 1619  | 3072  | 371   | 1619  | 3187  | 274   | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Grp Volume(v), veh/h         | 33  | 561   | 570   | 29  | 336   | 345   | 120   | 287   | 27  | 49  | 215   | 60  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1710  | 1733  | 1619  | 1710  | 1751  | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Q Serve(g_s), s              | 1.4   | 19.8  | 19.8  | 1.2   | 9.9   | 10.0  | 5.1   | 10.5  | 1.0   | 2.1   | 8.0   | 2.4   |
| Cycle Q Clear(g_c), s        | 1.4   | 19.8  | 19.8  | 1.2   | 9.9   | 10.0  | 5.1   | 10.5  | 1.0   | 2.1   | 8.0   | 2.4   |
| Prop In Lane                 | 1.00  |   | 0.21  | 1.00  |   | 0.16  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 55  | 720   | 730   | 50  | 715   | 732   | 150   | 372   | 362   | 71  | 284   | 241   |
| V/C Ratio(X)                 | 0.60  | 0.78  | 0.78  | 0.58  | 0.47  | 0.47  | 0.80  | 0.77  | 0.07  | 0.69  | 0.76  | 0.25  |
| Avail Cap(c_a), veh/h        | 171   | 1179  | 1195  | 171   | 1179  | 1207  | 403   | 855   | 772   | 241   | 675   | 572   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 33.3  | 17.4  | 17.4  | 33.4  | 14.7  | 14.7  | 31.1  | 26.2  | 20.7  | 32.9  | 28.1  | 25.8  |
| Incr Delay (d2), s/veh       | 3.9   | 1.9   | 1.9   | 3.9   | 0.5   | 0.5   | 3.7   | 3.4   | 0.1   | 4.4   | 4.1   | 0.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.6   | 6.8   | 6.9   | 0.5   | 3.3   | 3.4   | 2.0   | 4.5   | 0.3   | 0.8   | 3.4   | 0.8   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 37.2  | 19.3  | 19.3  | 37.4  | 15.2  | 15.2  | 34.8  | 29.6  | 20.8  | 37.3  | 32.2  | 26.3  |
| LnGrp LOS                    | D   | B   | B   | D   | B   | B   | C   | C   | C   | D   | C   | C   |
| Approach Vol, veh/h          |   | 1164  |   |   | 710   |   |   | 434   |   |   | 324   |   |
| Approach Delay, s/veh        |   | 19.8  |   |   | 16.1  |   |   | 30.5  |   |   | 31.9  |   |
| Approach LOS                 |   | B   |   |   | B   |   |   | C   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 7.7   | 20.2  | 6.8   | 35.2  | 11.1  | 16.8  | 7.0   | 35.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 10.4  | 33.2  | 7.4   | 48.2  | 17.4  | 26.2  | 7.4   | 48.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 4.1   | 12.5  | 3.2   | 21.8  | 7.1   | 10.0  | 3.4   | 12.0  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.5   | 0.0   | 7.6   | 0.1   | 1.1   | 0.0   | 4.1   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 22.1  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | C   |   |   |   |   |   |   |   |   |



Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |
| Traffic Volume (vph) | 136   | 290   | 335   | 784   | 950   |
| Future Volume (vph)  | 136   | 290   | 335   | 784   | 950   |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 29.0  | 29.0  | 29.0  | 91.0  | 62.0  |
| Total Split (%)      | 24.2% | 24.2% | 24.2% | 75.8% | 51.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effect Green (s) | 13.2  | 35.0  | 17.0  | 65.5  | 42.4  |
| Actuated g/C Ratio   | 0.15  | 0.39  | 0.19  | 0.73  | 0.47  |
| v/c Ratio            | 0.62  | 0.28  | 0.65  | 0.34  | 0.72  |
| Control Delay        | 51.2  | 14.0  | 42.2  | 5.0   | 22.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 51.2  | 14.0  | 42.2  | 5.0   | 22.6  |
| LOS                  | D     | B     | D     | A     | C     |
| Approach Delay       | 25.9  |       |       | 16.1  | 22.6  |
| Approach LOS         | C     |       |       | B     | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 90.1  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 20.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 65.4%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)  
03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 136  | 290  | 335  | 784  | 950  | 121  |
| Future Volume (veh/h)        | 136  | 290  | 335  | 784  | 950  | 121  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1800 | 1600 | 1800 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 146  | 312  | 360  | 843  | 1022 | 130  |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 211  | 771  | 463  | 2468 | 1482 | 188  |
| Arrive On Green              | 0.13 | 0.13 | 0.16 | 0.72 | 0.49 | 0.49 |
| Sat Flow, veh/h              | 1619 | 2685 | 2956 | 3510 | 3142 | 388  |
| Grp Volume(v), veh/h         | 146  | 312  | 360  | 843  | 572  | 580  |
| Grp Sat Flow(s),veh/h/ln     | 1619 | 1342 | 1478 | 1710 | 1710 | 1730 |
| Q Serve(g_s), s              | 6.3  | 6.8  | 8.5  | 6.6  | 18.9 | 18.9 |
| Cycle Q Clear(g_c), s        | 6.3  | 6.8  | 8.5  | 6.6  | 18.9 | 18.9 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.22 |
| Lane Grp Cap(c), veh/h       | 211  | 771  | 463  | 2468 | 830  | 840  |
| V/C Ratio(X)                 | 0.69 | 0.40 | 0.78 | 0.34 | 0.69 | 0.69 |
| Avail Cap(c_a), veh/h        | 541  | 1318 | 939  | 3972 | 1307 | 1322 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 30.3 | 21.0 | 29.6 | 3.8  | 14.5 | 14.5 |
| Incr Delay (d2), s/veh       | 1.5  | 0.1  | 2.8  | 0.1  | 1.0  | 1.0  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 2.5  | 0.0  | 3.1  | 1.6  | 6.7  | 6.8  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 31.8 | 21.1 | 32.4 | 3.8  | 15.6 | 15.6 |
| LnGrp LOS                    | C    | C    | C    | A    | B    | B    |
| Approach Vol, veh/h          | 458  |      |      | 1203 | 1152 |      |
| Approach Delay, s/veh        | 24.5 |      |      | 12.4 | 15.6 |      |
| Approach LOS                 | C    |      |      | B    | B    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 58.9 |      | 14.1 | 17.2 | 41.6 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 84.8 |      | 24.4 | 23.2 | 55.8 |
| Max Q Clear Time (g_c+11), s |      | 8.6  |      | 8.8  | 10.5 | 20.9 |
| Green Ext Time (p_c), s      |      | 11.6 |      | 0.7  | 0.9  | 14.5 |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 15.7 |      |      |      |
| HCM 6th LOS                  |      |      | B    |      |      |      |

Timings  
7: Hesperia Rd. & Ottawa St.



| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       | ↔     | ↗     | ↘     | ↗     | ↗     | ↗     | ↗     | ↗     |
| Traffic Volume (vph) | 5     | 4     | 27    | 1     | 11    | 1122  | 95    | 33    | 1206  |
| Future Volume (vph)  | 5     | 4     | 27    | 1     | 11    | 1122  | 95    | 33    | 1206  |
| Turn Type            | Perm  | NA    | Perm  | NA    | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     |       | 4     |       | 8     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     | 4     |       | 8     |       |       |       | 2     |       |       |
| Detector Phase       | 4     | 4     | 8     | 8     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 10.0  | 10.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 26.6  | 26.6  | 26.6  | 26.6  | 9.6   | 23.2  | 23.2  | 9.6   | 23.2  |
| Total Split (s)      | 27.0  | 27.0  | 27.0  | 27.0  | 13.0  | 80.0  | 80.0  | 13.0  | 80.0  |
| Total Split (%)      | 22.5% | 22.5% | 22.5% | 22.5% | 10.8% | 66.7% | 66.7% | 10.8% | 66.7% |
| Yellow Time (s)      | 3.6   | 3.6   | 3.6   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  |       | 4.6   | 4.6   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             |       |       |       |       | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   |       |       |       |       | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | None  | Min   |
| Act Effct Green (s)  |       | 11.2  | 11.2  | 11.2  | 5.9   | 41.2  | 41.2  | 6.7   | 45.3  |
| Actuated g/C Ratio   |       | 0.20  | 0.20  | 0.20  | 0.10  | 0.72  | 0.72  | 0.12  | 0.79  |
| v/c Ratio            |       | 0.07  | 0.11  | 0.05  | 0.08  | 0.52  | 0.10  | 0.20  | 0.50  |
| Control Delay        |       | 22.3  | 28.9  | 16.2  | 32.7  | 9.7   | 4.3   | 32.6  | 6.3   |
| Queue Delay          |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          |       | 22.3  | 28.9  | 16.2  | 32.7  | 9.7   | 4.3   | 32.6  | 6.3   |
| LOS                  |       | C     | C     | B     | C     | A     | A     | C     | A     |
| Approach Delay       |       | 22.3  |       | 24.8  |       | 9.5   |       |       | 7.0   |
| Approach LOS         |       | C     |       | C     |       | A     |       |       | A     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 57.1             |                        |
| Natural Cycle: 75                       |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.52                 |                        |
| Intersection Signal Delay: 8.6          | Intersection LOS: A    |
| Intersection Capacity Utilization 52.6% | ICU Level of Service A |
| Analysis Period (min) 15                |                        |






















Splits and Phases: 7: Hesperia Rd. & Ottawa St.



HCM 6th Signalized Intersection Summary  
7: Hesperia Rd. & Ottawa St.

Ottawa Business Center (JN 14035)

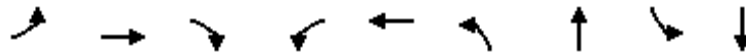
03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 5   | 4   | 8   | 27  | 1   | 12  | 11  | 1122  | 95  | 33  | 1206  | 1   |
| Future Volume (veh/h)        | 5   | 4   | 8   | 27  | 1   | 12  | 11  | 1122  | 95  | 33  | 1206  | 1   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 6   | 5   | 9   | 31  | 1   | 14  | 12  | 1275  | 108   | 38  | 1370  | 1   |
| Peak Hour Factor             | 0.88  | 0.88  | 0.88  | 0.88  | 0.88  | 0.88  | 0.88  | 0.88  | 0.88  | 0.88  | 0.88  | 0.88  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 118   | 78  | 86  | 311   | 12  | 170   | 25  | 1857  | 828   | 66  | 1993  | 1   |
| Arrive On Green              | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.02  | 0.54  | 0.54  | 0.04  | 0.57  | 0.57  |
| Sat Flow, veh/h              | 230   | 655   | 724   | 1422  | 103   | 1438  | 1619  | 3420  | 1525  | 1619  | 3507  | 3   |
| Grp Volume(v), veh/h         | 20  | 0   | 0   | 31  | 0   | 15  | 12  | 1275  | 108   | 38  | 668   | 703   |
| Grp Sat Flow(s),veh/h/ln     | 1608  | 0   | 0   | 1422  | 0   | 1541  | 1619  | 1710  | 1525  | 1619  | 1710  | 1800  |
| Q Serve(g_s), s              | 0.0   | 0.0   | 0.0   | 0.3   | 0.0   | 0.4   | 0.4   | 14.0  | 1.8   | 1.2   | 14.3  | 14.3  |
| Cycle Q Clear(g_c), s        | 0.6   | 0.0   | 0.0   | 0.9   | 0.0   | 0.4   | 0.4   | 14.0  | 1.8   | 1.2   | 14.3  | 14.3  |
| Prop In Lane                 | 0.30  |   | 0.45  | 1.00  |   | 0.93  | 1.00  |   | 1.00  | 1.00  |   | 0.00  |
| Lane Grp Cap(c), veh/h       | 281   | 0   | 0   | 311   | 0   | 183   | 25  | 1857  | 828   | 66  | 972   | 1023  |
| V/C Ratio(X)                 | 0.07  | 0.00  | 0.00  | 0.10  | 0.00  | 0.08  | 0.48  | 0.69  | 0.13  | 0.58  | 0.69  | 0.69  |
| Avail Cap(c_a), veh/h        | 769   | 0   | 0   | 759   | 0   | 668   | 263   | 4882  | 2178  | 263   | 2441  | 2569  |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 0.00  | 0.00  | 1.00  | 0.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 20.3  | 0.0   | 0.0   | 20.5  | 0.0   | 20.3  | 25.2  | 8.6   | 5.8   | 24.4  | 7.9   | 7.9   |
| Incr Delay (d2), s/veh       | 0.1   | 0.0   | 0.0   | 0.1   | 0.0   | 0.2   | 5.3   | 0.5   | 0.1   | 2.9   | 0.9   | 0.8   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.2   | 0.0   | 0.0   | 0.3   | 0.0   | 0.2   | 0.2   | 3.0   | 0.3   | 0.4   | 2.9   | 3.0   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 20.4  | 0.0   | 0.0   | 20.6  | 0.0   | 20.5  | 30.6  | 9.1   | 5.9   | 27.3  | 8.8   | 8.7   |
| LnGrp LOS                    | C   | A   | A   | C   | A   | C   | C   | A   | A   | C   | A   | A   |
| Approach Vol, veh/h          |   | 20  |   |   | 46  |   |   | 1395  |   |   | 1409  |   |
| Approach Delay, s/veh        |   | 20.4  |   |   | 20.6  |   |   | 9.0   |   |   | 9.3   |   |
| Approach LOS                 |   | C   |   |   | C   |   |   | A   |   |   | A   |   |
| Timer - Assigned Phs         | 1   | 2   |   | 4   | 5   | 6   |   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.7   | 34.3  |   | 10.7  | 5.4   | 35.6  |   | 10.7  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   |   | 4.6   | 4.6   | 6.2   |   | 4.6   |   |   |   |   |
| Max Green Setting (Gmax), s  | 8.4   | 73.8  |   | 22.4  | 8.4   | 73.8  |   | 22.4  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.2   | 16.0  |   | 2.6   | 2.4   | 16.3  |   | 2.9   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 12.0  |   | 0.0   | 0.0   | 11.3  |   | 0.1   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 9.4   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | A   |   |   |   |   |   |   |   |   |

Timings  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Lane Group           | EBL   | EBT   | EBR   | WBL  | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|------|-------|-------|-------|------|-------|
| Lane Configurations  | ↙↘    | ↑     | ↗↘    | ↙    | ↕     | ↙↘    | ↕     | ↙    | ↕     |
| Traffic Volume (vph) | 207   | 73    | 409   | 83   | 72    | 272   | 1167  | 16   | 1110  |
| Future Volume (vph)  | 207   | 73    | 409   | 83   | 72    | 272   | 1167  | 16   | 1110  |
| Turn Type            | Prot  | NA    | pm+ov | Prot | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |      |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |      |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0  | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6  | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 13.2  | 33.0  | 20.2  | 11.0 | 30.8  | 20.2  | 66.2  | 9.8  | 55.8  |
| Total Split (%)      | 11.0% | 27.5% | 16.8% | 9.2% | 25.7% | 16.8% | 55.2% | 8.2% | 46.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6  | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6  | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 8.6   | 12.1  | 29.5  | 10.4 | 10.3  | 15.1  | 62.4  | 5.1  | 46.5  |
| Actuated g/C Ratio   | 0.08  | 0.12  | 0.29  | 0.10 | 0.10  | 0.15  | 0.61  | 0.05 | 0.46  |
| v/c Ratio            | 0.91  | 0.38  | 0.59  | 0.57 | 0.35  | 0.68  | 0.68  | 0.22 | 0.86  |
| Control Delay        | 84.6  | 48.1  | 33.8  | 63.7 | 30.7  | 50.4  | 15.9  | 55.1 | 31.4  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 84.6  | 48.1  | 33.8  | 63.7 | 30.7  | 50.4  | 15.9  | 55.1 | 31.4  |
| LOS                  | F     | D     | C     | E    | C     | D     | B     | E    | C     |
| Approach Delay       |       | 50.6  |       |      | 44.6  |       | 22.1  |      | 31.7  |
| Approach LOS         |       | D     |       |      | D     |       | C     |      | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 101.8  
 Natural Cycle: 110  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 31.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 71.7%  
 ICU Level of Service C  
 Analysis Period (min) 15




























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |    |  |    |    |  |  |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |   |   |   |   |   |  |   |   |
| Traffic Volume (veh/h)       | 207   | 73  | 409   | 83  | 72  | 43  | 272  | 1167  | 96  | 16  | 1110  | 77  |
| Future Volume (veh/h)        | 207   | 73  | 409   | 83  | 72  | 43  | 272  | 1167  | 96  | 16  | 1110  | 77  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1700  | 1800  | 1800  | 1600   | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 233   | 82  | 460   | 93  | 81  | 48  | 306  | 1311  | 108   | 18  | 1247  | 87  |
| Peak Hour Factor             | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89   | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 254   | 325   | 806   | 101   | 339   | 186   | 365  | 1702  | 140   | 32  | 1401  | 98  |
| Arrive On Green              | 0.08  | 0.18  | 0.18  | 0.06  | 0.16  | 0.16  | 0.12   | 0.53  | 0.53  | 0.02  | 0.43  | 0.43  |
| Sat Flow, veh/h              | 3048  | 1800  | 2685  | 1619  | 2128  | 1172  | 3048   | 3200  | 263   | 1619  | 3243  | 226   |
| Grp Volume(v), veh/h         | 233   | 82  | 460   | 93  | 64  | 65  | 306  | 699   | 720   | 18  | 656   | 678   |
| Grp Sat Flow(s),veh/h/ln     | 1524  | 1800  | 1342  | 1619  | 1710  | 1589  | 1524   | 1710  | 1753  | 1619  | 1710  | 1759  |
| Q Serve(g_s), s              | 7.8   | 4.0   | 14.9  | 5.9   | 3.4   | 3.7   | 10.1   | 33.3  | 33.6  | 1.1   | 36.5  | 36.6  |
| Cycle Q Clear(g_c), s        | 7.8   | 4.0   | 14.9  | 5.9   | 3.4   | 3.7   | 10.1   | 33.3  | 33.6  | 1.1   | 36.5  | 36.6  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.74  | 1.00   |   | 0.15  | 1.00  |   | 0.13  |
| Lane Grp Cap(c), veh/h       | 254   | 325   | 806   | 101   | 272   | 253   | 365  | 910   | 932   | 32  | 738   | 760   |
| V/C Ratio(X)                 | 0.92  | 0.25  | 0.57  | 0.92  | 0.23  | 0.26  | 0.84   | 0.77  | 0.77  | 0.57  | 0.89  | 0.89  |
| Avail Cap(c_a), veh/h        | 254   | 475   | 1030  | 101   | 415   | 386   | 462  | 996   | 1021  | 82  | 823   | 847   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 46.8  | 36.2  | 30.4  | 48.1  | 37.8  | 38.0  | 44.4   | 19.1  | 19.2  | 50.1  | 27.0  | 27.0  |
| Incr Delay (d2), s/veh       | 34.1  | 0.4   | 0.6   | 64.8  | 0.4   | 0.5   | 8.7  | 3.4   | 3.4   | 5.9   | 10.9  | 10.9  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 4.1   | 1.7   | 4.6   | 4.1   | 1.4   | 1.4   | 4.1  | 12.2  | 12.7  | 0.5   | 15.6  | 16.1  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 81.0  | 36.6  | 31.1  | 112.9   | 38.3  | 38.5  | 53.1   | 22.5  | 22.6  | 55.9  | 37.9  | 38.0  |
| LnGrp LOS                    | F   | D   | C   | F   | D   | D   | D  | C   | C   | E   | D   | D   |
| Approach Vol, veh/h          |   | 775   |   |   | 222   |   |  | 1725  |   |   | 1352  |   |
| Approach Delay, s/veh        |   | 46.7  |   |   | 69.6  |   |  | 27.9  |   |   | 38.2  |   |
| Approach LOS                 |   | D   |   |   | E   |   |  | C   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.6   | 61.0  | 11.0  | 24.4  | 16.9  | 50.7  | 13.2   | 22.2  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.2   | 60.0  | 6.4   | 27.2  | 15.6  | 49.6  | 8.6  | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.1   | 35.6  | 7.9   | 16.9  | 12.1  | 38.6  | 9.8  | 5.7   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 9.8   | 0.0   | 1.7   | 0.2   | 5.8   | 0.0  | 0.5   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 37.2  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |  |   |   |   |   |   |

Timings

9: Hesperia Rd. & Bear Valley Rd.

03/24/2022

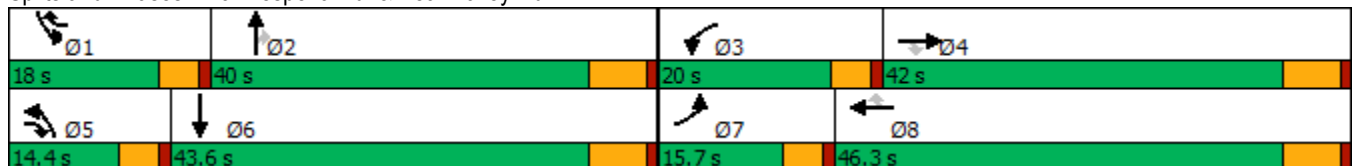


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑    | ↖     | ↖↗    | ↑↔    |
| Traffic Volume (vph) | 198   | 1311  | 123   | 318   | 1435  | 213   | 109   | 548   | 316   | 271   | 357   |
| Future Volume (vph)  | 198   | 1311  | 123   | 318   | 1435  | 213   | 109   | 548   | 316   | 271   | 357   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 15.7  | 42.0  | 14.4  | 20.0  | 46.3  | 18.0  | 14.4  | 40.0  | 40.0  | 18.0  | 43.6  |
| Total Split (%)      | 13.1% | 35.0% | 12.0% | 16.7% | 38.6% | 15.0% | 12.0% | 33.3% | 33.3% | 15.0% | 36.3% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 10.6  | 35.9  | 50.5  | 14.9  | 40.3  | 59.5  | 8.3   | 28.1  | 28.1  | 13.0  | 32.8  |
| Actuated g/C Ratio   | 0.09  | 0.32  | 0.44  | 0.13  | 0.35  | 0.52  | 0.07  | 0.25  | 0.25  | 0.11  | 0.29  |
| v/c Ratio            | 0.77  | 0.90  | 0.18  | 0.88  | 0.88  | 0.27  | 0.54  | 0.69  | 0.62  | 0.85  | 0.50  |
| Control Delay        | 70.4  | 46.8  | 8.6   | 72.8  | 42.1  | 11.9  | 61.5  | 43.3  | 18.1  | 73.9  | 33.2  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 70.4  | 46.8  | 8.6   | 72.8  | 42.1  | 11.9  | 61.5  | 43.3  | 18.1  | 73.9  | 33.2  |
| LOS                  | E     | D     | A     | E     | D     | B     | E     | D     | B     | E     | C     |
| Approach Delay       |       | 46.8  |       |       | 43.8  |       |       | 37.2  |       |       | 48.3  |
| Approach LOS         |       | D     |       |       | D     |       |       | D     |       |       | D     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.6  
 Natural Cycle: 105  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 44.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 80.7%  
 ICU Level of Service D  
 Analysis Period (min) 15



































Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |    |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 198   | 1311  | 123   | 318   | 1435  | 213   | 109  | 548   | 316   | 271   | 357   | 103   |
| Future Volume (veh/h)        | 198   | 1311  | 123   | 318   | 1435  | 213   | 109  | 548   | 316   | 271   | 357   | 103   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600   | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 211   | 1395  | 131   | 338   | 1527  | 227   | 116  | 583   | 336   | 288   | 380   | 110   |
| Peak Hour Factor             | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94   | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 259   | 1520  | 556   | 385   | 1728  | 709   | 163  | 885   | 395   | 335   | 833   | 238   |
| Arrive On Green              | 0.09  | 0.31  | 0.31  | 0.13  | 0.35  | 0.35  | 0.06   | 0.26  | 0.26  | 0.11  | 0.32  | 0.32  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956   | 3420  | 1525  | 2956  | 2624  | 751   |
| Grp Volume(v), veh/h         | 211   | 1395  | 131   | 338   | 1527  | 227   | 116  | 583   | 336   | 288   | 246   | 244   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478   | 1710  | 1525  | 1478  | 1710  | 1665  |
| Q Serve(g_s), s              | 8.0   | 31.4  | 6.8   | 12.9  | 33.5  | 10.7  | 4.4  | 17.5  | 24.0  | 11.0  | 13.2  | 13.4  |
| Cycle Q Clear(g_c), s        | 8.0   | 31.4  | 6.8   | 12.9  | 33.5  | 10.7  | 4.4  | 17.5  | 24.0  | 11.0  | 13.2  | 13.4  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 0.45  |
| Lane Grp Cap(c), veh/h       | 259   | 1520  | 556   | 385   | 1728  | 709   | 163  | 885   | 395   | 335   | 542   | 528   |
| V/C Ratio(X)                 | 0.81  | 0.92  | 0.24  | 0.88  | 0.88  | 0.32  | 0.71   | 0.66  | 0.85  | 0.86  | 0.45  | 0.46  |
| Avail Cap(c_a), veh/h        | 286   | 1534  | 560   | 397   | 1728  | 709   | 253  | 1008  | 450   | 345   | 558   | 543   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 51.4  | 38.2  | 25.3  | 49.0  | 35.0  | 19.3  | 53.3   | 38.0  | 40.4  | 49.9  | 31.2  | 31.3  |
| Incr Delay (d2), s/veh       | 13.5  | 9.1   | 0.2   | 18.5  | 5.8   | 0.3   | 2.2  | 1.3   | 13.1  | 17.8  | 0.6   | 0.6   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.5   | 13.7  | 2.5   | 5.7   | 14.1  | 3.8   | 1.7  | 7.4   | 10.4  | 4.9   | 5.5   | 5.5   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 64.8  | 47.3  | 25.6  | 67.4  | 40.8  | 19.5  | 55.5   | 39.3  | 53.5  | 67.7  | 31.8  | 32.0  |
| LnGrp LOS                    | E   | D   | C   | E   | D   | B   | E  | D   | D   | E   | C   | C   |
| Approach Vol, veh/h          |   | 1737  |   |   | 2092  |   |  | 1035  |   |   | 778   |   |
| Approach Delay, s/veh        |   | 47.8  |   |   | 42.8  |   |  | 45.7  |   |   | 45.2  |   |
| Approach LOS                 |   | D   |   |   | D   |   |  | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 17.6  | 35.9  | 19.5  | 41.7  | 10.9  | 42.6  | 14.7   | 46.5  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6  | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 13.4  | 33.8  | 15.4  | 35.8  | 9.8   | 37.4  | 11.1   | 40.1  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 13.0  | 26.0  | 14.9  | 33.4  | 6.4   | 15.4  | 10.0   | 35.5  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 3.7   | 0.0   | 2.1   | 0.0   | 4.3   | 0.0  | 4.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 45.2  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |  |   |   |   |   |   |



Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

03/24/2022

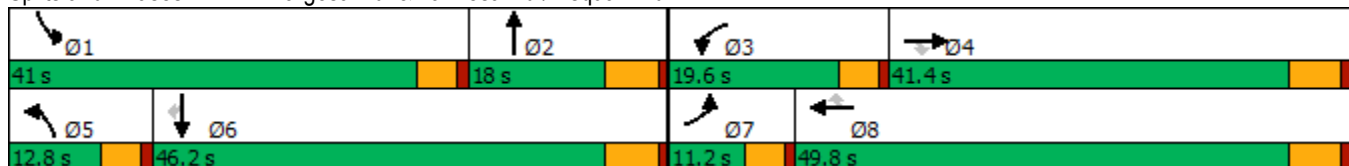


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↕     | ↗     | ↖↗    | ↕↕↕   | ↗     | ↖↗    | ↕↕    | ↗     | ↖↗    | ↕↕    | ↗     |
| Traffic Volume (vph) | 148   | 978   | 145   | 374   | 1538  | 777   | 140   | 335   | 418   | 902   | 671   | 427   |
| Future Volume (vph)  | 148   | 978   | 145   | 374   | 1538  | 777   | 140   | 335   | 418   | 902   | 671   | 427   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Free  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | Free  |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5     | 2     |       | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |       | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5   | 10.8  |       | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 11.2  | 41.4  | 41.4  | 19.6  | 49.8  | 49.8  | 12.8  | 18.0  |       | 41.0  | 46.2  | 46.2  |
| Total Split (%)      | 9.3%  | 34.5% | 34.5% | 16.3% | 41.5% | 41.5% | 10.7% | 15.0% |       | 34.2% | 38.5% | 38.5% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   |       | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |       | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   |       | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   |       | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |       | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | None  | Max   |       | None  | Max   | Max   |
| Act Effct Green (s)  | 6.7   | 35.6  | 35.6  | 15.1  | 44.0  | 44.0  | 8.0   | 12.2  | 120.0 | 36.5  | 40.7  | 40.7  |
| Actuated g/C Ratio   | 0.06  | 0.30  | 0.30  | 0.13  | 0.37  | 0.37  | 0.07  | 0.10  | 1.00  | 0.30  | 0.34  | 0.34  |
| v/c Ratio            | 0.89  | 0.93  | 0.25  | 1.00  | 0.79  | 0.79  | 0.70  | 0.93  | 0.28  | 1.00  | 0.56  | 0.71  |
| Control Delay        | 102.3 | 57.1  | 2.9   | 98.7  | 37.6  | 11.5  | 73.7  | 86.8  | 0.5   | 70.5  | 34.6  | 29.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 102.3 | 57.1  | 2.9   | 98.7  | 37.6  | 11.5  | 73.7  | 86.8  | 0.5   | 70.5  | 34.6  | 29.6  |
| LOS                  | F     | E     | A     | F     | D     | B     | E     | F     | A     | E     | C     | C     |
| Approach Delay       |       | 56.2  |       |       | 38.5  |       |       | 44.3  |       |       | 49.7  |       |
| Approach LOS         |       | E     |       |       | D     |       |       | D     |       |       | D     |       |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 120              |                        |
| Natural Cycle: 110                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 1.00                 |                        |
| Intersection Signal Delay: 45.8         | Intersection LOS: D    |
| Intersection Capacity Utilization 98.7% | ICU Level of Service F |
| Analysis Period (min) 15                |                        |

Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↖↗   | ↕    | ↖    | ↖↗   | ↕↕↕  | ↖    | ↖↗   | ↕↕   | ↖    | ↖↗   | ↕↕   | ↖    |
| Traffic Volume (veh/h)       | 148  | 978  | 145  | 374  | 1538 | 777  | 140  | 335  | 418  | 902  | 671  | 427  |
| Future Volume (veh/h)        | 148  | 978  | 145  | 374  | 1538 | 777  | 140  | 335  | 418  | 902  | 671  | 427  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 | 1600 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 151  | 998  | 97   | 382  | 1569 | 523  | 143  | 342  | 0    | 920  | 685  | 324  |
| Peak Hour Factor             | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 171  | 1061 | 450  | 384  | 1971 | 557  | 190  | 367  |      | 929  | 1240 | 525  |
| Arrive On Green              | 0.06 | 0.29 | 0.29 | 0.13 | 0.37 | 0.37 | 0.06 | 0.10 | 0.00 | 0.30 | 0.34 | 0.34 |
| Sat Flow, veh/h              | 3048 | 3600 | 1525 | 3048 | 5400 | 1525 | 3048 | 3600 | 1525 | 3048 | 3600 | 1525 |
| Grp Volume(v), veh/h         | 151  | 998  | 97   | 382  | 1569 | 523  | 143  | 342  | 0    | 920  | 685  | 324  |
| Grp Sat Flow(s),veh/h/ln     | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 | 1524 | 1800 | 1525 |
| Q Serve(g_s), s              | 5.9  | 32.4 | 5.7  | 15.0 | 31.1 | 39.7 | 5.5  | 11.3 | 0.0  | 36.0 | 18.4 | 21.2 |
| Cycle Q Clear(g_c), s        | 5.9  | 32.4 | 5.7  | 15.0 | 31.1 | 39.7 | 5.5  | 11.3 | 0.0  | 36.0 | 18.4 | 21.2 |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 171  | 1061 | 450  | 384  | 1971 | 557  | 190  | 367  |      | 929  | 1240 | 525  |
| V/C Ratio(X)                 | 0.89 | 0.94 | 0.22 | 0.99 | 0.80 | 0.94 | 0.75 | 0.93 |      | 0.99 | 0.55 | 0.62 |
| Avail Cap(c_a), veh/h        | 171  | 1071 | 454  | 384  | 1985 | 561  | 211  | 367  |      | 929  | 1240 | 525  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 56.1 | 41.2 | 31.8 | 52.2 | 34.0 | 36.7 | 55.2 | 53.3 | 0.0  | 41.4 | 31.8 | 32.7 |
| Incr Delay (d2), s/veh       | 37.3 | 15.2 | 0.2  | 44.0 | 2.3  | 23.9 | 10.6 | 32.6 | 0.0  | 26.9 | 1.8  | 5.3  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.1  | 16.0 | 2.1  | 7.9  | 13.4 | 17.7 | 2.4  | 6.6  | 0.0  | 16.4 | 8.0  | 8.3  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 93.4 | 56.4 | 32.0 | 96.3 | 36.3 | 60.6 | 65.8 | 85.9 | 0.0  | 68.3 | 33.5 | 38.0 |
| LnGrp LOS                    | F    | E    | C    | F    | D    | E    | E    | F    |      | E    | C    | D    |
| Approach Vol, veh/h          |      | 1246 |      |      | 2474 |      |      | 485  | A    |      | 1929 |      |
| Approach Delay, s/veh        |      | 59.0 |      |      | 50.7 |      |      | 80.0 |      |      | 50.9 |      |
| Approach LOS                 |      | E    |      |      | D    |      |      | E    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 41.0 | 18.0 | 19.6 | 41.1 | 12.0 | 47.0 | 11.2 | 49.5 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 36.5 | 12.2 | 15.1 | 35.6 | 8.3  | 40.4 | 6.7  | 44.0 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 38.0 | 13.3 | 17.0 | 34.4 | 7.5  | 23.2 | 7.9  | 41.7 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 0.0  | 0.0  | 0.8  | 0.0  | 5.1  | 0.0  | 2.0  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 54.8 |
| HCM 6th LOS        | D    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

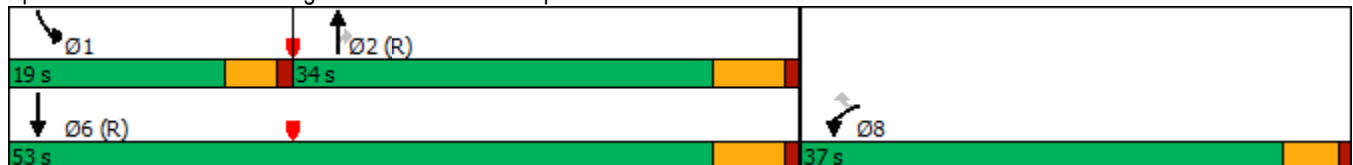
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↖↗    | ↖     | ↖↗    | ↖     | ↖     | ↖↗    |
| Traffic Volume (vph) | 1045  | 49    | 831   | 426   | 174   | 983   |
| Future Volume (vph)  | 1045  | 49    | 831   | 426   | 174   | 983   |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 37.0  | 37.0  | 34.0  | 34.0  | 19.0  | 53.0  |
| Total Split (%)      | 41.1% | 41.1% | 37.8% | 37.8% | 21.1% | 58.9% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 31.5  | 31.5  | 30.4  | 30.4  | 13.1  | 48.0  |
| Actuated g/C Ratio   | 0.35  | 0.35  | 0.34  | 0.34  | 0.15  | 0.53  |
| v/c Ratio            | 0.94  | 0.09  | 0.75  | 0.55  | 0.73  | 0.56  |
| Control Delay        | 43.6  | 6.1   | 31.8  | 5.1   | 53.3  | 15.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 43.6  | 6.1   | 31.8  | 5.1   | 53.3  | 15.6  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 41.9  |       | 22.7  |       |       | 21.2  |
| Approach LOS         | D     |       | C     |       |       | C     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 28.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 74.9%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 1045 | 49   | 831  | 426  | 174  | 983  |
| Future Volume (veh/h)        | 1045 | 49   | 831  | 426  | 174  | 983  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 |      | 1.00 | 1.00 |      |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      | No   |      |      | No   |
| Adj Sat Flow, veh/h/ln       | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 1148 | 54   | 913  | 468  | 191  | 1080 |
| Peak Hour Factor             | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 1217 | 558  | 1302 | 581  | 228  | 1937 |
| Arrive On Green              | 0.35 | 0.35 | 0.36 | 0.36 | 0.13 | 0.54 |
| Sat Flow, veh/h              | 3510 | 1610 | 3705 | 1610 | 1810 | 3705 |
| Grp Volume(v), veh/h         | 1148 | 54   | 913  | 468  | 191  | 1080 |
| Grp Sat Flow(s),veh/h/ln     | 1755 | 1610 | 1805 | 1610 | 1810 | 1805 |
| Q Serve(g_s), s              | 28.6 | 2.0  | 19.5 | 23.6 | 9.3  | 17.8 |
| Cycle Q Clear(g_c), s        | 28.6 | 2.0  | 19.5 | 23.6 | 9.3  | 17.8 |
| Prop In Lane                 | 1.00 | 1.00 |      | 1.00 | 1.00 |      |
| Lane Grp Cap(c), veh/h       | 1217 | 558  | 1302 | 581  | 228  | 1937 |
| V/C Ratio(X)                 | 0.94 | 0.10 | 0.70 | 0.81 | 0.84 | 0.56 |
| Avail Cap(c_a), veh/h        | 1260 | 578  | 1302 | 581  | 292  | 1937 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 0.42 | 0.42 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 28.5 | 19.9 | 24.6 | 25.9 | 38.4 | 13.8 |
| Incr Delay (d2), s/veh       | 13.4 | 0.0  | 1.4  | 5.1  | 15.5 | 1.2  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 12.8 | 0.7  | 7.8  | 9.0  | 4.9  | 6.5  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 41.9 | 19.9 | 26.0 | 31.0 | 53.9 | 15.0 |
| LnGrp LOS                    | D    | B    | C    | C    | D    | B    |
| Approach Vol, veh/h          | 1202 |      | 1381 |      |      | 1271 |
| Approach Delay, s/veh        | 41.0 |      | 27.7 |      |      | 20.8 |
| Approach LOS                 | D    |      | C    |      |      | C    |
| Timer - Assigned Phs         | 1    | 2    |      |      | 6    | 8    |
| Phs Duration (G+Y+Rc), s     | 15.8 | 38.3 |      |      | 54.1 | 35.9 |
| Change Period (Y+Rc), s      | 4.5  | 5.8  |      |      | 5.8  | 4.7  |
| Max Green Setting (Gmax), s  | 14.5 | 28.2 |      |      | 47.2 | 32.3 |
| Max Q Clear Time (g_c+I1), s | 11.3 | 25.6 |      |      | 19.8 | 30.6 |
| Green Ext Time (p_c), s      | 0.1  | 1.8  |      |      | 8.0  | 0.6  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 29.6 |      |      |      |
| HCM 6th LOS                  |      |      | C    |      |      |      |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

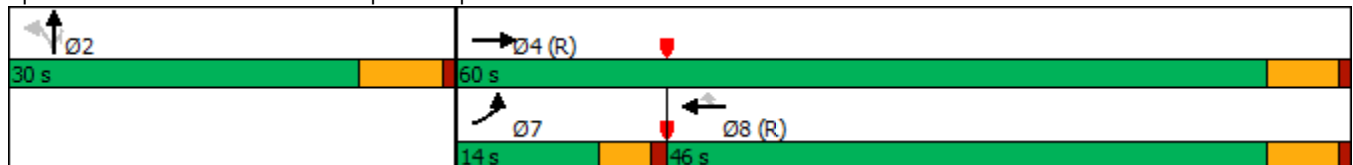


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↖    | ↗↗↗   | ↖↖↖   | ↖     | ↖     | ↕     | ↗     |
| Traffic Volume (vph) | 304   | 1987  | 2165  | 462   | 519   | 0     | 500   |
| Future Volume (vph)  | 304   | 1987  | 2165  | 462   | 519   | 0     | 500   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 14.0  | 60.0  | 46.0  | 46.0  | 30.0  | 30.0  | 30.0  |
| Total Split (%)      | 15.6% | 66.7% | 51.1% | 51.1% | 33.3% | 33.3% | 33.3% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 9.5   | 54.2  | 40.2  | 40.2  | 23.5  | 23.5  | 23.5  |
| Actuated g/C Ratio   | 0.11  | 0.60  | 0.45  | 0.45  | 0.26  | 0.26  | 0.26  |
| v/c Ratio            | 0.84  | 0.65  | 0.95  | 0.48  | 0.59  | 0.59  | 1.05  |
| Control Delay        | 60.9  | 12.9  | 35.3  | 3.5   | 35.5  | 35.5  | 83.3  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 60.9  | 12.9  | 35.3  | 3.5   | 35.5  | 35.5  | 83.3  |
| LOS                  | E     | B     | D     | A     | D     | D     | F     |
| Approach Delay       |       | 19.3  | 29.7  |       |       | 58.9  |       |
| Approach LOS         |       | B     | C     |       |       | E     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.05  
 Intersection Signal Delay: 30.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 79.6%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)  
 03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR   | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|-------|-----|-----|-----|
| Lane Configurations          | ↔↔   | ↑↑↑  |      |      | ↑↑↑  | ↔    | ↔    | ↔    | ↔     |     |     |     |
| Traffic Volume (veh/h)       | 304  | 1987 | 0    | 0    | 2165 | 462  | 519  | 0    | 500   | 0   | 0   | 0   |
| Future Volume (veh/h)        | 304  | 1987 | 0    | 0    | 2165 | 462  | 519  | 0    | 500   | 0   | 0   | 0   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |     |     |     |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00  |     |     |     |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  |     |     |     |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |       |     |     |     |
| Adj Sat Flow, veh/h/ln       | 1900 | 1900 | 0    | 0    | 1900 | 1900 | 1900 | 1900 | 1900  |     |     |     |
| Adj Flow Rate, veh/h         | 310  | 2028 | 0    | 0    | 2209 | 471  | 530  | 0    | 510   |     |     |     |
| Peak Hour Factor             | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98  |     |     |     |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |     |     |     |
| Cap, veh/h                   | 371  | 3124 | 0    | 0    | 2317 | 719  | 945  | 0    | 420   |     |     |     |
| Arrive On Green              | 0.11 | 0.60 | 0.00 | 0.00 | 0.45 | 0.45 | 0.26 | 0.00 | 0.26  |     |     |     |
| Sat Flow, veh/h              | 3510 | 5358 | 0    | 0    | 5358 | 1610 | 3619 | 0    | 1610  |     |     |     |
| Grp Volume(v), veh/h         | 310  | 2028 | 0    | 0    | 2209 | 471  | 530  | 0    | 510   |     |     |     |
| Grp Sat Flow(s),veh/h/ln     | 1755 | 1729 | 0    | 0    | 1729 | 1610 | 1810 | 0    | 1610  |     |     |     |
| Q Serve(g_s), s              | 7.8  | 23.0 | 0.0  | 0.0  | 36.9 | 20.6 | 11.4 | 0.0  | 23.5  |     |     |     |
| Cycle Q Clear(g_c), s        | 7.8  | 23.0 | 0.0  | 0.0  | 36.9 | 20.6 | 11.4 | 0.0  | 23.5  |     |     |     |
| Prop In Lane                 | 1.00 |      | 0.00 | 0.00 |      | 1.00 | 1.00 |      | 1.00  |     |     |     |
| Lane Grp Cap(c), veh/h       | 371  | 3124 | 0    | 0    | 2317 | 719  | 945  | 0    | 420   |     |     |     |
| V/C Ratio(X)                 | 0.84 | 0.65 | 0.00 | 0.00 | 0.95 | 0.65 | 0.56 | 0.00 | 1.21  |     |     |     |
| Avail Cap(c_a), veh/h        | 371  | 3124 | 0    | 0    | 2317 | 719  | 945  | 0    | 420   |     |     |     |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  |     |     |     |
| Upstream Filter(I)           | 0.43 | 0.43 | 0.00 | 0.00 | 0.24 | 0.24 | 1.00 | 0.00 | 1.00  |     |     |     |
| Uniform Delay (d), s/veh     | 39.5 | 11.7 | 0.0  | 0.0  | 24.0 | 19.5 | 28.8 | 0.0  | 33.3  |     |     |     |
| Incr Delay (d2), s/veh       | 6.8  | 0.5  | 0.0  | 0.0  | 3.3  | 1.1  | 0.8  | 0.0  | 116.0 |     |     |     |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |     |     |     |
| %ile BackOfQ(50%),veh/ln     | 3.5  | 7.2  | 0.0  | 0.0  | 13.9 | 7.1  | 4.6  | 0.0  | 21.8  |     |     |     |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |       |     |     |     |
| LnGrp Delay(d),s/veh         | 46.3 | 12.1 | 0.0  | 0.0  | 27.3 | 20.6 | 29.5 | 0.0  | 149.3 |     |     |     |
| LnGrp LOS                    | D    | B    | A    | A    | C    | C    | C    | A    | F     |     |     |     |
| Approach Vol, veh/h          |      | 2338 |      |      | 2680 |      |      | 1040 |       |     |     |     |
| Approach Delay, s/veh        |      | 16.7 |      |      | 26.1 |      |      | 88.2 |       |     |     |     |
| Approach LOS                 |      | B    |      |      | C    |      |      | F    |       |     |     |     |
| Timer - Assigned Phs         |      | 2    |      | 4    |      |      | 7    | 8    |       |     |     |     |
| Phs Duration (G+Y+Rc), s     |      | 30.0 |      | 60.0 |      |      | 14.0 | 46.0 |       |     |     |     |
| Change Period (Y+Rc), s      |      | 6.5  |      | 5.8  |      |      | 4.5  | 5.8  |       |     |     |     |
| Max Green Setting (Gmax), s  |      | 23.5 |      | 54.2 |      |      | 9.5  | 40.2 |       |     |     |     |
| Max Q Clear Time (g_c+I1), s |      | 25.5 |      | 25.0 |      |      | 9.8  | 38.9 |       |     |     |     |
| Green Ext Time (p_c), s      |      | 0.0  |      | 18.1 |      |      | 0.0  | 1.2  |       |     |     |     |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 33.1 |
| HCM 6th LOS        | C    |

Notes

User approved volume balancing among the lanes for turning movement.

Timings

4: Mariposa & Nisqualli Rd.

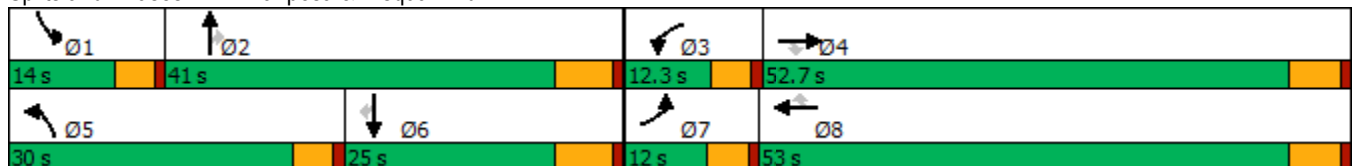
03/24/2022

| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 153   | 1831  | 520   | 136   | 2007  | 144   | 478   | 316   | 186   | 188   | 316   | 109   |
| Future Volume (vph)  | 153   | 1831  | 520   | 136   | 2007  | 144   | 478   | 316   | 186   | 188   | 316   | 109   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 12.0  | 52.7  | 52.7  | 12.3  | 53.0  | 53.0  | 30.0  | 41.0  | 41.0  | 14.0  | 25.0  | 25.0  |
| Total Split (%)      | 10.0% | 43.9% | 43.9% | 10.3% | 44.2% | 44.2% | 25.0% | 34.2% | 34.2% | 11.7% | 20.8% | 20.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 7.4   | 47.3  | 47.3  | 7.5   | 47.3  | 47.3  | 21.8  | 28.1  | 28.1  | 9.2   | 15.4  | 15.4  |
| Actuated g/C Ratio   | 0.07  | 0.42  | 0.42  | 0.07  | 0.42  | 0.42  | 0.19  | 0.25  | 0.25  | 0.08  | 0.14  | 0.14  |
| v/c Ratio            | 0.80  | 0.90  | 0.62  | 0.70  | 0.99  | 0.20  | 0.85  | 0.38  | 0.39  | 0.79  | 0.68  | 0.32  |
| Control Delay        | 82.8  | 39.1  | 11.5  | 72.7  | 50.7  | 3.8   | 59.4  | 36.3  | 13.5  | 75.9  | 55.1  | 5.2   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 82.8  | 39.1  | 11.5  | 72.7  | 50.7  | 3.8   | 59.4  | 36.3  | 13.5  | 75.9  | 55.1  | 5.2   |
| LOS                  | F     | D     | B     | E     | D     | A     | E     | D     | B     | E     | E     | A     |
| Approach Delay       |       | 36.0  |       |       | 49.1  |       |       | 43.3  |       |       | 52.6  |       |
| Approach LOS         |       | D     |       |       | D     |       |       | D     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.3  
 Natural Cycle: 115  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 43.4  
 Intersection LOS: D  
 Intersection Capacity Utilization 89.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

























Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 153   | 1831  | 520   | 136   | 2007  | 144   | 478   | 316   | 186   | 188   | 316   | 109   |
| Future Volume (veh/h)        | 153   | 1831  | 520   | 136   | 2007  | 144   | 478   | 316   | 186   | 188   | 316   | 109   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 155   | 1849  | 525   | 137   | 2027  | 145   | 483   | 319   | 188   | 190   | 319   | 110   |
| Peak Hour Factor             | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 202   | 2154  | 669   | 186   | 2129  | 661   | 541   | 758   | 338   | 241   | 411   | 183   |
| Arrive On Green              | 0.07  | 0.44  | 0.44  | 0.06  | 0.43  | 0.43  | 0.18  | 0.22  | 0.22  | 0.08  | 0.12  | 0.12  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956  | 3420  | 1525  | 2956  | 3420  | 1525  |
| Grp Volume(v), veh/h         | 155   | 1849  | 525   | 137   | 2027  | 145   | 483   | 319   | 188   | 190   | 319   | 110   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478  | 1710  | 1525  | 1478  | 1710  | 1525  |
| Q Serve(g_s), s              | 5.6   | 36.8  | 32.0  | 4.9   | 43.2  | 6.5   | 17.3  | 8.7   | 11.9  | 6.8   | 9.8   | 7.4   |
| Cycle Q Clear(g_c), s        | 5.6   | 36.8  | 32.0  | 4.9   | 43.2  | 6.5   | 17.3  | 8.7   | 11.9  | 6.8   | 9.8   | 7.4   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 202   | 2154  | 669   | 186   | 2129  | 661   | 541   | 758   | 338   | 241   | 411   | 183   |
| V/C Ratio(X)                 | 0.77  | 0.86  | 0.79  | 0.73  | 0.95  | 0.22  | 0.89  | 0.42  | 0.56  | 0.79  | 0.78  | 0.60  |
| Avail Cap(c_a), veh/h        | 202   | 2154  | 669   | 210   | 2137  | 664   | 692   | 1097  | 489   | 256   | 593   | 264   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 49.7  | 27.4  | 26.1  | 49.9  | 29.7  | 19.3  | 43.3  | 36.2  | 37.5  | 48.9  | 46.3  | 45.3  |
| Incr Delay (d2), s/veh       | 14.9  | 3.7   | 6.1   | 9.0   | 10.4  | 0.2   | 10.1  | 0.4   | 1.4   | 12.9  | 4.0   | 3.1   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.4   | 13.9  | 11.8  | 2.0   | 17.6  | 2.2   | 6.8   | 3.5   | 4.4   | 2.9   | 4.2   | 0.2   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 64.6  | 31.2  | 32.2  | 58.9  | 40.1  | 19.4  | 53.4  | 36.6  | 38.9  | 61.9  | 50.4  | 48.4  |
| LnGrp LOS                    | E   | C   | C   | E   | D   | B   | D   | D   | D   | E   | D   | D   |
| Approach Vol, veh/h          |   | 2529  |   |   | 2309  |   |   | 990   |   |   | 619   |   |
| Approach Delay, s/veh        |   | 33.4  |   |   | 39.9  |   |   | 45.3  |   |   | 53.6  |   |
| Approach LOS                 |   | C   |   |   | D   |   |   | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 13.4  | 30.3  | 11.4  | 53.4  | 24.5  | 19.2  | 12.0  | 52.8  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 9.4   | 34.8  | 7.7   | 46.9  | 25.4  | 18.8  | 7.4   | 47.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 8.8   | 13.9  | 6.9   | 38.8  | 19.3  | 11.8  | 7.6   | 45.2  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 2.4   | 0.0   | 6.9   | 0.6   | 1.2   | 0.0   | 1.8   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 39.5  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |   |   |   |   |   |   |



Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

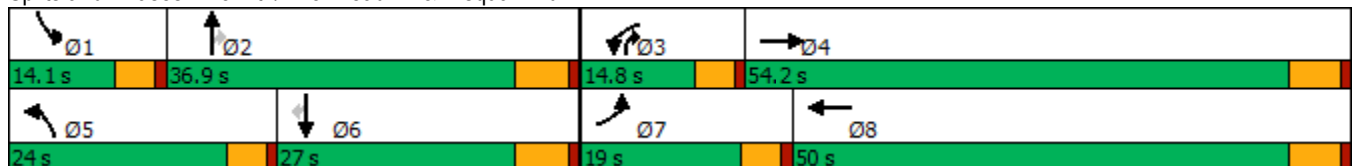


| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 105   | 959   | 41    | 1242  | 230   | 263   | 48    | 49    | 322   | 88    |
| Future Volume (vph)  | 105   | 959   | 41    | 1242  | 230   | 263   | 48    | 49    | 322   | 88    |
| Turn Type            | Prot  | NA    | Prot  | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |       |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6   | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 19.0  | 54.2  | 14.8  | 50.0  | 24.0  | 36.9  | 14.8  | 14.1  | 27.0  | 27.0  |
| Total Split (%)      | 15.8% | 45.2% | 12.3% | 41.7% | 20.0% | 30.8% | 12.3% | 11.8% | 22.5% | 22.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 11.6  | 50.4  | 7.5   | 44.3  | 18.9  | 34.5  | 47.8  | 7.7   | 21.2  | 21.2  |
| Actuated g/C Ratio   | 0.10  | 0.43  | 0.06  | 0.38  | 0.16  | 0.30  | 0.41  | 0.07  | 0.18  | 0.18  |
| v/c Ratio            | 0.69  | 0.84  | 0.41  | 1.08  | 0.93  | 0.52  | 0.08  | 0.49  | 1.04  | 0.23  |
| Control Delay        | 73.4  | 36.3  | 65.0  | 84.6  | 88.8  | 40.5  | 3.7   | 68.8  | 107.1 | 2.2   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 73.4  | 36.3  | 65.0  | 84.6  | 88.8  | 40.5  | 3.7   | 68.8  | 107.1 | 2.2   |
| LOS                  | E     | D     | E     | F     | F     | D     | A     | E     | F     | A     |
| Approach Delay       |       | 39.4  |       | 84.0  |       | 57.7  |       |       | 82.8  |       |
| Approach LOS         |       | D     |       | F     |       | E     |       |       | F     |       |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 116.8            |                        |
| Natural Cycle: 120                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 1.08                 |                        |
| Intersection Signal Delay: 64.4         | Intersection LOS: E    |
| Intersection Capacity Utilization 94.8% | ICU Level of Service F |
| Analysis Period (min) 15                |                        |























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 105   | 959   | 195   | 41  | 1242  | 78  | 230   | 263   | 48  | 49  | 322   | 88  |
| Future Volume (veh/h)        | 105   | 959   | 195   | 41  | 1242  | 78  | 230   | 263   | 48  | 49  | 322   | 88  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 111   | 1009  | 147   | 43  | 1307  | 56  | 242   | 277   | 30  | 52  | 339   | 77  |
| Peak Hour Factor             | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 134   | 1306  | 190   | 53  | 1290  | 55  | 266   | 557   | 522   | 65  | 333   | 282   |
| Arrive On Green              | 0.08  | 0.44  | 0.44  | 0.03  | 0.39  | 0.39  | 0.16  | 0.31  | 0.31  | 0.04  | 0.19  | 0.19  |
| Sat Flow, veh/h              | 1619  | 2995  | 436   | 1619  | 3341  | 143   | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Grp Volume(v), veh/h         | 111   | 576   | 580   | 43  | 668   | 695   | 242   | 277   | 30  | 52  | 339   | 77  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1710  | 1722  | 1619  | 1710  | 1774  | 1619  | 1800  | 1525  | 1619  | 1800  | 1525  |
| Q Serve(g_s), s              | 7.7   | 32.8  | 32.8  | 3.0   | 44.2  | 44.2  | 16.8  | 14.4  | 1.5   | 3.6   | 21.2  | 5.0   |
| Cycle Q Clear(g_c), s        | 7.7   | 32.8  | 32.8  | 3.0   | 44.2  | 44.2  | 16.8  | 14.4  | 1.5   | 3.6   | 21.2  | 5.0   |
| Prop In Lane                 | 1.00  |   | 0.25  | 1.00  |   | 0.08  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 134   | 746   | 751   | 53  | 660   | 685   | 266   | 557   | 522   | 65  | 333   | 282   |
| V/C Ratio(X)                 | 0.83  | 0.77  | 0.77  | 0.81  | 1.01  | 1.01  | 0.91  | 0.50  | 0.06  | 0.80  | 1.02  | 0.27  |
| Avail Cap(c_a), veh/h        | 204   | 746   | 751   | 144   | 660   | 685   | 274   | 557   | 522   | 134   | 333   | 282   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 51.7  | 27.5  | 27.5  | 55.0  | 35.2  | 35.2  | 47.0  | 32.3  | 25.3  | 54.5  | 46.7  | 40.0  |
| Incr Delay (d2), s/veh       | 9.4   | 5.0   | 5.0   | 10.4  | 38.1  | 38.1  | 30.4  | 0.7   | 0.0   | 8.3   | 53.8  | 0.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.4   | 13.5  | 13.6  | 1.4   | 24.2  | 25.1  | 8.9   | 6.2   | 0.5   | 1.6   | 14.0  | 1.9   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 61.1  | 32.5  | 32.5  | 65.4  | 73.3  | 73.3  | 77.4  | 32.9  | 25.3  | 62.9  | 100.5   | 40.6  |
| LnGrp LOS                    | E   | C   | C   | E   | F   | F   | E   | C   | C   | E   | F   | D   |
| Approach Vol, veh/h          |   | 1267  |   |   | 1406  |   |   | 549   |   |   | 468   |   |
| Approach Delay, s/veh        |   | 35.0  |   |   | 73.0  |   |   | 52.1  |   |   | 86.4  |   |
| Approach LOS                 |   | C   |   |   | E   |   |   | D   |   |   | F   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 9.2   | 41.3  | 8.4   | 55.7  | 23.4  | 27.0  | 14.1  | 50.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 9.5   | 31.1  | 10.2  | 48.4  | 19.4  | 21.2  | 14.4  | 44.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 5.6   | 16.4  | 5.0   | 34.8  | 18.8  | 23.2  | 9.7   | 46.2  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.3   | 0.0   | 5.9   | 0.0   | 0.0   | 0.0   | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 58.6  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | E   |   |   |   |   |   |   |   |   |

Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖     | ↗↗    | ↖↖    | ↑↑    | ↑↗    |
| Traffic Volume (vph) | 145   | 555   | 537   | 1184  | 1158  |
| Future Volume (vph)  | 145   | 555   | 537   | 1184  | 1158  |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 26.6  | 36.0  | 36.0  | 93.4  | 57.4  |
| Total Split (%)      | 22.2% | 30.0% | 30.0% | 77.8% | 47.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 14.1  | 43.2  | 24.4  | 80.7  | 50.5  |
| Actuated g/C Ratio   | 0.13  | 0.41  | 0.23  | 0.76  | 0.48  |
| v/c Ratio            | 0.68  | 0.53  | 0.76  | 0.49  | 0.87  |
| Control Delay        | 60.3  | 23.7  | 45.4  | 5.8   | 33.1  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 60.3  | 23.7  | 45.4  | 5.8   | 33.1  |
| LOS                  | E     | C     | D     | A     | C     |
| Approach Delay       | 31.2  |       |       | 18.2  | 33.1  |
| Approach LOS         | C     |       |       | B     | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 105.8  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 25.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 77.1%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)  
03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 145  | 555  | 537  | 1184 | 1158 | 145  |
| Future Volume (veh/h)        | 145  | 555  | 537  | 1184 | 1158 | 145  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Adj Flow Rate, veh/h         | 156  | 597  | 577  | 1273 | 1245 | 156  |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 333  | 1057 | 664  | 2417 | 1389 | 173  |
| Arrive On Green              | 0.19 | 0.19 | 0.20 | 0.71 | 0.45 | 0.45 |
| Sat Flow, veh/h              | 1714 | 2685 | 3326 | 3510 | 3150 | 382  |
| Grp Volume(v), veh/h         | 156  | 597  | 577  | 1273 | 694  | 707  |
| Grp Sat Flow(s),veh/h/ln     | 1714 | 1342 | 1663 | 1710 | 1710 | 1731 |
| Q Serve(g_s), s              | 8.8  | 18.9 | 18.3 | 18.9 | 40.6 | 41.1 |
| Cycle Q Clear(g_c), s        | 8.8  | 18.9 | 18.3 | 18.9 | 40.6 | 41.1 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.22 |
| Lane Grp Cap(c), veh/h       | 333  | 1057 | 664  | 2417 | 776  | 786  |
| V/C Ratio(X)                 | 0.47 | 0.56 | 0.87 | 0.53 | 0.89 | 0.90 |
| Avail Cap(c_a), veh/h        | 346  | 1078 | 922  | 2737 | 803  | 813  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 38.9 | 25.8 | 42.2 | 7.5  | 27.3 | 27.5 |
| Incr Delay (d2), s/veh       | 0.4  | 0.4  | 6.7  | 0.2  | 12.2 | 12.8 |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.7  | 14.6 | 8.1  | 6.1  | 18.5 | 19.1 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 39.3 | 26.2 | 48.9 | 7.6  | 39.5 | 40.2 |
| LnGrp LOS                    | D    | C    | D    | A    | D    | D    |
| Approach Vol, veh/h          | 753  |      |      | 1850 | 1401 |      |
| Approach Delay, s/veh        | 28.9 |      |      | 20.5 | 39.9 |      |
| Approach LOS                 | C    |      |      | C    | D    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 83.2 |      | 25.7 | 27.5 | 55.7 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 87.2 |      | 22.0 | 30.2 | 51.2 |
| Max Q Clear Time (g_c+11), s |      | 20.9 |      | 20.9 | 20.3 | 43.1 |
| Green Ext Time (p_c), s      |      | 22.4 |      | 0.3  | 1.4  | 6.4  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 28.9 |      |      |      |
| HCM 6th LOS                  |      |      | C    |      |      |      |

Timings

7: Hesperia Rd. & Ottawa St.



| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL  | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations  |       | ↕     | ↗     | ↖     | ↗     | ↖     | ↖     | ↗    | ↖     |
| Traffic Volume (vph) | 6     | 2     | 103   | 5     | 30    | 1671  | 39    | 18   | 1690  |
| Future Volume (vph)  | 6     | 2     | 103   | 5     | 30    | 1671  | 39    | 18   | 1690  |
| Turn Type            | Perm  | NA    | Perm  | NA    | Prot  | NA    | Perm  | Prot | NA    |
| Protected Phases     |       | 4     |       | 8     | 5     | 2     |       | 1    | 6     |
| Permitted Phases     | 4     |       | 8     |       |       |       | 2     |      |       |
| Detector Phase       | 4     | 4     | 8     | 8     | 5     | 2     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |
| Minimum Initial (s)  | 10.0  | 10.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 26.6  | 26.6  | 26.6  | 9.6   | 23.2  | 23.2  | 9.6  | 23.2  |
| Total Split (s)      | 26.6  | 26.6  | 26.6  | 26.6  | 12.0  | 83.4  | 83.4  | 10.0 | 81.4  |
| Total Split (%)      | 22.2% | 22.2% | 22.2% | 22.2% | 10.0% | 69.5% | 69.5% | 8.3% | 67.8% |
| Yellow Time (s)      | 3.6   | 3.6   | 3.6   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  |       | 4.6   | 4.6   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             |       |       |       |       | Lead  | Lag   | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   |       |       |       |       | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | None | Min   |
| Act Effct Green (s)  |       | 15.0  | 15.0  | 15.0  | 6.5   | 63.9  | 63.9  | 5.6  | 61.1  |
| Actuated g/C Ratio   |       | 0.16  | 0.16  | 0.16  | 0.07  | 0.68  | 0.68  | 0.06 | 0.65  |
| v/c Ratio            |       | 0.10  | 0.55  | 0.18  | 0.29  | 0.77  | 0.04  | 0.20 | 0.82  |
| Control Delay        |       | 24.0  | 52.0  | 15.7  | 56.9  | 13.9  | 1.4   | 57.6 | 17.3  |
| Queue Delay          |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          |       | 24.0  | 52.0  | 15.7  | 56.9  | 13.9  | 1.4   | 57.6 | 17.3  |
| LOS                  |       | C     | D     | B     | E     | B     | A     | E    | B     |
| Approach Delay       |       | 24.0  |       | 40.4  |       | 14.4  |       |      | 17.8  |
| Approach LOS         |       | C     |       | D     |       | B     |       |      | B     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 93.6             |                        |
| Natural Cycle: 90                       |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.82                 |                        |
| Intersection Signal Delay: 17.1         | Intersection LOS: B    |
| Intersection Capacity Utilization 71.5% | ICU Level of Service C |
| Analysis Period (min) 15                |                        |






















Splits and Phases: 7: Hesperia Rd. & Ottawa St.



HCM 6th Signalized Intersection Summary  
7: Hesperia Rd. & Ottawa St.

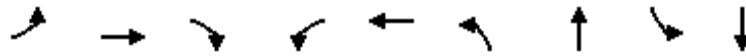
Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 6   | 2   | 16  | 103   | 5   | 44  | 30  | 1671  | 39  | 18  | 1690  | 4   |
| Future Volume (veh/h)        | 6   | 2   | 16  | 103   | 5   | 44  | 30  | 1671  | 39  | 18  | 1690  | 4   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1800  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 6   | 2   | 17  | 111   | 5   | 47  | 32  | 1797  | 42  | 19  | 1817  | 4   |
| Peak Hour Factor             | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 80  | 38  | 131   | 262   | 19  | 174   | 52  | 2253  | 1005  | 35  | 2270  | 5   |
| Arrive On Green              | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.03  | 0.66  | 0.66  | 0.02  | 0.65  | 0.65  |
| Sat Flow, veh/h              | 189   | 308   | 1055  | 1337  | 149   | 1399  | 1619  | 3420  | 1525  | 1619  | 3501  | 8   |
| Grp Volume(v), veh/h         | 25  | 0   | 0   | 111   | 0   | 52  | 32  | 1797  | 42  | 19  | 887   | 934   |
| Grp Sat Flow(s),veh/h/ln     | 1552  | 0   | 0   | 1337  | 0   | 1548  | 1619  | 1710  | 1525  | 1619  | 1710  | 1799  |
| Q Serve(g_s), s              | 0.0   | 0.0   | 0.0   | 4.9   | 0.0   | 2.4   | 1.5   | 29.8  | 0.8   | 0.9   | 29.9  | 30.0  |
| Cycle Q Clear(g_c), s        | 1.1   | 0.0   | 0.0   | 6.0   | 0.0   | 2.4   | 1.5   | 29.8  | 0.8   | 0.9   | 29.9  | 30.0  |
| Prop In Lane                 | 0.24  |   | 0.68  | 1.00  |   | 0.90  | 1.00  |   | 1.00  | 1.00  |   | 0.00  |
| Lane Grp Cap(c), veh/h       | 250   | 0   | 0   | 262   | 0   | 193   | 52  | 2253  | 1005  | 35  | 1109  | 1166  |
| V/C Ratio(X)                 | 0.10  | 0.00  | 0.00  | 0.42  | 0.00  | 0.27  | 0.62  | 0.80  | 0.04  | 0.54  | 0.80  | 0.80  |
| Avail Cap(c_a), veh/h        | 482   | 0   | 0   | 468   | 0   | 431   | 152   | 3345  | 1492  | 111   | 1629  | 1713  |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 0.00  | 0.00  | 1.00  | 0.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 30.7  | 0.0   | 0.0   | 32.8  | 0.0   | 31.3  | 37.7  | 9.7   | 4.7   | 38.2  | 10.1  | 10.2  |
| Incr Delay (d2), s/veh       | 0.2   | 0.0   | 0.0   | 1.1   | 0.0   | 0.7   | 4.4   | 0.9   | 0.0   | 4.8   | 1.8   | 1.7   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.4   | 0.0   | 0.0   | 2.0   | 0.0   | 0.9   | 0.6   | 7.3   | 0.2   | 0.4   | 7.8   | 8.2   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 30.9  | 0.0   | 0.0   | 33.9  | 0.0   | 32.0  | 42.2  | 10.5  | 4.7   | 43.0  | 12.0  | 11.9  |
| LnGrp LOS                    | C   | A   | A   | C   | A   | C   | D   | B   | A   | D   | B   | B   |
| Approach Vol, veh/h          |   | 25  |   |   | 163   |   |   | 1871  |   |   | 1840  |   |
| Approach Delay, s/veh        |   | 30.9  |   |   | 33.3  |   |   | 11.0  |   |   | 12.3  |   |
| Approach LOS                 |   | C   |   |   | C   |   |   | B   |   |   | B   |   |
| Timer - Assigned Phs         | 1   | 2   |   | 4   | 5   | 6   |   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.3   | 58.2  |   | 14.4  | 7.1   | 57.4  |   | 14.4  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   |   | 4.6   | 4.6   | 6.2   |   | 4.6   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.4   | 77.2  |   | 22.0  | 7.4   | 75.2  |   | 22.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 2.9   | 31.8  |   | 3.1   | 3.5   | 32.0  |   | 8.0   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 20.2  |   | 0.1   | 0.0   | 18.6  |   | 0.5   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 12.6  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | B   |   |   |   |   |   |   |   |   |

Timings

8: Hesperia Rd. & Nisqualli Rd.



| Lane Group           | EBL   | EBT   | EBR   | WBL  | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|------|-------|-------|-------|------|-------|
| Lane Configurations  | ↖↖    | ↑     | ↗↗    | ↖    | ↕↕    | ↖↖    | ↕↕    | ↖    | ↕↕    |
| Traffic Volume (vph) | 182   | 60    | 424   | 97   | 65    | 465   | 1427  | 19   | 1637  |
| Future Volume (vph)  | 182   | 60    | 424   | 97   | 65    | 465   | 1427  | 19   | 1637  |
| Turn Type            | Prot  | NA    | pm+ov | Prot | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |      |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |      |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0  | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6  | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 14.0  | 34.3  | 17.0  | 10.5 | 30.8  | 17.0  | 65.6  | 9.6  | 58.2  |
| Total Split (%)      | 11.7% | 28.6% | 14.2% | 8.8% | 25.7% | 14.2% | 54.7% | 8.0% | 48.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6  | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6  | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 9.1   | 12.8  | 27.8  | 9.5  | 10.0  | 12.4  | 65.1  | 5.0  | 52.0  |
| Actuated g/C Ratio   | 0.09  | 0.12  | 0.27  | 0.09 | 0.10  | 0.12  | 0.62  | 0.05 | 0.50  |
| v/c Ratio            | 0.71  | 0.28  | 0.61  | 0.68 | 0.34  | 1.33  | 0.75  | 0.26 | 1.13  |
| Control Delay        | 62.1  | 45.1  | 36.9  | 74.4 | 28.6  | 204.7 | 17.7  | 57.1 | 92.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 62.1  | 45.1  | 36.9  | 74.4 | 28.6  | 204.7 | 17.7  | 57.1 | 92.9  |
| LOS                  | E     | D     | D     | E    | C     | F     | B     | E    | F     |
| Approach Delay       |       | 44.5  |       |      | 49.4  |       | 61.4  |      | 92.5  |
| Approach LOS         |       | D     |       |      | D     |       | E     |      | F     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 104.7  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.33  
 Intersection Signal Delay: 70.7  
 Intersection LOS: E  
 Intersection Capacity Utilization 96.9%  
 ICU Level of Service F  
 Analysis Period (min) 15




























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |    |  |    |    |  |  |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |   |   |   |   |   |  |   |   |
| Traffic Volume (veh/h)       | 182   | 60  | 424   | 97  | 65  | 51  | 465  | 1427  | 98  | 19  | 1637  | 199   |
| Future Volume (veh/h)        | 182   | 60  | 424   | 97  | 65  | 51  | 465  | 1427  | 98  | 19  | 1637  | 199   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1700  | 1800  | 1800  | 1600   | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 188   | 62  | 308   | 100   | 67  | 38  | 479  | 1471  | 80  | 20  | 1688  | 148   |
| Peak Hour Factor             | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97   | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 242   | 233   | 664   | 91  | 229   | 121   | 360  | 1953  | 106   | 34  | 1576  | 137   |
| Arrive On Green              | 0.08  | 0.13  | 0.13  | 0.06  | 0.11  | 0.11  | 0.12   | 0.59  | 0.59  | 0.02  | 0.49  | 0.49  |
| Sat Flow, veh/h              | 3048  | 1800  | 2685  | 1619  | 2165  | 1140  | 3048   | 3299  | 179   | 1619  | 3184  | 276   |
| Grp Volume(v), veh/h         | 188   | 62  | 308   | 100   | 52  | 53  | 479  | 760   | 791   | 20  | 897   | 939   |
| Grp Sat Flow(s),veh/h/ln     | 1524  | 1800  | 1342  | 1619  | 1710  | 1595  | 1524   | 1710  | 1768  | 1619  | 1710  | 1750  |
| Q Serve(g_s), s              | 6.4   | 3.3   | 10.3  | 5.9   | 2.9   | 3.2   | 12.4   | 34.3  | 34.7  | 1.3   | 52.0  | 52.0  |
| Cycle Q Clear(g_c), s        | 6.4   | 3.3   | 10.3  | 5.9   | 2.9   | 3.2   | 12.4   | 34.3  | 34.7  | 1.3   | 52.0  | 52.0  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.71  | 1.00   |   | 0.10  | 1.00  |   | 0.16  |
| Lane Grp Cap(c), veh/h       | 242   | 233   | 664   | 91  | 181   | 169   | 360  | 1012  | 1046  | 34  | 846   | 866   |
| V/C Ratio(X)                 | 0.78  | 0.27  | 0.46  | 1.10  | 0.29  | 0.32  | 1.33   | 0.75  | 0.76  | 0.59  | 1.06  | 1.08  |
| Avail Cap(c_a), veh/h        | 273   | 488   | 1045  | 91  | 407   | 379   | 360  | 1012  | 1046  | 77  | 846   | 866   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 47.4  | 41.3  | 33.6  | 49.6  | 43.3  | 43.5  | 46.3   | 15.8  | 15.8  | 51.0  | 26.5  | 26.5  |
| Incr Delay (d2), s/veh       | 10.0  | 0.6   | 0.5   | 124.0   | 0.9   | 1.1   | 167.3  | 3.2   | 3.2   | 5.8   | 48.2  | 55.8  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.7   | 1.4   | 3.2   | 5.4   | 1.2   | 1.3   | 12.8   | 12.0  | 12.5  | 0.6   | 29.7  | 32.2  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 57.4  | 41.9  | 34.1  | 173.6   | 44.2  | 44.5  | 213.6  | 18.9  | 19.0  | 56.8  | 74.7  | 82.4  |
| LnGrp LOS                    | E   | D   | C   | F   | D   | D   | F  | B   | B   | E   | F   | F   |
| Approach Vol, veh/h          |   | 558   |   |   | 205   |   |  | 2030  |   |   | 1856  |   |
| Approach Delay, s/veh        |   | 42.8  |   |   | 107.4   |   |  | 64.9  |   |   | 78.4  |   |
| Approach LOS                 |   | D   |   |   | F   |   |  | E   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.8   | 68.4  | 10.5  | 19.4  | 17.0  | 58.2  | 13.0   | 16.9  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.0   | 59.4  | 5.9   | 28.5  | 12.4  | 52.0  | 9.4  | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.3   | 36.7  | 7.9   | 12.3  | 14.4  | 54.0  | 8.4  | 5.2   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 10.8  | 0.0   | 1.3   | 0.0   | 0.0   | 0.0  | 0.4   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 69.5  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | E   |   |   |   |  |   |   |   |   |   |



Timings  
9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

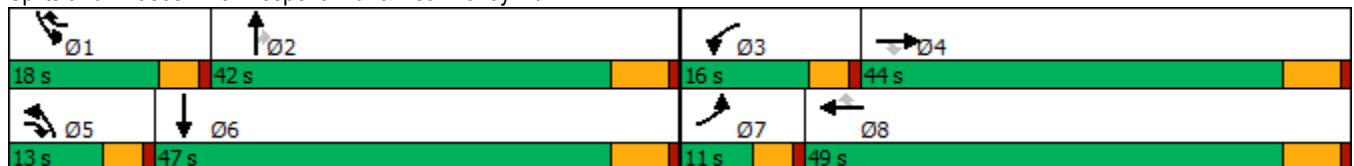


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↔↔    | ↑↑↑   | ↔     | ↔↔    | ↑↑↑   | ↔     | ↔↔    | ↑↑    | ↔     | ↔↔    | ↑↔    |
| Traffic Volume (vph) | 149   | 1742  | 111   | 327   | 1522  | 179   | 221   | 494   | 360   | 436   | 670   |
| Future Volume (vph)  | 149   | 1742  | 111   | 327   | 1522  | 179   | 221   | 494   | 360   | 436   | 670   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 11.0  | 44.0  | 13.0  | 16.0  | 49.0  | 18.0  | 13.0  | 42.0  | 42.0  | 18.0  | 47.0  |
| Total Split (%)      | 9.2%  | 36.7% | 10.8% | 13.3% | 40.8% | 15.0% | 10.8% | 35.0% | 35.0% | 15.0% | 39.2% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.4   | 37.9  | 52.5  | 11.4  | 42.9  | 62.5  | 8.4   | 30.8  | 30.8  | 13.4  | 35.8  |
| Actuated g/C Ratio   | 0.06  | 0.33  | 0.46  | 0.10  | 0.37  | 0.54  | 0.07  | 0.27  | 0.27  | 0.12  | 0.31  |
| v/c Ratio            | 0.93  | 1.10  | 0.14  | 1.14  | 0.85  | 0.21  | 1.05  | 0.55  | 0.66  | 1.30  | 0.81  |
| Control Delay        | 108.6 | 92.3  | 1.5   | 143.7 | 39.2  | 7.2   | 127.4 | 38.5  | 23.0  | 194.1 | 42.1  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 108.6 | 92.3  | 1.5   | 143.7 | 39.2  | 7.2   | 127.4 | 38.5  | 23.0  | 194.1 | 42.1  |
| LOS                  | F     | F     | A     | F     | D     | A     | F     | D     | C     | F     | D     |
| Approach Delay       |       | 88.5  |       |       | 53.3  |       |       | 51.6  |       |       | 94.3  |
| Approach LOS         |       | F     |       |       | D     |       |       | D     |       |       | F     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 115.2  
 Natural Cycle: 125  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.30  
 Intersection Signal Delay: 72.2  
 Intersection LOS: E  
 Intersection Capacity Utilization 97.2%  
 ICU Level of Service F  
 Analysis Period (min) 15



































Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 149   | 1742  | 111   | 327   | 1522  | 179   | 221   | 494   | 360   | 436   | 670   | 164   |
| Future Volume (veh/h)        | 149   | 1742  | 111   | 327   | 1522  | 179   | 221   | 494   | 360   | 436   | 670   | 164   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  | 1600  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 152   | 1778  | 113   | 334   | 1553  | 183   | 226   | 504   | 367   | 445   | 684   | 167   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 163   | 1601  | 607   | 290   | 1813  | 739   | 214   | 938   | 418   | 341   | 865   | 211   |
| Arrive On Green              | 0.06  | 0.33  | 0.33  | 0.10  | 0.37  | 0.37  | 0.07  | 0.27  | 0.27  | 0.12  | 0.32  | 0.32  |
| Sat Flow, veh/h              | 2956  | 4914  | 1525  | 2956  | 4914  | 1525  | 2956  | 3420  | 1525  | 2956  | 2725  | 665   |
| Grp Volume(v), veh/h         | 152   | 1778  | 113   | 334   | 1553  | 183   | 226   | 504   | 367   | 445   | 429   | 422   |
| Grp Sat Flow(s),veh/h/ln     | 1478  | 1638  | 1525  | 1478  | 1638  | 1525  | 1478  | 1710  | 1525  | 1478  | 1710  | 1680  |
| Q Serve(g_s), s              | 5.9   | 37.8  | 5.6   | 11.4  | 33.8  | 8.2   | 8.4   | 14.6  | 26.7  | 13.4  | 26.5  | 26.6  |
| Cycle Q Clear(g_c), s        | 5.9   | 37.8  | 5.6   | 11.4  | 33.8  | 8.2   | 8.4   | 14.6  | 26.7  | 13.4  | 26.5  | 26.6  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 0.40  |
| Lane Grp Cap(c), veh/h       | 163   | 1601  | 607   | 290   | 1813  | 739   | 214   | 938   | 418   | 341   | 543   | 533   |
| V/C Ratio(X)                 | 0.93  | 1.11  | 0.19  | 1.15  | 0.86  | 0.25  | 1.06  | 0.54  | 0.88  | 1.30  | 0.79  | 0.79  |
| Avail Cap(c_a), veh/h        | 163   | 1601  | 607   | 290   | 1813  | 739   | 214   | 1055  | 471   | 341   | 601   | 591   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 54.6  | 39.1  | 22.7  | 52.3  | 33.8  | 17.5  | 53.8  | 35.8  | 40.2  | 51.3  | 36.1  | 36.1  |
| Incr Delay (d2), s/veh       | 50.2  | 59.3  | 0.1   | 99.7  | 4.3   | 0.2   | 77.1  | 0.5   | 15.7  | 156.3   | 6.4   | 6.6   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.3   | 23.7  | 2.0   | 8.2   | 13.9  | 2.9   | 5.4   | 6.1   | 11.7  | 12.4  | 11.9  | 11.7  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 104.8   | 98.4  | 22.8  | 152.0   | 38.1  | 17.7  | 130.9   | 36.3  | 55.9  | 207.7   | 42.5  | 42.7  |
| LnGrp LOS                    | F   | F   | C   | F   | D   | B   | F   | D   | E   | F   | D   | D   |
| Approach Vol, veh/h          |   | 2043  |   |   | 2070  |   |   | 1097  |   |   | 1296  |   |
| Approach Delay, s/veh        |   | 94.7  |   |   | 54.7  |   |   | 62.3  |   |   | 99.3  |   |
| Approach LOS                 |   | F   |   |   | D   |   |   | E   |   |   | F   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 18.0  | 38.0  | 16.0  | 44.0  | 13.0  | 43.0  | 11.0  | 49.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 13.4  | 35.8  | 11.4  | 37.8  | 8.4   | 40.8  | 6.4   | 42.8  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 15.4  | 28.7  | 13.4  | 39.8  | 10.4  | 28.6  | 7.9   | 35.8  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 3.2   | 0.0   | 0.0   | 0.0   | 5.8   | 0.0   | 5.9   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 77.4  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | E   |   |   |   |   |   |   |   |   |

**APPENDIX 5.3:**

**OPENING YEAR CUMULATIVE (2024) WITHOUT PROJECT CONDITIONS TRAFFIC  
SIGNAL WARRANT ANALYSIS WORKSHEETS**

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### Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Opening Year Cumulative (2024) Without Project Conditions - Weekday PM Peak Hou**

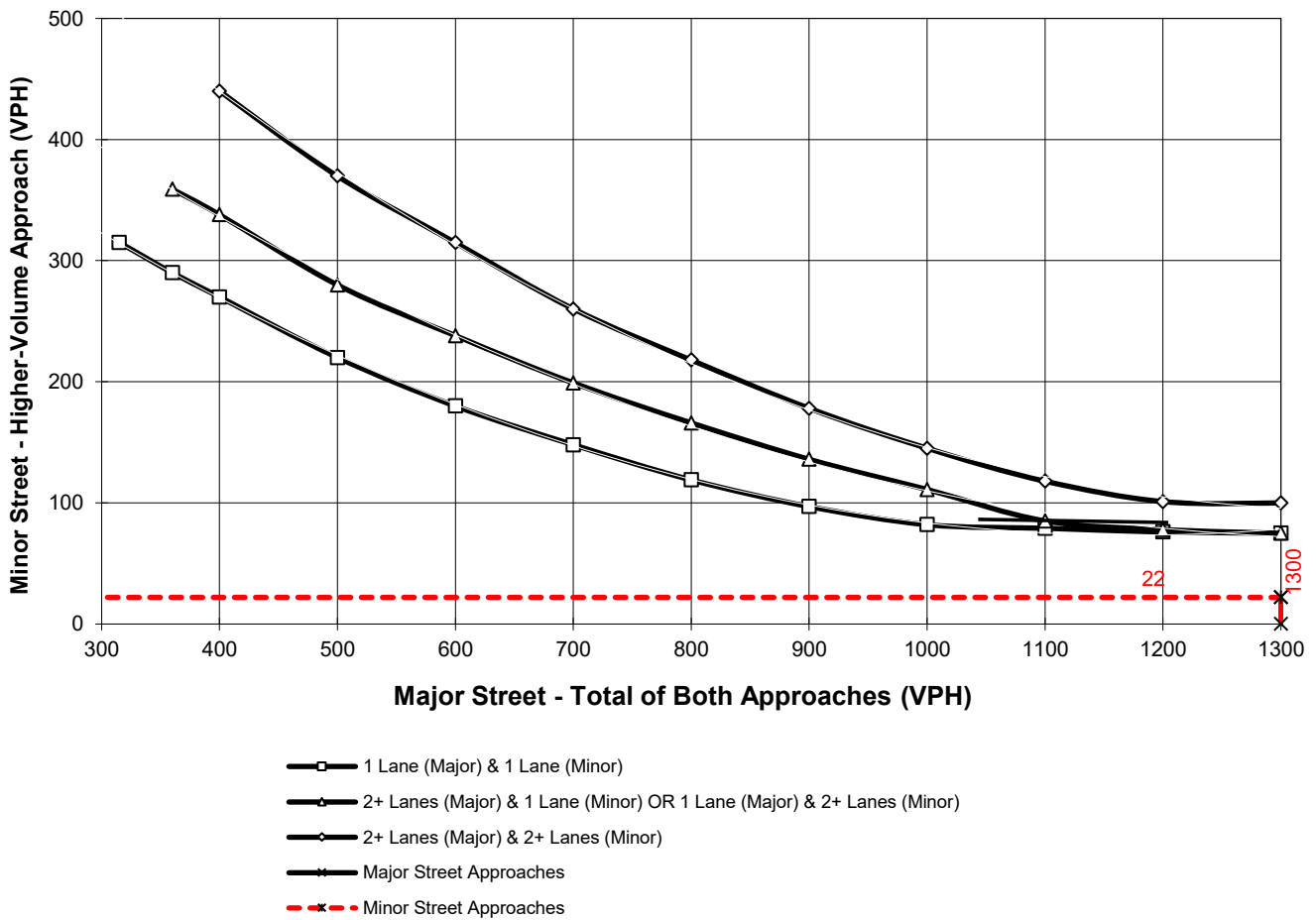
Major Street Name = **Hesperia Road**

Total of Both Approaches (VPH) = **3403**  
 Number of Approach Lanes Major Street = **2**

Minor Street Name = **Ottawa Street**

High Volume Approach (VPH) = **22**  
 Number of Approach Lanes Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



\*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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**APPENDIX 5.4:**

**OPENING YEAR CUMULATIVE (2024) WITH PROJECT CONDITIONS TRAFFIC SIGNAL  
WARRANT ANALYSIS WORKSHEETS**

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### Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Opening Year Cumulative (2024) With Project Conditions - Weekday PM Peak Hour**

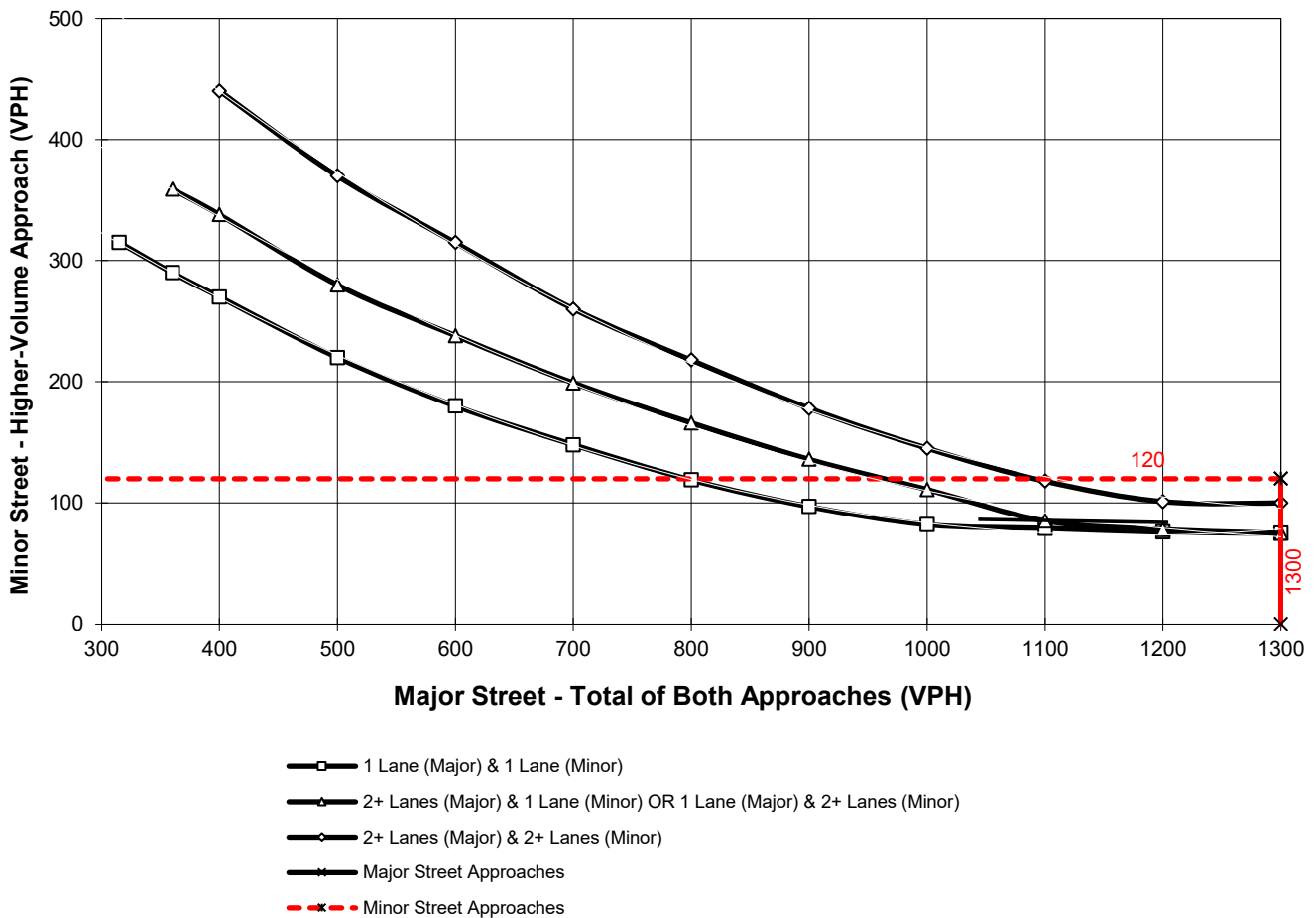
Major Street Name = **Hesperia Road**

Total of Both Approaches (VPH) = **3352**  
 Number of Approach Lanes Major Street = **2**

Minor Street Name = **Ottawa Street**

High Volume Approach (VPH) = **120**  
 Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



\*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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**APPENDIX 5.5:**

**OPENING YEAR CUMULATIVE (2024) WITHOUT PROJECT CONDITIONS QUEUING  
ANALYSIS WORKSHEETS**

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## Queues

Ottawa Business Center (JN 14035)

## 2: Armargosa Rd. &amp; I-15 SB Ramps

03/24/2022



| Lane Group              | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 902  | 42   | 738  | 377  | 158  | 864  |
| v/c Ratio               | 0.86 | 0.08 | 0.52 | 0.44 | 0.63 | 0.41 |
| Control Delay           | 38.3 | 7.1  | 24.0 | 4.3  | 47.3 | 11.6 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 38.3 | 7.1  | 24.0 | 4.3  | 47.3 | 11.6 |
| Queue Length 50th (ft)  | 245  | 0    | 168  | 0    | 85   | 133  |
| Queue Length 95th (ft)  | 300  | 21   | 251  | 61   | 145  | 194  |
| Internal Link Dist (ft) | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)    | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)     | 1217 | 589  | 1416 | 862  | 310  | 2101 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.74 | 0.07 | 0.52 | 0.44 | 0.51 | 0.41 |

## Intersection Summary



| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 233  | 1416 | 1209 | 388  | 105  | 107  | 310  |
| v/c Ratio               | 0.59 | 0.41 | 0.47 | 0.39 | 0.30 | 0.30 | 0.78 |
| Control Delay           | 44.1 | 8.5  | 17.1 | 3.3  | 30.5 | 30.6 | 36.5 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 44.1 | 8.5  | 17.1 | 3.3  | 30.5 | 30.6 | 36.5 |
| Queue Length 50th (ft)  | 65   | 121  | 157  | 0    | 53   | 54   | 121  |
| Queue Length 95th (ft)  | 98   | 194  | 242  | 53   | 89   | 90   | 188  |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |      |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915  |
| Base Capacity (vph)     | 486  | 3415 | 2572 | 996  | 504  | 506  | 537  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.48 | 0.41 | 0.47 | 0.39 | 0.21 | 0.21 | 0.58 |

## Intersection Summary

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.2  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 5    | 0    | 8    | 0    | 0    | 5    | 11   | 1107 | 6    | 10   | 1206 | 1    |
| Future Vol, veh/h        | 5    | 0    | 8    | 0    | 0    | 5    | 11   | 1107 | 6    | 10   | 1206 | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 6    | 0    | 9    | 0    | 0    | 6    | 13   | 1258 | 7    | 11   | 1370 | 1    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |     | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|-----|--------|---|---|------|---|---|
| Conflicting Flow All | 2048   | 2684 | 686    | 1995 | 2681   | 633 | 1371   | 0 | 0 | 1265 | 0 | 0 |
| Stage 1              | 1393   | 1393 | -      | 1288 | 1288   | -   | -      | - | - | -    | - | - |
| Stage 2              | 655    | 1291 | -      | 707  | 1393   | -   | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9 | 4.1    | - | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3 | 2.2    | - | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 33     | 22   | 395    | 37   | 22     | 427 | 507    | - | - | 556  | - | - |
| Stage 1              | 152    | 211  | -      | 176  | 237    | -   | -      | - | - | -    | - | - |
| Stage 2              | 426    | 236  | -      | 397  | 211    | -   | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |     |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 31     | 21   | 395    | 35   | 21     | 427 | 507    | - | - | 556  | - | - |
| Mov Cap-2 Maneuver   | 133    | 141  | -      | 149  | 140    | -   | -      | - | - | -    | - | - |
| Stage 1              | 148    | 207  | -      | 171  | 231    | -   | -      | - | - | -    | - | - |
| Stage 2              | 410    | 230  | -      | 380  | 207    | -   | -      | - | - | -    | - | - |

| Approach             | EB   |  | WB   |  | NB  |  | SB  |  |
|----------------------|------|--|------|--|-----|--|-----|--|
| HCM Control Delay, s | 22.1 |  | 13.5 |  | 0.1 |  | 0.1 |  |
| HCM LOS              | C    |  | B    |  |     |  |     |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1 | WBLn1 | SBL  | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|------|-----|-----|
| Capacity (veh/h)      | 507   | -   | -   | 225   | 427   | 556  | -   | -   |
| HCM Lane V/C Ratio    | 0.025 | -   | -   | 0.066 | 0.013 | 0.02 | -   | -   |
| HCM Control Delay (s) | 12.3  | -   | -   | 22.1  | 13.5  | 11.6 | -   | -   |
| HCM Lane LOS          | B     | -   | -   | C     | B     | B    | -   | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0.2   | 0     | 0.1  | -   | -   |



| Lane Group              | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1140 | 54   | 913  | 414  | 191  | 1080 |
| v/c Ratio               | 0.94 | 0.09 | 0.74 | 0.50 | 0.73 | 0.56 |
| Control Delay           | 43.3 | 6.1  | 31.6 | 4.9  | 53.3 | 15.5 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 43.3 | 6.1  | 31.6 | 4.9  | 53.3 | 15.5 |
| Queue Length 50th (ft)  | 312  | 0    | 249  | 0    | 103  | 207  |
| Queue Length 95th (ft)  | #439 | 24   | 324  | 64   | #187 | 266  |
| Internal Link Dist (ft) | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)    | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)     | 1256 | 614  | 1226 | 822  | 290  | 1932 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.91 | 0.09 | 0.74 | 0.50 | 0.66 | 0.56 |

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 310  | 2016 | 2150 | 451  | 265  | 265  | 491  |
| v/c Ratio               | 0.84 | 0.65 | 0.93 | 0.46 | 0.59 | 0.59 | 1.01 |
| Control Delay           | 60.9 | 12.9 | 32.1 | 3.3  | 35.5 | 35.5 | 72.6 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 60.9 | 12.9 | 32.1 | 3.3  | 35.5 | 35.5 | 72.6 |
| Queue Length 50th (ft)  | 90   | 250  | 409  | 0    | 138  | 138  | ~242 |
| Queue Length 95th (ft)  | #159 | 298  | #506 | 52   | 224  | 224  | #450 |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |      |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915  |
| Base Capacity (vph)     | 369  | 3123 | 2317 | 970  | 447  | 447  | 486  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.84 | 0.65 | 0.93 | 0.46 | 0.59 | 0.59 | 1.01 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.5  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 6    | 0    | 16   | 1    | 0    | 15   | 30   | 1671 | 0    | 7    | 1690 | 4    |
| Future Vol, veh/h        | 6    | 0    | 16   | 1    | 0    | 15   | 30   | 1671 | 0    | 7    | 1690 | 4    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 6    | 0    | 17   | 1    | 0    | 16   | 32   | 1797 | 0    | 8    | 1817 | 4    |

| Major/Minor          | Minor2 |      | Minor1 |      |      | Major1 |      |   | Major2 |      |   |   |
|----------------------|--------|------|--------|------|------|--------|------|---|--------|------|---|---|
| Conflicting Flow All | 2798   | 3696 | 911    | 2786 | 3698 | 899    | 1821 | 0 | 0      | 1797 | 0 | 0 |
| Stage 1              | 1835   | 1835 | -      | 1861 | 1861 | -      | -    | - | -      | -    | - | - |
| Stage 2              | 963    | 1861 | -      | 925  | 1837 | -      | -    | - | -      | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5  | 6.9    | 4.1  | - | -      | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5  | -      | -    | - | -      | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5  | -      | -    | - | -      | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4    | 3.3    | 2.2  | - | -      | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 9      | 5    | 281    | 9    | 5    | 286    | 341  | - | -      | 348  | - | - |
| Stage 1              | 80     | 128  | -      | 77   | 124  | -      | -    | - | -      | -    | - | - |
| Stage 2              | 278    | 124  | -      | 294  | 128  | -      | -    | - | -      | -    | - | - |
| Platoon blocked, %   |        |      |        |      |      |        |      | - | -      | -    | - | - |
| Mov Cap-1 Maneuver   | 8      | 4    | 281    | 8    | 4    | 286    | 341  | - | -      | 348  | - | - |
| Mov Cap-2 Maneuver   | 65     | 73   | -      | 63   | 65   | -      | -    | - | -      | -    | - | - |
| Stage 1              | 72     | 125  | -      | 70   | 112  | -      | -    | - | -      | -    | - | - |
| Stage 2              | 238    | 112  | -      | 270  | 125  | -      | -    | - | -      | -    | - | - |

| Approach             | EB   |  | WB   |  |  | NB  |  |  | SB  |  |  |
|----------------------|------|--|------|--|--|-----|--|--|-----|--|--|
| HCM Control Delay, s | 34.1 |  | 21.6 |  |  | 0.3 |  |  | 0.1 |  |  |
| HCM LOS              | D    |  | C    |  |  |     |  |  |     |  |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL   | SBT   | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h)      | 341   | -   | -   | 147        | 234   | 348   | -   |
| HCM Lane V/C Ratio    | 0.095 | -   | -   | 0.161      | 0.074 | 0.022 | -   |
| HCM Control Delay (s) | 16.7  | -   | -   | 34.1       | 21.6  | 15.6  | -   |
| HCM Lane LOS          | C     | -   | -   | D          | C     | C     | -   |
| HCM 95th %tile Q(veh) | 0.3   | -   | -   | 0.6        | 0.2   | 0.1   | -   |

**APPENDIX 5.6:**

**OPENING YEAR CUMULATIVE (2024) WITH PROJECT CONDITIONS QUEUING  
ANALYSIS WORKSHEETS**

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## Queues

Ottawa Business Center (JN 14035)

## 2: Armargosa Rd. &amp; I-15 SB Ramps

03/24/2022



| Lane Group              | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 924  | 42   | 738  | 391  | 158  | 864  |
| v/c Ratio               | 0.86 | 0.08 | 0.53 | 0.45 | 0.63 | 0.41 |
| Control Delay           | 38.5 | 7.0  | 24.3 | 4.4  | 47.3 | 11.8 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 38.5 | 7.0  | 24.3 | 4.4  | 47.3 | 11.8 |
| Queue Length 50th (ft)  | 251  | 0    | 170  | 0    | 85   | 135  |
| Queue Length 95th (ft)  | 308  | 21   | 251  | 62   | 145  | 194  |
| Internal Link Dist (ft) | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)    | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)     | 1217 | 589  | 1399 | 865  | 310  | 2084 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.76 | 0.07 | 0.53 | 0.45 | 0.51 | 0.41 |

## Intersection Summary

Queues

3: I-15 NB Ramps & Nisqualli Rd.



| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 233  | 1447 | 1226 | 394  | 105  | 107  | 358  |
| v/c Ratio               | 0.59 | 0.44 | 0.50 | 0.41 | 0.27 | 0.27 | 0.82 |
| Control Delay           | 44.1 | 9.5  | 18.6 | 3.5  | 28.5 | 28.6 | 39.9 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 44.1 | 9.5  | 18.6 | 3.5  | 28.5 | 28.6 | 39.9 |
| Queue Length 50th (ft)  | 65   | 139  | 172  | 0    | 51   | 52   | 147  |
| Queue Length 95th (ft)  | 98   | 200  | 246  | 53   | 89   | 90   | 228  |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |      |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915  |
| Base Capacity (vph)     | 486  | 3295 | 2453 | 971  | 504  | 506  | 537  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.48 | 0.44 | 0.50 | 0.41 | 0.21 | 0.21 | 0.67 |

Intersection Summary

Queues

7: Hesperia Rd. & Ottawa St.



| Lane Group              | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 20   | 31   | 15   | 13   | 1275 | 108  | 38   | 1371 |
| v/c Ratio               | 0.07 | 0.11 | 0.05 | 0.08 | 0.52 | 0.10 | 0.20 | 0.50 |
| Control Delay           | 22.3 | 28.9 | 16.2 | 32.7 | 9.7  | 4.3  | 32.6 | 6.3  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 22.3 | 28.9 | 16.2 | 32.7 | 9.7  | 4.3  | 32.6 | 6.3  |
| Queue Length 50th (ft)  | 4    | 11   | 0    | 5    | 190  | 8    | 14   | 124  |
| Queue Length 95th (ft)  | 24   | 38   | 17   | 23   | 263  | 28   | 45   | 276  |
| Internal Link Dist (ft) | 1012 |      | 2164 |      | 2695 |      |      | 918  |
| Turn Bay Length (ft)    |      |      |      | 100  |      | 100  | 100  |      |
| Base Capacity (vph)     | 666  | 643  | 686  | 265  | 3371 | 1509 | 265  | 3371 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.05 | 0.02 | 0.05 | 0.38 | 0.07 | 0.14 | 0.41 |

Intersection Summary

## Queues

Ottawa Business Center (JN 14035)

## 2: Armargosa Rd. &amp; I-15 SB Ramps

03/24/2022



| Lane Group              | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1148 | 54   | 913  | 468  | 191  | 1080 |
| v/c Ratio               | 0.94 | 0.09 | 0.75 | 0.55 | 0.73 | 0.56 |
| Control Delay           | 43.6 | 6.1  | 31.8 | 5.1  | 53.3 | 15.6 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 43.6 | 6.1  | 31.8 | 5.1  | 53.3 | 15.6 |
| Queue Length 50th (ft)  | 316  | 0    | 249  | 0    | 103  | 207  |
| Queue Length 95th (ft)  | #445 | 24   | 324  | 67   | #187 | 266  |
| Internal Link Dist (ft) | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)    | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)     | 1256 | 614  | 1221 | 856  | 290  | 1927 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.91 | 0.09 | 0.75 | 0.55 | 0.66 | 0.56 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 310  | 2028 | 2209 | 471  | 265  | 265  | 510  |
| v/c Ratio               | 0.84 | 0.65 | 0.95 | 0.48 | 0.59 | 0.59 | 1.05 |
| Control Delay           | 60.9 | 12.9 | 35.3 | 3.5  | 35.5 | 35.5 | 83.3 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 60.9 | 12.9 | 35.3 | 3.5  | 35.5 | 35.5 | 83.3 |
| Queue Length 50th (ft)  | 90   | 252  | 428  | 2    | 138  | 138  | ~279 |
| Queue Length 95th (ft)  | #159 | 301  | #555 | 56   | 224  | 224  | #476 |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |      |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915  |
| Base Capacity (vph)     | 369  | 3123 | 2317 | 977  | 447  | 447  | 486  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.84 | 0.65 | 0.95 | 0.48 | 0.59 | 0.59 | 1.05 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

7: Hesperia Rd. & Ottawa St.



| Lane Group              | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 25   | 111  | 52   | 32   | 1797 | 42   | 19   | 1821 |
| v/c Ratio               | 0.10 | 0.55 | 0.18 | 0.29 | 0.77 | 0.04 | 0.20 | 0.82 |
| Control Delay           | 24.0 | 52.0 | 15.7 | 56.9 | 13.9 | 1.4  | 57.6 | 17.3 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 24.0 | 52.0 | 15.7 | 56.9 | 13.9 | 1.4  | 57.6 | 17.3 |
| Queue Length 50th (ft)  | 4    | 67   | 3    | 20   | 271  | 0    | 12   | 436  |
| Queue Length 95th (ft)  | 30   | 139  | 38   | 58   | 618  | 9    | 41   | 671  |
| Internal Link Dist (ft) | 1012 |      | 2164 |      | 2695 |      |      | 918  |
| Turn Bay Length (ft)    |      |      |      | 100  |      | 100  | 100  |      |
| Base Capacity (vph)     | 402  | 317  | 426  | 136  | 2793 | 1260 | 99   | 2756 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.06 | 0.35 | 0.12 | 0.24 | 0.64 | 0.03 | 0.19 | 0.66 |

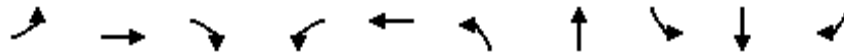
Intersection Summary

**APPENDIX 5.7:**

**OPENING YEAR CUMULATIVE (2024) WITH PROJECT CONDITIONS INTERSECTION  
OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS**

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Timings  
8: Hesperia Rd. & Nisqualli Rd.

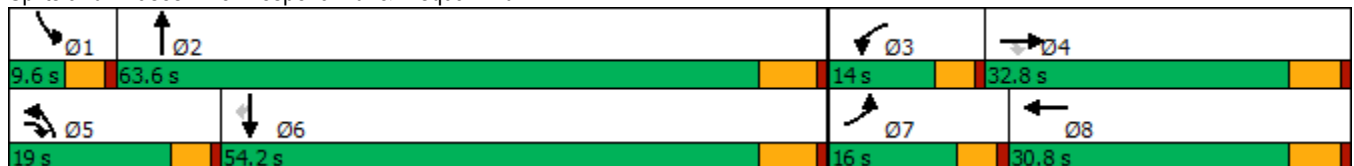


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |      |       |       |
| Traffic Volume (vph) | 207   | 73    | 409   | 83    | 72    | 272   | 1167  | 16   | 1110  | 77    |
| Future Volume (vph)  | 207   | 73    | 409   | 83    | 72    | 272   | 1167  | 16   | 1110  | 77    |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | Prot  | NA    | Prot | NA    | Perm  |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |       |
| Permitted Phases     |       |       | 4     |       |       |       |       |      |       | 6     |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6   | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  | 33.2  |
| Total Split (s)      | 16.0  | 32.8  | 19.0  | 14.0  | 30.8  | 19.0  | 63.6  | 9.6  | 54.2  | 54.2  |
| Total Split (%)      | 13.3% | 27.3% | 15.8% | 11.7% | 25.7% | 15.8% | 53.0% | 8.0% | 45.2% | 45.2% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lag   | Lead | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | Min   | None | Min   | Min   |
| Act Effct Green (s)  | 10.9  | 12.0  | 28.6  | 12.9  | 10.4  | 14.4  | 58.8  | 5.0  | 43.4  | 43.4  |
| Actuated g/C Ratio   | 0.11  | 0.12  | 0.28  | 0.13  | 0.10  | 0.14  | 0.59  | 0.05 | 0.43  | 0.43  |
| v/c Ratio            | 0.71  | 0.38  | 0.60  | 0.45  | 0.34  | 0.71  | 0.72  | 0.23 | 0.84  | 0.12  |
| Control Delay        | 57.0  | 48.0  | 34.3  | 53.4  | 30.6  | 52.0  | 18.2  | 55.4 | 31.7  | 0.5   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Delay          | 57.0  | 48.0  | 34.3  | 53.4  | 30.6  | 52.0  | 18.2  | 55.4 | 31.7  | 0.5   |
| LOS                  | E     | D     | C     | D     | C     | D     | B     | E    | C     | A     |
| Approach Delay       |       | 42.5  |       |       | 40.1  |       | 24.2  |      | 30.0  |       |
| Approach LOS         |       | D     |       |       | D     |       | C     |      | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 100.4  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 30.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 69.1%  
 ICU Level of Service C  
 Analysis Period (min) 15





























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

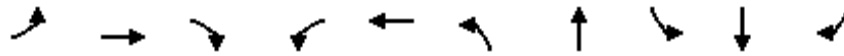
03/24/2022

|                              |    |  |    |  |    |  |    |    |  |  |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |   |   |   |   |   |  |   |  |
| Traffic Volume (veh/h)       | 207   | 73  | 409   | 83  | 72  | 43  | 272  | 1167  | 96  | 16  | 1110  | 77  |
| Future Volume (veh/h)        | 207   | 73  | 409   | 83  | 72  | 43  | 272  | 1167  | 96  | 16  | 1110  | 77  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1700  | 1800  | 1800  | 1600   | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 233   | 82  | 460   | 93  | 81  | 48  | 306  | 1311  | 108   | 18  | 1247  | 87  |
| Peak Hour Factor             | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89   | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 291   | 326   | 808   | 115   | 334   | 184   | 364  | 1658  | 136   | 32  | 1430  | 638   |
| Arrive On Green              | 0.10  | 0.18  | 0.18  | 0.07  | 0.16  | 0.16  | 0.12   | 0.52  | 0.52  | 0.02  | 0.42  | 0.42  |
| Sat Flow, veh/h              | 3048  | 1800  | 2685  | 1619  | 2128  | 1172  | 3048   | 3200  | 263   | 1619  | 3420  | 1525  |
| Grp Volume(v), veh/h         | 233   | 82  | 460   | 93  | 64  | 65  | 306  | 699   | 720   | 18  | 1247  | 87  |
| Grp Sat Flow(s),veh/h/ln     | 1524  | 1800  | 1342  | 1619  | 1710  | 1589  | 1524   | 1710  | 1753  | 1619  | 1710  | 1525  |
| Q Serve(g_s), s              | 7.6   | 3.9   | 14.6  | 5.7   | 3.3   | 3.6   | 9.9  | 33.6  | 33.9  | 1.1   | 33.7  | 3.6   |
| Cycle Q Clear(g_c), s        | 7.6   | 3.9   | 14.6  | 5.7   | 3.3   | 3.6   | 9.9  | 33.6  | 33.9  | 1.1   | 33.7  | 3.6   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.74  | 1.00   |   | 0.15  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 291   | 326   | 808   | 115   | 268   | 249   | 364  | 886   | 908   | 32  | 1430  | 638   |
| V/C Ratio(X)                 | 0.80  | 0.25  | 0.57  | 0.81  | 0.24  | 0.26  | 0.84   | 0.79  | 0.79  | 0.57  | 0.87  | 0.14  |
| Avail Cap(c_a), veh/h        | 344   | 482   | 1040  | 151   | 424   | 394   | 435  | 973   | 997   | 80  | 1627  | 726   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 44.7  | 35.4  | 29.8  | 46.2  | 37.3  | 37.4  | 43.5   | 19.8  | 19.9  | 49.0  | 26.9  | 18.1  |
| Incr Delay (d2), s/veh       | 9.2   | 0.4   | 0.6   | 16.5  | 0.5   | 0.6   | 10.3   | 4.1   | 4.1   | 5.8   | 5.0   | 0.1   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.1   | 1.7   | 4.5   | 2.7   | 1.4   | 1.4   | 4.1  | 12.5  | 12.9  | 0.5   | 13.3  | 1.2   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 53.9  | 35.8  | 30.4  | 62.7  | 37.7  | 37.9  | 53.7   | 23.9  | 24.0  | 54.8  | 31.9  | 18.2  |
| LnGrp LOS                    | D   | D   | C   | E   | D   | D   | D  | C   | C   | D   | C   | B   |
| Approach Vol, veh/h          |   | 775   |   |   | 222   |   |  | 1725  |   |   | 1352  |   |
| Approach Delay, s/veh        |   | 38.0  |   |   | 48.2  |   |  | 29.2  |   |   | 31.3  |   |
| Approach LOS                 |   | D   |   |   | D   |   |  | C   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.6   | 58.5  | 11.8  | 24.1  | 16.7  | 48.4  | 14.2   | 21.6  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.0   | 57.4  | 9.4   | 27.0  | 14.4  | 48.0  | 11.4   | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.1   | 35.9  | 7.7   | 16.6  | 11.9  | 35.7  | 9.6  | 5.6   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 9.3   | 0.0   | 1.7   | 0.2   | 6.5   | 0.1  | 0.5   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 32.6  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |  |   |   |   |   |   |

Timings

8: Hesperia Rd. & Nisqualli Rd.

03/24/2022



| Lane Group           | EBL   | EBT   | EBR   | WBL  | WBT   | NBL   | NBT   | SBL  | SBT   | SBR   |
|----------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|
| Lane Configurations  |       |       |       |      |       |       |       |      |       |       |
| Traffic Volume (vph) | 182   | 60    | 424   | 97   | 65    | 465   | 1427  | 19   | 1637  | 199   |
| Future Volume (vph)  | 182   | 60    | 424   | 97   | 65    | 465   | 1427  | 19   | 1637  | 199   |
| Turn Type            | Prot  | NA    | pm+ov | Prot | NA    | Prot  | NA    | Prot | NA    | Perm  |
| Protected Phases     | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |       |
| Permitted Phases     |       |       | 4     |      |       |       |       |      |       | 6     |
| Detector Phase       | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     | 6     |
| Switch Phase         |       |       |       |      |       |       |       |      |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0  | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6  | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  | 33.2  |
| Total Split (s)      | 13.0  | 32.8  | 20.0  | 11.0 | 30.8  | 20.0  | 66.5  | 9.7  | 56.2  | 56.2  |
| Total Split (%)      | 10.8% | 27.3% | 16.7% | 9.2% | 25.7% | 16.7% | 55.4% | 8.1% | 46.8% | 46.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6  | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6  | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead | Lag   | Lead  | Lag   | Lead | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None | None  | None  | Min   | None | Min   | Min   |
| Act Effct Green (s)  | 8.4   | 11.6  | 29.7  | 10.0 | 10.0  | 15.4  | 66.1  | 5.1  | 50.0  | 50.0  |
| Actuated g/C Ratio   | 0.08  | 0.11  | 0.28  | 0.10 | 0.10  | 0.15  | 0.63  | 0.05 | 0.48  | 0.48  |
| v/c Ratio            | 0.77  | 0.31  | 0.57  | 0.65 | 0.34  | 1.08  | 0.74  | 0.26 | 1.04  | 0.25  |
| Control Delay        | 69.2  | 47.4  | 34.8  | 70.5 | 28.6  | 107.9 | 16.9  | 56.7 | 60.6  | 5.7   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Delay          | 69.2  | 47.4  | 34.8  | 70.5 | 28.6  | 107.9 | 16.9  | 56.7 | 60.6  | 5.7   |
| LOS                  | E     | D     | C     | E    | C     | F     | B     | E    | E     | A     |
| Approach Delay       |       | 45.4  |       |      | 47.6  |       | 38.2  |      | 54.7  |       |
| Approach LOS         |       | D     |       |      | D     |       | D     |      | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 105  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 46.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 90.2%  
 ICU Level of Service E  
 Analysis Period (min) 15























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |  |  |  |   |  |  |   |  |  |  |
| Traffic Volume (veh/h)       | 182   | 60  | 424   | 97  | 65  | 51  | 465  | 1427  | 98  | 19  | 1637  | 199   |
| Future Volume (veh/h)        | 182   | 60  | 424   | 97  | 65  | 51  | 465  | 1427  | 98  | 19  | 1637  | 199   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1600  | 1800  | 1800  | 1700  | 1800  | 1800  | 1600   | 1800  | 1800  | 1700  | 1800  | 1800  |
| Adj Flow Rate, veh/h         | 188   | 62  | 308   | 100   | 67  | 38  | 479  | 1471  | 80  | 20  | 1688  | 148   |
| Peak Hour Factor             | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97   | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 241   | 226   | 726   | 97  | 231   | 122   | 441  | 1960  | 106   | 34  | 1608  | 717   |
| Arrive On Green              | 0.08  | 0.13  | 0.13  | 0.06  | 0.11  | 0.11  | 0.14   | 0.59  | 0.59  | 0.02  | 0.47  | 0.47  |
| Sat Flow, veh/h              | 3048  | 1800  | 2685  | 1619  | 2165  | 1140  | 3048   | 3299  | 179   | 1619  | 3420  | 1525  |
| Grp Volume(v), veh/h         | 188   | 62  | 308   | 100   | 52  | 53  | 479  | 760   | 791   | 20  | 1688  | 148   |
| Grp Sat Flow(s),veh/h/ln     | 1524  | 1800  | 1342  | 1619  | 1710  | 1595  | 1524   | 1710  | 1768  | 1619  | 1710  | 1525  |
| Q Serve(g_s), s              | 6.4   | 3.3   | 10.1  | 6.4   | 3.0   | 3.3   | 15.4   | 34.5  | 34.9  | 1.3   | 50.0  | 6.1   |
| Cycle Q Clear(g_c), s        | 6.4   | 3.3   | 10.1  | 6.4   | 3.0   | 3.3   | 15.4   | 34.5  | 34.9  | 1.3   | 50.0  | 6.1   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.71  | 1.00   |   | 0.10  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 241   | 226   | 726   | 97  | 182   | 170   | 441  | 1016  | 1050  | 34  | 1608  | 717   |
| V/C Ratio(X)                 | 0.78  | 0.27  | 0.42  | 1.03  | 0.28  | 0.31  | 1.09   | 0.75  | 0.75  | 0.59  | 1.05  | 0.21  |
| Avail Cap(c_a), veh/h        | 241   | 457   | 1070  | 97  | 402   | 375   | 441  | 1016  | 1050  | 78  | 1608  | 717   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 48.1  | 42.1  | 32.0  | 50.0  | 43.8  | 43.9  | 45.5   | 15.8  | 15.9  | 51.6  | 28.2  | 16.5  |
| Incr Delay (d2), s/veh       | 13.9  | 0.7   | 0.4   | 98.5  | 0.8   | 1.0   | 67.8   | 3.1   | 3.1   | 5.9   | 36.8  | 0.1   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.8   | 1.5   | 3.2   | 5.2   | 1.3   | 1.3   | 9.7  | 12.1  | 12.6  | 0.6   | 26.2  | 2.0   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 62.0  | 42.8  | 32.4  | 148.4   | 44.6  | 44.9  | 113.2  | 18.9  | 19.0  | 57.5  | 64.9  | 16.7  |
| LnGrp LOS                    | E   | D   | C   | F   | D   | D   | F  | B   | B   | E   | F   | B   |
| Approach Vol, veh/h          |   | 558   |   |   | 205   |   |  | 2030  |   |   | 1856  |   |
| Approach Delay, s/veh        |   | 43.5  |   |   | 95.3  |   |  | 41.2  |   |   | 61.0  |   |
| Approach LOS                 |   | D   |   |   | F   |   |  | D   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.8   | 69.4  | 11.0  | 19.1  | 20.0  | 56.2  | 13.0   | 17.1  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.1   | 60.3  | 6.4   | 27.0  | 15.4  | 50.0  | 8.4  | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.3   | 36.9  | 8.4   | 12.1  | 17.4  | 52.0  | 8.4  | 5.3   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 10.9  | 0.0   | 1.3   | 0.0   | 0.0   | 0.0  | 0.4   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 51.8  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |  |   |   |   |   |   |



**APPENDIX 6.1:**

**FUTURE YEAR (2034) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS  
ANALYSIS WORKSHEETS**

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Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

03/24/2022

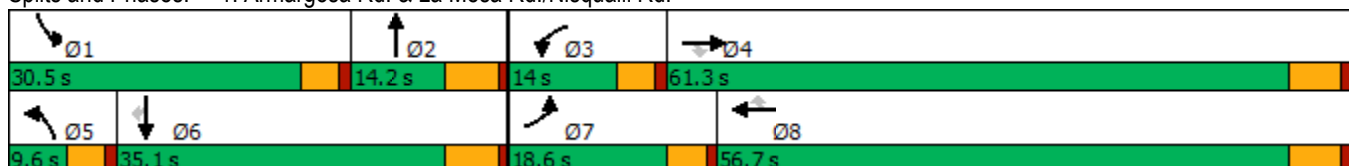


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↕     | ↖     | ↖↗    | ↕↕↕   | ↖     | ↖↗   | ↕↕    | ↖     | ↖↗    | ↕↕    | ↖     |
| Traffic Volume (vph) | 230   | 1032  | 90    | 135   | 596   | 790   | 29   | 142   | 99    | 492   | 260   | 139   |
| Future Volume (vph)  | 230   | 1032  | 90    | 135   | 596   | 790   | 29   | 142   | 99    | 492   | 260   | 139   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot | NA    | Free  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5    | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |      |       | Free  |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5    | 2     |       | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |      |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |       | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5  | 10.8  |       | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 18.6  | 61.3  | 61.3  | 14.0  | 56.7  | 56.7  | 9.6  | 14.2  |       | 30.5  | 35.1  | 35.1  |
| Total Split (%)      | 15.5% | 51.1% | 51.1% | 11.7% | 47.3% | 47.3% | 8.0% | 11.8% |       | 25.4% | 29.3% | 29.3% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5  | 4.8   |       | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |       | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5  | 5.8   |       | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead | Lag   |       | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |       | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | None | Max   |       | None  | Max   | Max   |
| Act Effct Green (s)  | 11.6  | 40.5  | 40.5  | 8.3   | 37.2  | 37.2  | 5.2  | 10.5  | 101.0 | 20.4  | 30.4  | 30.4  |
| Actuated g/C Ratio   | 0.11  | 0.40  | 0.40  | 0.08  | 0.37  | 0.37  | 0.05 | 0.10  | 1.00  | 0.20  | 0.30  | 0.30  |
| v/c Ratio            | 0.67  | 0.74  | 0.13  | 0.55  | 0.31  | 0.87  | 0.19 | 0.39  | 0.07  | 0.82  | 0.25  | 0.26  |
| Control Delay        | 55.2  | 28.6  | 1.1   | 56.6  | 22.9  | 18.8  | 55.5 | 50.5  | 0.1   | 51.3  | 31.3  | 7.1   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 55.2  | 28.6  | 1.1   | 56.6  | 22.9  | 18.8  | 55.5 | 50.5  | 0.1   | 51.3  | 31.3  | 7.1   |
| LOS                  | E     | C     | A     | E     | C     | B     | E    | D     | A     | D     | C     | A     |
| Approach Delay       |       | 31.3  |       |       | 23.7  |       |      | 32.5  |       |       | 38.5  |       |
| Approach LOS         |       | C     |       |       | C     |       |      | C     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 101  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 30.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 73.8%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | ↔↔   | ↑↑   | ↗    | ↔↔   | ↑↑↑  | ↗    | ↔↔   | ↑↑   | ↗    | ↔↔   | ↑↑   | ↗    |
| Traffic Volume (veh/h)       | 230  | 1032 | 90   | 135  | 596  | 790  | 29   | 142  | 99   | 492  | 260  | 139  |
| Future Volume (veh/h)        | 230  | 1032 | 90   | 135  | 596  | 790  | 29   | 142  | 99   | 492  | 260  | 139  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1900 | 1900 | 1700 | 1900 | 1900 | 1700 | 1900 | 1900 | 1700 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 250  | 1122 | 98   | 147  | 648  | 620  | 32   | 154  | 0    | 535  | 283  | 151  |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 309  | 1724 | 730  | 203  | 2399 | 678  | 92   | 420  |      | 600  | 1016 | 431  |
| Arrive On Green              | 0.10 | 0.45 | 0.45 | 0.06 | 0.42 | 0.42 | 0.03 | 0.11 | 0.00 | 0.19 | 0.27 | 0.27 |
| Sat Flow, veh/h              | 3238 | 3800 | 1610 | 3238 | 5700 | 1610 | 3238 | 3800 | 1610 | 3238 | 3800 | 1610 |
| Grp Volume(v), veh/h         | 250  | 1122 | 98   | 147  | 648  | 620  | 32   | 154  | 0    | 535  | 283  | 151  |
| Grp Sat Flow(s),veh/h/ln     | 1619 | 1900 | 1610 | 1619 | 1900 | 1610 | 1619 | 1900 | 1610 | 1619 | 1900 | 1610 |
| Q Serve(g_s), s              | 8.3  | 25.1 | 3.9  | 4.9  | 8.1  | 39.7 | 1.1  | 4.1  | 0.0  | 17.7 | 6.5  | 8.3  |
| Cycle Q Clear(g_c), s        | 8.3  | 25.1 | 3.9  | 4.9  | 8.1  | 39.7 | 1.1  | 4.1  | 0.0  | 17.7 | 6.5  | 8.3  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 309  | 1724 | 730  | 203  | 2399 | 678  | 92   | 420  |      | 600  | 1016 | 431  |
| V/C Ratio(X)                 | 0.81 | 0.65 | 0.13 | 0.73 | 0.27 | 0.92 | 0.35 | 0.37 |      | 0.89 | 0.28 | 0.35 |
| Avail Cap(c_a), veh/h        | 417  | 1925 | 816  | 281  | 2648 | 748  | 151  | 420  |      | 768  | 1016 | 431  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 48.6 | 23.2 | 17.4 | 50.4 | 20.7 | 29.9 | 52.2 | 45.2 | 0.0  | 43.6 | 31.8 | 32.4 |
| Incr Delay (d2), s/veh       | 6.1  | 0.7  | 0.1  | 2.8  | 0.1  | 15.0 | 0.8  | 2.5  | 0.0  | 9.1  | 0.7  | 2.2  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.5  | 10.6 | 1.4  | 2.0  | 3.4  | 17.0 | 0.4  | 2.0  | 0.0  | 7.6  | 3.0  | 3.4  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 54.7 | 23.9 | 17.5 | 53.3 | 20.8 | 44.9 | 53.1 | 47.7 | 0.0  | 52.7 | 32.5 | 34.7 |
| LnGrp LOS                    | D    | C    | B    | D    | C    | D    | D    | D    |      | D    | C    | C    |
| Approach Vol, veh/h          |      | 1470 |      |      | 1415 |      |      | 186  | A    |      | 969  |      |
| Approach Delay, s/veh        |      | 28.7 |      |      | 34.7 |      |      | 48.6 |      |      | 44.0 |      |
| Approach LOS                 |      | C    |      |      | C    |      |      | D    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 24.8 | 17.9 | 11.4 | 55.5 | 7.6  | 35.1 | 15.0 | 51.9 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  | 4.5  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 26.0 | 8.4  | 9.5  | 55.5 | 5.1  | 29.3 | 14.1 | 50.9 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 19.7 | 6.1  | 6.9  | 27.1 | 3.1  | 10.3 | 10.3 | 41.7 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.6  | 0.1  | 0.1  | 9.0  | 0.0  | 2.0  | 0.2  | 4.4  |      |      |      |      |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 35.4 |
| HCM 6th LOS        | D    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

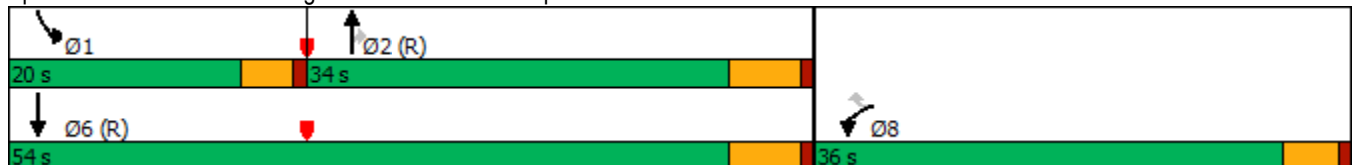
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↖↖    | ↖     | ↖↖    | ↖     | ↘     | ↖↖    |
| Traffic Volume (vph) | 1006  | 47    | 828   | 414   | 177   | 970   |
| Future Volume (vph)  | 1006  | 47    | 828   | 414   | 177   | 970   |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 36.0  | 36.0  | 34.0  | 34.0  | 20.0  | 54.0  |
| Total Split (%)      | 40.0% | 40.0% | 37.8% | 37.8% | 22.2% | 60.0% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 30.2  | 30.2  | 31.3  | 31.3  | 13.5  | 49.3  |
| Actuated g/C Ratio   | 0.34  | 0.34  | 0.35  | 0.35  | 0.15  | 0.55  |
| v/c Ratio            | 0.93  | 0.09  | 0.72  | 0.53  | 0.71  | 0.53  |
| Control Delay        | 43.5  | 6.5   | 30.3  | 4.9   | 51.0  | 14.5  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 43.5  | 6.5   | 30.3  | 4.9   | 51.0  | 14.5  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 41.8  |       | 21.9  |       |       | 20.1  |
| Approach LOS         | D     |       | C     |       |       | C     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 27.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 73.9%  
 ICU Level of Service D  
 Analysis Period (min) 15
















Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |  |   |
|------------------------------|---|---|---|---|---|--|
| Movement                     | WBL   | WBR   | NBT   | NBR   | SBL   | SBT  |
| Lane Configurations          |   |  |   |  |  |   |
| Traffic Volume (veh/h)       | 1006  | 47  | 828   | 414   | 177   | 970  |
| Future Volume (veh/h)        | 1006  | 47  | 828   | 414   | 177   | 970  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0  |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00  |   | 1.00  | 1.00  |  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   |
| Work Zone On Approach        | No  |   | No  |   |   | No   |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   |
| Adj Flow Rate, veh/h         | 1093  | 51  | 900   | 450   | 192   | 1054   |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92   |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0  |
| Cap, veh/h                   | 1166  | 535   | 1351  | 603   | 230   | 1990   |
| Arrive On Green              | 0.33  | 0.33  | 0.37  | 0.37  | 0.13  | 0.55   |
| Sat Flow, veh/h              | 3510  | 1610  | 3705  | 1610  | 1810  | 3705   |
| Grp Volume(v), veh/h         | 1093  | 51  | 900   | 450   | 192   | 1054   |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1610  | 1805  | 1610  | 1810  | 1805   |
| Q Serve(g_s), s              | 27.2  | 2.0   | 18.7  | 21.8  | 9.3   | 16.7   |
| Cycle Q Clear(g_c), s        | 27.2  | 2.0   | 18.7  | 21.8  | 9.3   | 16.7   |
| Prop In Lane                 | 1.00  | 1.00  |   | 1.00  | 1.00  |  |
| Lane Grp Cap(c), veh/h       | 1166  | 535   | 1351  | 603   | 230   | 1990   |
| V/C Ratio(X)                 | 0.94  | 0.10  | 0.67  | 0.75  | 0.84  | 0.53   |
| Avail Cap(c_a), veh/h        | 1221  | 560   | 1351  | 603   | 312   | 1990   |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   |
| Upstream Filter(I)           | 1.00  | 1.00  | 0.54  | 0.54  | 1.00  | 1.00   |
| Uniform Delay (d), s/veh     | 29.1  | 20.7  | 23.5  | 24.5  | 38.4  | 12.8   |
| Incr Delay (d2), s/veh       | 12.8  | 0.0   | 1.4   | 4.6   | 13.5  | 1.0  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 12.2  | 0.7   | 7.5   | 8.3   | 4.8   | 6.0  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |  |
| LnGrp Delay(d),s/veh         | 41.9  | 20.8  | 24.9  | 29.0  | 51.9  | 13.8   |
| LnGrp LOS                    | D   | C   | C   | C   | D   | B  |
| Approach Vol, veh/h          | 1144  |   | 1350  |   |   | 1246   |
| Approach Delay, s/veh        | 41.0  |   | 26.3  |   |   | 19.7   |
| Approach LOS                 | D   |   | C   |   |   | B  |
| Timer - Assigned Phs         | 1   | 2   |   |   | 6   | 8  |
| Phs Duration (G+Y+Rc), s     | 15.9  | 39.5  |   |   | 55.4  | 34.6   |
| Change Period (Y+Rc), s      | 4.5   | 5.8   |   |   | 5.8   | 4.7  |
| Max Green Setting (Gmax), s  | 15.5  | 28.2  |   |   | 48.2  | 31.3   |
| Max Q Clear Time (g_c+11), s | 11.3  | 23.8  |   |   | 18.7  | 29.2   |
| Green Ext Time (p_c), s      | 0.2   | 2.7   |   |   | 7.9   | 0.7  |
| <b>Intersection Summary</b>  |   |   |   |   |   |  |
| HCM 6th Ctrl Delay           |   |   | 28.6  |   |   |  |
| HCM 6th LOS                  |   |   | C   |   |   |  |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

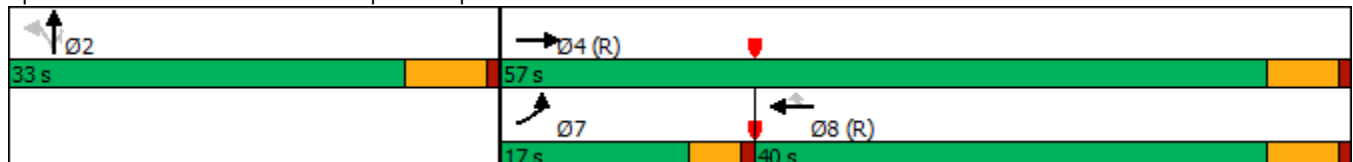


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↶↷    | ↑↑↑   | ↶↷↶   | ↷     | ↶     | ↶     | ↷     |
| Traffic Volume (vph) | 252   | 1530  | 1303  | 412   | 230   | 1     | 331   |
| Future Volume (vph)  | 252   | 1530  | 1303  | 412   | 230   | 1     | 331   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 17.0  | 57.0  | 40.0  | 40.0  | 33.0  | 33.0  | 33.0  |
| Total Split (%)      | 18.9% | 63.3% | 44.4% | 44.4% | 36.7% | 36.7% | 36.7% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 11.1  | 56.4  | 40.8  | 40.8  | 21.3  | 21.3  | 21.3  |
| Actuated g/C Ratio   | 0.12  | 0.63  | 0.45  | 0.45  | 0.24  | 0.24  | 0.24  |
| v/c Ratio            | 0.66  | 0.53  | 0.62  | 0.47  | 0.32  | 0.32  | 0.83  |
| Control Delay        | 45.1  | 10.9  | 21.5  | 3.7   | 29.0  | 29.1  | 40.2  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 45.1  | 10.9  | 21.5  | 3.7   | 29.0  | 29.1  | 40.2  |
| LOS                  | D     | B     | C     | A     | C     | C     | D     |
| Approach Delay       |       | 15.7  | 17.2  |       |       | 35.6  |       |
| Approach LOS         |       | B     | B     |       |       | D     |       |

Intersection Summary

























Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 19.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 60.3%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)  
03/24/2022

|  |    |    |  |  |    |  |   |  |  |  |  |  |
|--|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement   | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations  |   |    |   |   |    |  |  |  |  |   |   |   |
| Traffic Volume (veh/h)   | 252   | 1530  | 0   | 0   | 1303  | 412   | 230   | 1   | 331   | 0   | 0   | 0   |
| Future Volume (veh/h)  | 252   | 1530  | 0   | 0   | 1303  | 412   | 230   | 1   | 331   | 0   | 0   | 0   |
| Initial Q (Qb), veh  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |   |   |   |
| Ped-Bike Adj(A_pbT)  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |   |   |   |
| Parking Bus, Adj   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |   |   |   |
| Work Zone On Approach  |   | No  |   |   | No  |   |   | No  |   |   |   |   |
| Adj Sat Flow, veh/h/ln   | 1900  | 1900  | 0   | 0   | 1900  | 1900  | 1900  | 1900  | 1900  |   |   |   |
| Adj Flow Rate, veh/h   | 283   | 1719  | 0   | 0   | 1464  | 463   | 259   | 0   | 372   |   |   |   |
| Peak Hour Factor   | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  |   |   |   |
| Percent Heavy Veh, %   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |   |   |   |
| Cap, veh/h   | 361   | 3147  | 0   | 0   | 2354  | 731   | 929   | 0   | 413   |   |   |   |
| Arrive On Green  | 0.10  | 0.61  | 0.00  | 0.00  | 0.45  | 0.45  | 0.26  | 0.00  | 0.26  |   |   |   |
| Sat Flow, veh/h  | 3510  | 5358  | 0   | 0   | 5358  | 1610  | 3619  | 0   | 1610  |   |   |   |
| Grp Volume(v), veh/h   | 283   | 1719  | 0   | 0   | 1464  | 463   | 259   | 0   | 372   |   |   |   |
| Grp Sat Flow(s),veh/h/ln   | 1755  | 1729  | 0   | 0   | 1729  | 1610  | 1810  | 0   | 1610  |   |   |   |
| Q Serve(g_s), s  | 7.1   | 17.5  | 0.0   | 0.0   | 19.3  | 19.8  | 5.2   | 0.0   | 20.1  |   |   |   |
| Cycle Q Clear(g_c), s  | 7.1   | 17.5  | 0.0   | 0.0   | 19.3  | 19.8  | 5.2   | 0.0   | 20.1  |   |   |   |
| Prop In Lane   | 1.00  |   | 0.00  | 0.00  |   | 1.00  | 1.00  |   | 1.00  |   |   |   |
| Lane Grp Cap(c), veh/h   | 361   | 3147  | 0   | 0   | 2354  | 731   | 929   | 0   | 413   |   |   |   |
| V/C Ratio(X)   | 0.78  | 0.55  | 0.00  | 0.00  | 0.62  | 0.63  | 0.28  | 0.00  | 0.90  |   |   |   |
| Avail Cap(c_a), veh/h  | 488   | 3147  | 0   | 0   | 2354  | 731   | 1066  | 0   | 474   |   |   |   |
| HCM Platoon Ratio  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |   |   |   |
| Upstream Filter(I)   | 0.62  | 0.62  | 0.00  | 0.00  | 0.78  | 0.78  | 1.00  | 0.00  | 1.00  |   |   |   |
| Uniform Delay (d), s/veh   | 39.4  | 10.4  | 0.0   | 0.0   | 18.7  | 18.8  | 26.8  | 0.0   | 32.3  |   |   |   |
| Incr Delay (d2), s/veh   | 2.5   | 0.4   | 0.0   | 0.0   | 1.0   | 3.3   | 0.2   | 0.0   | 18.5  |   |   |   |
| Initial Q Delay(d3),s/veh  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |   |   |   |
| %ile BackOfQ(50%),veh/ln   | 3.0   | 5.5   | 0.0   | 0.0   | 7.1   | 7.2   | 2.1   | 0.0   | 9.2   |   |   |   |
| Unsig. Movement Delay, s/veh   |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh   | 41.9  | 10.8  | 0.0   | 0.0   | 19.7  | 22.1  | 26.9  | 0.0   | 50.8  |   |   |   |
| LnGrp LOS  | D   | B   | A   | A   | B   | C   | C   | A   | D   |   |   |   |
| Approach Vol, veh/h  |   | 2002  |   |   | 1927  |   |   | 631   |   |   |   |   |
| Approach Delay, s/veh  |   | 15.2  |   |   | 20.3  |   |   | 41.0  |   |   |   |   |
| Approach LOS   |   | B   |   |   | C   |   |   | D   |   |   |   |   |
| Timer - Assigned Phs   |   | 2   |   | 4   |   |   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s   |   | 29.6  |   | 60.4  |   |   | 13.8  | 46.7  |   |   |   |   |
| Change Period (Y+Rc), s  |   | 6.5   |   | 5.8   |   |   | 4.5   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  |   | 26.5  |   | 51.2  |   |   | 12.5  | 34.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s   |   | 22.1  |   | 19.5  |   |   | 9.1   | 21.8  |   |   |   |   |
| Green Ext Time (p_c), s  |   | 1.0   |   | 15.3  |   |   | 0.2   | 8.4   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay   |   |   |   | 20.9  |   |   |   |   |   |   |   |   |
| HCM 6th LOS  |   |   |   | C   |   |   |   |   |   |   |   |   |
| <b>Notes</b>   |   |   |   |   |   |   |   |   |   |   |   |   |
| User approved volume balancing among the lanes for turning movement. |   |   |   |   |   |   |   |   |   |   |   |   |



Timings

4: Mariposa & Nisqualli Rd.

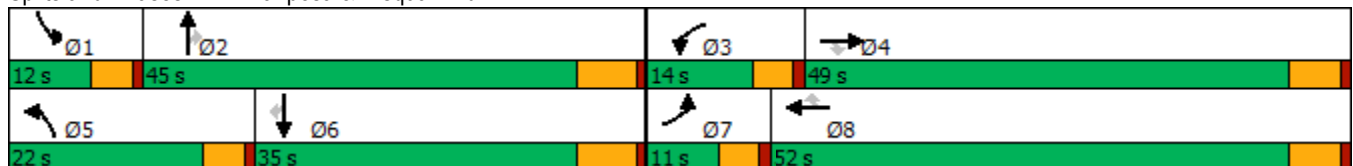
03/24/2022

| Lane Group           | EBL  | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |      |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 62   | 1456  | 340   | 115   | 1352  | 109   | 281   | 160   | 100   | 75    | 113   | 80    |
| Future Volume (vph)  | 62   | 1456  | 340   | 115   | 1352  | 109   | 281   | 160   | 100   | 75    | 113   | 80    |
| Turn Type            | Prot | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7    | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |      |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7    | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |      |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6  | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 11.0 | 49.0  | 49.0  | 14.0  | 52.0  | 52.0  | 22.0  | 45.0  | 45.0  | 12.0  | 35.0  | 35.0  |
| Total Split (%)      | 9.2% | 40.8% | 40.8% | 11.7% | 43.3% | 43.3% | 18.3% | 37.5% | 37.5% | 10.0% | 29.2% | 29.2% |
| Yellow Time (s)      | 3.6  | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6  | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.0  | 39.6  | 39.6  | 7.9   | 43.9  | 43.9  | 13.4  | 19.4  | 19.4  | 6.5   | 10.3  | 10.3  |
| Actuated g/C Ratio   | 0.06 | 0.43  | 0.43  | 0.09  | 0.47  | 0.47  | 0.14  | 0.21  | 0.21  | 0.07  | 0.11  | 0.11  |
| v/c Ratio            | 0.33 | 0.71  | 0.43  | 0.46  | 0.59  | 0.14  | 0.67  | 0.23  | 0.25  | 0.37  | 0.30  | 0.27  |
| Control Delay        | 48.9 | 24.1  | 6.3   | 48.1  | 19.8  | 1.6   | 46.2  | 34.0  | 8.6   | 48.5  | 42.5  | 2.8   |
| Queue Delay          | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 48.9 | 24.1  | 6.3   | 48.1  | 19.8  | 1.6   | 46.2  | 34.0  | 8.6   | 48.5  | 42.5  | 2.8   |
| LOS                  | D    | C     | A     | D     | B     | A     | D     | C     | A     | D     | D     | A     |
| Approach Delay       |      | 21.7  |       |       | 20.6  |       |       | 35.6  |       |       | 32.4  |       |
| Approach LOS         |      | C     |       |       | C     |       |       | D     |       |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 92.6  
 Natural Cycle: 95  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 23.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 67.3%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 62   | 1456 | 340  | 115  | 1352 | 109  | 281  | 160  | 100  | 75   | 113  | 80   |
| Future Volume (veh/h)        | 62   | 1456 | 340  | 115  | 1352 | 109  | 281  | 160  | 100  | 75   | 113  | 80   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |      | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1900 | 1900 | 1700 | 1900 | 1900 | 1700 | 1900 | 1900 | 1700 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 67   | 1566 | 366  | 124  | 1454 | 117  | 302  | 172  | 108  | 81   | 122  | 86   |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 152  | 2222 | 690  | 189  | 2285 | 709  | 385  | 704  | 314  | 164  | 450  | 201  |
| Arrive On Green              | 0.05 | 0.43 | 0.43 | 0.06 | 0.44 | 0.44 | 0.12 | 0.20 | 0.20 | 0.05 | 0.12 | 0.12 |
| Sat Flow, veh/h              | 3141 | 5187 | 1610 | 3141 | 5187 | 1610 | 3141 | 3610 | 1610 | 3141 | 3610 | 1610 |
| Grp Volume(v), veh/h         | 67   | 1566 | 366  | 124  | 1454 | 117  | 302  | 172  | 108  | 81   | 122  | 86   |
| Grp Sat Flow(s),veh/h/ln     | 1570 | 1729 | 1610 | 1570 | 1729 | 1610 | 1570 | 1805 | 1610 | 1570 | 1805 | 1610 |
| Q Serve(g_s), s              | 1.7  | 19.8 | 13.5 | 3.1  | 17.5 | 3.5  | 7.5  | 3.2  | 4.6  | 2.0  | 2.5  | 4.0  |
| Cycle Q Clear(g_c), s        | 1.7  | 19.8 | 13.5 | 3.1  | 17.5 | 3.5  | 7.5  | 3.2  | 4.6  | 2.0  | 2.5  | 4.0  |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 152  | 2222 | 690  | 189  | 2285 | 709  | 385  | 704  | 314  | 164  | 450  | 201  |
| V/C Ratio(X)                 | 0.44 | 0.70 | 0.53 | 0.65 | 0.64 | 0.16 | 0.78 | 0.24 | 0.34 | 0.50 | 0.27 | 0.43 |
| Avail Cap(c_a), veh/h        | 250  | 2792 | 867  | 368  | 2986 | 927  | 681  | 1745 | 778  | 290  | 1295 | 578  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 37.1 | 18.8 | 17.0 | 36.9 | 17.5 | 13.5 | 34.2 | 27.3 | 27.9 | 37.0 | 31.8 | 32.5 |
| Incr Delay (d2), s/veh       | 0.8  | 0.6  | 0.6  | 1.4  | 0.3  | 0.1  | 1.4  | 0.2  | 0.6  | 0.9  | 0.3  | 1.4  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.6  | 7.0  | 4.5  | 1.2  | 6.1  | 1.1  | 2.7  | 1.3  | 1.7  | 0.7  | 1.0  | 1.5  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 37.9 | 19.4 | 17.6 | 38.3 | 17.8 | 13.7 | 35.5 | 27.5 | 28.5 | 37.9 | 32.1 | 33.9 |
| LnGrp LOS                    | D    | B    | B    | D    | B    | B    | D    | C    | C    | D    | C    | C    |
| Approach Vol, veh/h          |      | 1999 |      |      | 1695 |      |      | 582  |      |      | 289  |      |
| Approach Delay, s/veh        |      | 19.7 |      |      | 19.0 |      |      | 31.9 |      |      | 34.3 |      |
| Approach LOS                 |      | B    |      |      | B    |      |      | C    |      |      | C    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 8.8  | 21.9 | 9.4  | 40.2 | 14.4 | 16.2 | 8.5  | 41.1 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.6  | 6.2  | 4.6  | 5.8  | 4.6  | 6.2  | 4.6  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 7.4  | 38.8 | 9.4  | 43.2 | 17.4 | 28.8 | 6.4  | 46.2 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 4.0  | 6.6  | 5.1  | 21.8 | 9.5  | 6.0  | 3.7  | 19.5 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 1.3  | 0.1  | 12.5 | 0.4  | 0.8  | 0.0  | 11.9 |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 21.9 |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | C    |      |      |      |      |      |      |      |      |

Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

03/24/2022

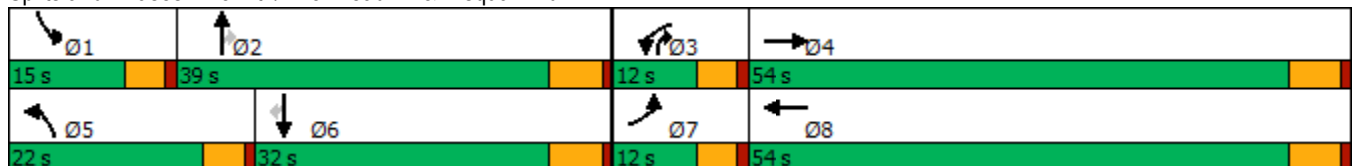


| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 35    | 960   | 29    | 624   | 124   | 286   | 24    | 51    | 222   | 63    |
| Future Volume (vph)  | 35    | 960   | 29    | 624   | 124   | 286   | 24    | 51    | 222   | 63    |
| Turn Type            | Prot  | NA    | Prot  | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |       |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6   | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 12.0  | 54.0  | 12.0  | 54.0  | 22.0  | 39.0  | 12.0  | 15.0  | 32.0  | 32.0  |
| Total Split (%)      | 10.0% | 45.0% | 10.0% | 45.0% | 18.3% | 32.5% | 10.0% | 12.5% | 26.7% | 26.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 6.7   | 42.0  | 6.5   | 44.1  | 12.9  | 27.4  | 40.2  | 8.1   | 19.4  | 19.4  |
| Actuated g/C Ratio   | 0.07  | 0.42  | 0.07  | 0.44  | 0.13  | 0.27  | 0.40  | 0.08  | 0.19  | 0.19  |
| v/c Ratio            | 0.36  | 0.85  | 0.30  | 0.51  | 0.66  | 0.64  | 0.04  | 0.44  | 0.71  | 0.17  |
| Control Delay        | 60.7  | 34.0  | 59.1  | 23.0  | 60.6  | 42.5  | 0.1   | 60.1  | 51.8  | 0.8   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 60.7  | 34.0  | 59.1  | 23.0  | 60.6  | 42.5  | 0.1   | 60.1  | 51.8  | 0.8   |
| LOS                  | E     | C     | E     | C     | E     | D     | A     | E     | D     | A     |
| Approach Delay       |       | 34.8  |       | 24.5  |       | 45.3  |       |       | 43.5  |       |
| Approach LOS         |       | C     |       | C     |       | D     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 99.9  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 34.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 63.4%  
 ICU Level of Service B  
 Analysis Period (min) 15























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 35  | 960   | 127   | 29  | 624   | 57  | 124   | 286   | 24  | 51  | 222   | 63  |
| Future Volume (veh/h)        | 35  | 960   | 127   | 29  | 624   | 57  | 124   | 286   | 24  | 51  | 222   | 63  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 41  | 1129  | 149   | 34  | 734   | 67  | 146   | 336   | 28  | 60  | 261   | 74  |
| Peak Hour Factor             | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  | 0.85  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 64  | 1394  | 184   | 56  | 1441  | 131   | 180   | 439   | 425   | 78  | 326   | 276   |
| Arrive On Green              | 0.04  | 0.43  | 0.43  | 0.03  | 0.43  | 0.43  | 0.11  | 0.23  | 0.23  | 0.05  | 0.17  | 0.17  |
| Sat Flow, veh/h              | 1714  | 3207  | 422   | 1714  | 3345  | 305   | 1714  | 1900  | 1610  | 1714  | 1900  | 1610  |
| Grp Volume(v), veh/h         | 41  | 634   | 644   | 34  | 396   | 405   | 146   | 336   | 28  | 60  | 261   | 74  |
| Grp Sat Flow(s),veh/h/ln     | 1714  | 1805  | 1824  | 1714  | 1805  | 1845  | 1714  | 1900  | 1610  | 1714  | 1900  | 1610  |
| Q Serve(g_s), s              | 1.9   | 24.9  | 25.1  | 1.6   | 13.0  | 13.0  | 6.8   | 13.5  | 1.1   | 2.8   | 10.7  | 3.2   |
| Cycle Q Clear(g_c), s        | 1.9   | 24.9  | 25.1  | 1.6   | 13.0  | 13.0  | 6.8   | 13.5  | 1.1   | 2.8   | 10.7  | 3.2   |
| Prop In Lane                 | 1.00  |   | 0.23  | 1.00  |   | 0.17  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 64  | 785   | 793   | 56  | 777   | 795   | 180   | 439   | 425   | 78  | 326   | 276   |
| V/C Ratio(X)                 | 0.64  | 0.81  | 0.81  | 0.60  | 0.51  | 0.51  | 0.81  | 0.76  | 0.07  | 0.77  | 0.80  | 0.27  |
| Avail Cap(c_a), veh/h        | 156   | 1068  | 1079  | 156   | 1068  | 1092  | 366   | 775   | 709   | 219   | 611   | 518   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 38.7  | 20.1  | 20.1  | 38.9  | 16.9  | 16.9  | 35.6  | 29.2  | 22.4  | 38.4  | 32.4  | 29.3  |
| Incr Delay (d2), s/veh       | 4.0   | 3.4   | 3.4   | 3.8   | 0.5   | 0.5   | 3.3   | 2.8   | 0.1   | 5.8   | 4.6   | 0.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.8   | 9.8   | 9.9   | 0.7   | 4.8   | 4.9   | 2.9   | 6.1   | 0.4   | 1.2   | 4.9   | 1.2   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 42.7  | 23.4  | 23.5  | 42.6  | 17.4  | 17.4  | 38.9  | 32.0  | 22.5  | 44.2  | 36.9  | 29.8  |
| LnGrp LOS                    | D   | C   | C   | D   | B   | B   | D   | C   | C   | D   | D   | C   |
| Approach Vol, veh/h          |   | 1319  |   |   | 835   |   |   | 510   |   |   | 395   |   |
| Approach Delay, s/veh        |   | 24.1  |   |   | 18.4  |   |   | 33.5  |   |   | 36.7  |   |
| Approach LOS                 |   | C   |   |   | B   |   |   | C   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 8.3   | 24.6  | 7.3   | 41.2  | 13.2  | 19.8  | 7.6   | 40.9  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 10.4  | 33.2  | 7.4   | 48.2  | 17.4  | 26.2  | 7.4   | 48.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 4.8   | 15.5  | 3.6   | 27.1  | 8.8   | 12.7  | 3.9   | 15.0  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.8   | 0.0   | 8.3   | 0.1   | 1.2   | 0.0   | 5.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 25.7  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | C   |   |   |   |   |   |   |   |   |

Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |
| Traffic Volume (vph) | 166   | 344   | 405   | 952   | 1137  |
| Future Volume (vph)  | 166   | 344   | 405   | 952   | 1137  |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 29.0  | 29.0  | 29.0  | 91.0  | 62.0  |
| Total Split (%)      | 24.2% | 24.2% | 24.2% | 75.8% | 51.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 15.4  | 39.6  | 19.4  | 75.6  | 50.2  |
| Actuated g/C Ratio   | 0.15  | 0.39  | 0.19  | 0.74  | 0.49  |
| v/c Ratio            | 0.69  | 0.33  | 0.73  | 0.38  | 0.79  |
| Control Delay        | 57.6  | 19.6  | 48.4  | 5.6   | 26.2  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 57.6  | 19.6  | 48.4  | 5.6   | 26.2  |
| LOS                  | E     | B     | D     | A     | C     |
| Approach Delay       | 31.9  |       |       | 18.3  | 26.2  |
| Approach LOS         | C     |       |       | B     | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 102.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 23.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 72.6%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)  
03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 166  | 344  | 405  | 952  | 1137 | 148  |
| Future Volume (veh/h)        | 166  | 344  | 405  | 952  | 1137 | 148  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1800 | 1900 | 1700 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 178  | 370  | 435  | 1024 | 1223 | 159  |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 234  | 861  | 527  | 2677 | 1633 | 212  |
| Arrive On Green              | 0.14 | 0.14 | 0.17 | 0.74 | 0.51 | 0.51 |
| Sat Flow, veh/h              | 1714 | 2834 | 3141 | 3705 | 3309 | 416  |
| Grp Volume(v), veh/h         | 178  | 370  | 435  | 1024 | 685  | 697  |
| Grp Sat Flow(s),veh/h/ln     | 1714 | 1417 | 1570 | 1805 | 1805 | 1825 |
| Q Serve(g_s), s              | 8.8  | 9.2  | 11.8 | 9.0  | 26.6 | 26.9 |
| Cycle Q Clear(g_c), s        | 8.8  | 9.2  | 11.8 | 9.0  | 26.6 | 26.9 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.23 |
| Lane Grp Cap(c), veh/h       | 234  | 861  | 527  | 2677 | 917  | 928  |
| V/C Ratio(X)                 | 0.76 | 0.43 | 0.83 | 0.38 | 0.75 | 0.75 |
| Avail Cap(c_a), veh/h        | 473  | 1257 | 824  | 3463 | 1139 | 1152 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 36.8 | 24.6 | 35.5 | 4.1  | 17.2 | 17.3 |
| Incr Delay (d2), s/veh       | 1.9  | 0.1  | 4.0  | 0.1  | 2.1  | 2.2  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.8  | 7.7  | 4.7  | 2.5  | 10.7 | 10.9 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 38.7 | 24.8 | 39.5 | 4.2  | 19.3 | 19.5 |
| LnGrp LOS                    | D    | C    | D    | A    | B    | B    |
| Approach Vol, veh/h          | 548  |      |      | 1459 | 1382 |      |
| Approach Delay, s/veh        | 29.3 |      |      | 14.7 | 19.4 |      |
| Approach LOS                 | C    |      |      | B    | B    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 71.8 |      | 16.6 | 20.6 | 51.1 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 84.8 |      | 24.4 | 23.2 | 55.8 |
| Max Q Clear Time (g_c+1), s  |      | 11.0 |      | 11.2 | 13.8 | 28.9 |
| Green Ext Time (p_c), s      |      | 15.7 |      | 0.8  | 1.0  | 16.1 |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 19.0 |      |      |      |
| HCM 6th LOS                  |      |      | B    |      |      |      |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.3  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 6    | 0    | 10   | 0    | 0    | 6    | 13   | 1346 | 7    | 12   | 1468 | 1    |
| Future Vol, veh/h        | 6    | 0    | 10   | 0    | 0    | 6    | 13   | 1346 | 7    | 12   | 1468 | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 7    | 0    | 11   | 0    | 0    | 7    | 15   | 1530 | 8    | 14   | 1668 | 1    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |     | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|-----|--------|---|---|------|---|---|
| Conflicting Flow All | 2492   | 3265 | 835    | 2426 | 3261   | 769 | 1669   | 0 | 0 | 1538 | 0 | 0 |
| Stage 1              | 1697   | 1697 | -      | 1564 | 1564   | -   | -      | - | - | -    | - | - |
| Stage 2              | 795    | 1568 | -      | 862  | 1697   | -   | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9 | 4.1    | - | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3 | 2.2    | - | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 15     | 9    | 315    | 17   | 9      | 348 | 390    | - | - | 438  | - | - |
| Stage 1              | 98     | 150  | -      | 119  | 174    | -   | -      | - | - | -    | - | - |
| Stage 2              | 351    | 173  | -      | 320  | 150    | -   | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |     |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 14     | 8    | 315    | 16   | 8      | 348 | 390    | - | - | 438  | - | - |
| Mov Cap-2 Maneuver   | 85     | 96   | -      | 100  | 94     | -   | -      | - | - | -    | - | - |
| Stage 1              | 94     | 145  | -      | 114  | 167    | -   | -      | - | - | -    | - | - |
| Stage 2              | 331    | 166  | -      | 299  | 145    | -   | -      | - | - | -    | - | - |

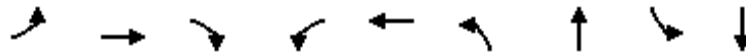
| Approach             | EB   |  | WB   |  | NB  |  | SB  |  |  |  |
|----------------------|------|--|------|--|-----|--|-----|--|--|--|
| HCM Control Delay, s | 31.1 |  | 15.6 |  | 0.1 |  | 0.1 |  |  |  |
| HCM LOS              | D    |  | C    |  |     |  |     |  |  |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL  | SBT   | SBR |
|-----------------------|-------|-----|-----|------------|------|-------|-----|
| Capacity (veh/h)      | 390   | -   | -   | 156        | 348  | 438   | -   |
| HCM Lane V/C Ratio    | 0.038 | -   | -   | 0.117      | 0.02 | 0.031 | -   |
| HCM Control Delay (s) | 14.6  | -   | -   | 31.1       | 15.6 | 13.5  | -   |
| HCM Lane LOS          | B     | -   | -   | D          | C    | B     | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0.4        | 0.1  | 0.1   | -   |

Timings

8: Hesperia Rd. & Nisqualli Rd.

03/24/2022



| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations  | ↖↗    | ↑     | ↖↗    | ↖     | ↕     | ↖↗    | ↕     | ↖    | ↕     |
| Traffic Volume (vph) | 162   | 90    | 499   | 101   | 88    | 331   | 1434  | 20   | 1344  |
| Future Volume (vph)  | 162   | 90    | 499   | 101   | 88    | 331   | 1434  | 20   | 1344  |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |       |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6   | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 13.2  | 33.0  | 20.2  | 11.0  | 30.8  | 20.2  | 66.2  | 9.8  | 55.8  |
| Total Split (%)      | 11.0% | 27.5% | 16.8% | 9.2%  | 25.7% | 16.8% | 55.2% | 8.2% | 46.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 8.4   | 12.5  | 33.3  | 6.4   | 10.5  | 15.1  | 65.4  | 5.1  | 49.6  |
| Actuated g/C Ratio   | 0.08  | 0.12  | 0.32  | 0.06  | 0.10  | 0.14  | 0.62  | 0.05 | 0.47  |
| v/c Ratio            | 0.70  | 0.43  | 0.60  | 1.06  | 0.39  | 0.80  | 0.76  | 0.27 | 0.90  |
| Control Delay        | 63.0  | 49.4  | 33.3  | 153.0 | 30.7  | 58.0  | 17.8  | 56.9 | 34.4  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 63.0  | 49.4  | 33.3  | 153.0 | 30.7  | 58.0  | 17.8  | 56.9 | 34.4  |
| LOS                  | E     | D     | C     | F     | C     | E     | B     | E    | C     |
| Approach Delay       |       | 41.6  |       |       | 81.8  |       | 24.9  |      | 34.7  |
| Approach LOS         |       | D     |       |       | F     |       | C     |      | C     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 104.8            |                        |
| Natural Cycle: 120                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 1.06                 |                        |
| Intersection Signal Delay: 34.3         | Intersection LOS: C    |
| Intersection Capacity Utilization 81.7% | ICU Level of Service D |
| Analysis Period (min) 15                |                        |

Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



























HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |  |  |  |   |  |  |   |  |  |  |
| Traffic Volume (veh/h)       | 162   | 90  | 499   | 101   | 88  | 52  | 331  | 1434  | 117   | 20  | 1344  | 67  |
| Future Volume (veh/h)        | 162   | 90  | 499   | 101   | 88  | 52  | 331  | 1434  | 117   | 20  | 1344  | 67  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1800  | 1900  | 1900  | 1700   | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 176   | 98  | 542   | 110   | 96  | 57  | 360  | 1559  | 127   | 22  | 1461  | 73  |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 228   | 365   | 915   | 97  | 394   | 218   | 411  | 1836  | 148   | 38  | 1519  | 76  |
| Arrive On Green              | 0.07  | 0.19  | 0.19  | 0.06  | 0.18  | 0.18  | 0.13   | 0.54  | 0.54  | 0.02  | 0.43  | 0.43  |
| Sat Flow, veh/h              | 3141  | 1900  | 2834  | 1714  | 2241  | 1241  | 3141   | 3382  | 273   | 1714  | 3499  | 174   |
| Grp Volume(v), veh/h         | 176   | 98  | 542   | 110   | 76  | 77  | 360  | 827   | 859   | 22  | 752   | 782   |
| Grp Sat Flow(s),veh/h/ln     | 1570  | 1900  | 1417  | 1714  | 1805  | 1677  | 1570   | 1805  | 1851  | 1714  | 1805  | 1869  |
| Q Serve(g_s), s              | 6.3   | 5.0   | 18.2  | 6.4   | 4.1   | 4.5   | 12.8   | 43.9  | 45.0  | 1.4   | 45.9  | 46.3  |
| Cycle Q Clear(g_c), s        | 6.3   | 5.0   | 18.2  | 6.4   | 4.1   | 4.5   | 12.8   | 43.9  | 45.0  | 1.4   | 45.9  | 46.3  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.74  | 1.00   |   | 0.15  | 1.00  |   | 0.09  |
| Lane Grp Cap(c), veh/h       | 228   | 365   | 915   | 97  | 318   | 295   | 411  | 980   | 1005  | 38  | 784   | 811   |
| V/C Ratio(X)                 | 0.77  | 0.27  | 0.59  | 1.14  | 0.24  | 0.26  | 0.88   | 0.84  | 0.86  | 0.58  | 0.96  | 0.96  |
| Avail Cap(c_a), veh/h        | 238   | 455   | 1049  | 97  | 397   | 369   | 431  | 980   | 1005  | 78  | 788   | 816   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 51.8  | 39.1  | 32.2  | 53.6  | 40.3  | 40.4  | 48.5   | 21.9  | 22.2  | 55.0  | 31.2  | 31.3  |
| Incr Delay (d2), s/veh       | 12.5  | 0.4   | 0.7   | 134.0   | 0.4   | 0.5   | 16.7   | 6.8   | 7.4   | 5.2   | 22.5  | 23.1  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 2.8   | 2.3   | 6.1   | 6.3   | 1.8   | 1.8   | 5.8  | 18.1  | 19.1  | 0.7   | 23.0  | 24.1  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 64.3  | 39.5  | 32.9  | 187.6   | 40.7  | 40.9  | 65.2   | 28.7  | 29.5  | 60.2  | 53.7  | 54.4  |
| LnGrp LOS                    | E   | D   | C   | F   | D   | D   | E  | C   | C   | E   | D   | D   |
| Approach Vol, veh/h          |   | 816   |   |   | 263   |   |  | 2046  |   |   | 1556  |   |
| Approach Delay, s/veh        |   | 40.5  |   |   | 102.2   |   |  | 35.5  |   |   | 54.1  |   |
| Approach LOS                 |   | D   |   |   | F   |   |  | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 7.1   | 67.9  | 11.0  | 27.6  | 19.5  | 55.5  | 12.8   | 25.8  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.2   | 60.0  | 6.4   | 27.2  | 15.6  | 49.6  | 8.6  | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.4   | 47.0  | 8.4   | 20.2  | 14.8  | 48.3  | 8.3  | 6.5   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 8.4   | 0.0   | 1.6   | 0.1   | 1.0   | 0.0  | 0.6   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 46.3  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |  |   |   |   |   |   |

Timings

9: Hesperia Rd. & Bear Valley Rd.

03/24/2022

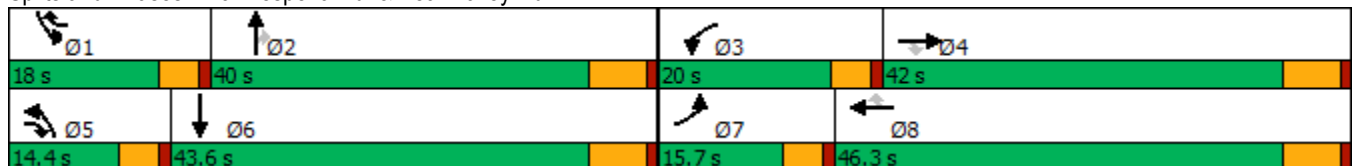


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↗     | ↖↗    | ↑↑↑   | ↗     | ↖↗    | ↑↑    | ↗     | ↖↗    | ↑↘    |
| Traffic Volume (vph) | 235   | 1592  | 150   | 388   | 1733  | 254   | 133   | 668   | 385   | 329   | 434   |
| Future Volume (vph)  | 235   | 1592  | 150   | 388   | 1733  | 254   | 133   | 668   | 385   | 329   | 434   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 15.7  | 42.0  | 14.4  | 20.0  | 46.3  | 18.0  | 14.4  | 40.0  | 40.0  | 18.0  | 43.6  |
| Total Split (%)      | 13.1% | 35.0% | 12.0% | 16.7% | 38.6% | 15.0% | 12.0% | 33.3% | 33.3% | 15.0% | 36.3% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 10.9  | 35.8  | 50.9  | 15.4  | 40.3  | 59.9  | 8.8   | 31.3  | 31.3  | 13.4  | 35.9  |
| Actuated g/C Ratio   | 0.09  | 0.30  | 0.43  | 0.13  | 0.34  | 0.51  | 0.07  | 0.27  | 0.27  | 0.11  | 0.31  |
| v/c Ratio            | 0.86  | 1.07  | 0.21  | 1.01  | 1.04  | 0.32  | 0.60  | 0.74  | 0.70  | 0.98  | 0.54  |
| Control Delay        | 80.2  | 84.4  | 10.7  | 97.6  | 70.2  | 13.7  | 64.2  | 44.6  | 24.6  | 95.9  | 34.3  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 80.2  | 84.4  | 10.7  | 97.6  | 70.2  | 13.7  | 64.2  | 44.6  | 24.6  | 95.9  | 34.3  |
| LOS                  | F     | F     | B     | F     | E     | B     | E     | D     | C     | F     | C     |
| Approach Delay       |       | 78.3  |       |       | 68.6  |       |       | 40.3  |       |       | 57.2  |
| Approach LOS         |       | E     |       |       | E     |       |       | D     |       |       | E     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 117.6  
 Natural Cycle: 125  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 64.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 90.1%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)  
 03/24/2022

| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |       |      |      |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 235  | 1592 | 150  | 388   | 1733 | 254  | 133  | 668  | 385  | 329  | 434  | 123  |
| Future Volume (veh/h)        | 235  | 1592 | 150  | 388   | 1733 | 254  | 133  | 668  | 385  | 329  | 434  | 123  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |       | No   |      |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1900 | 1900 | 1700  | 1900 | 1900 | 1700 | 1900 | 1900 | 1700 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 250  | 1694 | 160  | 413   | 1844 | 270  | 141  | 711  | 410  | 350  | 462  | 131  |
| Peak Hour Factor             | 0.94 | 0.94 | 0.94 | 0.94  | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 292  | 1558 | 581  | 406   | 1745 | 723  | 191  | 1000 | 446  | 353  | 914  | 257  |
| Arrive On Green              | 0.09 | 0.30 | 0.30 | 0.13  | 0.34 | 0.34 | 0.06 | 0.28 | 0.28 | 0.11 | 0.33 | 0.33 |
| Sat Flow, veh/h              | 3141 | 5187 | 1610 | 3141  | 5187 | 1610 | 3141 | 3610 | 1610 | 3141 | 2781 | 783  |
| Grp Volume(v), veh/h         | 250  | 1694 | 160  | 413   | 1844 | 270  | 141  | 711  | 410  | 350  | 299  | 294  |
| Grp Sat Flow(s),veh/h/ln     | 1570 | 1729 | 1610 | 1570  | 1729 | 1610 | 1570 | 1805 | 1610 | 1570 | 1805 | 1759 |
| Q Serve(g_s), s              | 9.4  | 35.8 | 8.4  | 15.4  | 40.1 | 13.2 | 5.3  | 21.1 | 29.4 | 13.3 | 15.9 | 16.1 |
| Cycle Q Clear(g_c), s        | 9.4  | 35.8 | 8.4  | 15.4  | 40.1 | 13.2 | 5.3  | 21.1 | 29.4 | 13.3 | 15.9 | 16.1 |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 1.00 | 1.00 |      | 1.00 | 1.00 |      | 0.45 |
| Lane Grp Cap(c), veh/h       | 292  | 1558 | 581  | 406   | 1745 | 723  | 191  | 1000 | 446  | 353  | 593  | 578  |
| V/C Ratio(X)                 | 0.85 | 1.09 | 0.28 | 1.02  | 1.06 | 0.37 | 0.74 | 0.71 | 0.92 | 0.99 | 0.50 | 0.51 |
| Avail Cap(c_a), veh/h        | 292  | 1558 | 581  | 406   | 1745 | 723  | 258  | 1023 | 456  | 353  | 593  | 578  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 53.3 | 41.7 | 27.0 | 51.9  | 39.6 | 21.8 | 55.1 | 38.8 | 41.8 | 52.9 | 32.2 | 32.3 |
| Incr Delay (d2), s/veh       | 20.3 | 50.6 | 0.3  | 49.3  | 38.4 | 0.3  | 4.3  | 2.3  | 23.5 | 45.4 | 0.7  | 0.7  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 4.5  | 22.4 | 3.3  | 8.8   | 22.9 | 5.0  | 2.2  | 9.6  | 14.5 | 7.4  | 7.0  | 7.0  |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |      |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 73.6 | 92.3 | 27.3 | 101.2 | 78.0 | 22.1 | 59.3 | 41.1 | 65.3 | 98.3 | 32.9 | 33.0 |
| LnGrp LOS                    | E    | F    | C    | F     | F    | C    | E    | D    | E    | F    | C    | C    |
| Approach Vol, veh/h          |      | 2104 |      |       | 2527 |      |      | 1262 |      |      | 943  |      |
| Approach Delay, s/veh        |      | 85.1 |      |       | 75.8 |      |      | 51.0 |      |      | 57.2 |      |
| Approach LOS                 |      | F    |      |       | E    |      |      | D    |      |      | E    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4     | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 18.0 | 39.2 | 20.0 | 42.0  | 11.8 | 45.4 | 15.7 | 46.3 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.6  | 6.2  | 4.6  | 6.2   | 4.6  | 6.2  | 4.6  | 6.2  |      |      |      |      |
| Max Green Setting (Gmax), s  | 13.4 | 33.8 | 15.4 | 35.8  | 9.8  | 37.4 | 11.1 | 40.1 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 15.3 | 31.4 | 17.4 | 37.8  | 7.3  | 18.1 | 11.4 | 42.1 |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 1.6  | 0.0  | 0.0   | 0.0  | 5.1  | 0.0  | 0.0  |      |      |      |      |
| <b>Intersection Summary</b>  |      |      |      |       |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 71.5 |       |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      | E    |       |      |      |      |      |      |      |      |      |

Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

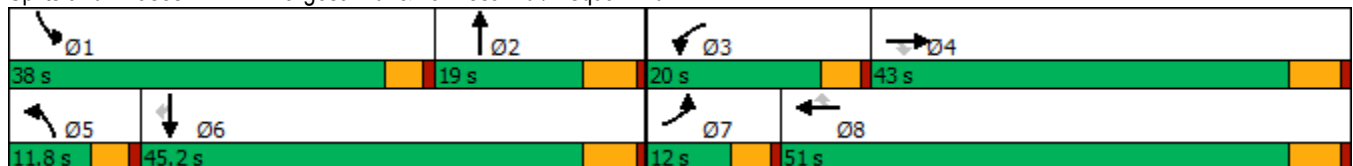
03/24/2022

| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |      |       |       |       |       |       |
| Traffic Volume (vph) | 181   | 1187  | 176   | 456   | 1863  | 880   | 170  | 408   | 509   | 1079  | 818   | 520   |
| Future Volume (vph)  | 181   | 1187  | 176   | 456   | 1863  | 880   | 170  | 408   | 509   | 1079  | 818   | 520   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot | NA    | Free  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5    | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |      |       | Free  |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5    | 2     |       | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |      |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |       | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5  | 10.8  |       | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 12.0  | 43.0  | 43.0  | 20.0  | 51.0  | 51.0  | 11.8 | 19.0  |       | 38.0  | 45.2  | 45.2  |
| Total Split (%)      | 10.0% | 35.8% | 35.8% | 16.7% | 42.5% | 42.5% | 9.8% | 15.8% |       | 31.7% | 37.7% | 37.7% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5  | 4.8   |       | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |       | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5  | 5.8   |       | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead | Lag   |       | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |       | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | Min   | None  | Min   | Min   | None | None  |       | None  | None  | None  |
| Act Effct Green (s)  | 7.5   | 37.2  | 37.2  | 15.5  | 45.2  | 45.2  | 7.3  | 13.2  | 120.0 | 33.5  | 39.4  | 39.4  |
| Actuated g/C Ratio   | 0.06  | 0.31  | 0.31  | 0.13  | 0.38  | 0.38  | 0.06 | 0.11  | 1.00  | 0.28  | 0.33  | 0.33  |
| v/c Ratio            | 0.92  | 1.03  | 0.29  | 1.12  | 0.89  | 0.89  | 0.88 | 1.00  | 0.32  | 1.22  | 0.67  | 0.84  |
| Control Delay        | 101.8 | 74.6  | 5.0   | 126.8 | 41.1  | 22.1  | 95.7 | 96.4  | 0.5   | 147.7 | 37.9  | 40.0  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 101.8 | 74.6  | 5.0   | 126.8 | 41.1  | 22.1  | 95.7 | 96.4  | 0.5   | 147.7 | 37.9  | 40.0  |
| LOS                  | F     | E     | A     | F     | D     | C     | F    | F     | A     | F     | D     | D     |
| Approach Delay       |       | 69.8  |       |       | 48.1  |       |      | 51.4  |       |       | 87.4  |       |
| Approach LOS         |       | E     |       |       | D     |       |      | D     |       |       | F     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.22  
 Intersection Signal Delay: 64.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 110.2%  
 ICU Level of Service H  
 Analysis Period (min) 15

























Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 181   | 1187  | 176   | 456   | 1863  | 880   | 170   | 408   | 509   | 1079  | 818   | 520   |
| Future Volume (veh/h)        | 181   | 1187  | 176   | 456   | 1863  | 880   | 170   | 408   | 509   | 1079  | 818   | 520   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 185   | 1211  | 134   | 465   | 1901  | 561   | 173   | 416   | 0   | 1101  | 835   | 317   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 202   | 1178  | 499   | 418   | 2147  | 606   | 197   | 418   |   | 904   | 1248  | 529   |
| Arrive On Green              | 0.06  | 0.31  | 0.31  | 0.13  | 0.38  | 0.38  | 0.06  | 0.11  | 0.00  | 0.28  | 0.33  | 0.33  |
| Sat Flow, veh/h              | 3238  | 3800  | 1610  | 3238  | 5700  | 1610  | 3238  | 3800  | 1610  | 3238  | 3800  | 1610  |
| Grp Volume(v), veh/h         | 185   | 1211  | 134   | 465   | 1901  | 561   | 173   | 416   | 0   | 1101  | 835   | 317   |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  |
| Q Serve(g_s), s              | 6.8   | 37.2  | 7.5   | 15.5  | 37.4  | 40.0  | 6.4   | 13.1  | 0.0   | 33.5  | 22.7  | 19.8  |
| Cycle Q Clear(g_c), s        | 6.8   | 37.2  | 7.5   | 15.5  | 37.4  | 40.0  | 6.4   | 13.1  | 0.0   | 33.5  | 22.7  | 19.8  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 202   | 1178  | 499   | 418   | 2147  | 606   | 197   | 418   |   | 904   | 1248  | 529   |
| V/C Ratio(X)                 | 0.91  | 1.03  | 0.27  | 1.11  | 0.89  | 0.92  | 0.88  | 1.00  |   | 1.22  | 0.67  | 0.60  |
| Avail Cap(c_a), veh/h        | 202   | 1178  | 499   | 418   | 2147  | 606   | 197   | 418   |   | 904   | 1248  | 529   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 0.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 55.9  | 41.4  | 31.2  | 52.2  | 35.0  | 35.8  | 55.9  | 53.4  | 0.0   | 43.2  | 34.7  | 33.7  |
| Incr Delay (d2), s/veh       | 39.4  | 33.6  | 0.3   | 77.9  | 4.9   | 20.2  | 32.2  | 42.7  | 0.0   | 108.2   | 1.4   | 1.9   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.8   | 22.1  | 2.9   | 10.6  | 17.3  | 18.2  | 3.4   | 8.6   | 0.0   | 26.4  | 10.3  | 7.7   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 95.4  | 75.0  | 31.4  | 130.2   | 39.8  | 56.0  | 88.1  | 96.1  | 0.0   | 151.4   | 36.1  | 35.6  |
| LnGrp LOS                    | F   | F   | C   | F   | D   | E   | F   | F   |   | F   | D   | D   |
| Approach Vol, veh/h          |   | 1530  |   |   | 2927  |   |   | 589   | A   |   | 2253  |   |
| Approach Delay, s/veh        |   | 73.7  |   |   | 57.3  |   |   | 93.7  |   |   | 92.4  |   |
| Approach LOS                 |   | E   |   |   | E   |   |   | F   |   |   | F   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 38.0  | 19.0  | 20.0  | 43.0  | 11.8  | 45.2  | 12.0  | 51.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.5   | 5.8   | 4.5   | 5.8   | 4.5   | 5.8   | 4.5   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 33.5  | 13.2  | 15.5  | 37.2  | 7.3   | 39.4  | 7.5   | 45.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 35.5  | 15.1  | 17.5  | 39.2  | 8.4   | 24.7  | 8.8   | 42.0  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 5.6   | 0.0   | 2.9   |   |   |   |   |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 74.5 |
| HCM 6th LOS        | E    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

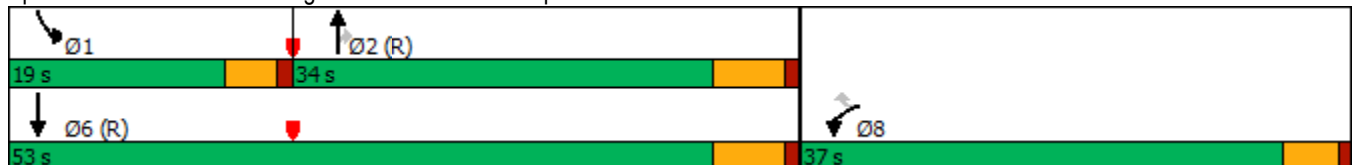
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↖↗    | ↖     | ↖↗    | ↖     | ↖     | ↖↗    |
| Traffic Volume (vph) | 1254  | 60    | 1013  | 452   | 212   | 1199  |
| Future Volume (vph)  | 1254  | 60    | 1013  | 452   | 212   | 1199  |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 37.0  | 37.0  | 34.0  | 34.0  | 19.0  | 53.0  |
| Total Split (%)      | 41.1% | 41.1% | 37.8% | 37.8% | 21.1% | 58.9% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 32.3  | 32.3  | 28.8  | 28.8  | 13.9  | 47.2  |
| Actuated g/C Ratio   | 0.36  | 0.36  | 0.32  | 0.32  | 0.15  | 0.52  |
| v/c Ratio            | 1.09  | 0.10  | 0.95  | 0.58  | 0.83  | 0.69  |
| Control Delay        | 81.2  | 5.8   | 48.7  | 5.4   | 61.8  | 18.3  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 81.2  | 5.8   | 48.7  | 5.4   | 61.8  | 18.3  |
| LOS                  | F     | A     | D     | A     | E     | B     |
| Approach Delay       | 77.7  |       | 35.3  |       |       | 24.8  |
| Approach LOS         | E     |       | D     |       |       | C     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.09  
 Intersection Signal Delay: 45.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 88.0%  
 ICU Level of Service E  
 Analysis Period (min) 15
















Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |  |    |
|------------------------------|---|---|---|---|---|---|
| Movement                     | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations          |   |  |   |  |  |   |
| Traffic Volume (veh/h)       | 1254  | 60  | 1013  | 452   | 212   | 1199  |
| Future Volume (veh/h)        | 1254  | 60  | 1013  | 452   | 212   | 1199  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        | No  |   | No  |   |   | No  |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 1363  | 65  | 1101  | 491   | 230   | 1303  |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 1260  | 578   | 1182  | 527   | 266   | 1893  |
| Arrive On Green              | 0.36  | 0.36  | 0.33  | 0.33  | 0.15  | 0.52  |
| Sat Flow, veh/h              | 3510  | 1610  | 3705  | 1610  | 1810  | 3705  |
| Grp Volume(v), veh/h         | 1363  | 65  | 1101  | 491   | 230   | 1303  |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1610  | 1805  | 1610  | 1810  | 1805  |
| Q Serve(g_s), s              | 32.3  | 2.4   | 26.6  | 26.6  | 11.2  | 24.2  |
| Cycle Q Clear(g_c), s        | 32.3  | 2.4   | 26.6  | 26.6  | 11.2  | 24.2  |
| Prop In Lane                 | 1.00  | 1.00  |   | 1.00  | 1.00  |   |
| Lane Grp Cap(c), veh/h       | 1260  | 578   | 1182  | 527   | 266   | 1893  |
| V/C Ratio(X)                 | 1.08  | 0.11  | 0.93  | 0.93  | 0.87  | 0.69  |
| Avail Cap(c_a), veh/h        | 1260  | 578   | 1182  | 527   | 292   | 1893  |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Upstream Filter(I)           | 1.00  | 1.00  | 0.26  | 0.26  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 28.8  | 19.3  | 29.3  | 29.3  | 37.5  | 15.9  |
| Incr Delay (d2), s/veh       | 50.6  | 0.0   | 4.7   | 9.2   | 21.5  | 2.1   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 20.6  | 0.8   | 11.3  | 10.7  | 6.3   | 9.0   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 79.4  | 19.3  | 33.9  | 38.5  | 59.0  | 18.0  |
| LnGrp LOS                    | F   | B   | C   | D   | E   | B   |
| Approach Vol, veh/h          | 1428  |   | 1592  |   |   | 1533  |
| Approach Delay, s/veh        | 76.7  |   | 35.4  |   |   | 24.1  |
| Approach LOS                 | E   |   | D   |   |   | C   |
| Timer - Assigned Phs         | 1   | 2   |   |   | 6   | 8   |
| Phs Duration (G+Y+Rc), s     | 17.7  | 35.3  |   |   | 53.0  | 37.0  |
| Change Period (Y+Rc), s      | 4.5   | 5.8   |   |   | 5.8   | 4.7   |
| Max Green Setting (Gmax), s  | 14.5  | 28.2  |   |   | 47.2  | 32.3  |
| Max Q Clear Time (g_c+I1), s | 13.2  | 28.6  |   |   | 26.2  | 34.3  |
| Green Ext Time (p_c), s      | 0.1   | 0.0   |   |   | 9.2   | 0.0   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 44.5  |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |

Timings

3: I-15 NB Ramps & Nisqualli Rd.

03/24/2022

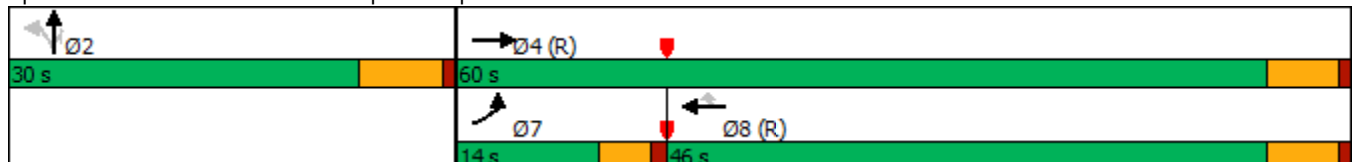


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↶↶    | ↶↶↶   | ↶↶↶   | ↷     | ↶     | ↶     | ↷     |
| Traffic Volume (vph) | 371   | 2399  | 2561  | 531   | 632   | 0     | 576   |
| Future Volume (vph)  | 371   | 2399  | 2561  | 531   | 632   | 0     | 576   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 14.0  | 60.0  | 46.0  | 46.0  | 30.0  | 30.0  | 30.0  |
| Total Split (%)      | 15.6% | 66.7% | 51.1% | 51.1% | 33.3% | 33.3% | 33.3% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 9.5   | 54.2  | 40.2  | 40.2  | 23.5  | 23.5  | 23.5  |
| Actuated g/C Ratio   | 0.11  | 0.60  | 0.45  | 0.45  | 0.26  | 0.26  | 0.26  |
| v/c Ratio            | 1.03  | 0.78  | 1.13  | 0.56  | 0.72  | 0.72  | 1.21  |
| Control Delay        | 95.4  | 15.8  | 89.6  | 5.8   | 40.9  | 41.0  | 140.1 |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 95.4  | 15.8  | 89.6  | 5.8   | 40.9  | 41.0  | 140.1 |
| LOS                  | F     | B     | F     | A     | D     | D     | F     |
| Approach Delay       |       | 26.5  | 75.2  |       |       | 88.2  |       |
| Approach LOS         |       | C     | E     |       |       | F     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.21  
 Intersection Signal Delay: 58.3  
 Intersection LOS: E  
 Intersection Capacity Utilization 92.3%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.





























HCM 6th Signalized Intersection Summary  
 3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |  |    |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |   |   |    |  |  |  |  |   |   |   |
| Traffic Volume (veh/h)       | 371   | 2399  | 0   | 0   | 2561  | 531   | 632  | 0   | 576   | 0   | 0   | 0   |
| Future Volume (veh/h)        | 371   | 2399  | 0   | 0   | 2561  | 531   | 632  | 0   | 576   | 0   | 0   | 0   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   |   |   |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 0   | 0   | 1900  | 1900  | 1900   | 1900  | 1900  |   |   |   |
| Adj Flow Rate, veh/h         | 379   | 2448  | 0   | 0   | 2613  | 404   | 645  | 0   | 440   |   |   |   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  |   |   |   |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Cap, veh/h                   | 371   | 3124  | 0   | 0   | 2317  | 719   | 945  | 0   | 420   |   |   |   |
| Arrive On Green              | 0.11  | 0.60  | 0.00  | 0.00  | 0.45  | 0.45  | 0.26   | 0.00  | 0.26  |   |   |   |
| Sat Flow, veh/h              | 3510  | 5358  | 0   | 0   | 5358  | 1610  | 3619   | 0   | 1610  |   |   |   |
| Grp Volume(v), veh/h         | 379   | 2448  | 0   | 0   | 2613  | 404   | 645  | 0   | 440   |   |   |   |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1729  | 0   | 0   | 1729  | 1610  | 1810   | 0   | 1610  |   |   |   |
| Q Serve(g_s), s              | 9.5   | 32.0  | 0.0   | 0.0   | 40.2  | 16.7  | 14.4   | 0.0   | 23.5  |   |   |   |
| Cycle Q Clear(g_c), s        | 9.5   | 32.0  | 0.0   | 0.0   | 40.2  | 16.7  | 14.4   | 0.0   | 23.5  |   |   |   |
| Prop In Lane                 | 1.00  |   | 0.00  | 0.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Lane Grp Cap(c), veh/h       | 371   | 3124  | 0   | 0   | 2317  | 719   | 945  | 0   | 420   |   |   |   |
| V/C Ratio(X)                 | 1.02  | 0.78  | 0.00  | 0.00  | 1.13  | 0.56  | 0.68   | 0.00  | 1.05  |   |   |   |
| Avail Cap(c_a), veh/h        | 371   | 3124  | 0   | 0   | 2317  | 719   | 945  | 0   | 420   |   |   |   |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Upstream Filter(I)           | 0.15  | 0.15  | 0.00  | 0.00  | 0.09  | 0.09  | 1.00   | 0.00  | 1.00  |   |   |   |
| Uniform Delay (d), s/veh     | 40.3  | 13.5  | 0.0   | 0.0   | 24.9  | 18.4  | 29.9   | 0.0   | 33.3  |   |   |   |
| Incr Delay (d2), s/veh       | 24.1  | 0.3   | 0.0   | 0.0   | 58.1  | 0.3   | 2.0  | 0.0   | 56.6  |   |   |   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |   |   |   |
| %ile BackOfQ(50%),veh/ln     | 5.1   | 10.0  | 0.0   | 0.0   | 26.8  | 5.6   | 5.9  | 0.0   | 14.8  |   |   |   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 64.4  | 13.8  | 0.0   | 0.0   | 83.0  | 18.7  | 31.9   | 0.0   | 89.8  |   |   |   |
| LnGrp LOS                    | F   | B   | A   | A   | F   | B   | C  | A   | F   |   |   |   |
| Approach Vol, veh/h          |   | 2827  |   |   | 3017  |   |  | 1085  |   |   |   |   |
| Approach Delay, s/veh        |   | 20.6  |   |   | 74.4  |   |  | 55.4  |   |   |   |   |
| Approach LOS                 |   | C   |   |   | E   |   |  | E   |   |   |   |   |
| Timer - Assigned Phs         |   | 2   |   | 4   |   |   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     |   | 30.0  |   | 60.0  |   |   | 14.0   | 46.0  |   |   |   |   |
| Change Period (Y+Rc), s      |   | 6.5   |   | 5.8   |   |   | 4.5  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  |   | 23.5  |   | 54.2  |   |   | 9.5  | 40.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s |   | 25.5  |   | 34.0  |   |   | 11.5   | 42.2  |   |   |   |   |
| Green Ext Time (p_c), s      |   | 0.0   |   | 16.5  |   |   | 0.0  | 0.0   |   |   |   |   |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 49.5 |
| HCM 6th LOS        | D    |

Notes

User approved volume balancing among the lanes for turning movement.

Timings

4: Mariposa & Nisqualli Rd.

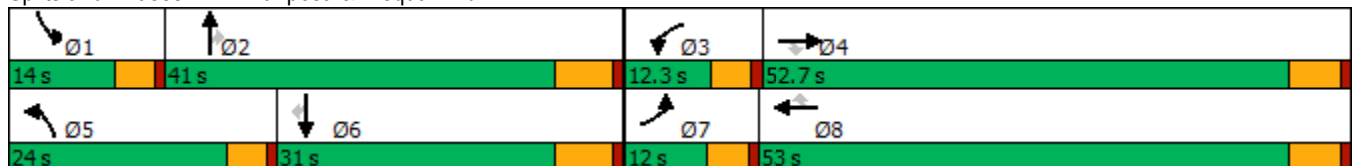
03/24/2022

| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 186   | 2183  | 626   | 166   | 2343  | 176   | 575   | 385   | 226   | 229   | 386   | 133   |
| Future Volume (vph)  | 186   | 2183  | 626   | 166   | 2343  | 176   | 575   | 385   | 226   | 229   | 386   | 133   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 12.0  | 52.7  | 52.7  | 12.3  | 53.0  | 53.0  | 24.0  | 41.0  | 41.0  | 14.0  | 31.0  | 31.0  |
| Total Split (%)      | 10.0% | 43.9% | 43.9% | 10.3% | 44.2% | 44.2% | 20.0% | 34.2% | 34.2% | 11.7% | 25.8% | 25.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 7.4   | 46.9  | 46.9  | 7.7   | 47.2  | 47.2  | 19.4  | 27.7  | 27.7  | 9.4   | 17.7  | 17.7  |
| Actuated g/C Ratio   | 0.07  | 0.42  | 0.42  | 0.07  | 0.42  | 0.42  | 0.17  | 0.25  | 0.25  | 0.08  | 0.16  | 0.16  |
| v/c Ratio            | 0.92  | 1.02  | 0.71  | 0.79  | 1.09  | 0.23  | 1.08  | 0.44  | 0.46  | 0.89  | 0.69  | 0.35  |
| Control Delay        | 98.2  | 58.9  | 16.2  | 77.9  | 81.8  | 5.8   | 106.8 | 37.6  | 18.4  | 85.4  | 51.7  | 7.5   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 98.2  | 58.9  | 16.2  | 77.9  | 81.8  | 5.8   | 106.8 | 37.6  | 18.4  | 85.4  | 51.7  | 7.5   |
| LOS                  | F     | E     | B     | E     | F     | A     | F     | D     | B     | F     | D     | A     |
| Approach Delay       |       | 52.4  |       |       | 76.6  |       |       | 67.5  |       |       | 54.2  |       |
| Approach LOS         |       | D     |       |       | E     |       |       | E     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113  
 Natural Cycle: 125  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.09  
 Intersection Signal Delay: 63.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 97.9%  
 ICU Level of Service F  
 Analysis Period (min) 15



































Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |    |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 186   | 2183  | 626   | 166   | 2343  | 176   | 575  | 385   | 226   | 229   | 386   | 133   |
| Future Volume (veh/h)        | 186   | 2183  | 626   | 166   | 2343  | 176   | 575  | 385   | 226   | 229   | 386   | 133   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700   | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 188   | 2205  | 632   | 168   | 2367  | 178   | 581  | 389   | 228   | 231   | 390   | 134   |
| Peak Hour Factor             | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99   | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 210   | 2196  | 682   | 218   | 2211  | 686   | 550  | 833   | 372   | 267   | 507   | 226   |
| Arrive On Green              | 0.07  | 0.42  | 0.42  | 0.07  | 0.43  | 0.43  | 0.18   | 0.23  | 0.23  | 0.08  | 0.14  | 0.14  |
| Sat Flow, veh/h              | 3141  | 5187  | 1610  | 3141  | 5187  | 1610  | 3141   | 3610  | 1610  | 3141  | 3610  | 1610  |
| Grp Volume(v), veh/h         | 188   | 2205  | 632   | 168   | 2367  | 178   | 581  | 389   | 228   | 231   | 390   | 134   |
| Grp Sat Flow(s),veh/h/ln     | 1570  | 1729  | 1610  | 1570  | 1729  | 1610  | 1570   | 1805  | 1610  | 1570  | 1805  | 1610  |
| Q Serve(g_s), s              | 6.6   | 46.9  | 41.3  | 5.8   | 47.2  | 7.9   | 19.4   | 10.3  | 14.1  | 8.0   | 11.5  | 8.6   |
| Cycle Q Clear(g_c), s        | 6.6   | 46.9  | 41.3  | 5.8   | 47.2  | 7.9   | 19.4   | 10.3  | 14.1  | 8.0   | 11.5  | 8.6   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 210   | 2196  | 682   | 218   | 2211  | 686   | 550  | 833   | 372   | 267   | 507   | 226   |
| V/C Ratio(X)                 | 0.90  | 1.00  | 0.93  | 0.77  | 1.07  | 0.26  | 1.06   | 0.47  | 0.61  | 0.87  | 0.77  | 0.59  |
| Avail Cap(c_a), veh/h        | 210   | 2196  | 682   | 218   | 2211  | 686   | 550  | 1134  | 506   | 267   | 808   | 361   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 51.3  | 31.9  | 30.3  | 50.7  | 31.8  | 20.5  | 45.7   | 36.7  | 38.2  | 50.1  | 45.9  | 44.6  |
| Incr Delay (d2), s/veh       | 34.4  | 20.1  | 18.8  | 14.0  | 41.3  | 0.2   | 54.0   | 0.4   | 1.6   | 23.7  | 2.5   | 2.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.5   | 22.1  | 18.3  | 2.6   | 26.6  | 2.9   | 11.4   | 4.4   | 5.5   | 3.9   | 5.1   | 3.5   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 85.7  | 52.1  | 49.1  | 64.6  | 73.1  | 20.7  | 99.7   | 37.1  | 39.8  | 73.8  | 48.4  | 47.1  |
| LnGrp LOS                    | F   | F   | D   | E   | F   | C   | F  | D   | D   | E   | D   | D   |
| Approach Vol, veh/h          |   | 3025  |   |   | 2713  |   |  | 1198  |   |   | 755   |   |
| Approach Delay, s/veh        |   | 53.5  |   |   | 69.2  |   |  | 68.0  |   |   | 55.9  |   |
| Approach LOS                 |   | D   |   |   | E   |   |  | E   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 14.0  | 31.8  | 12.3  | 52.7  | 24.0  | 21.8  | 12.0   | 53.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 9.4   | 34.8  | 7.7   | 46.9  | 19.4  | 24.8  | 7.4  | 47.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 10.0  | 16.1  | 7.8   | 48.9  | 21.4  | 13.5  | 8.6  | 49.2  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 2.9   | 0.0   | 0.0   | 0.0   | 2.0   | 0.0  | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 61.5  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | E   |   |   |   |  |   |   |   |   |   |

Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

03/24/2022

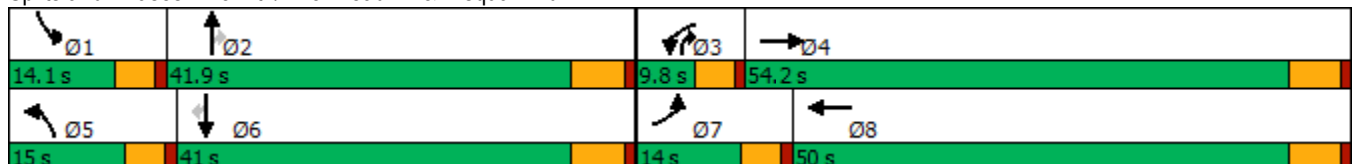


| Lane Group           | EBL   | EBT   | WBL  | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |      |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 128   | 1132  | 44   | 1419  | 280   | 319   | 55    | 60    | 391   | 107   |
| Future Volume (vph)  | 128   | 1132  | 44   | 1419  | 280   | 319   | 55    | 60    | 391   | 107   |
| Turn Type            | Prot  | NA    | Prot | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3    | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |      |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3    | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |      |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0  | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6  | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 14.0  | 54.2  | 9.8  | 50.0  | 15.0  | 41.9  | 9.8   | 14.1  | 41.0  | 41.0  |
| Total Split (%)      | 11.7% | 45.2% | 8.2% | 41.7% | 12.5% | 34.9% | 8.2%  | 11.8% | 34.2% | 34.2% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6  | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6  | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 9.4   | 50.7  | 5.2  | 44.3  | 10.4  | 33.4  | 44.4  | 7.8   | 28.8  | 28.8  |
| Actuated g/C Ratio   | 0.08  | 0.45  | 0.05 | 0.39  | 0.09  | 0.29  | 0.39  | 0.07  | 0.25  | 0.25  |
| v/c Ratio            | 0.96  | 0.91  | 0.60 | 1.14  | 1.89  | 0.60  | 0.09  | 0.54  | 0.86  | 0.23  |
| Control Delay        | 119.0 | 40.7  | 85.6 | 106.0 | 451.4 | 40.5  | 4.8   | 69.3  | 58.3  | 7.7   |
| Queue Delay          | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 119.0 | 40.7  | 85.6 | 106.0 | 451.4 | 40.5  | 4.8   | 69.3  | 58.3  | 7.7   |
| LOS                  | F     | D     | F    | F     | F     | D     | A     | E     | E     | A     |
| Approach Delay       |       | 47.4  |      | 105.4 |       | 213.4 |       |       | 49.8  |       |
| Approach LOS         |       | D     |      | F     |       | F     |       |       | D     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.8  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.89  
 Intersection Signal Delay: 94.3  
 Intersection LOS: F  
 Intersection Capacity Utilization 104.0%  
 ICU Level of Service G  
 Analysis Period (min) 15























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 128   | 1132  | 238   | 44  | 1419  | 95  | 280  | 319   | 55  | 60  | 391   | 107   |
| Future Volume (veh/h)        | 128   | 1132  | 238   | 44  | 1419  | 95  | 280  | 319   | 55  | 60  | 391   | 107   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800   | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 135   | 1192  | 251   | 46  | 1494  | 100   | 295  | 336   | 58  | 63  | 412   | 113   |
| Peak Hour Factor             | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95   | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 144   | 1320  | 276   | 58  | 1354  | 90  | 159  | 550   | 521   | 80  | 463   | 392   |
| Arrive On Green              | 0.08  | 0.44  | 0.44  | 0.03  | 0.39  | 0.39  | 0.09   | 0.29  | 0.29  | 0.05  | 0.24  | 0.24  |
| Sat Flow, veh/h              | 1714  | 2973  | 621   | 1714  | 3435  | 229   | 1714   | 1900  | 1610  | 1714  | 1900  | 1610  |
| Grp Volume(v), veh/h         | 135   | 720   | 723   | 46  | 782   | 812   | 295  | 336   | 58  | 63  | 412   | 113   |
| Grp Sat Flow(s),veh/h/ln     | 1714  | 1805  | 1788  | 1714  | 1805  | 1859  | 1714   | 1900  | 1610  | 1714  | 1900  | 1610  |
| Q Serve(g_s), s              | 8.8   | 41.3  | 42.3  | 3.0   | 44.2  | 44.2  | 10.4   | 17.1  | 2.8   | 4.1   | 23.5  | 6.4   |
| Cycle Q Clear(g_c), s        | 8.8   | 41.3  | 42.3  | 3.0   | 44.2  | 44.2  | 10.4   | 17.1  | 2.8   | 4.1   | 23.5  | 6.4   |
| Prop In Lane                 | 1.00  |   | 0.35  | 1.00  |   | 0.12  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 144   | 802   | 794   | 58  | 712   | 733   | 159  | 550   | 521   | 80  | 463   | 392   |
| V/C Ratio(X)                 | 0.94  | 0.90  | 0.91  | 0.79  | 1.10  | 1.11  | 1.85   | 0.61  | 0.11  | 0.79  | 0.89  | 0.29  |
| Avail Cap(c_a), veh/h        | 144   | 802   | 794   | 80  | 712   | 733   | 159  | 612   | 573   | 145   | 597   | 506   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 51.1  | 28.8  | 29.1  | 53.7  | 33.9  | 33.9  | 50.8   | 34.4  | 26.6  | 52.9  | 41.0  | 34.5  |
| Incr Delay (d2), s/veh       | 56.2  | 12.9  | 14.5  | 21.3  | 63.9  | 67.0  | 407.8  | 1.5   | 0.1   | 6.3   | 12.9  | 0.4   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 5.9   | 19.4  | 19.9  | 1.6   | 30.6  | 32.1  | 22.4   | 7.9   | 1.1   | 1.8   | 12.1  | 2.5   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 107.3   | 41.7  | 43.6  | 75.1  | 97.8  | 100.9   | 458.7  | 35.9  | 26.7  | 59.1  | 53.9  | 34.9  |
| LnGrp LOS                    | F   | D   | D   | E   | F   | F   | F  | D   | C   | E   | D   | C   |
| Approach Vol, veh/h          |   | 1578  |   |   | 1640  |   |  | 689   |   |   | 588   |   |
| Approach Delay, s/veh        |   | 48.2  |   |   | 98.7  |   |  | 216.1   |   |   | 50.8  |   |
| Approach LOS                 |   | D   |   |   | F   |   |  | F   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 9.8   | 38.3  | 8.4   | 55.6  | 15.0  | 33.1  | 14.0   | 50.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 9.5   | 36.1  | 5.2   | 48.4  | 10.4  | 35.2  | 9.4  | 44.2  |   |   |   |   |
| Max Q Clear Time (g_c+1), s  | 6.1   | 19.1  | 5.0   | 44.3  | 12.4  | 25.5  | 10.8   | 46.2  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.8   | 0.0   | 2.9   | 0.0   | 1.8   | 0.0  | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 92.7  |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | F   |   |   |  |   |   |   |   |   |

Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↶     | ↷     | ↶     | ↷     | ↷     |
| Traffic Volume (vph) | 176   | 671   | 643   | 1417  | 1400  |
| Future Volume (vph)  | 176   | 671   | 643   | 1417  | 1400  |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 26.6  | 36.0  | 36.0  | 93.4  | 57.4  |
| Total Split (%)      | 22.2% | 30.0% | 30.0% | 77.8% | 47.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effect Green (s) | 16.3  | 49.5  | 28.5  | 85.1  | 50.8  |
| Actuated g/C Ratio   | 0.15  | 0.44  | 0.25  | 0.76  | 0.45  |
| v/c Ratio            | 0.76  | 0.57  | 0.87  | 0.56  | 0.92  |
| Control Delay        | 66.3  | 24.8  | 53.5  | 7.1   | 40.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 66.3  | 24.8  | 53.5  | 7.1   | 40.6  |
| LOS                  | E     | C     | D     | A     | D     |
| Approach Delay       | 33.4  |       |       | 21.5  | 40.6  |
| Approach LOS         | C     |       |       | C     | D     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 112.3  
 Natural Cycle: 110  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 30.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 83.4%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)  
03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 176  | 671  | 643  | 1417 | 1400 | 2    |
| Future Volume (veh/h)        | 176  | 671  | 643  | 1417 | 1400 | 2    |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1800 | 1900 | 1700 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 189  | 722  | 691  | 1524 | 1505 | 2    |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 322  | 1209 | 749  | 2599 | 1597 | 2    |
| Arrive On Green              | 0.19 | 0.19 | 0.24 | 0.72 | 0.43 | 0.43 |
| Sat Flow, veh/h              | 1714 | 2834 | 3141 | 3705 | 3794 | 5    |
| Grp Volume(v), veh/h         | 189  | 722  | 691  | 1524 | 734  | 773  |
| Grp Sat Flow(s),veh/h/ln     | 1714 | 1417 | 1570 | 1805 | 1805 | 1899 |
| Q Serve(g_s), s              | 11.8 | 22.0 | 25.2 | 24.0 | 45.6 | 45.6 |
| Cycle Q Clear(g_c), s        | 11.8 | 22.0 | 25.2 | 24.0 | 45.6 | 45.6 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.00 |
| Lane Grp Cap(c), veh/h       | 322  | 1209 | 749  | 2599 | 779  | 820  |
| V/C Ratio(X)                 | 0.59 | 0.60 | 0.92 | 0.59 | 0.94 | 0.94 |
| Avail Cap(c_a), veh/h        | 322  | 1209 | 810  | 2688 | 789  | 830  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 43.4 | 25.8 | 43.5 | 7.9  | 31.9 | 31.9 |
| Incr Delay (d2), s/veh       | 1.9  | 0.6  | 15.2 | 0.3  | 19.3 | 18.6 |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 5.2  | 0.1  | 10.9 | 7.1  | 22.4 | 23.4 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 45.3 | 26.4 | 58.8 | 8.3  | 51.1 | 50.5 |
| LnGrp LOS                    | D    | C    | E    | A    | D    | D    |
| Approach Vol, veh/h          | 911  |      |      | 2215 | 1507 |      |
| Approach Delay, s/veh        | 30.3 |      |      | 24.0 | 50.8 |      |
| Approach LOS                 | C    |      |      | C    | D    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 90.5 |      | 26.6 | 33.7 | 56.8 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 87.2 |      | 22.0 | 30.2 | 51.2 |
| Max Q Clear Time (g_c+I1), s |      | 26.0 |      | 24.0 | 27.2 | 47.6 |
| Green Ext Time (p_c), s      |      | 23.6 |      | 0.0  | 0.8  | 2.9  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 34.0 |      |      |      |
| HCM 6th LOS                  |      |      | C    |      |      |      |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.8  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 7    | 0    | 20   | 2    | 0    | 18   | 36   | 2035 | 0    | 9    | 2057 | 5    |
| Future Vol, veh/h        | 7    | 0    | 20   | 2    | 0    | 18   | 36   | 2035 | 0    | 9    | 2057 | 5    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 8    | 0    | 22   | 2    | 0    | 19   | 39   | 2188 | 0    | 10   | 2212 | 5    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |      |      | Major2 |   |      |   |   |
|----------------------|--------|------|--------|------|--------|------|------|--------|---|------|---|---|
| Conflicting Flow All | 3407   | 4501 | 1109   | 3392 | 4503   | 1094 | 2217 | 0      | 0 | 2188 | 0 | 0 |
| Stage 1              | 2235   | 2235 | -      | 2266 | 2266   | -    | -    | -      | - | -    | - | - |
| Stage 2              | 1172   | 2266 | -      | 1126 | 2237   | -    | -    | -      | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9  | 4.1  | -      | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -    | -    | -      | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -    | -    | -      | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3  | 2.2  | -      | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | ~ 3    | 1    | 207    | 3    | 1      | 212  | 239  | -      | - | 246  | - | - |
| Stage 1              | 45     | 80   | -      | 43   | 77     | -    | -    | -      | - | -    | - | - |
| Stage 2              | 208    | 77   | -      | 222  | 80     | -    | -    | -      | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |      |      | -      | - | -    | - | - |
| Mov Cap-1 Maneuver   | ~ 2    | 1    | 207    | ~ 2  | 1      | 212  | 239  | -      | - | 246  | - | - |
| Mov Cap-2 Maneuver   | 34     | 40   | -      | 33   | 30     | -    | -    | -      | - | -    | - | - |
| Stage 1              | 38     | 77   | -      | 36   | 64     | -    | -    | -      | - | -    | - | - |
| Stage 2              | 158    | 64   | -      | 191  | 77     | -    | -    | -      | - | -    | - | - |

| Approach             | EB   | WB   | NB  | SB  |
|----------------------|------|------|-----|-----|
| HCM Control Delay, s | 63.9 | 36.1 | 0.4 | 0.1 |
| HCM LOS              | F    | E    |     |     |

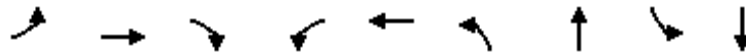
| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL   | SBT   | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h)      | 239   | -   | -   | 89         | 137   | 246   | -   |
| HCM Lane V/C Ratio    | 0.162 | -   | -   | 0.326      | 0.157 | 0.039 | -   |
| HCM Control Delay (s) | 23    | -   | -   | 63.9       | 36.1  | 20.2  | -   |
| HCM Lane LOS          | C     | -   | -   | F          | E     | C     | -   |
| HCM 95th %tile Q(veh) | 0.6   | -   | -   | 1.2        | 0.5   | 0.1   | -   |

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



Timings

8: Hesperia Rd. & Nisqualli Rd.



| Lane Group           | EBL  | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations  | ↔↔   | ↑     | ↔↔    | ↔     | ↔↔    | ↔↔    | ↔↔    | ↔    | ↔↔    |
| Traffic Volume (vph) | 183  | 74    | 517   | 119   | 79    | 567   | 1728  | 23   | 1970  |
| Future Volume (vph)  | 183  | 74    | 517   | 119   | 79    | 567   | 1728  | 23   | 1970  |
| Turn Type            | Prot | NA    | pm+ov | Prot  | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7    | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |      |       | 4     |       |       |       |       |      |       |
| Detector Phase       | 7    | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |      |       |       |       |       |       |       |      |       |
| Minimum Initial (s)  | 5.0  | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6  | 32.8  | 9.6   | 9.6   | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 11.6 | 32.8  | 20.0  | 9.6   | 30.8  | 20.0  | 68.0  | 9.6  | 57.6  |
| Total Split (%)      | 9.7% | 27.3% | 16.7% | 8.0%  | 25.7% | 16.7% | 56.7% | 8.0% | 48.0% |
| Yellow Time (s)      | 3.6  | 4.8   | 3.6   | 3.6   | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6  | 5.8   | 4.6   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead | Lag   | Lead  | Lead  | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None | None  | None  | None  | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 7.0  | 11.8  | 29.8  | 8.6   | 10.2  | 15.4  | 67.6  | 5.0  | 51.4  |
| Actuated g/C Ratio   | 0.07 | 0.11  | 0.28  | 0.08  | 0.10  | 0.15  | 0.64  | 0.05 | 0.49  |
| v/c Ratio            | 0.91 | 0.36  | 0.66  | 0.88  | 0.38  | 1.28  | 0.83  | 0.30 | 1.24  |
| Control Delay        | 92.5 | 48.1  | 36.9  | 103.7 | 28.2  | 178.4 | 19.5  | 58.3 | 141.3 |
| Queue Delay          | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 92.5 | 48.1  | 36.9  | 103.7 | 28.2  | 178.4 | 19.5  | 58.3 | 141.3 |
| LOS                  | F    | D     | D     | F     | C     | F     | B     | E    | F     |
| Approach Delay       |      | 51.1  |       |       | 62.9  |       | 56.9  |      | 140.4 |
| Approach LOS         |      | D     |       |       | E     |       | E     |      | F     |

Intersection Summary

|  |                        |
|--|------------------------|
| Cycle Length: 120                        |                        |
| Actuated Cycle Length: 105.2             |                        |
| Natural Cycle: 130                       |                        |
| Control Type: Actuated-Uncoordinated     |                        |
| Maximum v/c Ratio: 1.28                  |                        |
| Intersection Signal Delay: 88.3          | Intersection LOS: F    |
| Intersection Capacity Utilization 110.0% | ICU Level of Service H |
| Analysis Period (min) 15                 |                        |























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |  |  |  |   |  |  |   |  |  |  |
| Traffic Volume (veh/h)       | 183   | 74  | 517   | 119   | 79  | 62  | 567  | 1728  | 119   | 23  | 1970  | 141   |
| Future Volume (veh/h)        | 183   | 74  | 517   | 119   | 79  | 62  | 567  | 1728  | 119   | 23  | 1970  | 141   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1800  | 1900  | 1900  | 1700   | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 189   | 76  | 533   | 123   | 81  | 64  | 585  | 1781  | 123   | 24  | 2031  | 145   |
| Peak Hour Factor             | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97   | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 192   | 357   | 914   | 75  | 342   | 246   | 422  | 1920  | 131   | 40  | 1535  | 108   |
| Arrive On Green              | 0.06  | 0.19  | 0.19  | 0.04  | 0.17  | 0.17  | 0.13   | 0.56  | 0.56  | 0.02  | 0.45  | 0.45  |
| Sat Flow, veh/h              | 3141  | 1900  | 2834  | 1714  | 2004  | 1442  | 3141   | 3429  | 234   | 1714  | 3420  | 241   |
| Grp Volume(v), veh/h         | 189   | 76  | 533   | 123   | 72  | 73  | 585  | 928   | 976   | 24  | 1060  | 1116  |
| Grp Sat Flow(s),veh/h/ln     | 1570  | 1900  | 1417  | 1714  | 1805  | 1640  | 1570   | 1805  | 1858  | 1714  | 1805  | 1857  |
| Q Serve(g_s), s              | 6.9   | 3.9   | 18.0  | 5.0   | 4.0   | 4.4   | 15.4   | 53.4  | 55.7  | 1.6   | 51.4  | 51.4  |
| Cycle Q Clear(g_c), s        | 6.9   | 3.9   | 18.0  | 5.0   | 4.0   | 4.4   | 15.4   | 53.4  | 55.7  | 1.6   | 51.4  | 51.4  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.88  | 1.00   |   | 0.13  | 1.00  |   | 0.13  |
| Lane Grp Cap(c), veh/h       | 192   | 357   | 914   | 75  | 308   | 280   | 422  | 1011  | 1040  | 40  | 810   | 833   |
| V/C Ratio(X)                 | 0.98  | 0.21  | 0.58  | 1.64  | 0.23  | 0.26  | 1.39   | 0.92  | 0.94  | 0.60  | 1.31  | 1.34  |
| Avail Cap(c_a), veh/h        | 192   | 448   | 1049  | 75  | 394   | 358   | 422  | 1011  | 1040  | 75  | 810   | 833   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 53.7  | 39.3  | 32.4  | 54.8  | 41.0  | 41.2  | 49.6   | 22.8  | 23.3  | 55.4  | 31.6  | 31.6  |
| Incr Delay (d2), s/veh       | 60.1  | 0.3   | 0.6   | 341.6   | 0.4   | 0.5   | 187.5  | 13.0  | 15.2  | 5.3   | 147.7   | 160.8   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 4.2   | 1.8   | 6.0   | 9.2   | 1.7   | 1.8   | 16.8   | 23.1  | 25.3  | 0.7   | 53.5  | 58.0  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 113.8   | 39.6  | 33.0  | 396.4   | 41.4  | 41.7  | 237.0  | 35.8  | 38.6  | 60.7  | 179.3   | 192.3   |
| LnGrp LOS                    | F   | D   | C   | F   | D   | D   | F  | D   | D   | E   | F   | F   |
| Approach Vol, veh/h          |   | 798   |   |   | 268   |   |  | 2489  |   |   | 2200  |   |
| Approach Delay, s/veh        |   | 52.8  |   |   | 204.4   |   |  | 84.2  |   |   | 184.6   |   |
| Approach LOS                 |   | D   |   |   | F   |   |  | F   |   |   | F   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 7.3   | 70.3  | 9.6   | 27.3  | 20.0  | 57.6  | 11.6   | 25.3  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.0   | 61.8  | 5.0   | 27.0  | 15.4  | 51.4  | 7.0  | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.6   | 57.7  | 7.0   | 20.0  | 17.4  | 53.4  | 8.9  | 6.4   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 3.5   | 0.0   | 1.6   | 0.0   | 0.0   | 0.0  | 0.6   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           | 123.8   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  | F   |   |   |   |   |   |  |   |   |   |   |   |

Timings

9: Hesperia Rd. & Bear Valley Rd.

03/24/2022

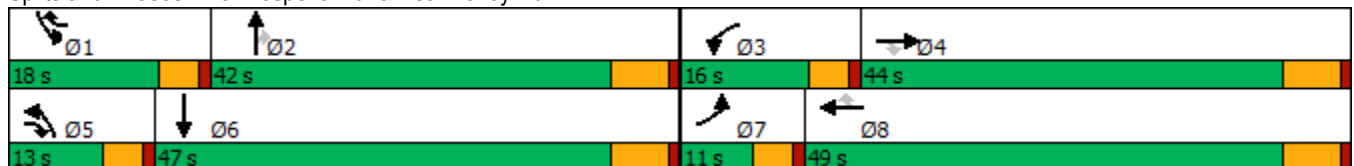


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↖    | ↑↑↑   | ↗     | ↖↖    | ↑↑↑   | ↗     | ↖↖    | ↑↑    | ↗     | ↖↖    | ↑↗    |
| Traffic Volume (vph) | 177   | 2108  | 136   | 399   | 1844  | 214   | 269   | 600   | 439   | 524   | 811   |
| Future Volume (vph)  | 177   | 2108  | 136   | 399   | 1844  | 214   | 269   | 600   | 439   | 524   | 811   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 11.0  | 44.0  | 13.0  | 16.0  | 49.0  | 18.0  | 13.0  | 42.0  | 42.0  | 18.0  | 47.0  |
| Total Split (%)      | 9.2%  | 36.7% | 10.8% | 13.3% | 40.8% | 15.0% | 10.8% | 35.0% | 35.0% | 15.0% | 39.2% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.4   | 37.9  | 52.5  | 11.4  | 42.9  | 62.5  | 8.4   | 33.4  | 33.4  | 13.4  | 38.4  |
| Actuated g/C Ratio   | 0.05  | 0.32  | 0.45  | 0.10  | 0.36  | 0.53  | 0.07  | 0.28  | 0.28  | 0.11  | 0.33  |
| v/c Ratio            | 1.06  | 1.29  | 0.17  | 1.34  | 1.00  | 0.24  | 1.22  | 0.60  | 0.75  | 1.50  | 0.88  |
| Control Delay        | 139.6 | 169.5 | 2.9   | 215.6 | 57.8  | 11.0  | 180.1 | 39.0  | 29.6  | 275.8 | 46.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 139.6 | 169.5 | 2.9   | 215.6 | 57.8  | 11.0  | 180.1 | 39.0  | 29.6  | 275.8 | 46.6  |
| LOS                  | F     | F     | A     | F     | E     | B     | F     | D     | C     | F     | D     |
| Approach Delay       |       | 158.0 |       |       | 79.3  |       |       | 64.8  |       |       | 125.2 |
| Approach LOS         |       | F     |       |       | E     |       |       | E     |       |       | F     |

Intersection Summary

|  |                        |
|--|------------------------|
| Cycle Length: 120                        |                        |
| Actuated Cycle Length: 117.7             |                        |
| Natural Cycle: 125                       |                        |
| Control Type: Actuated-Uncoordinated     |                        |
| Maximum v/c Ratio: 1.50                  |                        |
| Intersection Signal Delay: 110.6         | Intersection LOS: F    |
| Intersection Capacity Utilization 108.6% | ICU Level of Service G |
| Analysis Period (min) 15                 |                        |


































Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |   |
| Traffic Volume (veh/h)       | 177   | 2108  | 136   | 399   | 1844  | 214   | 269   | 600   | 439   | 524   | 811   | 192   |
| Future Volume (veh/h)        | 177   | 2108  | 136   | 399   | 1844  | 214   | 269   | 600   | 439   | 524   | 811   | 192   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 181   | 2151  | 139   | 407   | 1882  | 218   | 274   | 612   | 448   | 535   | 828   | 196   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 168   | 1641  | 623   | 300   | 1858  | 757   | 221   | 1066  | 475   | 352   | 976   | 231   |
| Arrive On Green              | 0.05  | 0.32  | 0.32  | 0.10  | 0.36  | 0.36  | 0.07  | 0.30  | 0.30  | 0.11  | 0.34  | 0.34  |
| Sat Flow, veh/h              | 3141  | 5187  | 1610  | 3141  | 5187  | 1610  | 3141  | 3610  | 1610  | 3141  | 2896  | 685   |
| Grp Volume(v), veh/h         | 181   | 2151  | 139   | 407   | 1882  | 218   | 274   | 612   | 448   | 535   | 516   | 508   |
| Grp Sat Flow(s),veh/h/ln     | 1570  | 1729  | 1610  | 1570  | 1729  | 1610  | 1570  | 1805  | 1610  | 1570  | 1805  | 1777  |
| Q Serve(g_s), s              | 6.4   | 37.8  | 6.9   | 11.4  | 42.8  | 9.9   | 8.4   | 17.2  | 32.5  | 13.4  | 31.7  | 31.7  |
| Cycle Q Clear(g_c), s        | 6.4   | 37.8  | 6.9   | 11.4  | 42.8  | 9.9   | 8.4   | 17.2  | 32.5  | 13.4  | 31.7  | 31.7  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 0.39  |
| Lane Grp Cap(c), veh/h       | 168   | 1641  | 623   | 300   | 1858  | 757   | 221   | 1066  | 475   | 352   | 608   | 599   |
| V/C Ratio(X)                 | 1.08  | 1.31  | 0.22  | 1.36  | 1.01  | 0.29  | 1.24  | 0.57  | 0.94  | 1.52  | 0.85  | 0.85  |
| Avail Cap(c_a), veh/h        | 168   | 1641  | 623   | 300   | 1858  | 757   | 221   | 1082  | 482   | 352   | 616   | 607   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 56.5  | 40.8  | 24.6  | 54.0  | 38.3  | 19.4  | 55.5  | 35.7  | 41.1  | 53.0  | 36.8  | 36.8  |
| Incr Delay (d2), s/veh       | 91.0  | 144.3   | 0.2   | 181.3   | 24.1  | 0.2   | 140.7   | 0.7   | 27.0  | 247.5   | 10.6  | 10.8  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 4.7   | 37.8  | 2.7   | 12.0  | 21.9  | 3.7   | 7.5   | 7.3   | 16.3  | 17.2  | 14.9  | 14.7  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 147.5   | 185.1   | 24.8  | 235.4   | 62.4  | 19.6  | 196.2   | 36.5  | 68.1  | 300.5   | 47.4  | 47.6  |
| LnGrp LOS                    | F   | F   | C   | F   | F   | B   | F   | D   | E   | F   | D   | D   |
| Approach Vol, veh/h          |   | 2471  |   |   | 2507  |   |   | 1334  |   |   | 1559  |   |
| Approach Delay, s/veh        |   | 173.4   |   |   | 86.8  |   |   | 79.9  |   |   | 134.3   |   |
| Approach LOS                 |   | F   |   |   | F   |   |   | E   |   |   | F   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 18.0  | 41.5  | 16.0  | 44.0  | 13.0  | 46.5  | 11.0  | 49.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 13.4  | 35.8  | 11.4  | 37.8  | 8.4   | 40.8  | 6.4   | 42.8  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 15.4  | 34.5  | 13.4  | 39.8  | 10.4  | 33.7  | 8.4   | 44.8  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 0.8   | 0.0   | 0.0   | 0.0   | 4.1   | 0.0   | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 122.2   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | F   |   |   |   |   |   |   |   |   |

**APPENDIX 6.2:**

**FUTURE YEAR (2034) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS  
ANALYSIS WORKSHEETS**

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Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

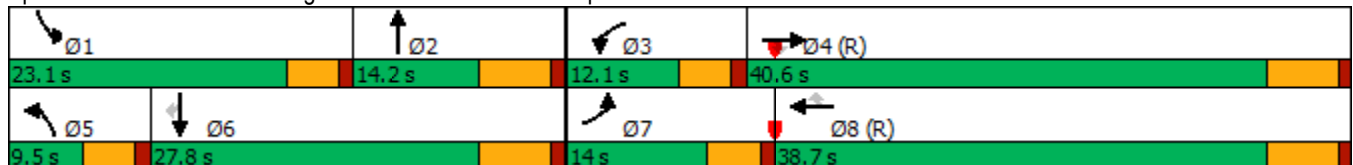
03/24/2022

| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR  | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |      |       |       |       |
| Traffic Volume (vph) | 230   | 1040  | 90    | 135   | 598   | 803   | 29    | 142   | 99   | 512   | 260   | 139   |
| Future Volume (vph)  | 230   | 1040  | 90    | 135   | 598   | 803   | 29    | 142   | 99   | 512   | 260   | 139   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Free | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5     | 2     |      | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | Free |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5     | 2     |      | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |      |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |      | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5   | 10.8  |      | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 14.0  | 40.6  | 40.6  | 12.1  | 38.7  | 38.7  | 9.5   | 14.2  |      | 23.1  | 27.8  | 27.8  |
| Total Split (%)      | 15.6% | 45.1% | 45.1% | 13.4% | 43.0% | 43.0% | 10.6% | 15.8% |      | 25.7% | 30.9% | 30.9% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   |      | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |      | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   |      | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   |      | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |      | Yes   | Yes   | Yes   |
| Recall Mode          | None  | C-Max | C-Max | None  | C-Max | C-Max | None  | Max   |      | None  | Max   | Max   |
| Act Effct Green (s)  | 9.2   | 35.2  | 35.2  | 7.2   | 33.2  | 33.2  | 5.0   | 9.2   | 90.0 | 17.8  | 25.8  | 25.8  |
| Actuated g/C Ratio   | 0.10  | 0.39  | 0.39  | 0.08  | 0.37  | 0.37  | 0.06  | 0.10  | 1.00 | 0.20  | 0.29  | 0.29  |
| v/c Ratio            | 0.76  | 0.76  | 0.13  | 0.57  | 0.31  | 0.92  | 0.18  | 0.40  | 0.07 | 0.87  | 0.26  | 0.26  |
| Control Delay        | 55.1  | 28.0  | 0.4   | 56.9  | 15.2  | 31.1  | 43.0  | 41.6  | 0.1  | 51.2  | 25.2  | 6.4   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Delay          | 55.1  | 28.0  | 0.4   | 56.9  | 15.2  | 31.1  | 43.0  | 41.6  | 0.1  | 51.2  | 25.2  | 6.4   |
| LOS                  | E     | C     | A     | E     | B     | C     | D     | D     | A    | D     | C     | A     |
| Approach Delay       |       | 30.7  |       |       | 27.2  |       |       | 26.5  |      |       | 36.9  |       |
| Approach LOS         |       | C     |       |       | C     |       |       | C     |      |       | D     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 30.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 74.6%  
 ICU Level of Service D  
 Analysis Period (min) 15































Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |    |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |   |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 230   | 1040  | 90  | 135   | 598   | 803   | 29  | 142   | 99  | 512   | 260   | 139   |
| Future Volume (veh/h)        | 230   | 1040  | 90  | 135   | 598   | 803   | 29  | 142   | 99  | 512   | 260   | 139   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 250   | 1130  | 98  | 147   | 650   | 656   | 32  | 154   | 0   | 557   | 283   | 151   |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 317   | 1593  | 675   | 214   | 2208  | 624   | 99  | 355   |   | 624   | 970   | 411   |
| Arrive On Green              | 0.10  | 0.42  | 0.42  | 0.02  | 0.13  | 0.13  | 0.03  | 0.09  | 0.00  | 0.19  | 0.26  | 0.26  |
| Sat Flow, veh/h              | 3238  | 3800  | 1610  | 3238  | 5700  | 1610  | 3238  | 3800  | 1610  | 3238  | 3800  | 1610  |
| Grp Volume(v), veh/h         | 250   | 1130  | 98  | 147   | 650   | 656   | 32  | 154   | 0   | 557   | 283   | 151   |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  |
| Q Serve(g_s), s              | 6.8   | 22.1  | 3.4   | 4.1   | 9.3   | 34.9  | 0.9   | 3.4   | 0.0   | 15.1  | 5.4   | 6.9   |
| Cycle Q Clear(g_c), s        | 6.8   | 22.1  | 3.4   | 4.1   | 9.3   | 34.9  | 0.9   | 3.4   | 0.0   | 15.1  | 5.4   | 6.9   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 317   | 1593  | 675   | 214   | 2208  | 624   | 99  | 355   |   | 624   | 970   | 411   |
| V/C Ratio(X)                 | 0.79  | 0.71  | 0.15  | 0.69  | 0.29  | 1.05  | 0.32  | 0.43  |   | 0.89  | 0.29  | 0.37  |
| Avail Cap(c_a), veh/h        | 342   | 1593  | 675   | 273   | 2208  | 624   | 180   | 355   |   | 669   | 970   | 411   |
| HCM Platoon Ratio            | 1.00  | 1.00  | 1.00  | 0.33  | 0.33  | 0.33  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 0.77  | 0.77  | 0.77  | 1.00  | 1.00  | 0.00  | 0.59  | 0.59  | 0.59  |
| Uniform Delay (d), s/veh     | 39.7  | 21.6  | 16.2  | 43.1  | 28.1  | 39.2  | 42.7  | 38.6  | 0.0   | 35.4  | 27.0  | 27.5  |
| Incr Delay (d2), s/veh       | 9.7   | 2.7   | 0.5   | 2.1   | 0.3   | 46.2  | 0.7   | 3.8   | 0.0   | 8.4   | 0.5   | 1.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.0   | 9.4   | 1.2   | 1.7   | 4.4   | 22.7  | 0.3   | 1.7   | 0.0   | 6.3   | 2.4   | 2.7   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 49.4  | 24.3  | 16.6  | 45.2  | 28.4  | 85.4  | 43.4  | 42.4  | 0.0   | 43.8  | 27.4  | 29.0  |
| LnGrp LOS                    | D   | C   | B   | D   | C   | F   | D   | D   |   | D   | C   | C   |
| Approach Vol, veh/h          |   | 1478  |   |   | 1453  |   |   | 186   | A   |   | 991   |   |
| Approach Delay, s/veh        |   | 28.0  |   |   | 55.8  |   |   | 42.6  |   |   | 36.9  |   |
| Approach LOS                 |   | C   |   |   | E   |   |   | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 21.8  | 14.2  | 10.4  | 43.5  | 7.3   | 28.8  | 13.3  | 40.7  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.5   | 5.8   | 4.5   | 5.8   | 4.5   | 5.8   | 4.5   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 18.6  | 8.4   | 7.6   | 34.8  | 5.0   | 22.0  | 9.5   | 32.9  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 17.1  | 5.4   | 6.1   | 24.1  | 2.9   | 8.9   | 8.8   | 36.9  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.2   | 0.2   | 0.0   | 5.5   | 0.0   | 1.7   | 0.0   | 0.0   |   |   |   |   |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 40.7 |
| HCM 6th LOS        | D    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



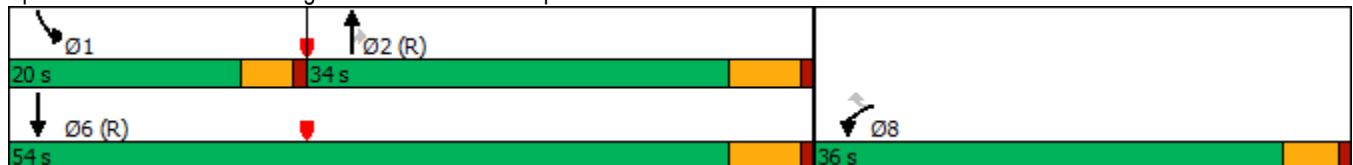
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↖↗    | ↖     | ↖↗    | ↖     | ↘     | ↖↗    |
| Traffic Volume (vph) | 1026  | 47    | 828   | 427   | 177   | 970   |
| Future Volume (vph)  | 1026  | 47    | 828   | 427   | 177   | 970   |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 36.0  | 36.0  | 34.0  | 34.0  | 20.0  | 54.0  |
| Total Split (%)      | 40.0% | 40.0% | 37.8% | 37.8% | 22.2% | 60.0% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 30.5  | 30.5  | 31.0  | 31.0  | 13.5  | 49.0  |
| Actuated g/C Ratio   | 0.34  | 0.34  | 0.34  | 0.34  | 0.15  | 0.54  |
| v/c Ratio            | 0.94  | 0.09  | 0.72  | 0.54  | 0.71  | 0.54  |
| Control Delay        | 44.5  | 6.5   | 26.3  | 3.6   | 51.0  | 14.7  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 44.5  | 6.5   | 26.3  | 3.6   | 51.0  | 14.7  |
| LOS                  | D     | A     | C     | A     | D     | B     |
| Approach Delay       | 42.9  |       | 18.6  |       |       | 20.3  |
| Approach LOS         | D     |       | B     |       |       | C     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 26.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 74.5%  
 ICU Level of Service D  
 Analysis Period (min) 15
















Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |  |   |
|------------------------------|---|---|---|---|---|--|
| Movement                     | WBL   | WBR   | NBT   | NBR   | SBL   | SBT  |
| Lane Configurations          |   |  |   |  |  |   |
| Traffic Volume (veh/h)       | 1026  | 47  | 828   | 427   | 177   | 970  |
| Future Volume (veh/h)        | 1026  | 47  | 828   | 427   | 177   | 970  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0  |
| Ped-Bike Adj(A_pbT)          | 1.00  | 1.00  |   | 1.00  | 1.00  |  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   |
| Work Zone On Approach        | No  |   | No  |   |   | No   |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   |
| Adj Flow Rate, veh/h         | 1115  | 51  | 900   | 464   | 192   | 1054   |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92   |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0  |
| Cap, veh/h                   | 1183  | 543   | 1334  | 595   | 230   | 1972   |
| Arrive On Green              | 0.34  | 0.34  | 0.12  | 0.12  | 0.13  | 0.55   |
| Sat Flow, veh/h              | 3510  | 1610  | 3705  | 1610  | 1810  | 3705   |
| Grp Volume(v), veh/h         | 1115  | 51  | 900   | 464   | 192   | 1054   |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1610  | 1805  | 1610  | 1810  | 1805   |
| Q Serve(g_s), s              | 27.8  | 2.0   | 21.5  | 25.2  | 9.3   | 16.8   |
| Cycle Q Clear(g_c), s        | 27.8  | 2.0   | 21.5  | 25.2  | 9.3   | 16.8   |
| Prop In Lane                 | 1.00  | 1.00  |   | 1.00  | 1.00  |  |
| Lane Grp Cap(c), veh/h       | 1183  | 543   | 1334  | 595   | 230   | 1972   |
| V/C Ratio(X)                 | 0.94  | 0.09  | 0.67  | 0.78  | 0.84  | 0.53   |
| Avail Cap(c_a), veh/h        | 1221  | 560   | 1334  | 595   | 312   | 1972   |
| HCM Platoon Ratio            | 1.00  | 1.00  | 0.33  | 0.33  | 1.00  | 1.00   |
| Upstream Filter(I)           | 1.00  | 1.00  | 0.45  | 0.45  | 1.00  | 1.00   |
| Uniform Delay (d), s/veh     | 29.0  | 20.4  | 34.3  | 36.0  | 38.4  | 13.1   |
| Incr Delay (d2), s/veh       | 13.7  | 0.0   | 1.2   | 4.6   | 13.5  | 1.0  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 12.5  | 0.7   | 10.4  | 11.4  | 4.8   | 6.1  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |  |
| LnGrp Delay(d),s/veh         | 42.7  | 20.5  | 35.6  | 40.6  | 51.9  | 14.1   |
| LnGrp LOS                    | D   | C   | D   | D   | D   | B  |
| Approach Vol, veh/h          | 1166  |   | 1364  |   |   | 1246   |
| Approach Delay, s/veh        | 41.7  |   | 37.3  |   |   | 19.9   |
| Approach LOS                 | D   |   | D   |   |   | B  |
| Timer - Assigned Phs         | 1   | 2   |   |   | 6   | 8  |
| Phs Duration (G+Y+Rc), s     | 15.9  | 39.0  |   |   | 55.0  | 35.0   |
| Change Period (Y+Rc), s      | 4.5   | 5.8   |   |   | 5.8   | 4.7  |
| Max Green Setting (Gmax), s  | 15.5  | 28.2  |   |   | 48.2  | 31.3   |
| Max Q Clear Time (g_c+1), s  | 11.3  | 27.2  |   |   | 18.8  | 29.8   |
| Green Ext Time (p_c), s      | 0.2   | 0.7   |   |   | 7.9   | 0.6  |
| <b>Intersection Summary</b>  |   |   |   |   |   |  |
| HCM 6th Ctrl Delay           |   |   | 32.9  |   |   |  |
| HCM 6th LOS                  |   |   | C   |   |   |  |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

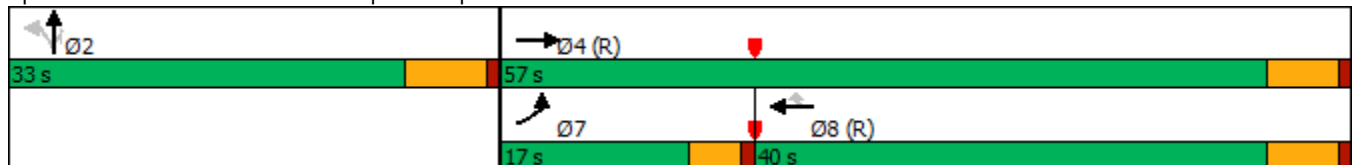


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↶↶    | ↶↶↶   | ↶↶↶   | ↷     | ↶     | ↶     | ↷     |
| Traffic Volume (vph) | 252   | 1558  | 1318  | 418   | 230   | 1     | 374   |
| Future Volume (vph)  | 252   | 1558  | 1318  | 418   | 230   | 1     | 374   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 17.0  | 57.0  | 40.0  | 40.0  | 33.0  | 33.0  | 33.0  |
| Total Split (%)      | 18.9% | 63.3% | 44.4% | 44.4% | 36.7% | 36.7% | 36.7% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 10.9  | 55.0  | 39.6  | 39.6  | 22.7  | 22.7  | 22.7  |
| Actuated g/C Ratio   | 0.12  | 0.61  | 0.44  | 0.44  | 0.25  | 0.25  | 0.25  |
| v/c Ratio            | 0.65  | 0.53  | 0.63  | 0.47  | 0.29  | 0.29  | 0.86  |
| Control Delay        | 43.8  | 10.9  | 22.2  | 3.8   | 27.7  | 27.7  | 43.2  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 43.8  | 10.9  | 22.2  | 3.8   | 27.7  | 27.7  | 43.2  |
| LOS                  | D     | B     | C     | A     | C     | C     | D     |
| Approach Delay       |       | 15.5  | 17.7  |       |       | 37.3  |       |
| Approach LOS         |       | B     | B     |       |       | D     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 19.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 63.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

























Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |  |    |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |   |   |    |  |  |  |  |   |   |   |
| Traffic Volume (veh/h)       | 252   | 1558  | 0   | 0   | 1318  | 418   | 230  | 1   | 374   | 0   | 0   | 0   |
| Future Volume (veh/h)        | 252   | 1558  | 0   | 0   | 1318  | 418   | 230  | 1   | 374   | 0   | 0   | 0   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   |   |   |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 0   | 0   | 1900  | 1900  | 1900   | 1900  | 1900  |   |   |   |
| Adj Flow Rate, veh/h         | 274   | 1693  | 0   | 0   | 1433  | 454   | 251  | 0   | 407   |   |   |   |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92   | 0.92  | 0.92  |   |   |   |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Cap, veh/h                   | 350   | 3053  | 0   | 0   | 2276  | 707   | 994  | 0   | 442   |   |   |   |
| Arrive On Green              | 0.13  | 0.78  | 0.00  | 0.00  | 0.44  | 0.44  | 0.27   | 0.00  | 0.27  |   |   |   |
| Sat Flow, veh/h              | 3510  | 5358  | 0   | 0   | 5358  | 1610  | 3619   | 0   | 1610  |   |   |   |
| Grp Volume(v), veh/h         | 274   | 1693  | 0   | 0   | 1433  | 454   | 251  | 0   | 407   |   |   |   |
| Grp Sat Flow(s),veh/h/ln     | 1755  | 1729  | 0   | 0   | 1729  | 1610  | 1810   | 0   | 1610  |   |   |   |
| Q Serve(g_s), s              | 6.8   | 11.3  | 0.0   | 0.0   | 19.3  | 19.8  | 4.9  | 0.0   | 22.1  |   |   |   |
| Cycle Q Clear(g_c), s        | 6.8   | 11.3  | 0.0   | 0.0   | 19.3  | 19.8  | 4.9  | 0.0   | 22.1  |   |   |   |
| Prop In Lane                 | 1.00  |   | 0.00  | 0.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Lane Grp Cap(c), veh/h       | 350   | 3053  | 0   | 0   | 2276  | 707   | 994  | 0   | 442   |   |   |   |
| V/C Ratio(X)                 | 0.78  | 0.55  | 0.00  | 0.00  | 0.63  | 0.64  | 0.25   | 0.00  | 0.92  |   |   |   |
| Avail Cap(c_a), veh/h        | 488   | 3053  | 0   | 0   | 2276  | 707   | 1066   | 0   | 474   |   |   |   |
| HCM Platoon Ratio            | 1.33  | 1.33  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Upstream Filter(I)           | 0.57  | 0.57  | 0.00  | 0.00  | 0.78  | 0.78  | 1.00   | 0.00  | 1.00  |   |   |   |
| Uniform Delay (d), s/veh     | 38.1  | 5.2   | 0.0   | 0.0   | 19.6  | 19.7  | 25.4   | 0.0   | 31.7  |   |   |   |
| Incr Delay (d2), s/veh       | 2.0   | 0.4   | 0.0   | 0.0   | 1.0   | 3.5   | 0.1  | 0.0   | 22.4  |   |   |   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |   |   |   |
| %ile BackOfQ(50%),veh/ln     | 2.8   | 2.5   | 0.0   | 0.0   | 7.1   | 7.3   | 1.9  | 0.0   | 10.4  |   |   |   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 40.1  | 5.7   | 0.0   | 0.0   | 20.6  | 23.2  | 25.6   | 0.0   | 54.1  |   |   |   |
| LnGrp LOS                    | D   | A   | A   | A   | C   | C   | C  | A   | D   |   |   |   |
| Approach Vol, veh/h          |   | 1967  |   |   | 1887  |   |  | 658   |   |   |   |   |
| Approach Delay, s/veh        |   | 10.5  |   |   | 21.2  |   |  | 43.2  |   |   |   |   |
| Approach LOS                 |   | B   |   |   | C   |   |  | D   |   |   |   |   |
| Timer - Assigned Phs         |   | 2   |   | 4   |   |   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     |   | 31.2  |   | 58.8  |   |   | 13.5   | 45.3  |   |   |   |   |
| Change Period (Y+Rc), s      |   | 6.5   |   | 5.8   |   |   | 4.5  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  |   | 26.5  |   | 51.2  |   |   | 12.5   | 34.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s |   | 24.1  |   | 13.3  |   |   | 8.8  | 21.8  |   |   |   |   |
| Green Ext Time (p_c), s      |   | 0.7   |   | 16.2  |   |   | 0.2  | 8.3   |   |   |   |   |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 19.7 |
| HCM 6th LOS        | B    |

Notes

User approved volume balancing among the lanes for turning movement.

Timings

4: Mariposa & Nisqualli Rd.

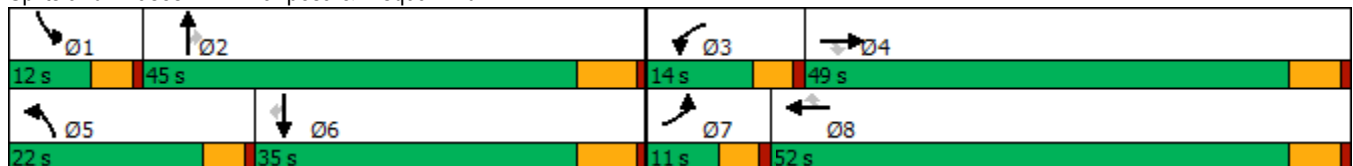
03/24/2022

| Lane Group           | EBL  | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |      |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 62   | 1526  | 340   | 115   | 1373  | 109   | 281   | 160   | 100   | 75    | 113   | 80    |
| Future Volume (vph)  | 62   | 1526  | 340   | 115   | 1373  | 109   | 281   | 160   | 100   | 75    | 113   | 80    |
| Turn Type            | Prot | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7    | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |      |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7    | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |      |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6  | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 11.0 | 49.0  | 49.0  | 14.0  | 52.0  | 52.0  | 22.0  | 45.0  | 45.0  | 12.0  | 35.0  | 35.0  |
| Total Split (%)      | 9.2% | 40.8% | 40.8% | 11.7% | 43.3% | 43.3% | 18.3% | 37.5% | 37.5% | 10.0% | 29.2% | 29.2% |
| Yellow Time (s)      | 3.6  | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6  | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.0  | 40.8  | 40.8  | 8.0   | 45.1  | 45.1  | 13.4  | 19.4  | 19.4  | 6.5   | 10.2  | 10.2  |
| Actuated g/C Ratio   | 0.06 | 0.43  | 0.43  | 0.09  | 0.48  | 0.48  | 0.14  | 0.21  | 0.21  | 0.07  | 0.11  | 0.11  |
| v/c Ratio            | 0.34 | 0.73  | 0.43  | 0.47  | 0.59  | 0.14  | 0.67  | 0.23  | 0.26  | 0.37  | 0.31  | 0.28  |
| Control Delay        | 49.2 | 24.5  | 6.8   | 48.5  | 19.8  | 1.5   | 46.8  | 34.3  | 8.6   | 48.8  | 42.9  | 2.8   |
| Queue Delay          | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 49.2 | 24.5  | 6.8   | 48.5  | 19.8  | 1.5   | 46.8  | 34.3  | 8.6   | 48.8  | 42.9  | 2.8   |
| LOS                  | D    | C     | A     | D     | B     | A     | D     | C     | A     | D     | D     | A     |
| Approach Delay       |      | 22.2  |       |       | 20.6  |       |       | 36.0  |       |       | 32.6  |       |
| Approach LOS         |      | C     |       |       | C     |       |       | D     |       |       | C     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 93.8  
 Natural Cycle: 95  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 24.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 68.6%  
 ICU Level of Service C  
 Analysis Period (min) 15




































Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |    |    |  |    |    |    |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |   |
| Traffic Volume (veh/h)       | 62  | 1526  | 340   | 115   | 1373  | 109   | 281  | 160   | 100   | 75  | 113   | 80  |
| Future Volume (veh/h)        | 62  | 1526  | 340   | 115   | 1373  | 109   | 281  | 160   | 100   | 75  | 113   | 80  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700   | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 67  | 1641  | 366   | 124   | 1476  | 117   | 302  | 172   | 108   | 81  | 122   | 86  |
| Peak Hour Factor             | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93   | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 150   | 2269  | 704   | 189   | 2332  | 724   | 383  | 695   | 310   | 161   | 440   | 196   |
| Arrive On Green              | 0.05  | 0.44  | 0.44  | 0.06  | 0.45  | 0.45  | 0.12   | 0.19  | 0.19  | 0.05  | 0.12  | 0.12  |
| Sat Flow, veh/h              | 3141  | 5187  | 1610  | 3141  | 5187  | 1610  | 3141   | 3610  | 1610  | 3141  | 3610  | 1610  |
| Grp Volume(v), veh/h         | 67  | 1641  | 366   | 124   | 1476  | 117   | 302  | 172   | 108   | 81  | 122   | 86  |
| Grp Sat Flow(s),veh/h/ln     | 1570  | 1729  | 1610  | 1570  | 1729  | 1610  | 1570   | 1805  | 1610  | 1570  | 1805  | 1610  |
| Q Serve(g_s), s              | 1.7   | 21.3  | 13.6  | 3.2   | 17.9  | 3.5   | 7.7  | 3.3   | 4.8   | 2.1   | 2.5   | 4.1   |
| Cycle Q Clear(g_c), s        | 1.7   | 21.3  | 13.6  | 3.2   | 17.9  | 3.5   | 7.7  | 3.3   | 4.8   | 2.1   | 2.5   | 4.1   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 150   | 2269  | 704   | 189   | 2332  | 724   | 383  | 695   | 310   | 161   | 440   | 196   |
| V/C Ratio(X)                 | 0.45  | 0.72  | 0.52  | 0.66  | 0.63  | 0.16  | 0.79   | 0.25  | 0.35  | 0.50  | 0.28  | 0.44  |
| Avail Cap(c_a), veh/h        | 245   | 2734  | 849   | 360   | 2924  | 908   | 667  | 1709  | 762   | 284   | 1269  | 566   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 38.0  | 19.0  | 16.8  | 37.7  | 17.3  | 13.4  | 35.0   | 28.1  | 28.6  | 37.9  | 32.7  | 33.4  |
| Incr Delay (d2), s/veh       | 0.8   | 0.8   | 0.6   | 1.5   | 0.3   | 0.1   | 1.4  | 0.2   | 0.7   | 0.9   | 0.3   | 1.5   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.6   | 7.6   | 4.5   | 1.2   | 6.2   | 1.1   | 2.8  | 1.4   | 1.8   | 0.8   | 1.0   | 1.6   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 38.7  | 19.7  | 17.4  | 39.2  | 17.6  | 13.5  | 36.3   | 28.2  | 29.3  | 38.8  | 33.0  | 34.9  |
| LnGrp LOS                    | D   | B   | B   | D   | B   | B   | D  | C   | C   | D   | C   | C   |
| Approach Vol, veh/h          |   | 2074  |   |   | 1717  |   |  | 582   |   |   | 289   |   |
| Approach Delay, s/veh        |   | 19.9  |   |   | 18.9  |   |  | 32.6  |   |   | 35.2  |   |
| Approach LOS                 |   | B   |   |   | B   |   |  | C   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 8.8   | 22.0  | 9.5   | 41.6  | 14.6  | 16.2  | 8.5  | 42.7  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 7.4   | 38.8  | 9.4   | 43.2  | 17.4  | 28.8  | 6.4  | 46.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 4.1   | 6.8   | 5.2   | 23.3  | 9.7   | 6.1   | 3.7  | 19.9  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.3   | 0.1   | 12.5  | 0.3   | 0.8   | 0.0  | 12.0  |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 22.1  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | C   |   |   |   |  |   |   |   |   |   |

Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

03/24/2022

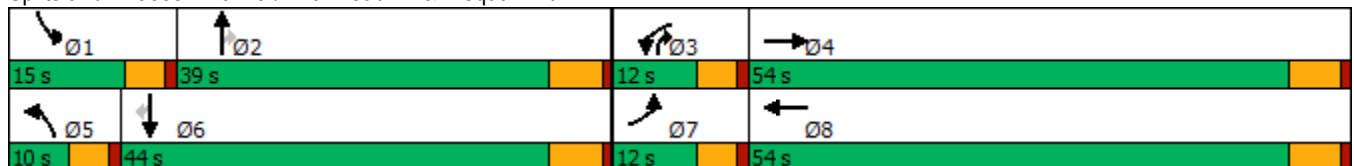


| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 35    | 1030  | 30    | 645   | 124   | 286   | 28    | 51    | 222   | 63    |
| Future Volume (vph)  | 35    | 1030  | 30    | 645   | 124   | 286   | 28    | 51    | 222   | 63    |
| Turn Type            | Prot  | NA    | Prot  | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |       |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6   | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 12.0  | 54.0  | 12.0  | 54.0  | 10.0  | 39.0  | 12.0  | 15.0  | 44.0  | 44.0  |
| Total Split (%)      | 10.0% | 45.0% | 10.0% | 45.0% | 8.3%  | 32.5% | 10.0% | 12.5% | 36.7% | 36.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 6.7   | 40.2  | 6.6   | 42.3  | 5.8   | 24.7  | 37.5  | 7.8   | 23.4  | 23.4  |
| Actuated g/C Ratio   | 0.07  | 0.42  | 0.07  | 0.44  | 0.06  | 0.26  | 0.39  | 0.08  | 0.25  | 0.25  |
| v/c Ratio            | 0.32  | 0.83  | 0.28  | 0.48  | 1.30  | 0.63  | 0.04  | 0.39  | 0.52  | 0.14  |
| Control Delay        | 57.3  | 31.6  | 56.2  | 21.3  | 228.0 | 42.0  | 0.1   | 56.5  | 36.6  | 2.1   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 57.3  | 31.6  | 56.2  | 21.3  | 228.0 | 42.0  | 0.1   | 56.5  | 36.6  | 2.1   |
| LOS                  | E     | C     | E     | C     | F     | D     | A     | E     | D     | A     |
| Approach Delay       |       | 32.3  |       | 22.8  |       | 92.2  |       |       | 33.2  |       |
| Approach LOS         |       | C     |       | C     |       | F     |       |       | C     |       |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 95.1             |                        |
| Natural Cycle: 80                       |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 1.30                 |                        |
| Intersection Signal Delay: 39.6         | Intersection LOS: D    |
| Intersection Capacity Utilization 65.2% | ICU Level of Service C |
| Analysis Period (min) 15                |                        |























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 35  | 1030  | 127   | 30  | 645   | 57  | 124   | 286   | 28  | 51  | 222   | 63  |
| Future Volume (veh/h)        | 35  | 1030  | 127   | 30  | 645   | 57  | 124   | 286   | 28  | 51  | 222   | 63  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 38  | 1120  | 138   | 33  | 701   | 62  | 135   | 311   | 30  | 55  | 241   | 68  |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 63  | 1420  | 175   | 57  | 1461  | 129   | 124   | 389   | 383   | 78  | 339   | 287   |
| Arrive On Green              | 0.04  | 0.44  | 0.44  | 0.03  | 0.44  | 0.44  | 0.07  | 0.20  | 0.20  | 0.05  | 0.18  | 0.18  |
| Sat Flow, veh/h              | 1714  | 3235  | 398   | 1714  | 3355  | 297   | 1714  | 1900  | 1610  | 1714  | 1900  | 1610  |
| Grp Volume(v), veh/h         | 38  | 624   | 634   | 33  | 377   | 386   | 135   | 311   | 30  | 55  | 241   | 68  |
| Grp Sat Flow(s),veh/h/ln     | 1714  | 1805  | 1828  | 1714  | 1805  | 1847  | 1714  | 1900  | 1610  | 1714  | 1900  | 1610  |
| Q Serve(g_s), s              | 1.6   | 22.2  | 22.3  | 1.4   | 11.2  | 11.2  | 5.4   | 11.7  | 1.1   | 2.4   | 8.9   | 2.7   |
| Cycle Q Clear(g_c), s        | 1.6   | 22.2  | 22.3  | 1.4   | 11.2  | 11.2  | 5.4   | 11.7  | 1.1   | 2.4   | 8.9   | 2.7   |
| Prop In Lane                 | 1.00  |   | 0.22  | 1.00  |   | 0.16  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 63  | 792   | 802   | 57  | 786   | 804   | 124   | 389   | 383   | 78  | 339   | 287   |
| V/C Ratio(X)                 | 0.61  | 0.79  | 0.79  | 0.58  | 0.48  | 0.48  | 1.09  | 0.80  | 0.08  | 0.71  | 0.71  | 0.24  |
| Avail Cap(c_a), veh/h        | 169   | 1161  | 1177  | 169   | 1161  | 1188  | 124   | 842   | 767   | 238   | 969   | 821   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 35.6  | 18.0  | 18.1  | 35.7  | 15.1  | 15.1  | 34.8  | 28.3  | 22.2  | 35.3  | 29.0  | 26.4  |
| Incr Delay (d2), s/veh       | 3.5   | 2.3   | 2.3   | 3.5   | 0.5   | 0.4   | 107.9   | 3.8   | 0.1   | 4.3   | 2.8   | 0.4   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.7   | 8.2   | 8.4   | 0.6   | 4.0   | 4.1   | 5.8   | 5.3   | 0.4   | 1.0   | 3.9   | 1.0   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 39.1  | 20.3  | 20.3  | 39.2  | 15.5  | 15.5  | 142.7   | 32.1  | 22.3  | 39.5  | 31.8  | 26.8  |
| LnGrp LOS                    | D   | C   | C   | D   | B   | B   | F   | C   | C   | D   | C   | C   |
| Approach Vol, veh/h          |   | 1296  |   |   | 796   |   |   | 476   |   |   | 364   |   |
| Approach Delay, s/veh        |   | 20.9  |   |   | 16.5  |   |   | 62.9  |   |   | 32.0  |   |
| Approach LOS                 |   | C   |   |   | B   |   |   | E   |   |   | C   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 8.0   | 21.1  | 7.1   | 38.7  | 10.0  | 19.1  | 7.3   | 38.4  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 10.4  | 33.2  | 7.4   | 48.2  | 5.4   | 38.2  | 7.4   | 48.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 4.4   | 13.7  | 3.4   | 24.3  | 7.4   | 10.9  | 3.6   | 13.2  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.7   | 0.0   | 8.6   | 0.0   | 1.4   | 0.0   | 4.7   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 27.9  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | C   |   |   |   |   |   |   |   |   |



Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖     | ↖↖    | ↖↖    | ↑↑    | ↑↗    |
| Traffic Volume (vph) | 166   | 352   | 407   | 957   | 1152  |
| Future Volume (vph)  | 166   | 352   | 407   | 957   | 1152  |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 29.0  | 29.0  | 29.0  | 91.0  | 62.0  |
| Total Split (%)      | 24.2% | 24.2% | 24.2% | 75.8% | 51.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 15.4  | 39.6  | 19.5  | 75.9  | 50.4  |
| Actuated g/C Ratio   | 0.15  | 0.39  | 0.19  | 0.74  | 0.49  |
| v/c Ratio            | 0.70  | 0.33  | 0.73  | 0.38  | 0.80  |
| Control Delay        | 57.8  | 20.0  | 48.6  | 5.6   | 26.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 57.8  | 20.0  | 48.6  | 5.6   | 26.6  |
| LOS                  | E     | B     | D     | A     | C     |
| Approach Delay       | 32.1  |       |       | 18.4  | 26.6  |
| Approach LOS         | C     |       |       | B     | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 102.4  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 24.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 73.1%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)  
03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 166  | 352  | 407  | 957  | 1152 | 148  |
| Future Volume (veh/h)        | 166  | 352  | 407  | 957  | 1152 | 148  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1800 | 1900 | 1700 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 178  | 378  | 438  | 1029 | 1239 | 159  |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 237  | 868  | 528  | 2677 | 1638 | 209  |
| Arrive On Green              | 0.14 | 0.14 | 0.17 | 0.74 | 0.51 | 0.51 |
| Sat Flow, veh/h              | 1714 | 2834 | 3141 | 3705 | 3315 | 411  |
| Grp Volume(v), veh/h         | 178  | 378  | 438  | 1029 | 692  | 706  |
| Grp Sat Flow(s),veh/h/ln     | 1714 | 1417 | 1570 | 1805 | 1805 | 1826 |
| Q Serve(g_s), s              | 9.0  | 9.6  | 12.1 | 9.3  | 27.4 | 27.8 |
| Cycle Q Clear(g_c), s        | 9.0  | 9.6  | 12.1 | 9.3  | 27.4 | 27.8 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.23 |
| Lane Grp Cap(c), veh/h       | 237  | 868  | 528  | 2677 | 919  | 929  |
| V/C Ratio(X)                 | 0.75 | 0.44 | 0.83 | 0.38 | 0.75 | 0.76 |
| Avail Cap(c_a), veh/h        | 466  | 1246 | 812  | 3409 | 1122 | 1135 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 37.2 | 24.9 | 36.1 | 4.2  | 17.6 | 17.7 |
| Incr Delay (d2), s/veh       | 1.8  | 0.1  | 4.4  | 0.1  | 2.3  | 2.4  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.8  | 8.0  | 4.9  | 2.6  | 11.1 | 11.4 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 39.0 | 25.1 | 40.5 | 4.3  | 19.9 | 20.1 |
| LnGrp LOS                    | D    | C    | D    | A    | B    | C    |
| Approach Vol, veh/h          | 556  |      |      | 1467 | 1398 |      |
| Approach Delay, s/veh        | 29.5 |      |      | 15.1 | 20.0 |      |
| Approach LOS                 | C    |      |      | B    | C    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 72.8 |      | 17.0 | 20.9 | 51.9 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 84.8 |      | 24.4 | 23.2 | 55.8 |
| Max Q Clear Time (g_c+1), s  |      | 11.3 |      | 11.6 | 14.1 | 29.8 |
| Green Ext Time (p_c), s      |      | 15.8 |      | 0.8  | 1.0  | 15.9 |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 19.4 |      |      |      |
| HCM 6th LOS                  |      |      | B    |      |      |      |

Timings  
7: Hesperia Rd. & Ottawa St.



| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       | ↔     | ↗     | ↘     | ↗     | ↘     | ↗     | ↗     | ↘     |
| Traffic Volume (vph) | 6     | 4     | 27    | 1     | 13    | 1346  | 96    | 35    | 1468  |
| Future Volume (vph)  | 6     | 4     | 27    | 1     | 13    | 1346  | 96    | 35    | 1468  |
| Turn Type            | Perm  | NA    | Perm  | NA    | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     |       | 4     |       | 8     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     | 4     |       | 8     |       |       |       | 2     |       |       |
| Detector Phase       | 4     | 4     | 8     | 8     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 10.0  | 10.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 26.6  | 26.6  | 26.6  | 26.6  | 9.6   | 23.2  | 23.2  | 9.6   | 23.2  |
| Total Split (s)      | 27.0  | 27.0  | 27.0  | 27.0  | 13.0  | 80.0  | 80.0  | 13.0  | 80.0  |
| Total Split (%)      | 22.5% | 22.5% | 22.5% | 22.5% | 10.8% | 66.7% | 66.7% | 10.8% | 66.7% |
| Yellow Time (s)      | 3.6   | 3.6   | 3.6   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  |       | 4.6   | 4.6   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             |       |       |       |       | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   |       |       |       |       | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | None  | Min   |
| Act Effct Green (s)  |       | 11.4  | 11.4  | 11.4  | 6.0   | 46.6  | 46.6  | 6.8   | 50.8  |
| Actuated g/C Ratio   |       | 0.18  | 0.18  | 0.18  | 0.10  | 0.75  | 0.75  | 0.11  | 0.81  |
| v/c Ratio            |       | 0.07  | 0.11  | 0.05  | 0.08  | 0.54  | 0.09  | 0.21  | 0.54  |
| Control Delay        |       | 24.2  | 33.0  | 18.1  | 36.8  | 9.3   | 4.1   | 36.6  | 6.3   |
| Queue Delay          |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          |       | 24.2  | 33.0  | 18.1  | 36.8  | 9.3   | 4.1   | 36.6  | 6.3   |
| LOS                  |       | C     | C     | B     | D     | A     | A     | D     | A     |
| Approach Delay       |       | 24.2  |       | 27.9  |       | 9.2   |       |       | 7.0   |
| Approach LOS         |       | C     |       | C     |       | A     |       |       | A     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 62.5             |                        |
| Natural Cycle: 80                       |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.54                 |                        |
| Intersection Signal Delay: 8.5          | Intersection LOS: A    |
| Intersection Capacity Utilization 57.9% | ICU Level of Service B |
| Analysis Period (min) 15                |                        |






















Splits and Phases: 7: Hesperia Rd. & Ottawa St.



HCM 6th Signalized Intersection Summary  
7: Hesperia Rd. & Ottawa St.

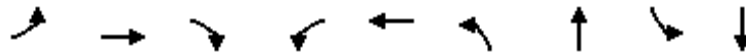
Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 6   | 4   | 10  | 27  | 1   | 13  | 13  | 1346  | 96  | 35  | 1468  | 1   |
| Future Volume (veh/h)        | 6   | 4   | 10  | 27  | 1   | 13  | 13  | 1346  | 96  | 35  | 1468  | 1   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 7   | 4   | 11  | 29  | 1   | 14  | 14  | 1463  | 104   | 38  | 1596  | 1   |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 113   | 64  | 95  | 288   | 12  | 172   | 30  | 2099  | 936   | 68  | 2234  | 1   |
| Arrive On Green              | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.02  | 0.58  | 0.58  | 0.04  | 0.60  | 0.60  |
| Sat Flow, veh/h              | 274   | 564   | 838   | 1421  | 108   | 1518  | 1714  | 3610  | 1610  | 1714  | 3702  | 2   |
| Grp Volume(v), veh/h         | 22  | 0   | 0   | 29  | 0   | 15  | 14  | 1463  | 104   | 38  | 778   | 819   |
| Grp Sat Flow(s),veh/h/ln     | 1676  | 0   | 0   | 1421  | 0   | 1627  | 1714  | 1805  | 1610  | 1714  | 1805  | 1900  |
| Q Serve(g_s), s              | 0.0   | 0.0   | 0.0   | 0.3   | 0.0   | 0.5   | 0.5   | 16.5  | 1.7   | 1.3   | 17.4  | 17.4  |
| Cycle Q Clear(g_c), s        | 0.7   | 0.0   | 0.0   | 0.9   | 0.0   | 0.5   | 0.5   | 16.5  | 1.7   | 1.3   | 17.4  | 17.4  |
| Prop In Lane                 | 0.32  |   | 0.50  | 1.00  |   | 0.93  | 1.00  |   | 1.00  | 1.00  |   | 0.00  |
| Lane Grp Cap(c), veh/h       | 271   | 0   | 0   | 288   | 0   | 184   | 30  | 2099  | 936   | 68  | 1089  | 1146  |
| V/C Ratio(X)                 | 0.08  | 0.00  | 0.00  | 0.10  | 0.00  | 0.08  | 0.47  | 0.70  | 0.11  | 0.56  | 0.71  | 0.71  |
| Avail Cap(c_a), veh/h        | 715   | 0   | 0   | 678   | 0   | 630   | 249   | 4603  | 2053  | 249   | 2302  | 2422  |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 0.00  | 0.00  | 1.00  | 0.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 23.1  | 0.0   | 0.0   | 23.2  | 0.0   | 23.0  | 28.2  | 8.5   | 5.4   | 27.3  | 8.0   | 8.0   |
| Incr Delay (d2), s/veh       | 0.1   | 0.0   | 0.0   | 0.2   | 0.0   | 0.2   | 4.2   | 0.4   | 0.1   | 2.7   | 0.9   | 0.8   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.3   | 0.0   | 0.0   | 0.3   | 0.0   | 0.2   | 0.2   | 3.7   | 0.3   | 0.5   | 3.8   | 4.0   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 23.2  | 0.0   | 0.0   | 23.3  | 0.0   | 23.2  | 32.4  | 8.9   | 5.5   | 30.0  | 8.9   | 8.8   |
| LnGrp LOS                    | C   | A   | A   | C   | A   | C   | C   | A   | A   | C   | A   | A   |
| Approach Vol, veh/h          |   | 22  |   |   | 44  |   |   | 1581  |   |   | 1635  |   |
| Approach Delay, s/veh        |   | 23.2  |   |   | 23.3  |   |   | 8.9   |   |   | 9.4   |   |
| Approach LOS                 |   | C   |   |   | C   |   |   | A   |   |   | A   |   |
| Timer - Assigned Phs         | 1   | 2   |   | 4   | 5   | 6   |   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.9   | 39.8  |   | 11.1  | 5.6   | 41.1  |   | 11.1  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   |   | 4.6   | 4.6   | 6.2   |   | 4.6   |   |   |   |   |
| Max Green Setting (Gmax), s  | 8.4   | 73.8  |   | 22.4  | 8.4   | 73.8  |   | 22.4  |   |   |   |   |
| Max Q Clear Time (g_c+1), s  | 3.3   | 18.5  |   | 2.7   | 2.5   | 19.4  |   | 2.9   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 15.1  |   | 0.0   | 0.0   | 15.1  |   | 0.1   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 9.4   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | A   |   |   |   |   |   |   |   |   |

Timings

8: Hesperia Rd. & Nisqualli Rd.



| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations  | ↖↗    | ↑     | ↖↗    | ↖     | ↕     | ↖↗    | ↕     | ↖    | ↕     |
| Traffic Volume (vph) | 236   | 90    | 499   | 101   | 88    | 331   | 1449  | 20   | 1349  |
| Future Volume (vph)  | 236   | 90    | 499   | 101   | 88    | 331   | 1449  | 20   | 1349  |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |       |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6   | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 13.0  | 33.0  | 20.2  | 11.0  | 31.0  | 20.2  | 66.2  | 9.8  | 55.8  |
| Total Split (%)      | 10.8% | 27.5% | 16.8% | 9.2%  | 25.8% | 16.8% | 55.2% | 8.2% | 46.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 8.4   | 12.6  | 33.2  | 6.4   | 10.6  | 14.8  | 65.2  | 5.1  | 49.6  |
| Actuated g/C Ratio   | 0.08  | 0.12  | 0.32  | 0.06  | 0.10  | 0.14  | 0.62  | 0.05 | 0.47  |
| v/c Ratio            | 0.99  | 0.43  | 0.60  | 1.06  | 0.39  | 0.79  | 0.76  | 0.27 | 0.92  |
| Control Delay        | 103.5 | 49.3  | 33.3  | 152.9 | 30.5  | 56.8  | 18.1  | 56.8 | 35.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 103.5 | 49.3  | 33.3  | 152.9 | 30.5  | 56.8  | 18.1  | 56.8 | 35.9  |
| LOS                  | F     | D     | C     | F     | C     | E     | B     | E    | D     |
| Approach Delay       |       | 55.2  |       |       | 81.7  |       | 24.9  |      | 36.2  |
| Approach LOS         |       | E     |       |       | F     |       | C     |      | D     |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 104.6            |                        |
| Natural Cycle: 130                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 1.06                 |                        |
| Intersection Signal Delay: 37.4         | Intersection LOS: D    |
| Intersection Capacity Utilization 84.2% | ICU Level of Service E |
| Analysis Period (min) 15                |                        |




























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |    |  |    |    |  |  |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |   |   |   |   |   |  |   |   |
| Traffic Volume (veh/h)       | 236   | 90  | 499   | 101   | 88  | 52  | 331  | 1449  | 117   | 20  | 1349  | 89  |
| Future Volume (veh/h)        | 236   | 90  | 499   | 101   | 88  | 52  | 331  | 1449  | 117   | 20  | 1349  | 89  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1800  | 1900  | 1900  | 1700   | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 257   | 98  | 542   | 110   | 96  | 57  | 360  | 1575  | 127   | 22  | 1466  | 97  |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 239   | 366   | 908   | 97  | 392   | 217   | 413  | 1836  | 147   | 38  | 1501  | 99  |
| Arrive On Green              | 0.07  | 0.19  | 0.19  | 0.06  | 0.18  | 0.18  | 0.13   | 0.54  | 0.54  | 0.02  | 0.44  | 0.44  |
| Sat Flow, veh/h              | 3238  | 1900  | 2834  | 1714  | 2241  | 1241  | 3238   | 3385  | 271   | 1714  | 3438  | 227   |
| Grp Volume(v), veh/h         | 257   | 98  | 542   | 110   | 76  | 77  | 360  | 834   | 868   | 22  | 767   | 796   |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1900  | 1417  | 1714  | 1805  | 1677  | 1619   | 1805  | 1851  | 1714  | 1805  | 1859  |
| Q Serve(g_s), s              | 8.4   | 5.0   | 18.3  | 6.4   | 4.1   | 4.5   | 12.4   | 44.7  | 45.9  | 1.4   | 47.3  | 47.9  |
| Cycle Q Clear(g_c), s        | 8.4   | 5.0   | 18.3  | 6.4   | 4.1   | 4.5   | 12.4   | 44.7  | 45.9  | 1.4   | 47.3  | 47.9  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.74  | 1.00   |   | 0.15  | 1.00  |   | 0.12  |
| Lane Grp Cap(c), veh/h       | 239   | 366   | 908   | 97  | 316   | 294   | 413  | 979   | 1004  | 38  | 788   | 812   |
| V/C Ratio(X)                 | 1.07  | 0.27  | 0.60  | 1.14  | 0.24  | 0.26  | 0.87   | 0.85  | 0.86  | 0.58  | 0.97  | 0.98  |
| Avail Cap(c_a), veh/h        | 239   | 455   | 1040  | 97  | 400   | 372   | 445  | 979   | 1004  | 78  | 788   | 812   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 52.6  | 39.0  | 32.4  | 53.6  | 40.3  | 40.5  | 48.6   | 22.1  | 22.4  | 55.0  | 31.3  | 31.5  |
| Incr Delay (d2), s/veh       | 79.0  | 0.4   | 0.7   | 133.8   | 0.4   | 0.5   | 15.2   | 7.3   | 8.0   | 5.2   | 25.4  | 26.8  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 5.9   | 2.3   | 6.1   | 6.3   | 1.8   | 1.9   | 5.7  | 18.5  | 19.6  | 0.7   | 24.2  | 25.5  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 131.5   | 39.4  | 33.2  | 187.4   | 40.7  | 41.0  | 63.8   | 29.5  | 30.4  | 60.2  | 56.8  | 58.3  |
| LnGrp LOS                    | F   | D   | C   | F   | D   | D   | E  | C   | C   | E   | E   | E   |
| Approach Vol, veh/h          |   | 897   |   |   | 263   |   |  | 2062  |   |   | 1585  |   |
| Approach Delay, s/veh        |   | 62.0  |   |   | 102.2   |   |  | 35.8  |   |   | 57.6  |   |
| Approach LOS                 |   | E   |   |   | F   |   |  | D   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 7.1   | 67.8  | 11.0  | 27.7  | 19.1  | 55.8  | 13.0   | 25.7  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.2   | 60.0  | 6.4   | 27.2  | 15.6  | 49.6  | 8.4  | 25.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.4   | 47.9  | 8.4   | 20.3  | 14.4  | 49.9  | 10.4   | 6.5   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 8.1   | 0.0   | 1.6   | 0.1   | 0.0   | 0.0  | 0.6   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 51.5  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |  |   |   |   |   |   |

Timings  
9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

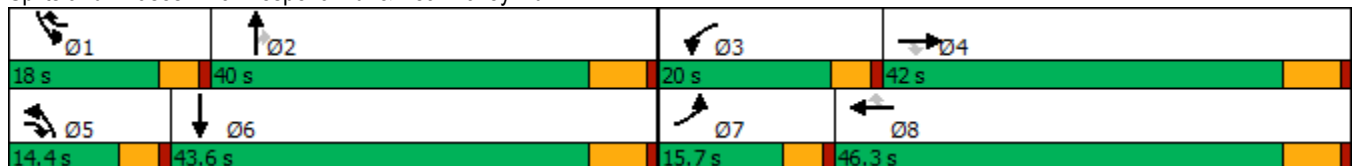


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↗     | ↖↗    | ↑↑↑   | ↗     | ↖↗    | ↑↑    | ↗     | ↖↗    | ↑↘    |
| Traffic Volume (vph) | 239   | 1592  | 150   | 388   | 1733  | 258   | 133   | 672   | 385   | 330   | 435   |
| Future Volume (vph)  | 239   | 1592  | 150   | 388   | 1733  | 258   | 133   | 672   | 385   | 330   | 435   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 15.7  | 42.0  | 14.4  | 20.0  | 46.3  | 18.0  | 14.4  | 40.0  | 40.0  | 18.0  | 43.6  |
| Total Split (%)      | 13.1% | 35.0% | 12.0% | 16.7% | 38.6% | 15.0% | 12.0% | 33.3% | 33.3% | 15.0% | 36.3% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 11.0  | 35.8  | 50.9  | 15.4  | 40.3  | 59.9  | 8.8   | 31.4  | 31.4  | 13.4  | 36.0  |
| Actuated g/C Ratio   | 0.09  | 0.30  | 0.43  | 0.13  | 0.34  | 0.51  | 0.07  | 0.27  | 0.27  | 0.11  | 0.31  |
| v/c Ratio            | 0.87  | 1.07  | 0.21  | 1.01  | 1.04  | 0.32  | 0.60  | 0.74  | 0.70  | 0.99  | 0.55  |
| Control Delay        | 81.6  | 84.6  | 10.7  | 97.7  | 70.7  | 13.9  | 64.2  | 44.7  | 24.5  | 96.9  | 34.3  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 81.6  | 84.6  | 10.7  | 97.7  | 70.7  | 13.9  | 64.2  | 44.7  | 24.5  | 96.9  | 34.3  |
| LOS                  | F     | F     | B     | F     | E     | B     | E     | D     | C     | F     | C     |
| Approach Delay       |       | 78.7  |       |       | 69.0  |       |       | 40.3  |       |       | 57.5  |
| Approach LOS         |       | E     |       |       | E     |       |       | D     |       |       | E     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 117.7  
 Natural Cycle: 125  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 65.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 90.2%  
 ICU Level of Service E  
 Analysis Period (min) 15



































Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |    |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 239   | 1592  | 150   | 388   | 1733  | 258   | 133  | 672   | 385   | 330   | 435   | 124   |
| Future Volume (veh/h)        | 239   | 1592  | 150   | 388   | 1733  | 258   | 133  | 672   | 385   | 330   | 435   | 124   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700   | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 254   | 1694  | 160   | 413   | 1844  | 274   | 141  | 715   | 410   | 351   | 463   | 132   |
| Peak Hour Factor             | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  | 0.94   | 0.94  | 0.94  | 0.94  | 0.94  | 0.94  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 292   | 1557  | 581   | 406   | 1745  | 723   | 191  | 1000  | 446   | 353   | 913   | 258   |
| Arrive On Green              | 0.09  | 0.30  | 0.30  | 0.13  | 0.34  | 0.34  | 0.06   | 0.28  | 0.28  | 0.11  | 0.33  | 0.33  |
| Sat Flow, veh/h              | 3141  | 5187  | 1610  | 3141  | 5187  | 1610  | 3141   | 3610  | 1610  | 3141  | 2777  | 786   |
| Grp Volume(v), veh/h         | 254   | 1694  | 160   | 413   | 1844  | 274   | 141  | 715   | 410   | 351   | 300   | 295   |
| Grp Sat Flow(s),veh/h/ln     | 1570  | 1729  | 1610  | 1570  | 1729  | 1610  | 1570   | 1805  | 1610  | 1570  | 1805  | 1759  |
| Q Serve(g_s), s              | 9.5   | 35.8  | 8.4   | 15.4  | 40.1  | 13.5  | 5.3  | 21.3  | 29.4  | 13.3  | 15.9  | 16.2  |
| Cycle Q Clear(g_c), s        | 9.5   | 35.8  | 8.4   | 15.4  | 40.1  | 13.5  | 5.3  | 21.3  | 29.4  | 13.3  | 15.9  | 16.2  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 0.45  |
| Lane Grp Cap(c), veh/h       | 292   | 1557  | 581   | 406   | 1745  | 723   | 191  | 1000  | 446   | 353   | 593   | 578   |
| V/C Ratio(X)                 | 0.87  | 1.09  | 0.28  | 1.02  | 1.06  | 0.38  | 0.74   | 0.71  | 0.92  | 0.99  | 0.51  | 0.51  |
| Avail Cap(c_a), veh/h        | 292   | 1557  | 581   | 406   | 1745  | 723   | 258  | 1023  | 456   | 353   | 593   | 578   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 53.3  | 41.7  | 27.0  | 51.9  | 39.6  | 21.8  | 55.1   | 38.9  | 41.8  | 52.9  | 32.2  | 32.3  |
| Incr Delay (d2), s/veh       | 22.4  | 50.6  | 0.3   | 49.3  | 38.4  | 0.3   | 4.3  | 2.3   | 23.4  | 46.3  | 0.7   | 0.8   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 4.7   | 22.4  | 3.3   | 8.8   | 22.9  | 5.1   | 2.2  | 9.7   | 14.5  | 7.5   | 7.1   | 7.0   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 75.7  | 92.3  | 27.3  | 101.2   | 78.0  | 22.2  | 59.3   | 41.2  | 65.3  | 99.1  | 32.9  | 33.0  |
| LnGrp LOS                    | E   | F   | C   | F   | F   | C   | E  | D   | E   | F   | C   | C   |
| Approach Vol, veh/h          |   | 2108  |   |   | 2531  |   |  | 1266  |   |   | 946   |   |
| Approach Delay, s/veh        |   | 85.4  |   |   | 75.7  |   |  | 51.0  |   |   | 57.5  |   |
| Approach LOS                 |   | F   |   |   | E   |   |  | D   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 18.0  | 39.2  | 20.0  | 42.0  | 11.8  | 45.4  | 15.7   | 46.3  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6  | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 13.4  | 33.8  | 15.4  | 35.8  | 9.8   | 37.4  | 11.1   | 40.1  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 15.3  | 31.4  | 17.4  | 37.8  | 7.3   | 18.2  | 11.5   | 42.1  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.6   | 0.0   | 0.0   | 0.0   | 5.1   | 0.0  | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 71.6  |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | E   |   |   |  |   |   |   |   |   |



Timings

1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

03/24/2022

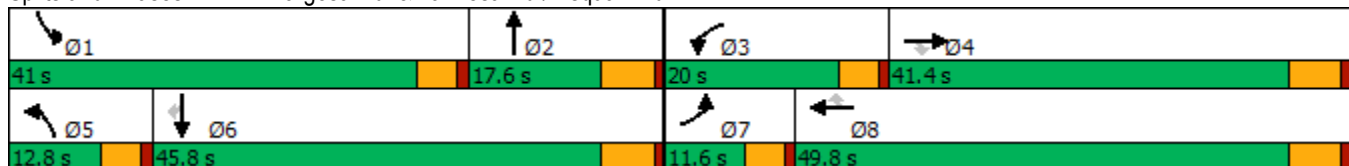


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↕     | ↗     | ↖↗    | ↕↕↕   | ↗     | ↖↗    | ↕↕    | ↗     | ↖↗    | ↕↕    | ↗     |
| Traffic Volume (vph) | 181   | 1191  | 176   | 456   | 1873  | 929   | 170   | 408   | 509   | 1087  | 818   | 520   |
| Future Volume (vph)  | 181   | 1191  | 176   | 456   | 1873  | 929   | 170   | 408   | 509   | 1087  | 818   | 520   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Free  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | Free  |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5     | 2     |       | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |       | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 27.8  | 27.8  | 9.5   | 27.8  | 27.8  | 9.5   | 10.8  |       | 9.5   | 27.8  | 27.8  |
| Total Split (s)      | 11.6  | 41.4  | 41.4  | 20.0  | 49.8  | 49.8  | 12.8  | 17.6  |       | 41.0  | 45.8  | 45.8  |
| Total Split (%)      | 9.7%  | 34.5% | 34.5% | 16.7% | 41.5% | 41.5% | 10.7% | 14.7% |       | 34.2% | 38.2% | 38.2% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   | 4.8   | 3.5   | 4.8   |       | 3.5   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |       | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   | 5.8   | 4.5   | 5.8   |       | 4.5   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   |       | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |       | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | Min   | None  | Min   | Min   | None  | None  |       | None  | None  | None  |
| Act Effct Green (s)  | 7.1   | 35.6  | 35.6  | 15.5  | 44.0  | 44.0  | 8.2   | 11.8  | 120.0 | 36.5  | 40.1  | 40.1  |
| Actuated g/C Ratio   | 0.06  | 0.30  | 0.30  | 0.13  | 0.37  | 0.37  | 0.07  | 0.10  | 1.00  | 0.30  | 0.33  | 0.33  |
| v/c Ratio            | 0.97  | 1.08  | 0.29  | 1.12  | 0.91  | 0.92  | 0.79  | 1.12  | 0.32  | 1.13  | 0.66  | 0.83  |
| Control Delay        | 114.0 | 90.9  | 5.2   | 126.8 | 44.2  | 25.0  | 79.3  | 130.7 | 0.5   | 110.1 | 37.1  | 39.0  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 114.0 | 90.9  | 5.2   | 126.8 | 44.2  | 25.0  | 79.3  | 130.7 | 0.5   | 110.1 | 37.1  | 39.0  |
| LOS                  | F     | F     | A     | F     | D     | C     | E     | F     | A     | F     | D     | D     |
| Approach Delay       |       | 83.8  |       |       | 50.3  |       |       | 61.7  |       |       | 70.2  |       |
| Approach LOS         |       | F     |       |       | D     |       |       | E     |       |       | E     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 63.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 110.6%  
 ICU Level of Service H  
 Analysis Period (min) 15
































Splits and Phases: 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
 1: Armargosa Rd. & La Mesa Rd./Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |    |   |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |   |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 181   | 1191  | 176   | 456   | 1873  | 929   | 170   | 408   | 509   | 1087  | 818   | 520   |
| Future Volume (veh/h)        | 181   | 1191  | 176   | 456   | 1873  | 929   | 170   | 408   | 509   | 1087  | 818   | 520   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 185   | 1215  | 134   | 465   | 1911  | 611   | 173   | 416   | 0   | 1109  | 835   | 317   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 192   | 1127  | 478   | 418   | 2090  | 590   | 223   | 374   |   | 985   | 1267  | 537   |
| Arrive On Green              | 0.06  | 0.30  | 0.30  | 0.13  | 0.37  | 0.37  | 0.07  | 0.10  | 0.00  | 0.30  | 0.33  | 0.33  |
| Sat Flow, veh/h              | 3238  | 3800  | 1610  | 3238  | 5700  | 1610  | 3238  | 3800  | 1610  | 3238  | 3800  | 1610  |
| Grp Volume(v), veh/h         | 185   | 1215  | 134   | 465   | 1911  | 611   | 173   | 416   | 0   | 1109  | 835   | 317   |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  | 1619  | 1900  | 1610  |
| Q Serve(g_s), s              | 6.8   | 35.6  | 7.7   | 15.5  | 38.3  | 44.0  | 6.3   | 11.8  | 0.0   | 36.5  | 22.5  | 19.6  |
| Cycle Q Clear(g_c), s        | 6.8   | 35.6  | 7.7   | 15.5  | 38.3  | 44.0  | 6.3   | 11.8  | 0.0   | 36.5  | 22.5  | 19.6  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 192   | 1127  | 478   | 418   | 2090  | 590   | 223   | 374   |   | 985   | 1267  | 537   |
| V/C Ratio(X)                 | 0.97  | 1.08  | 0.28  | 1.11  | 0.91  | 1.03  | 0.77  | 1.11  |   | 1.13  | 0.66  | 0.59  |
| Avail Cap(c_a), veh/h        | 192   | 1127  | 478   | 418   | 2090  | 590   | 224   | 374   |   | 985   | 1267  | 537   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 0.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 56.3  | 42.2  | 32.4  | 52.2  | 36.2  | 38.0  | 54.9  | 54.1  | 0.0   | 41.7  | 34.2  | 33.2  |
| Incr Delay (d2), s/veh       | 54.6  | 50.4  | 0.3   | 77.9  | 6.8   | 46.3  | 14.1  | 80.8  | 0.0   | 69.9  | 1.3   | 1.7   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 4.2   | 23.8  | 0.0   | 10.6  | 18.1  | 24.0  | 2.9   | 9.7   | 0.0   | 23.5  | 10.2  | 7.6   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 110.9   | 92.6  | 32.7  | 130.2   | 43.0  | 84.3  | 69.1  | 134.9   | 0.0   | 111.7   | 35.4  | 34.9  |
| LnGrp LOS                    | F   | F   | C   | F   | D   | F   | E   | F   |   | F   | D   | C   |
| Approach Vol, veh/h          |   | 1534  |   |   | 2987  |   |   | 589   | A   |   | 2261  |   |
| Approach Delay, s/veh        |   | 89.6  |   |   | 65.0  |   |   | 115.6   |   |   | 72.8  |   |
| Approach LOS                 |   | F   |   |   | E   |   |   | F   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 41.0  | 17.6  | 20.0  | 41.4  | 12.8  | 45.8  | 11.6  | 49.8  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.5   | 5.8   | 4.5   | 5.8   | 4.5   | 5.8   | 4.5   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 36.5  | 11.8  | 15.5  | 35.6  | 8.3   | 40.0  | 7.1   | 44.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 38.5  | 13.8  | 17.5  | 37.6  | 8.3   | 24.5  | 8.8   | 46.0  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 5.8   | 0.0   | 0.0   |   |   |   |   |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 76.5 |
| HCM 6th LOS        | E    |

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

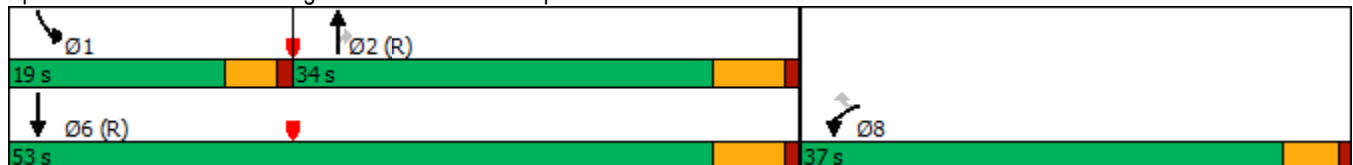
Timings  
2: Armargosa Rd. & I-15 SB Ramps

|                      | ↙     | ↖     | ↑     | ↗     | ↘     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations  | ↗↗    | ↗     | ↗↗    | ↗     | ↘     | ↗↗    |
| Traffic Volume (vph) | 1262  | 60    | 1013  | 501   | 212   | 1199  |
| Future Volume (vph)  | 1262  | 60    | 1013  | 501   | 212   | 1199  |
| Turn Type            | Prot  | Perm  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 8     |       | 2     |       | 1     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 8     | 8     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.7   | 9.7   | 10.8  | 10.8  | 9.5   | 10.8  |
| Total Split (s)      | 37.0  | 37.0  | 34.0  | 34.0  | 19.0  | 53.0  |
| Total Split (%)      | 41.1% | 41.1% | 37.8% | 37.8% | 21.1% | 58.9% |
| Yellow Time (s)      | 3.7   | 3.7   | 4.8   | 4.8   | 3.5   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.7   | 4.7   | 5.8   | 5.8   | 4.5   | 5.8   |
| Lead/Lag             |       |       | Lag   | Lag   | Lead  |       |
| Lead-Lag Optimize?   |       |       | Yes   | Yes   | Yes   |       |
| Recall Mode          | None  | None  | C-Max | C-Max | None  | C-Max |
| Act Effct Green (s)  | 32.3  | 32.3  | 28.8  | 28.8  | 13.9  | 47.2  |
| Actuated g/C Ratio   | 0.36  | 0.36  | 0.32  | 0.32  | 0.15  | 0.52  |
| v/c Ratio            | 1.09  | 0.10  | 0.95  | 0.61  | 0.83  | 0.69  |
| Control Delay        | 83.8  | 5.8   | 48.7  | 5.6   | 61.8  | 18.3  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 83.8  | 5.8   | 48.7  | 5.6   | 61.8  | 18.3  |
| LOS                  | F     | A     | D     | A     | E     | B     |
| Approach Delay       | 80.2  |       | 34.4  |       |       | 24.8  |
| Approach LOS         | F     |       | C     |       |       | C     |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.09  
 Intersection Signal Delay: 45.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 88.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 2: Armargosa Rd. & I-15 SB Ramps



HCM 6th Signalized Intersection Summary  
 2: Armargosa Rd. & I-15 SB Ramps

Ottawa Business Center (JN 14035)  
 03/24/2022



| Movement                     | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          | ↔↔   | ↔    | ↑↑   | ↔    | ↔    | ↑↑   |
| Traffic Volume (veh/h)       | 1262 | 60   | 1013 | 501  | 212  | 1199 |
| Future Volume (veh/h)        | 1262 | 60   | 1013 | 501  | 212  | 1199 |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 |      | 1.00 | 1.00 |      |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      | No   |      |      | No   |
| Adj Sat Flow, veh/h/ln       | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 1372 | 65   | 1101 | 545  | 230  | 1303 |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 1260 | 578  | 1182 | 527  | 266  | 1893 |
| Arrive On Green              | 0.36 | 0.36 | 0.33 | 0.33 | 0.15 | 0.52 |
| Sat Flow, veh/h              | 3510 | 1610 | 3705 | 1610 | 1810 | 3705 |
| Grp Volume(v), veh/h         | 1372 | 65   | 1101 | 545  | 230  | 1303 |
| Grp Sat Flow(s),veh/h/ln     | 1755 | 1610 | 1805 | 1610 | 1810 | 1805 |
| Q Serve(g_s), s              | 32.3 | 2.4  | 26.6 | 29.5 | 11.2 | 24.2 |
| Cycle Q Clear(g_c), s        | 32.3 | 2.4  | 26.6 | 29.5 | 11.2 | 24.2 |
| Prop In Lane                 | 1.00 | 1.00 |      | 1.00 | 1.00 |      |
| Lane Grp Cap(c), veh/h       | 1260 | 578  | 1182 | 527  | 266  | 1893 |
| V/C Ratio(X)                 | 1.09 | 0.11 | 0.93 | 1.03 | 0.87 | 0.69 |
| Avail Cap(c_a), veh/h        | 1260 | 578  | 1182 | 527  | 292  | 1893 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 0.14 | 0.14 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 28.8 | 19.3 | 29.3 | 30.3 | 37.5 | 15.9 |
| Incr Delay (d2), s/veh       | 53.2 | 0.0  | 2.7  | 24.2 | 21.5 | 2.1  |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 21.1 | 0.8  | 10.9 | 14.0 | 6.3  | 9.0  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 82.1 | 19.3 | 31.9 | 54.5 | 59.0 | 18.0 |
| LnGrp LOS                    | F    | B    | C    | F    | E    | B    |
| Approach Vol, veh/h          | 1437 |      | 1646 |      |      | 1533 |
| Approach Delay, s/veh        | 79.2 |      | 39.4 |      |      | 24.1 |
| Approach LOS                 | E    |      | D    |      |      | C    |
| Timer - Assigned Phs         | 1    | 2    |      |      | 6    | 8    |
| Phs Duration (G+Y+Rc), s     | 17.7 | 35.3 |      |      | 53.0 | 37.0 |
| Change Period (Y+Rc), s      | 4.5  | 5.8  |      |      | 5.8  | 4.7  |
| Max Green Setting (Gmax), s  | 14.5 | 28.2 |      |      | 47.2 | 32.3 |
| Max Q Clear Time (g_c+11), s | 13.2 | 31.5 |      |      | 26.2 | 34.3 |
| Green Ext Time (p_c), s      | 0.1  | 0.0  |      |      | 9.2  | 0.0  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 46.7 |      |      |      |
| HCM 6th LOS                  |      |      | D    |      |      |      |

Timings  
3: I-15 NB Ramps & Nisqualli Rd.

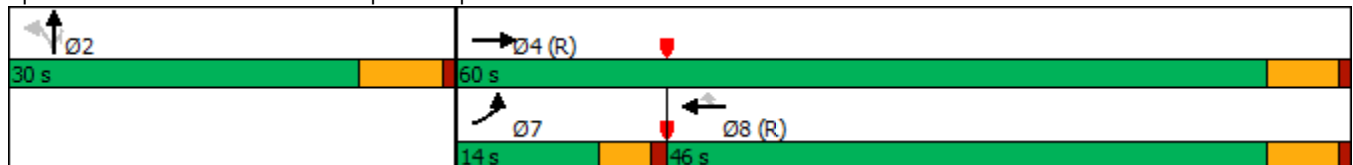


| Lane Group           | EBL   | EBT   | WBT   | WBR   | NBL   | NBT   | NBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↶↶    | ↶↶↶   | ↶↶↶   | ↷     | ↶     | ↶     | ↷     |
| Traffic Volume (vph) | 371   | 2410  | 2619  | 551   | 632   | 0     | 595   |
| Future Volume (vph)  | 371   | 2410  | 2619  | 551   | 632   | 0     | 595   |
| Turn Type            | Prot  | NA    | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 8     |       |       | 2     |       |
| Permitted Phases     |       |       |       | 8     | 2     |       | 2     |
| Detector Phase       | 7     | 4     | 8     | 8     | 2     | 2     | 2     |
| Switch Phase         |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 10.8  | 22.8  | 22.8  | 11.5  | 11.5  | 11.5  |
| Total Split (s)      | 14.0  | 60.0  | 46.0  | 46.0  | 30.0  | 30.0  | 30.0  |
| Total Split (%)      | 15.6% | 66.7% | 51.1% | 51.1% | 33.3% | 33.3% | 33.3% |
| Yellow Time (s)      | 3.5   | 4.8   | 4.8   | 4.8   | 5.5   | 5.5   | 5.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 5.8   | 5.8   | 5.8   | 6.5   | 6.5   | 6.5   |
| Lead/Lag             | Lead  |       | Lag   | Lag   |       |       |       |
| Lead-Lag Optimize?   | Yes   |       | Yes   | Yes   |       |       |       |
| Recall Mode          | None  | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effct Green (s)  | 9.5   | 54.2  | 40.2  | 40.2  | 23.5  | 23.5  | 23.5  |
| Actuated g/C Ratio   | 0.11  | 0.60  | 0.45  | 0.45  | 0.26  | 0.26  | 0.26  |
| v/c Ratio            | 1.03  | 0.79  | 1.15  | 0.58  | 0.72  | 0.72  | 1.25  |
| Control Delay        | 95.4  | 15.9  | 100.3 | 6.2   | 40.9  | 41.0  | 155.7 |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 95.4  | 15.9  | 100.3 | 6.2   | 40.9  | 41.0  | 155.7 |
| LOS                  | F     | B     | F     | A     | D     | D     | F     |
| Approach Delay       |       | 26.5  | 83.9  |       |       | 96.6  |       |
| Approach LOS         |       | C     | F     |       |       | F     |       |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.25  
 Intersection Signal Delay: 63.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 93.7%  
 ICU Level of Service F  
 Analysis Period (min) 15

























Splits and Phases: 3: I-15 NB Ramps & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
3: I-15 NB Ramps & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|  |    |    |  |  |    |  |  |  |  |  |  |  |
|--|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement   | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations  |   |    |   |   |    |  |  |  |  |   |   |   |
| Traffic Volume (veh/h)   | 371   | 2410  | 0   | 0   | 2619  | 551   | 632  | 0   | 595   | 0   | 0   | 0   |
| Future Volume (veh/h)  | 371   | 2410  | 0   | 0   | 2619  | 551   | 632  | 0   | 595   | 0   | 0   | 0   |
| Initial Q (Qb), veh  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Ped-Bike Adj(A_pbT)  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Parking Bus, Adj   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Work Zone On Approach  |   | No  |   |   | No  |   |  | No  |   |   |   |   |
| Adj Sat Flow, veh/h/ln   | 1900  | 1900  | 0   | 0   | 1900  | 1900  | 1900   | 1900  | 1900  |   |   |   |
| Adj Flow Rate, veh/h   | 379   | 2459  | 0   | 0   | 2672  | 424   | 645  | 0   | 408   |   |   |   |
| Peak Hour Factor   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  |   |   |   |
| Percent Heavy Veh, %   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   |   |   |   |
| Cap, veh/h   | 371   | 3124  | 0   | 0   | 2317  | 719   | 945  | 0   | 420   |   |   |   |
| Arrive On Green  | 0.11  | 0.60  | 0.00  | 0.00  | 0.45  | 0.45  | 0.26   | 0.00  | 0.26  |   |   |   |
| Sat Flow, veh/h  | 3510  | 5358  | 0   | 0   | 5358  | 1610  | 3619   | 0   | 1610  |   |   |   |
| Grp Volume(v), veh/h   | 379   | 2459  | 0   | 0   | 2672  | 424   | 645  | 0   | 408   |   |   |   |
| Grp Sat Flow(s),veh/h/ln   | 1755  | 1729  | 0   | 0   | 1729  | 1610  | 1810   | 0   | 1610  |   |   |   |
| Q Serve(g_s), s  | 9.5   | 32.3  | 0.0   | 0.0   | 40.2  | 17.8  | 14.4   | 0.0   | 22.6  |   |   |   |
| Cycle Q Clear(g_c), s  | 9.5   | 32.3  | 0.0   | 0.0   | 40.2  | 17.8  | 14.4   | 0.0   | 22.6  |   |   |   |
| Prop In Lane   | 1.00  |   | 0.00  | 0.00  |   | 1.00  | 1.00   |   | 1.00  |   |   |   |
| Lane Grp Cap(c), veh/h   | 371   | 3124  | 0   | 0   | 2317  | 719   | 945  | 0   | 420   |   |   |   |
| V/C Ratio(X)   | 1.02  | 0.79  | 0.00  | 0.00  | 1.15  | 0.59  | 0.68   | 0.00  | 0.97  |   |   |   |
| Avail Cap(c_a), veh/h  | 371   | 3124  | 0   | 0   | 2317  | 719   | 945  | 0   | 420   |   |   |   |
| HCM Platoon Ratio  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  |   |   |   |
| Upstream Filter(I)   | 0.18  | 0.18  | 0.00  | 0.00  | 0.09  | 0.09  | 1.00   | 0.00  | 1.00  |   |   |   |
| Uniform Delay (d), s/veh   | 40.3  | 13.5  | 0.0   | 0.0   | 24.9  | 18.7  | 29.9   | 0.0   | 32.9  |   |   |   |
| Incr Delay (d2), s/veh   | 25.8  | 0.4   | 0.0   | 0.0   | 69.5  | 0.3   | 2.0  | 0.0   | 36.1  |   |   |   |
| Initial Q Delay(d3),s/veh  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |   |   |   |
| %ile BackOfQ(50%),veh/ln   | 5.2   | 10.1  | 0.0   | 0.0   | 29.2  | 6.0   | 5.9  | 0.0   | 12.1  |   |   |   |
| Unsig. Movement Delay, s/veh   |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh   | 66.1  | 13.9  | 0.0   | 0.0   | 94.4  | 19.0  | 31.9   | 0.0   | 69.0  |   |   |   |
| LnGrp LOS  | F   | B   | A   | A   | F   | B   | C  | A   | E   |   |   |   |
| Approach Vol, veh/h  |   | 2838  |   |   | 3096  |   |  | 1053  |   |   |   |   |
| Approach Delay, s/veh  |   | 20.9  |   |   | 84.1  |   |  | 46.3  |   |   |   |   |
| Approach LOS   |   | C   |   |   | F   |   |  | D   |   |   |   |   |
| Timer - Assigned Phs   |   | 2   |   | 4   |   |   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s   |   | 30.0  |   | 60.0  |   |   | 14.0   | 46.0  |   |   |   |   |
| Change Period (Y+Rc), s  |   | 6.5   |   | 5.8   |   |   | 4.5  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  |   | 23.5  |   | 54.2  |   |   | 9.5  | 40.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s   |   | 24.6  |   | 34.3  |   |   | 11.5   | 42.2  |   |   |   |   |
| Green Ext Time (p_c), s  |   | 0.0   |   | 16.4  |   |   | 0.0  | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay   |   |   |   | 52.7  |   |   |  |   |   |   |   |   |
| HCM 6th LOS  |   |   |   | D   |   |   |  |   |   |   |   |   |
| <b>Notes</b>   |   |   |   |   |   |   |  |   |   |   |   |   |
| User approved volume balancing among the lanes for turning movement. |   |   |   |   |   |   |  |   |   |   |   |   |

Timings

4: Mariposa & Nisqualli Rd.

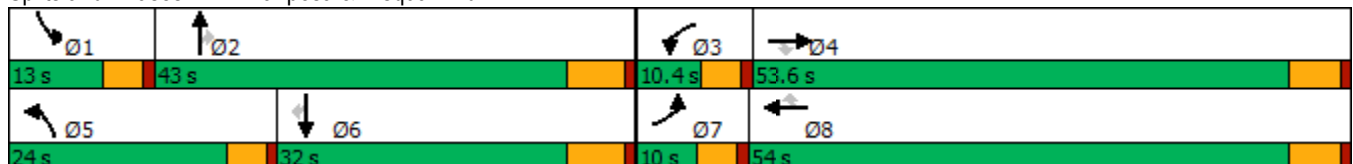
03/24/2022

| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph) | 186   | 2213  | 626   | 166   | 2421  | 176   | 575   | 385   | 226   | 229   | 386   | 133   |
| Future Volume (vph)  | 186   | 2213  | 626   | 166   | 2421  | 176   | 575   | 385   | 226   | 229   | 386   | 133   |
| Turn Type            | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     |       | 3     | 8     |       | 5     | 2     |       | 1     | 6     |       |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 4     | 3     | 8     | 8     | 5     | 2     | 2     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 32.8  | 9.6   | 33.8  | 33.8  | 9.6   | 40.2  | 40.2  | 9.6   | 16.2  | 16.2  |
| Total Split (s)      | 10.0  | 53.6  | 53.6  | 10.4  | 54.0  | 54.0  | 24.0  | 43.0  | 43.0  | 13.0  | 32.0  | 32.0  |
| Total Split (%)      | 8.3%  | 44.7% | 44.7% | 8.7%  | 45.0% | 45.0% | 20.0% | 35.8% | 35.8% | 10.8% | 26.7% | 26.7% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 3.6   | 4.8   | 4.8   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (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   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 4.6   | 5.8   | 5.8   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | Min   | None  | Min   | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 5.4   | 47.9  | 47.9  | 5.8   | 48.3  | 48.3  | 19.4  | 28.6  | 28.6  | 8.4   | 17.6  | 17.6  |
| Actuated g/C Ratio   | 0.05  | 0.43  | 0.43  | 0.05  | 0.43  | 0.43  | 0.17  | 0.26  | 0.26  | 0.08  | 0.16  | 0.16  |
| v/c Ratio            | 1.25  | 1.01  | 0.70  | 1.04  | 1.09  | 0.23  | 1.07  | 0.42  | 0.46  | 0.98  | 0.69  | 0.35  |
| Control Delay        | 198.0 | 53.5  | 15.4  | 133.6 | 81.3  | 5.5   | 103.0 | 36.1  | 20.8  | 107.0 | 51.1  | 7.4   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 198.0 | 53.5  | 15.4  | 133.6 | 81.3  | 5.5   | 103.0 | 36.1  | 20.8  | 107.0 | 51.1  | 7.4   |
| LOS                  | F     | D     | B     | F     | F     | A     | F     | D     | C     | F     | D     | A     |
| Approach Delay       |       | 54.5  |       |       | 79.6  |       |       | 65.6  |       |       | 60.5  |       |
| Approach LOS         |       | D     |       |       | E     |       |       | E     |       |       | E     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 111.9  
 Natural Cycle: 125  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.25  
 Intersection Signal Delay: 65.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 99.4%  
 ICU Level of Service F  
 Analysis Period (min) 15

























Splits and Phases: 4: Mariposa & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
4: Mariposa & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 186   | 2213  | 626   | 166   | 2421  | 176   | 575   | 385   | 226   | 229   | 386   | 133   |
| Future Volume (veh/h)        | 186   | 2213  | 626   | 166   | 2421  | 176   | 575   | 385   | 226   | 229   | 386   | 133   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 188   | 2235  | 506   | 168   | 2445  | 178   | 581   | 389   | 228   | 231   | 390   | 134   |
| Peak Hour Factor             | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  | 0.99  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 155   | 2260  | 701   | 166   | 2278  | 707   | 555   | 873   | 389   | 240   | 511   | 228   |
| Arrive On Green              | 0.05  | 0.44  | 0.44  | 0.05  | 0.44  | 0.44  | 0.18  | 0.24  | 0.24  | 0.08  | 0.14  | 0.14  |
| Sat Flow, veh/h              | 3141  | 5187  | 1610  | 3141  | 5187  | 1610  | 3141  | 3610  | 1610  | 3141  | 3610  | 1610  |
| Grp Volume(v), veh/h         | 188   | 2235  | 506   | 168   | 2445  | 178   | 581   | 389   | 228   | 231   | 390   | 134   |
| Grp Sat Flow(s),veh/h/ln     | 1570  | 1729  | 1610  | 1570  | 1729  | 1610  | 1570  | 1805  | 1610  | 1570  | 1805  | 1610  |
| Q Serve(g_s), s              | 5.4   | 46.9  | 28.4  | 5.8   | 48.2  | 7.6   | 19.4  | 10.0  | 13.7  | 8.0   | 11.4  | 8.6   |
| Cycle Q Clear(g_c), s        | 5.4   | 46.9  | 28.4  | 5.8   | 48.2  | 7.6   | 19.4  | 10.0  | 13.7  | 8.0   | 11.4  | 8.6   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 155   | 2260  | 701   | 166   | 2278  | 707   | 555   | 873   | 389   | 240   | 511   | 228   |
| V/C Ratio(X)                 | 1.22  | 0.99  | 0.72  | 1.01  | 1.07  | 0.25  | 1.05  | 0.45  | 0.59  | 0.96  | 0.76  | 0.59  |
| Avail Cap(c_a), veh/h        | 155   | 2260  | 701   | 166   | 2278  | 707   | 555   | 1211  | 540   | 240   | 849   | 379   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 52.2  | 30.7  | 25.5  | 52.0  | 30.8  | 19.4  | 45.2  | 35.4  | 36.7  | 50.5  | 45.3  | 44.1  |
| Incr Delay (d2), s/veh       | 142.2   | 16.4  | 3.6   | 73.0  | 42.0  | 0.2   | 50.8  | 0.4   | 1.4   | 46.7  | 2.4   | 2.4   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 5.1   | 21.3  | 10.8  | 3.9   | 27.2  | 2.7   | 11.2  | 4.3   | 5.3   | 4.6   | 5.1   | 3.5   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 194.3   | 47.1  | 29.1  | 125.0   | 72.7  | 19.6  | 96.0  | 35.7  | 38.1  | 97.2  | 47.7  | 46.5  |
| LnGrp LOS                    | F   | D   | C   | F   | F   | B   | F   | D   | D   | F   | D   | D   |
| Approach Vol, veh/h          |   | 2929  |   |   | 2791  |   |   | 1198  |   |   | 755   |   |
| Approach Delay, s/veh        |   | 53.4  |   |   | 72.5  |   |   | 65.4  |   |   | 62.6  |   |
| Approach LOS                 |   | D   |   |   | E   |   |   | E   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 13.0  | 32.7  | 10.4  | 53.6  | 24.0  | 21.7  | 10.0  | 54.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 8.4   | 36.8  | 5.8   | 47.8  | 19.4  | 25.8  | 5.4   | 48.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 10.0  | 15.7  | 7.8   | 48.9  | 21.4  | 13.4  | 7.4   | 50.2  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 3.0   | 0.0   | 0.0   | 0.0   | 2.1   | 0.0   | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 63.1  |   |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   | E   |   |   |   |   |   |   |   |   |   |



Timings

5: 7th/Arrowhead Dr & Nisqualli Rd.

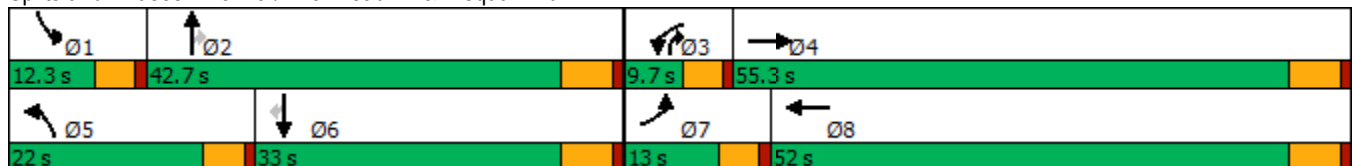


| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖     | ↕     | ↖     | ↕     | ↖     | ↕     | ↗     | ↖     | ↕     | ↗     |
| Traffic Volume (vph) | 128   | 1162  | 49    | 1497  | 280   | 319   | 57    | 60    | 391   | 107   |
| Future Volume (vph)  | 128   | 1162  | 49    | 1497  | 280   | 319   | 57    | 60    | 391   | 107   |
| Turn Type            | Prot  | NA    | Prot  | NA    | Prot  | NA    | pm+ov | Prot  | NA    | Perm  |
| Protected Phases     | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     |       |
| Permitted Phases     |       |       |       |       |       |       | 2     |       |       | 6     |
| Detector Phase       | 7     | 4     | 3     | 8     | 5     | 2     | 3     | 1     | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 30.8  | 9.6   | 30.8  | 9.6   | 25.8  | 9.6   | 9.6   | 15.8  | 15.8  |
| Total Split (s)      | 13.0  | 55.3  | 9.7   | 52.0  | 22.0  | 42.7  | 9.7   | 12.3  | 33.0  | 33.0  |
| Total Split (%)      | 10.8% | 46.1% | 8.1%  | 43.3% | 18.3% | 35.6% | 8.1%  | 10.3% | 27.5% | 27.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 4.8   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 5.8   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 8.4   | 51.5  | 5.1   | 46.2  | 17.4  | 39.3  | 50.2  | 7.1   | 27.1  | 27.1  |
| Actuated g/C Ratio   | 0.07  | 0.43  | 0.04  | 0.39  | 0.15  | 0.33  | 0.42  | 0.06  | 0.23  | 0.23  |
| v/c Ratio            | 1.13  | 0.97  | 0.72  | 1.21  | 1.19  | 0.54  | 0.08  | 0.62  | 0.96  | 0.23  |
| Control Delay        | 172.4 | 50.4  | 104.2 | 136.1 | 163.6 | 37.8  | 4.8   | 81.0  | 81.2  | 3.6   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 172.4 | 50.4  | 104.2 | 136.1 | 163.6 | 37.8  | 4.8   | 81.0  | 81.2  | 3.6   |
| LOS                  | F     | D     | F     | F     | F     | D     | A     | F     | F     | A     |
| Approach Delay       |       | 60.7  |       | 135.1 |       | 88.6  |       |       | 66.2  |       |
| Approach LOS         |       | E     |       | F     |       | F     |       |       | E     |       |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 119.9  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.21  
 Intersection Signal Delay: 93.4  
 Intersection LOS: F  
 Intersection Capacity Utilization 106.2%  
 ICU Level of Service G  
 Analysis Period (min) 15























Splits and Phases: 5: 7th/Arrowhead Dr & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
5: 7th/Arrowhead Dr & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 128   | 1162  | 238   | 49  | 1497  | 95  | 280   | 319   | 57  | 60  | 391   | 107   |
| Future Volume (veh/h)        | 128   | 1162  | 238   | 49  | 1497  | 95  | 280   | 319   | 57  | 60  | 391   | 107   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 135   | 1223  | 193   | 52  | 1576  | 79  | 295   | 336   | 49  | 63  | 412   | 92  |
| Peak Hour Factor             | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 120   | 1302  | 204   | 66  | 1347  | 67  | 249   | 618   | 585   | 80  | 431   | 365   |
| Arrive On Green              | 0.07  | 0.42  | 0.42  | 0.04  | 0.38  | 0.38  | 0.14  | 0.33  | 0.33  | 0.05  | 0.23  | 0.23  |
| Sat Flow, veh/h              | 1714  | 3126  | 491   | 1714  | 3499  | 175   | 1714  | 1900  | 1610  | 1714  | 1900  | 1610  |
| Grp Volume(v), veh/h         | 135   | 703   | 713   | 52  | 810   | 845   | 295   | 336   | 49  | 63  | 412   | 92  |
| Grp Sat Flow(s),veh/h/ln     | 1714  | 1805  | 1812  | 1714  | 1805  | 1869  | 1714  | 1900  | 1610  | 1714  | 1900  | 1610  |
| Q Serve(g_s), s              | 8.4   | 44.7  | 45.4  | 3.6   | 46.2  | 46.2  | 17.4  | 17.4  | 2.4   | 4.4   | 25.7  | 5.6   |
| Cycle Q Clear(g_c), s        | 8.4   | 44.7  | 45.4  | 3.6   | 46.2  | 46.2  | 17.4  | 17.4  | 2.4   | 4.4   | 25.7  | 5.6   |
| Prop In Lane                 | 1.00  |   | 0.27  | 1.00  |   | 0.09  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 120   | 752   | 755   | 66  | 695   | 719   | 249   | 618   | 585   | 80  | 431   | 365   |
| V/C Ratio(X)                 | 1.12  | 0.94  | 0.94  | 0.79  | 1.17  | 1.17  | 1.19  | 0.54  | 0.08  | 0.79  | 0.96  | 0.25  |
| Avail Cap(c_a), veh/h        | 120   | 752   | 755   | 73  | 695   | 719   | 249   | 618   | 585   | 110   | 431   | 365   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 55.8  | 33.5  | 33.7  | 57.2  | 36.9  | 36.9  | 51.3  | 33.2  | 25.1  | 56.6  | 45.8  | 38.1  |
| Incr Delay (d2), s/veh       | 119.7   | 18.9  | 20.4  | 35.1  | 89.6  | 92.9  | 117.1   | 1.0   | 0.1   | 15.5  | 32.3  | 0.4   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 7.5   | 22.3  | 23.0  | 2.2   | 36.4  | 38.4  | 15.4  | 8.0   | 0.9   | 2.2   | 15.4  | 2.2   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 175.5   | 52.4  | 54.1  | 92.3  | 126.5   | 129.8   | 168.4   | 34.2  | 25.1  | 72.1  | 78.2  | 38.4  |
| LnGrp LOS                    | F   | D   | D   | F   | F   | F   | F   | C   | C   | E   | E   | D   |
| Approach Vol, veh/h          |   | 1551  |   |   | 1707  |   |   | 680   |   |   | 567   |   |
| Approach Delay, s/veh        |   | 63.9  |   |   | 127.1   |   |   | 91.8  |   |   | 71.0  |   |
| Approach LOS                 |   | E   |   |   | F   |   |   | F   |   |   | E   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 10.2  | 44.8  | 9.2   | 55.8  | 22.0  | 33.0  | 13.0  | 52.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   | 4.6   | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 7.7   | 36.9  | 5.1   | 49.5  | 17.4  | 27.2  | 8.4   | 46.2  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 6.4   | 19.4  | 5.6   | 47.4  | 19.4  | 27.7  | 10.4  | 48.2  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 1.8   | 0.0   | 1.6   | 0.0   | 0.0   | 0.0   | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 92.9  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | F   |   |   |   |   |   |   |   |   |

Timings  
6: Hesperia Rd. & Green Tree Bl.



| Lane Group           | EBL   | EBR   | NBL   | NBT   | SBT   |
|----------------------|-------|-------|-------|-------|-------|
| Lane Configurations  |       |       |       |       |       |
| Traffic Volume (vph) | 176   | 675   | 653   | 1436  | 1407  |
| Future Volume (vph)  | 176   | 675   | 653   | 1436  | 1407  |
| Turn Type            | Prot  | pm+ov | Prot  | NA    | NA    |
| Protected Phases     | 4     | 5     | 5     | 2     | 6     |
| Permitted Phases     |       | 4     |       |       |       |
| Detector Phase       | 4     | 5     | 5     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 10.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 15.8  | 15.8  | 16.2  | 28.2  |
| Total Split (s)      | 26.6  | 36.0  | 36.0  | 93.4  | 57.4  |
| Total Split (%)      | 22.2% | 30.0% | 30.0% | 77.8% | 47.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 4.8   | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 5.8   | 6.2   | 6.2   |
| Lead/Lag             |       | Lead  | Lead  |       | Lag   |
| Lead-Lag Optimize?   |       | Yes   | Yes   |       | Yes   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 16.4  | 49.8  | 28.8  | 86.0  | 51.4  |
| Actuated g/C Ratio   | 0.14  | 0.44  | 0.25  | 0.76  | 0.45  |
| v/c Ratio            | 0.77  | 0.58  | 0.88  | 0.56  | 1.05  |
| Control Delay        | 67.0  | 25.1  | 54.8  | 7.1   | 68.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 67.0  | 25.1  | 54.8  | 7.1   | 68.6  |
| LOS                  | E     | C     | D     | A     | E     |
| Approach Delay       | 33.8  |       |       | 22.0  | 68.6  |
| Approach LOS         | C     |       |       | C     | E     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.2  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.05  
 Intersection Signal Delay: 40.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 89.4%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 6: Hesperia Rd. & Green Tree Bl.



HCM 6th Signalized Intersection Summary  
6: Hesperia Rd. & Green Tree Bl.

Ottawa Business Center (JN 14035)

03/24/2022



| Movement                     | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|
| Lane Configurations          |      |      |      |      |      |      |
| Traffic Volume (veh/h)       | 176  | 675  | 653  | 1436 | 1407 | 176  |
| Future Volume (veh/h)        | 176  | 675  | 653  | 1436 | 1407 | 176  |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 |      |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   |      |      | No   | No   |      |
| Adj Sat Flow, veh/h/ln       | 1800 | 1900 | 1700 | 1900 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 189  | 726  | 702  | 1544 | 1513 | 189  |
| Peak Hour Factor             | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 319  | 1210 | 757  | 2609 | 1400 | 173  |
| Arrive On Green              | 0.19 | 0.19 | 0.24 | 0.72 | 0.43 | 0.43 |
| Sat Flow, veh/h              | 1714 | 2834 | 3141 | 3705 | 3329 | 399  |
| Grp Volume(v), veh/h         | 189  | 726  | 702  | 1544 | 836  | 866  |
| Grp Sat Flow(s),veh/h/ln     | 1714 | 1417 | 1570 | 1805 | 1805 | 1828 |
| Q Serve(g_s), s              | 11.9 | 22.0 | 25.8 | 24.5 | 51.2 | 51.2 |
| Cycle Q Clear(g_c), s        | 11.9 | 22.0 | 25.8 | 24.5 | 51.2 | 51.2 |
| Prop In Lane                 | 1.00 | 1.00 | 1.00 |      |      | 0.22 |
| Lane Grp Cap(c), veh/h       | 319  | 1210 | 757  | 2609 | 781  | 791  |
| V/C Ratio(X)                 | 0.59 | 0.60 | 0.93 | 0.59 | 1.07 | 1.09 |
| Avail Cap(c_a), veh/h        | 319  | 1210 | 802  | 2661 | 781  | 791  |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 44.1 | 26.1 | 43.9 | 7.9  | 33.6 | 33.6 |
| Incr Delay (d2), s/veh       | 2.0  | 0.6  | 16.4 | 0.3  | 52.8 | 60.7 |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 5.3  | 0.1  | 11.3 | 7.3  | 31.9 | 34.1 |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 46.1 | 26.7 | 60.2 | 8.3  | 86.4 | 94.3 |
| LnGrp LOS                    | D    | C    | E    | A    | F    | F    |
| Approach Vol, veh/h          | 915  |      |      | 2246 | 1702 |      |
| Approach Delay, s/veh        | 30.7 |      |      | 24.5 | 90.4 |      |
| Approach LOS                 | C    |      |      | C    | F    |      |
| Timer - Assigned Phs         |      | 2    |      | 4    | 5    | 6    |
| Phs Duration (G+Y+Rc), s     |      | 91.7 |      | 26.6 | 34.3 | 57.4 |
| Change Period (Y+Rc), s      |      | 6.2  |      | 4.6  | 5.8  | 6.2  |
| Max Green Setting (Gmax), s  |      | 87.2 |      | 22.0 | 30.2 | 51.2 |
| Max Q Clear Time (g_c+I1), s |      | 26.5 |      | 24.0 | 27.8 | 53.2 |
| Green Ext Time (p_c), s      |      | 24.1 |      | 0.0  | 0.7  | 0.0  |
| <b>Intersection Summary</b>  |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      | 48.7 |      |      |      |
| HCM 6th LOS                  |      |      | D    |      |      |      |

Timings  
7: Hesperia Rd. & Ottawa St.



| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR   | SBL  | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations  |       | ↕     | ↗     | ↖     | ↗     | ↖     | ↖     | ↗    | ↖     |
| Traffic Volume (vph) | 7     | 2     | 104   | 5     | 36    | 2035  | 39    | 20   | 2057  |
| Future Volume (vph)  | 7     | 2     | 104   | 5     | 36    | 2035  | 39    | 20   | 2057  |
| Turn Type            | Perm  | NA    | Perm  | NA    | Prot  | NA    | Perm  | Prot | NA    |
| Protected Phases     |       | 4     |       | 8     | 5     | 2     |       | 1    | 6     |
| Permitted Phases     | 4     |       | 8     |       |       |       | 2     |      |       |
| Detector Phase       | 4     | 4     | 8     | 8     | 5     | 2     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |
| Minimum Initial (s)  | 10.0  | 10.0  | 10.0  | 10.0  | 5.0   | 10.0  | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 26.6  | 26.6  | 26.6  | 26.6  | 9.6   | 23.2  | 23.2  | 9.6  | 23.2  |
| Total Split (s)      | 26.6  | 26.6  | 26.6  | 26.6  | 12.0  | 83.4  | 83.4  | 10.0 | 81.4  |
| Total Split (%)      | 22.2% | 22.2% | 22.2% | 22.2% | 10.0% | 69.5% | 69.5% | 8.3% | 67.8% |
| Yellow Time (s)      | 3.6   | 3.6   | 3.6   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  |       | 4.6   | 4.6   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             |       |       |       |       | Lead  | Lag   | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   |       |       |       |       | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | None | Min   |
| Act Effct Green (s)  |       | 14.4  | 14.4  | 14.4  | 6.5   | 76.8  | 76.8  | 5.3  | 73.9  |
| Actuated g/C Ratio   |       | 0.14  | 0.14  | 0.14  | 0.06  | 0.73  | 0.73  | 0.05 | 0.70  |
| v/c Ratio            |       | 0.13  | 0.59  | 0.21  | 0.38  | 0.83  | 0.04  | 0.26 | 0.88  |
| Control Delay        |       | 23.2  | 57.6  | 15.6  | 61.8  | 15.8  | 1.3   | 60.6 | 20.0  |
| Queue Delay          |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          |       | 23.2  | 57.6  | 15.6  | 61.8  | 15.8  | 1.3   | 60.6 | 20.0  |
| LOS                  |       | C     | E     | B     | E     | B     | A     | E    | B     |
| Approach Delay       |       | 23.2  |       | 43.6  |       | 16.3  |       |      | 20.4  |
| Approach LOS         |       | C     |       | D     |       | B     |       |      | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 105.7  
 Natural Cycle: 110  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 19.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 78.4%  
 ICU Level of Service D  
 Analysis Period (min) 15






















Splits and Phases: 7: Hesperia Rd. & Ottawa St.



HCM 6th Signalized Intersection Summary  
7: Hesperia Rd. & Ottawa St.

Ottawa Business Center (JN 14035)

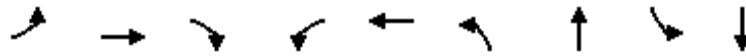
03/24/2022

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 7   | 2   | 20  | 104   | 5   | 47  | 36  | 2035  | 39  | 20  | 2057  | 5   |
| Future Volume (veh/h)        | 7   | 2   | 20  | 104   | 5   | 47  | 36  | 2035  | 39  | 20  | 2057  | 5   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |   | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1800  | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 8   | 2   | 22  | 112   | 5   | 51  | 39  | 2188  | 42  | 22  | 2212  | 5   |
| Peak Hour Factor             | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 70  | 31  | 118   | 238   | 15  | 156   | 58  | 2561  | 1142  | 40  | 2582  | 6   |
| Arrive On Green              | 0.10  | 0.10  | 0.10  | 0.10  | 0.10  | 0.10  | 0.03  | 0.71  | 0.71  | 0.02  | 0.70  | 0.70  |
| Sat Flow, veh/h              | 214   | 296   | 1121  | 1487  | 146   | 1487  | 1714  | 3610  | 1610  | 1714  | 3695  | 8   |
| Grp Volume(v), veh/h         | 32  | 0   | 0   | 112   | 0   | 56  | 39  | 2188  | 42  | 22  | 1080  | 1137  |
| Grp Sat Flow(s),veh/h/ln     | 1631  | 0   | 0   | 1487  | 0   | 1632  | 1714  | 1805  | 1610  | 1714  | 1805  | 1898  |
| Q Serve(g_s), s              | 0.0   | 0.0   | 0.0   | 4.9   | 0.0   | 3.0   | 2.1   | 42.4  | 0.7   | 1.2   | 42.6  | 42.6  |
| Cycle Q Clear(g_c), s        | 1.6   | 0.0   | 0.0   | 6.5   | 0.0   | 3.0   | 2.1   | 42.4  | 0.7   | 1.2   | 42.6  | 42.6  |
| Prop In Lane                 | 0.25  |   | 0.69  | 1.00  |   | 0.91  | 1.00  |   | 1.00  | 1.00  |   | 0.00  |
| Lane Grp Cap(c), veh/h       | 219   | 0   | 0   | 238   | 0   | 171   | 58  | 2561  | 1142  | 40  | 1261  | 1327  |
| V/C Ratio(X)                 | 0.15  | 0.00  | 0.00  | 0.47  | 0.00  | 0.33  | 0.67  | 0.85  | 0.04  | 0.55  | 0.86  | 0.86  |
| Avail Cap(c_a), veh/h        | 419   | 0   | 0   | 427   | 0   | 379   | 134   | 2939  | 1311  | 98  | 1431  | 1505  |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 0.00  | 0.00  | 1.00  | 0.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 38.7  | 0.0   | 0.0   | 40.8  | 0.0   | 39.3  | 45.3  | 10.2  | 4.1   | 45.8  | 10.7  | 10.7  |
| Incr Delay (d2), s/veh       | 0.3   | 0.0   | 0.0   | 1.5   | 0.0   | 1.1   | 4.9   | 2.4   | 0.0   | 4.4   | 4.9   | 4.7   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 0.7   | 0.0   | 0.0   | 2.6   | 0.0   | 1.3   | 0.9   | 11.6  | 0.2   | 0.5   | 12.9  | 13.5  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |   |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 39.0  | 0.0   | 0.0   | 42.2  | 0.0   | 40.4  | 50.2  | 12.5  | 4.1   | 50.2  | 15.6  | 15.4  |
| LnGrp LOS                    | D   | A   | A   | D   | A   | D   | D   | B   | A   | D   | B   | B   |
| Approach Vol, veh/h          |   | 32  |   |   | 168   |   |   | 2269  |   |   | 2239  |   |
| Approach Delay, s/veh        |   | 39.0  |   |   | 41.6  |   |   | 13.0  |   |   | 15.8  |   |
| Approach LOS                 |   | D   |   |   | D   |   |   | B   |   |   | B   |   |
| Timer - Assigned Phs         | 1   | 2   |   | 4   | 5   | 6   |   | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 6.8   | 73.5  |   | 14.5  | 7.8   | 72.5  |   | 14.5  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   |   | 4.6   | 4.6   | 6.2   |   | 4.6   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.4   | 77.2  |   | 22.0  | 7.4   | 75.2  |   | 22.0  |   |   |   |   |
| Max Q Clear Time (g_c+1), s  | 3.2   | 44.4  |   | 3.6   | 4.1   | 44.6  |   | 8.5   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 22.7  |   | 0.1   | 0.0   | 21.6  |   | 0.5   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   | 15.6  |   |   |   |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   | B   |   |   |   |   |   |   |   |   |

Timings

8: Hesperia Rd. & Nisqualli Rd.

03/24/2022



| Lane Group           | EBL   | EBT   | EBR   | WBL  | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|------|-------|-------|-------|------|-------|
| Lane Configurations  | ↙↘    | ↑     | ↗↘    | ↙    | ↕     | ↗↘    | ↕     | ↙    | ↕     |
| Traffic Volume (vph) | 215   | 74    | 517   | 119  | 79    | 567   | 1735  | 23   | 1989  |
| Future Volume (vph)  | 215   | 74    | 517   | 119  | 79    | 567   | 1735  | 23   | 1989  |
| Turn Type            | Prot  | NA    | pm+ov | Prot | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |      |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3    | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |      |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0  | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6  | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 14.0  | 34.3  | 17.0  | 10.5 | 30.8  | 17.0  | 65.6  | 9.6  | 58.2  |
| Total Split (%)      | 11.7% | 28.6% | 14.2% | 8.8% | 25.7% | 14.2% | 54.7% | 8.0% | 48.5% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6  | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6  | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead | Lag   | Lead  | Lag   | Lead | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 9.4   | 12.9  | 28.0  | 9.7  | 10.1  | 12.4  | 65.2  | 5.0  | 52.0  |
| Actuated g/C Ratio   | 0.09  | 0.12  | 0.27  | 0.09 | 0.10  | 0.12  | 0.62  | 0.05 | 0.49  |
| v/c Ratio            | 0.77  | 0.33  | 0.71  | 0.78 | 0.38  | 1.54  | 0.86  | 0.30 | 1.29  |
| Control Delay        | 65.6  | 45.8  | 39.7  | 82.3 | 28.3  | 287.4 | 22.6  | 58.2 | 162.2 |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 65.6  | 45.8  | 39.7  | 82.3 | 28.3  | 287.4 | 22.6  | 58.2 | 162.2 |
| LOS                  | E     | D     | D     | F    | C     | F     | C     | E    | F     |
| Approach Delay       |       | 47.2  |       |      | 53.1  |       | 84.6  |      | 161.2 |
| Approach LOS         |       | D     |       |      | D     |       | F     |      | F     |

Intersection Summary

|  |                        |
|--|------------------------|
| Cycle Length: 120                        |                        |
| Actuated Cycle Length: 105.1             |                        |
| Natural Cycle: 130                       |                        |
| Control Type: Actuated-Uncoordinated     |                        |
| Maximum v/c Ratio: 1.54                  |                        |
| Intersection Signal Delay: 107.8         | Intersection LOS: F    |
| Intersection Capacity Utilization 113.2% | ICU Level of Service H |
| Analysis Period (min) 15                 |                        |





























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |  |    |  |    |  |    |    |  |  |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |  |   |  |   |   |   |   |   |  |   |  |
| Traffic Volume (veh/h)       | 215   | 74  | 517   | 119   | 79  | 62  | 567  | 1735  | 119   | 23  | 1989  | 224   |
| Future Volume (veh/h)        | 215   | 74  | 517   | 119   | 79  | 62  | 567  | 1735  | 119   | 23  | 1989  | 224   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1800  | 1900  | 1900  | 1700   | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 222   | 76  | 533   | 123   | 81  | 64  | 585  | 1789  | 123   | 24  | 2051  | 231   |
| Peak Hour Factor             | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97   | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 268   | 369   | 859   | 89  | 327   | 235   | 354  | 1865  | 127   | 40  | 1501  | 166   |
| Arrive On Green              | 0.08  | 0.19  | 0.19  | 0.05  | 0.16  | 0.16  | 0.11   | 0.54  | 0.54  | 0.02  | 0.46  | 0.46  |
| Sat Flow, veh/h              | 3238  | 1900  | 2834  | 1714  | 2004  | 1442  | 3238   | 3430  | 233   | 1714  | 3278  | 362   |
| Grp Volume(v), veh/h         | 222   | 76  | 533   | 123   | 72  | 73  | 585  | 932   | 980   | 24  | 1112  | 1170  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1900  | 1417  | 1714  | 1805  | 1640  | 1619   | 1805  | 1858  | 1714  | 1805  | 1835  |
| Q Serve(g_s), s              | 7.7   | 3.8   | 18.3  | 5.9   | 4.0   | 4.4   | 12.4   | 55.3  | 57.8  | 1.6   | 52.0  | 52.0  |
| Cycle Q Clear(g_c), s        | 7.7   | 3.8   | 18.3  | 5.9   | 4.0   | 4.4   | 12.4   | 55.3  | 57.8  | 1.6   | 52.0  | 52.0  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.88  | 1.00   |   | 0.13  | 1.00  |   | 0.20  |
| Lane Grp Cap(c), veh/h       | 268   | 369   | 859   | 89  | 295   | 268   | 354  | 982   | 1011  | 40  | 827   | 840   |
| V/C Ratio(X)                 | 0.83  | 0.21  | 0.62  | 1.38  | 0.25  | 0.27  | 1.65   | 0.95  | 0.97  | 0.60  | 1.34  | 1.39  |
| Avail Cap(c_a), veh/h        | 268   | 477   | 1021  | 89  | 397   | 361   | 354  | 982   | 1011  | 76  | 827   | 840   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 51.3  | 38.4  | 33.9  | 53.8  | 41.4  | 41.6  | 50.6   | 24.4  | 25.0  | 54.9  | 30.8  | 30.8  |
| Incr Delay (d2), s/veh       | 17.9  | 0.3   | 0.9   | 226.6   | 0.4   | 0.5   | 306.6  | 17.8  | 21.2  | 5.2   | 163.2   | 183.9   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 3.7   | 1.8   | 6.1   | 8.1   | 1.7   | 1.8   | 19.9   | 25.3  | 27.9  | 0.7   | 57.8  | 63.6  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 69.2  | 38.7  | 34.8  | 280.4   | 41.8  | 42.1  | 357.2  | 42.2  | 46.2  | 60.1  | 193.9   | 214.7   |
| LnGrp LOS                    | E   | D   | C   | F   | D   | D   | F  | D   | D   | E   | F   | F   |
| Approach Vol, veh/h          |   | 831   |   |   | 268   |   |  | 2497  |   |   | 2306  |   |
| Approach Delay, s/veh        |   | 44.3  |   |   | 151.4   |   |  | 117.6   |   |   | 203.1   |   |
| Approach LOS                 |   | D   |   |   | F   |   |  | F   |   |   | F   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 7.3   | 67.9  | 10.5  | 27.8  | 17.0  | 58.2  | 14.0   | 24.3  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.0   | 59.4  | 5.9   | 28.5  | 12.4  | 52.0  | 9.4  | 25.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 3.6   | 59.8  | 7.9   | 20.3  | 14.4  | 54.0  | 9.7  | 6.4   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 0.0   | 0.0   | 1.7   | 0.0   | 0.0   | 0.0  | 0.6   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 142.2   |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | F   |   |   |   |  |   |   |   |   |   |



Timings

9: Hesperia Rd. & Bear Valley Rd.

03/24/2022

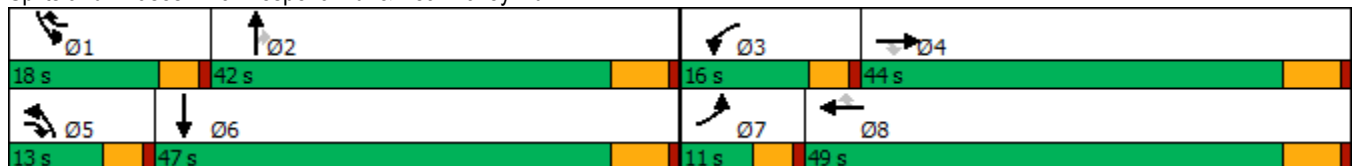


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations  | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑↑   | ↖     | ↖↗    | ↑↑    | ↖     | ↖↗    | ↑↔    |
| Traffic Volume (vph) | 179   | 2108  | 136   | 399   | 1844  | 216   | 269   | 602   | 439   | 529   | 816   |
| Future Volume (vph)  | 179   | 2108  | 136   | 399   | 1844  | 216   | 269   | 602   | 439   | 529   | 816   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | pm+ov | Prot  | NA    | Perm  | Prot  | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     |       | 1     | 6     |
| Permitted Phases     |       |       | 4     |       |       | 8     |       |       | 2     |       |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 1     | 5     | 2     | 2     | 1     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 10.0  | 5.0   | 10.0  |
| Minimum Split (s)    | 9.6   | 31.2  | 9.6   | 9.6   | 33.2  | 9.6   | 9.6   | 39.2  | 39.2  | 9.6   | 37.2  |
| Total Split (s)      | 11.0  | 44.0  | 13.0  | 16.0  | 49.0  | 18.0  | 13.0  | 42.0  | 42.0  | 18.0  | 47.0  |
| Total Split (%)      | 9.2%  | 36.7% | 10.8% | 13.3% | 40.8% | 15.0% | 10.8% | 35.0% | 35.0% | 15.0% | 39.2% |
| Yellow Time (s)      | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 3.6   | 3.6   | 5.2   | 5.2   | 3.6   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 4.6   | 4.6   | 6.2   | 6.2   | 4.6   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | None  | Min   | None  | None  | None  | None  | None  | None  |
| Act Effct Green (s)  | 6.4   | 37.8  | 52.5  | 11.4  | 42.8  | 62.5  | 8.4   | 33.8  | 33.8  | 13.4  | 38.8  |
| Actuated g/C Ratio   | 0.05  | 0.32  | 0.44  | 0.10  | 0.36  | 0.53  | 0.07  | 0.29  | 0.29  | 0.11  | 0.33  |
| v/c Ratio            | 1.08  | 1.30  | 0.17  | 1.35  | 1.00  | 0.25  | 1.23  | 0.59  | 0.74  | 1.52  | 0.88  |
| Control Delay        | 143.9 | 171.7 | 2.9   | 217.4 | 58.8  | 11.1  | 181.8 | 38.9  | 29.3  | 284.2 | 46.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 143.9 | 171.7 | 2.9   | 217.4 | 58.8  | 11.1  | 181.8 | 38.9  | 29.3  | 284.2 | 46.6  |
| LOS                  | F     | F     | A     | F     | E     | B     | F     | D     | C     | F     | D     |
| Approach Delay       |       | 160.2 |       |       | 80.4  |       |       | 65.0  |       |       | 128.1 |
| Approach LOS         |       | F     |       |       | F     |       |       | E     |       |       | F     |

Intersection Summary

|  |                        |
|--|------------------------|
| Cycle Length: 120                        |                        |
| Actuated Cycle Length: 118.1             |                        |
| Natural Cycle: 125                       |                        |
| Control Type: Actuated-Uncoordinated     |                        |
| Maximum v/c Ratio: 1.52                  |                        |
| Intersection Signal Delay: 112.3         | Intersection LOS: F    |
| Intersection Capacity Utilization 108.9% | ICU Level of Service G |
| Analysis Period (min) 15                 |                        |



































Splits and Phases: 9: Hesperia Rd. & Bear Valley Rd.



HCM 6th Signalized Intersection Summary  
 9: Hesperia Rd. & Bear Valley Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |    |    |  |    |    |  |    |    |  |    |    |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (veh/h)       | 179   | 2108  | 136   | 399   | 1844  | 216   | 269  | 602   | 439   | 529   | 816   | 197   |
| Future Volume (veh/h)        | 179   | 2108  | 136   | 399   | 1844  | 216   | 269  | 602   | 439   | 529   | 816   | 197   |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1700  | 1900  | 1900  | 1700   | 1900  | 1900  | 1700  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 183   | 2151  | 139   | 407   | 1882  | 220   | 274  | 614   | 448   | 540   | 833   | 201   |
| Peak Hour Factor             | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 168   | 1641  | 623   | 300   | 1858  | 757   | 221  | 1066  | 475   | 352   | 972   | 235   |
| Arrive On Green              | 0.05  | 0.32  | 0.32  | 0.10  | 0.36  | 0.36  | 0.07   | 0.30  | 0.30  | 0.11  | 0.34  | 0.34  |
| Sat Flow, veh/h              | 3141  | 5187  | 1610  | 3141  | 5187  | 1610  | 3141   | 3610  | 1610  | 3141  | 2884  | 696   |
| Grp Volume(v), veh/h         | 183   | 2151  | 139   | 407   | 1882  | 220   | 274  | 614   | 448   | 540   | 521   | 513   |
| Grp Sat Flow(s),veh/h/ln     | 1570  | 1729  | 1610  | 1570  | 1729  | 1610  | 1570   | 1805  | 1610  | 1570  | 1805  | 1775  |
| Q Serve(g_s), s              | 6.4   | 37.8  | 6.9   | 11.4  | 42.8  | 10.0  | 8.4  | 17.3  | 32.5  | 13.4  | 32.2  | 32.2  |
| Cycle Q Clear(g_c), s        | 6.4   | 37.8  | 6.9   | 11.4  | 42.8  | 10.0  | 8.4  | 17.3  | 32.5  | 13.4  | 32.2  | 32.2  |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 0.39  |
| Lane Grp Cap(c), veh/h       | 168   | 1641  | 623   | 300   | 1858  | 757   | 221  | 1066  | 475   | 352   | 608   | 598   |
| V/C Ratio(X)                 | 1.09  | 1.31  | 0.22  | 1.36  | 1.01  | 0.29  | 1.24   | 0.58  | 0.94  | 1.53  | 0.86  | 0.86  |
| Avail Cap(c_a), veh/h        | 168   | 1641  | 623   | 300   | 1858  | 757   | 221  | 1082  | 482   | 352   | 616   | 606   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 56.5  | 40.8  | 24.6  | 54.0  | 38.3  | 19.4  | 55.5   | 35.8  | 41.1  | 53.0  | 36.9  | 36.9  |
| Incr Delay (d2), s/veh       | 94.7  | 144.3   | 0.2   | 181.4   | 24.1  | 0.2   | 140.7  | 0.7   | 26.9  | 253.7   | 11.4  | 11.6  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 4.7   | 37.8  | 2.7   | 12.0  | 21.9  | 3.8   | 7.5  | 7.3   | 16.3  | 17.5  | 15.3  | 15.0  |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 151.3   | 185.2   | 24.8  | 235.4   | 62.4  | 19.6  | 196.2  | 36.5  | 68.1  | 306.7   | 48.3  | 48.5  |
| LnGrp LOS                    | F   | F   | C   | F   | F   | B   | F  | D   | E   | F   | D   | D   |
| Approach Vol, veh/h          |   | 2473  |   |   | 2509  |   |  | 1336  |   |   | 1574  |   |
| Approach Delay, s/veh        |   | 173.6   |   |   | 86.7  |   |  | 79.8  |   |   | 137.0   |   |
| Approach LOS                 |   | F   |   |   | F   |   |  | E   |   |   | F   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 18.0  | 41.5  | 16.0  | 44.0  | 13.0  | 46.5  | 11.0   | 49.0  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 6.2   | 4.6   | 6.2   | 4.6  | 6.2   |   |   |   |   |
| Max Green Setting (Gmax), s  | 13.4  | 35.8  | 11.4  | 37.8  | 8.4   | 40.8  | 6.4  | 42.8  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s | 15.4  | 34.5  | 13.4  | 39.8  | 10.4  | 34.2  | 8.4  | 44.8  |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 0.8   | 0.0   | 0.0   | 0.0   | 3.9   | 0.0  | 0.0   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   |   |   | 122.8   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   |   |   | F   |   |  |   |   |   |   |   |

**APPENDIX 6.3:**

**FUTURE YEAR (2034) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS  
WORKSHEETS**

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## Queues

Ottawa Business Center (JN 14035)

## 2: Armargosa Rd. &amp; I-15 SB Ramps

03/24/2022



| Lane Group              | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1093 | 51   | 900  | 450  | 192  | 1054 |
| v/c Ratio               | 0.93 | 0.09 | 0.72 | 0.53 | 0.71 | 0.53 |
| Control Delay           | 43.5 | 6.5  | 30.3 | 4.9  | 51.0 | 14.5 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 43.5 | 6.5  | 30.3 | 4.9  | 51.0 | 14.5 |
| Queue Length 50th (ft)  | 300  | 0    | 241  | 0    | 103  | 195  |
| Queue Length 95th (ft)  | #421 | 24   | 318  | 66   | 173  | 251  |
| Internal Link Dist (ft) | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)    | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)     | 1217 | 594  | 1254 | 855  | 310  | 1976 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.90 | 0.09 | 0.72 | 0.53 | 0.62 | 0.53 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

3: I-15 NB Ramps & Nisqualli Rd.



| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 283  | 1719 | 1464 | 463  | 129  | 130  | 372  |
| v/c Ratio               | 0.66 | 0.53 | 0.62 | 0.47 | 0.32 | 0.32 | 0.83 |
| Control Delay           | 45.1 | 10.9 | 21.5 | 3.7  | 29.0 | 29.1 | 40.2 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 45.1 | 10.9 | 21.5 | 3.7  | 29.0 | 29.1 | 40.2 |
| Queue Length 50th (ft)  | 79   | 190  | 234  | 0    | 62   | 63   | 152  |
| Queue Length 95th (ft)  | 118  | 253  | 308  | 56   | 106  | 107  | 241  |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |      |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915  |
| Base Capacity (vph)     | 489  | 3251 | 2353 | 985  | 504  | 506  | 537  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.58 | 0.53 | 0.62 | 0.47 | 0.26 | 0.26 | 0.69 |

Intersection Summary

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.3  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 6    | 0    | 10   | 0    | 0    | 6    | 13   | 1346 | 7    | 12   | 1468 | 1    |
| Future Vol, veh/h        | 6    | 0    | 10   | 0    | 0    | 6    | 13   | 1346 | 7    | 12   | 1468 | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   | 88   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 7    | 0    | 11   | 0    | 0    | 7    | 15   | 1530 | 8    | 14   | 1668 | 1    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |     | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|-----|--------|---|---|------|---|---|
| Conflicting Flow All | 2492   | 3265 | 835    | 2426 | 3261   | 769 | 1669   | 0 | 0 | 1538 | 0 | 0 |
| Stage 1              | 1697   | 1697 | -      | 1564 | 1564   | -   | -      | - | - | -    | - | - |
| Stage 2              | 795    | 1568 | -      | 862  | 1697   | -   | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9 | 4.1    | - | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -   | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3 | 2.2    | - | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | 15     | 9    | 315    | 17   | 9      | 348 | 390    | - | - | 438  | - | - |
| Stage 1              | 98     | 150  | -      | 119  | 174    | -   | -      | - | - | -    | - | - |
| Stage 2              | 351    | 173  | -      | 320  | 150    | -   | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |     |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 14     | 8    | 315    | 16   | 8      | 348 | 390    | - | - | 438  | - | - |
| Mov Cap-2 Maneuver   | 85     | 96   | -      | 100  | 94     | -   | -      | - | - | -    | - | - |
| Stage 1              | 94     | 145  | -      | 114  | 167    | -   | -      | - | - | -    | - | - |
| Stage 2              | 331    | 166  | -      | 299  | 145    | -   | -      | - | - | -    | - | - |

| Approach             | EB   |  | WB   |  | NB  |  | SB  |  |  |  |
|----------------------|------|--|------|--|-----|--|-----|--|--|--|
| HCM Control Delay, s | 31.1 |  | 15.6 |  | 0.1 |  | 0.1 |  |  |  |
| HCM LOS              | D    |  | C    |  |     |  |     |  |  |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1 | SBL  | SBT   | SBR |
|-----------------------|-------|-----|-----|------------|------|-------|-----|
| Capacity (veh/h)      | 390   | -   | -   | 156        | 348  | 438   | -   |
| HCM Lane V/C Ratio    | 0.038 | -   | -   | 0.117      | 0.02 | 0.031 | -   |
| HCM Control Delay (s) | 14.6  | -   | -   | 31.1       | 15.6 | 13.5  | -   |
| HCM Lane LOS          | B     | -   | -   | D          | C    | B     | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0.4        | 0.1  | 0.1   | -   |



| Lane Group              | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1363 | 65   | 1101 | 491  | 230  | 1303 |
| v/c Ratio               | 1.09 | 0.10 | 0.95 | 0.58 | 0.83 | 0.69 |
| Control Delay           | 81.2 | 5.8  | 48.7 | 5.4  | 61.8 | 18.3 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 81.2 | 5.8  | 48.7 | 5.4  | 61.8 | 18.3 |
| Queue Length 50th (ft)  | ~452 | 0    | 323  | 0    | 127  | 274  |
| Queue Length 95th (ft)  | #581 | 26   | #462 | 69   | #243 | 350  |
| Internal Link Dist (ft) | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)    | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)     | 1256 | 621  | 1155 | 850  | 290  | 1893 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.09 | 0.10 | 0.95 | 0.58 | 0.79 | 0.69 |

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR   |
|-------------------------|------|------|------|------|------|------|-------|
| Lane Group Flow (vph)   | 379  | 2448 | 2613 | 542  | 322  | 323  | 588   |
| v/c Ratio               | 1.03 | 0.78 | 1.13 | 0.56 | 0.72 | 0.72 | 1.21  |
| Control Delay           | 95.4 | 15.8 | 89.6 | 5.8  | 40.9 | 41.0 | 140.1 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |
| Total Delay             | 95.4 | 15.8 | 89.6 | 5.8  | 40.9 | 41.0 | 140.1 |
| Queue Length 50th (ft)  | ~119 | 351  | ~636 | 30   | 175  | 175  | ~374  |
| Queue Length 95th (ft)  | #208 | 416  | #732 | 105  | #285 | #295 | #579  |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |       |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915   |
| Base Capacity (vph)     | 369  | 3123 | 2316 | 970  | 447  | 447  | 486   |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| Reduced v/c Ratio       | 1.03 | 0.78 | 1.13 | 0.56 | 0.72 | 0.72 | 1.21  |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.8  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 7    | 0    | 20   | 2    | 0    | 18   | 36   | 2035 | 0    | 9    | 2057 | 5    |
| Future Vol, veh/h        | 7    | 0    | 20   | 2    | 0    | 18   | 36   | 2035 | 0    | 9    | 2057 | 5    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | 100  | -    | -    | 100  | -    | -    |
| Veh in Median Storage, # | -    | 2    | -    | -    | 2    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Mvmt Flow                | 8    | 0    | 22   | 2    | 0    | 19   | 39   | 2188 | 0    | 10   | 2212 | 5    |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |      |      | Major2 |   |      |   |   |
|----------------------|--------|------|--------|------|--------|------|------|--------|---|------|---|---|
| Conflicting Flow All | 3407   | 4501 | 1109   | 3392 | 4503   | 1094 | 2217 | 0      | 0 | 2188 | 0 | 0 |
| Stage 1              | 2235   | 2235 | -      | 2266 | 2266   | -    | -    | -      | - | -    | - | - |
| Stage 2              | 1172   | 2266 | -      | 1126 | 2237   | -    | -    | -      | - | -    | - | - |
| Critical Hdwy        | 7.5    | 6.5  | 6.9    | 7.5  | 6.5    | 6.9  | 4.1  | -      | - | 4.1  | - | - |
| Critical Hdwy Stg 1  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -    | -    | -      | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.5    | 5.5  | -      | 6.5  | 5.5    | -    | -    | -      | - | -    | - | - |
| Follow-up Hdwy       | 3.5    | 4    | 3.3    | 3.5  | 4      | 3.3  | 2.2  | -      | - | 2.2  | - | - |
| Pot Cap-1 Maneuver   | ~ 3    | 1    | 207    | 3    | 1      | 212  | 239  | -      | - | 246  | - | - |
| Stage 1              | 45     | 80   | -      | 43   | 77     | -    | -    | -      | - | -    | - | - |
| Stage 2              | 208    | 77   | -      | 222  | 80     | -    | -    | -      | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |      |      | -      | - | -    | - | - |
| Mov Cap-1 Maneuver   | ~ 2    | 1    | 207    | ~ 2  | 1      | 212  | 239  | -      | - | 246  | - | - |
| Mov Cap-2 Maneuver   | 34     | 40   | -      | 33   | 30     | -    | -    | -      | - | -    | - | - |
| Stage 1              | 38     | 77   | -      | 36   | 64     | -    | -    | -      | - | -    | - | - |
| Stage 2              | 158    | 64   | -      | 191  | 77     | -    | -    | -      | - | -    | - | - |

| Approach             | EB   | WB   | NB  | SB  |
|----------------------|------|------|-----|-----|
| HCM Control Delay, s | 63.9 | 36.1 | 0.4 | 0.1 |
| HCM LOS              | F    | E    |     |     |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1 | WBLn1 | SBL   | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-----|-----|
| Capacity (veh/h)      | 239   | -   | -   | 89    | 137   | 246   | -   | -   |
| HCM Lane V/C Ratio    | 0.162 | -   | -   | 0.326 | 0.157 | 0.039 | -   | -   |
| HCM Control Delay (s) | 23    | -   | -   | 63.9  | 36.1  | 20.2  | -   | -   |
| HCM Lane LOS          | C     | -   | -   | F     | E     | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0.6   | -   | -   | 1.2   | 0.5   | 0.1   | -   | -   |

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**APPENDIX 6.4:**  
**FUTURE YEAR (2034) WITH PROJECT CONDITIONS QUEUING ANALYSIS**  
**WORKSHEETS**

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| Lane Group              | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1115 | 51   | 900  | 464  | 192  | 1054 |
| v/c Ratio               | 0.94 | 0.09 | 0.72 | 0.54 | 0.71 | 0.54 |
| Control Delay           | 44.5 | 6.5  | 26.3 | 3.6  | 51.0 | 14.7 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 44.5 | 6.5  | 26.3 | 3.6  | 51.0 | 14.7 |
| Queue Length 50th (ft)  | 308  | 0    | 244  | 9    | 103  | 195  |
| Queue Length 95th (ft)  | #435 | 24   | m280 | m13  | 173  | 251  |
| Internal Link Dist (ft) | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)    | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)     | 1217 | 594  | 1242 | 859  | 310  | 1963 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.92 | 0.09 | 0.72 | 0.54 | 0.62 | 0.54 |

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



| Lane Group              | EBL  | EBT  | WBT  | WBR  | NBL  | NBT  | NBR  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 274  | 1693 | 1433 | 454  | 125  | 126  | 407  |
| v/c Ratio               | 0.65 | 0.53 | 0.63 | 0.47 | 0.29 | 0.29 | 0.86 |
| Control Delay           | 43.8 | 10.9 | 22.2 | 3.8  | 27.7 | 27.7 | 43.2 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 43.8 | 10.9 | 22.2 | 3.8  | 27.7 | 27.7 | 43.2 |
| Queue Length 50th (ft)  | 86   | 163  | 237  | 0    | 57   | 58   | 170  |
| Queue Length 95th (ft)  | m113 | 230  | 305  | 59   | 104  | 105  | #304 |
| Internal Link Dist (ft) |      | 731  | 593  |      |      | 1882 |      |
| Turn Bay Length (ft)    | 250  |      |      |      | 645  |      | 915  |
| Base Capacity (vph)     | 486  | 3169 | 2283 | 965  | 504  | 506  | 537  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.56 | 0.53 | 0.63 | 0.47 | 0.25 | 0.25 | 0.76 |

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

7: Hesperia Rd. & Ottawa St.



| Lane Group              | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 22   | 29   | 15   | 14   | 1463 | 104  | 38   | 1597 |
| v/c Ratio               | 0.07 | 0.11 | 0.05 | 0.08 | 0.54 | 0.09 | 0.21 | 0.54 |
| Control Delay           | 24.2 | 33.0 | 18.1 | 36.8 | 9.3  | 4.1  | 36.6 | 6.3  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 24.2 | 33.0 | 18.1 | 36.8 | 9.3  | 4.1  | 36.6 | 6.3  |
| Queue Length 50th (ft)  | 4    | 11   | 0    | 6    | 229  | 9    | 15   | 155  |
| Queue Length 95th (ft)  | 28   | 41   | 19   | 27   | 323  | 29   | 51   | 355  |
| Internal Link Dist (ft) | 1012 |      | 2164 |      | 2695 |      |      | 918  |
| Turn Bay Length (ft)    |      |      |      | 100  |      | 100  | 100  |      |
| Base Capacity (vph)     | 643  | 595  | 670  | 259  | 3458 | 1549 | 259  | 3458 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.05 | 0.02 | 0.05 | 0.42 | 0.07 | 0.15 | 0.46 |

Intersection Summary



| Lane Group              | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 1372 | 65   | 1101 | 545  | 230  | 1303 |
| v/c Ratio               | 1.09 | 0.10 | 0.95 | 0.61 | 0.83 | 0.69 |
| Control Delay           | 83.8 | 5.8  | 48.7 | 5.6  | 61.8 | 18.3 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 83.8 | 5.8  | 48.7 | 5.6  | 61.8 | 18.3 |
| Queue Length 50th (ft)  | ~458 | 0    | 323  | 0    | 127  | 274  |
| Queue Length 95th (ft)  | #587 | 26   | #462 | 73   | #243 | 350  |
| Internal Link Dist (ft) | 1021 |      | 670  |      |      | 1219 |
| Turn Bay Length (ft)    | 465  | 570  |      |      | 300  |      |
| Base Capacity (vph)     | 1256 | 621  | 1155 | 887  | 290  | 1893 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.09 | 0.10 | 0.95 | 0.61 | 0.79 | 0.69 |

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





| Lane Group              | EBL  | EBT  | WBT   | WBR  | NBL  | NBT  | NBR   |
|-------------------------|------|------|-------|------|------|------|-------|
| Lane Group Flow (vph)   | 379  | 2459 | 2672  | 562  | 322  | 323  | 607   |
| v/c Ratio               | 1.03 | 0.79 | 1.15  | 0.58 | 0.72 | 0.72 | 1.25  |
| Control Delay           | 95.4 | 15.9 | 100.3 | 6.2  | 40.9 | 41.0 | 155.7 |
| Queue Delay             | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   |
| Total Delay             | 95.4 | 15.9 | 100.3 | 6.2  | 40.9 | 41.0 | 155.7 |
| Queue Length 50th (ft)  | ~119 | 354  | ~662  | 35   | 175  | 175  | ~397  |
| Queue Length 95th (ft)  | #208 | 420  | #757  | 117  | #285 | #295 | #605  |
| Internal Link Dist (ft) |      | 731  | 593   |      |      | 1882 |       |
| Turn Bay Length (ft)    | 250  |      |       |      | 645  |      | 915   |
| Base Capacity (vph)     | 369  | 3123 | 2316  | 973  | 447  | 447  | 486   |
| Starvation Cap Reductn  | 0    | 0    | 0     | 0    | 0    | 0    | 0     |
| Spillback Cap Reductn   | 0    | 0    | 0     | 0    | 0    | 0    | 0     |
| Storage Cap Reductn     | 0    | 0    | 0     | 0    | 0    | 0    | 0     |
| Reduced v/c Ratio       | 1.03 | 0.79 | 1.15  | 0.58 | 0.72 | 0.72 | 1.25  |

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



| Lane Group              | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT   |
|-------------------------|------|------|------|------|------|------|------|-------|
| Lane Group Flow (vph)   | 32   | 112  | 56   | 39   | 2188 | 42   | 22   | 2217  |
| v/c Ratio               | 0.13 | 0.59 | 0.21 | 0.38 | 0.83 | 0.04 | 0.26 | 0.88  |
| Control Delay           | 23.2 | 57.6 | 15.6 | 61.8 | 15.8 | 1.3  | 60.6 | 20.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |
| Total Delay             | 23.2 | 57.6 | 15.6 | 61.8 | 15.8 | 1.3  | 60.6 | 20.0  |
| Queue Length 50th (ft)  | 6    | 78   | 3    | 27   | 386  | 0    | 16   | 643   |
| Queue Length 95th (ft)  | 35   | 138  | 41   | 66   | #886 | 9    | 45   | #1040 |
| Internal Link Dist (ft) | 1012 |      | 2164 |      | 2695 |      |      | 918   |
| Turn Bay Length (ft)    |      |      |      | 100  |      | 100  | 100  |       |
| Base Capacity (vph)     | 357  | 294  | 385  | 121  | 2731 | 1235 | 88   | 2600  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| Reduced v/c Ratio       | 0.09 | 0.38 | 0.15 | 0.32 | 0.80 | 0.03 | 0.25 | 0.85  |

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

**APPENDIX 6.5:**

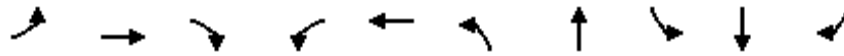
**FUTURE YEAR (2034) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS  
ANALYSIS WORKSHEETS WITH IMPROVEMENTS**

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Timings

8: Hesperia Rd. & Nisqualli Rd.

03/24/2022

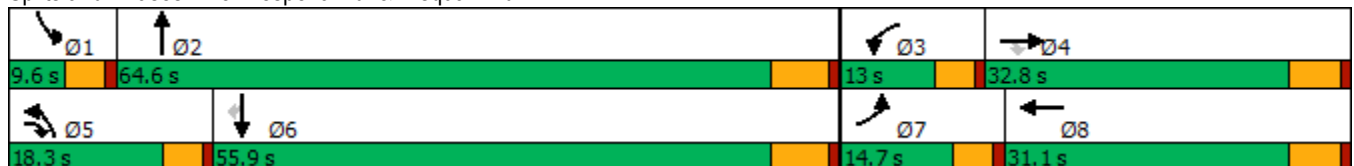


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |      |       |       |
| Traffic Volume (vph) | 236   | 90    | 499   | 101   | 88    | 331   | 1449  | 20   | 1349  | 89    |
| Future Volume (vph)  | 236   | 90    | 499   | 101   | 88    | 331   | 1449  | 20   | 1349  | 89    |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | Prot  | NA    | Prot | NA    | Perm  |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |       |
| Permitted Phases     |       |       | 4     |       |       |       |       |      |       | 6     |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6   | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  | 33.2  |
| Total Split (s)      | 14.7  | 32.8  | 18.3  | 13.0  | 31.1  | 18.3  | 64.6  | 9.6  | 55.9  | 55.9  |
| Total Split (%)      | 12.3% | 27.3% | 15.3% | 10.8% | 25.9% | 15.3% | 53.8% | 8.0% | 46.6% | 46.6% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lag   | Lead | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | Min   | None | Min   | Min   |
| Act Effct Green (s)  | 10.1  | 12.4  | 31.9  | 8.4   | 10.7  | 13.7  | 63.6  | 5.0  | 49.1  | 49.1  |
| Actuated g/C Ratio   | 0.10  | 0.12  | 0.30  | 0.08  | 0.10  | 0.13  | 0.61  | 0.05 | 0.47  | 0.47  |
| v/c Ratio            | 0.83  | 0.44  | 0.63  | 0.80  | 0.38  | 0.85  | 0.78  | 0.27 | 0.87  | 0.12  |
| Control Delay        | 69.1  | 49.7  | 35.2  | 87.0  | 30.4  | 64.8  | 19.8  | 57.5 | 31.9  | 0.9   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Delay          | 69.1  | 49.7  | 35.2  | 87.0  | 30.4  | 64.8  | 19.8  | 57.5 | 31.9  | 0.9   |
| LOS                  | E     | D     | D     | F     | C     | E     | B     | E    | C     | A     |
| Approach Delay       |       | 46.5  |       |       | 54.1  |       | 27.7  |      | 30.3  |       |
| Approach LOS         |       | D     |       |       | D     |       | C     |      | C     |       |

Intersection Summary

|   |                        |
|---|------------------------|
| Cycle Length: 120                       |                        |
| Actuated Cycle Length: 104.8            |                        |
| Natural Cycle: 120                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.87                 |                        |
| Intersection Signal Delay: 33.5         | Intersection LOS: C    |
| Intersection Capacity Utilization 81.5% | ICU Level of Service D |
| Analysis Period (min) 15                |                        |























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



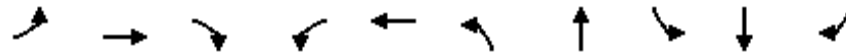
HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

03/24/2022

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                     | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations          |  |  |  |  |  |   |  |  |   |  |  |  |
| Traffic Volume (veh/h)       | 236   | 90  | 499   | 101   | 88  | 52  | 331  | 1449  | 117   | 20  | 1349  | 89  |
| Future Volume (veh/h)        | 236   | 90  | 499   | 101   | 88  | 52  | 331  | 1449  | 117   | 20  | 1349  | 89  |
| Initial Q (Qb), veh          | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)          | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach        |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900  | 1900  | 1800  | 1900  | 1900  | 1700   | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 257   | 98  | 542   | 110   | 96  | 57  | 360  | 1575  | 127   | 22  | 1466  | 97  |
| Peak Hour Factor             | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Percent Heavy Veh, %         | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h                   | 286   | 368   | 887   | 126   | 400   | 222   | 388  | 1781  | 142   | 38  | 1546  | 690   |
| Arrive On Green              | 0.09  | 0.19  | 0.19  | 0.07  | 0.18  | 0.18  | 0.12   | 0.53  | 0.53  | 0.02  | 0.43  | 0.43  |
| Sat Flow, veh/h              | 3238  | 1900  | 2834  | 1714  | 2241  | 1241  | 3238   | 3385  | 271   | 1714  | 3610  | 1610  |
| Grp Volume(v), veh/h         | 257   | 98  | 542   | 110   | 76  | 77  | 360  | 834   | 868   | 22  | 1466  | 97  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1900  | 1417  | 1714  | 1805  | 1677  | 1619   | 1805  | 1851  | 1714  | 1805  | 1610  |
| Q Serve(g_s), s              | 9.0   | 5.0   | 18.6  | 7.3   | 4.1   | 4.5   | 12.6   | 46.6  | 47.9  | 1.5   | 44.8  | 4.2   |
| Cycle Q Clear(g_c), s        | 9.0   | 5.0   | 18.6  | 7.3   | 4.1   | 4.5   | 12.6   | 46.6  | 47.9  | 1.5   | 44.8  | 4.2   |
| Prop In Lane                 | 1.00  |   | 1.00  | 1.00  |   | 0.74  | 1.00   |   | 0.15  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h       | 286   | 368   | 887   | 126   | 322   | 299   | 388  | 949   | 974   | 38  | 1546  | 690   |
| V/C Ratio(X)                 | 0.90  | 0.27  | 0.61  | 0.87  | 0.24  | 0.26  | 0.93   | 0.88  | 0.89  | 0.58  | 0.95  | 0.14  |
| Avail Cap(c_a), veh/h        | 286   | 448   | 1007  | 126   | 399   | 371   | 388  | 949   | 974   | 75  | 1567  | 699   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 51.7  | 39.3  | 33.4  | 52.5  | 40.3  | 40.5  | 49.9   | 23.9  | 24.2  | 55.5  | 31.5  | 19.9  |
| Incr Delay (d2), s/veh       | 28.3  | 0.4   | 0.9   | 43.4  | 0.4   | 0.4   | 28.1   | 9.5   | 10.4  | 5.2   | 12.5  | 0.1   |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 4.7   | 2.3   | 6.2   | 4.6   | 1.8   | 1.9   | 6.4  | 20.0  | 21.3  | 0.7   | 20.4  | 1.5   |
| Unsig. Movement Delay, s/veh |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh         | 80.0  | 39.6  | 34.3  | 95.9  | 40.7  | 40.9  | 78.0   | 33.4  | 34.6  | 60.7  | 44.0  | 20.0  |
| LnGrp LOS                    | E   | D   | C   | F   | D   | D   | E  | C   | C   | E   | D   | B   |
| Approach Vol, veh/h          |   | 897   |   |   | 263   |   |  | 2062  |   |   | 1585  |   |
| Approach Delay, s/veh        |   | 48.0  |   |   | 63.9  |   |  | 41.7  |   |   | 42.7  |   |
| Approach LOS                 |   | D   |   |   | E   |   |  | D   |   |   | D   |   |
| Timer - Assigned Phs         | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s     | 7.1   | 66.4  | 13.0  | 27.9  | 18.3  | 55.2  | 14.7   | 26.2  |   |   |   |   |
| Change Period (Y+Rc), s      | 4.6   | 6.2   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 5.0   | 58.4  | 8.4   | 27.0  | 13.7  | 49.7  | 10.1   | 25.3  |   |   |   |   |
| Max Q Clear Time (g_c+1), s  | 3.5   | 49.9  | 9.3   | 20.6  | 14.6  | 46.8  | 11.0   | 6.5   |   |   |   |   |
| Green Ext Time (p_c), s      | 0.0   | 6.1   | 0.0   | 1.6   | 0.0   | 2.3   | 0.0  | 0.6   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay           |   |   | 44.4  |   |   |   |  |   |   |   |   |   |
| HCM 6th LOS                  |   |   | D   |   |   |   |  |   |   |   |   |   |

Timings  
8: Hesperia Rd. & Nisqualli Rd.

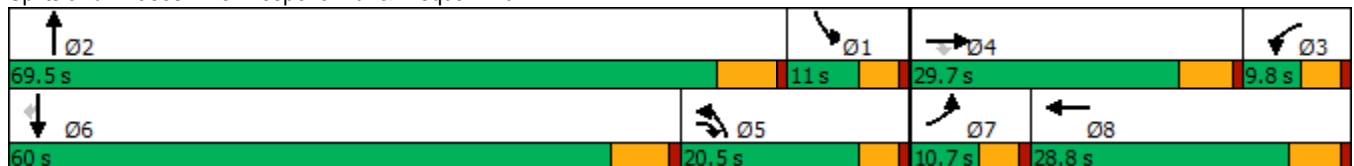


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   | SBR   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| Lane Configurations  | ↔↔    | ↑     | ↔↔    | ↔     | ↔↔    | ↔↔    | ↔↔    | ↔    | ↔↔    | ↔     |
| Traffic Volume (vph) | 215   | 74    | 517   | 119   | 79    | 567   | 1735  | 23   | 1989  | 224   |
| Future Volume (vph)  | 215   | 74    | 517   | 119   | 79    | 567   | 1735  | 23   | 1989  | 224   |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | Prot  | NA    | Prot | NA    | Perm  |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |       |
| Permitted Phases     |       |       | 4     |       |       |       |       |      |       | 6     |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 28.8  | 9.6   | 9.6   | 28.8  | 9.6   | 27.2  | 9.6  | 31.2  | 31.2  |
| Total Split (s)      | 10.7  | 29.7  | 20.5  | 9.8   | 28.8  | 20.5  | 69.5  | 11.0 | 60.0  | 60.0  |
| Total Split (%)      | 8.9%  | 24.8% | 17.1% | 8.2%  | 24.0% | 17.1% | 57.9% | 9.2% | 50.0% | 50.0% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   | 6.2   |
| Lead/Lag             | Lead  | Lead  | Lag   | Lag   | Lag   | Lag   | Lead  | Lag  | Lead  | Lead  |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | Min   | None | Min   | Min   |
| Act Effct Green (s)  | 6.1   | 10.8  | 29.4  | 8.9   | 10.5  | 15.9  | 70.0  | 5.8  | 53.8  | 53.8  |
| Actuated g/C Ratio   | 0.06  | 0.10  | 0.27  | 0.08  | 0.10  | 0.15  | 0.65  | 0.05 | 0.50  | 0.50  |
| v/c Ratio            | 1.21  | 0.40  | 0.60  | 0.87  | 0.38  | 1.23  | 0.78  | 0.26 | 1.08  | 0.25  |
| Control Delay        | 179.1 | 51.7  | 36.4  | 100.2 | 28.6  | 158.7 | 17.4  | 56.1 | 72.7  | 3.2   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Delay          | 179.1 | 51.7  | 36.4  | 100.2 | 28.6  | 158.7 | 17.4  | 56.1 | 72.7  | 3.2   |
| LOS                  | F     | D     | D     | F     | C     | F     | B     | E    | E     | A     |
| Approach Delay       |       | 75.9  |       |       | 61.5  |       | 50.5  |      | 65.5  |       |
| Approach LOS         |       | E     |       |       | E     |       | D     |      | E     |       |

Intersection Summary

|  |                        |
|--|------------------------|
| Cycle Length: 120                        |                        |
| Actuated Cycle Length: 107.5             |                        |
| Natural Cycle: 130                       |                        |
| Control Type: Actuated-Uncoordinated     |                        |
| Maximum v/c Ratio: 1.23                  |                        |
| Intersection Signal Delay: 60.5          | Intersection LOS: E    |
| Intersection Capacity Utilization 106.0% | ICU Level of Service G |
| Analysis Period (min) 15                 |                        |





























Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

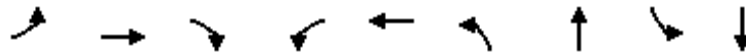
03/24/2022

|  |    |  |    |  |    |  |    |    |  |  |    |  |
|--|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement   | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations  |   |  |   |  |   |   |   |   |   |  |   |  |
| Traffic Volume (veh/h)   | 215   | 74  | 517   | 119   | 79  | 62  | 567  | 1735  | 119   | 23  | 1989  | 224   |
| Future Volume (veh/h)  | 215   | 74  | 517   | 119   | 79  | 62  | 567  | 1735  | 119   | 23  | 1989  | 224   |
| Initial Q (Qb), veh  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Ped-Bike Adj(A_pbT)  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00   |   | 1.00  | 1.00  |   | 1.00  |
| Parking Bus, Adj   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Work Zone On Approach  |   | No  |   |   | No  |   |  | No  |   |   | No  |   |
| Adj Sat Flow, veh/h/ln   | 1700  | 1900  | 1900  | 1800  | 1900  | 1900  | 1700   | 1900  | 1900  | 1800  | 1900  | 1900  |
| Adj Flow Rate, veh/h   | 222   | 76  | 404   | 123   | 81  | 64  | 585  | 1789  | 123   | 24  | 2051  | 128   |
| Peak Hour Factor   | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97   | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Percent Heavy Veh, %   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Cap, veh/h   | 184   | 177   | 777   | 83  | 192   | 138   | 480  | 1981  | 135   | 148   | 1905  | 807   |
| Arrive On Green  | 0.06  | 0.09  | 0.09  | 0.05  | 0.10  | 0.10  | 0.15   | 0.56  | 0.56  | 0.09  | 0.50  | 0.50  |
| Sat Flow, veh/h  | 3238  | 1900  | 3220  | 1714  | 2004  | 1442  | 3238   | 3518  | 239   | 1714  | 3800  | 1610  |
| Grp Volume(v), veh/h   | 222   | 76  | 404   | 123   | 72  | 73  | 585  | 957   | 955   | 24  | 2051  | 128   |
| Grp Sat Flow(s),veh/h/ln   | 1619  | 1900  | 1610  | 1714  | 1805  | 1640  | 1619   | 1900  | 1857  | 1714  | 1900  | 1610  |
| Q Serve(g_s), s  | 6.1   | 4.1   | 0.0   | 5.2   | 4.0   | 4.5   | 15.9   | 47.6  | 49.7  | 1.4   | 53.8  | 3.2   |
| Cycle Q Clear(g_c), s  | 6.1   | 4.1   | 0.0   | 5.2   | 4.0   | 4.5   | 15.9   | 47.6  | 49.7  | 1.4   | 53.8  | 3.2   |
| Prop In Lane   | 1.00  |   | 1.00  | 1.00  |   | 0.88  | 1.00   |   | 0.13  | 1.00  |   | 1.00  |
| Lane Grp Cap(c), veh/h   | 184   | 177   | 777   | 83  | 173   | 157   | 480  | 1070  | 1046  | 148   | 1905  | 807   |
| V/C Ratio(X)   | 1.21  | 0.43  | 0.52  | 1.48  | 0.42  | 0.46  | 1.22   | 0.89  | 0.91  | 0.16  | 1.08  | 0.16  |
| Avail Cap(c_a), veh/h  | 184   | 423   | 1194  | 83  | 387   | 352   | 480  | 1121  | 1095  | 148   | 1905  | 807   |
| HCM 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  |
| Upstream Filter(I)   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Uniform Delay (d), s/veh   | 50.6  | 46.0  | 35.3  | 51.1  | 45.7  | 45.9  | 45.7   | 20.6  | 21.1  | 45.4  | 26.8  | 6.8   |
| Incr Delay (d2), s/veh   | 132.7   | 1.6   | 0.5   | 269.8   | 1.6   | 2.1   | 116.3  | 9.2   | 11.3  | 0.2   | 44.7  | 0.1   |
| Initial Q Delay(d3),s/veh  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln   | 5.8   | 1.9   | 4.5   | 8.4   | 1.8   | 1.9   | 13.8   | 20.5  | 21.5  | 0.6   | 33.0  | 1.5   |
| Unsig. Movement Delay, s/veh   |   |   |   |   |   |   |  |   |   |   |   |   |
| LnGrp Delay(d),s/veh   | 183.3   | 47.6  | 35.8  | 320.8   | 47.3  | 48.0  | 162.0  | 29.8  | 32.4  | 45.6  | 71.4  | 6.9   |
| LnGrp LOS  | F   | D   | D   | F   | D   | D   | F  | C   | C   | D   | F   | A   |
| Approach Vol, veh/h  |   | 702   |   |   | 268   |   |  | 2497  |   |   | 2203  |   |
| Approach Delay, s/veh  |   | 83.7  |   |   | 173.0   |   |  | 61.8  |   |   | 67.4  |   |
| Approach LOS   |   | F   |   |   | F   |   |  | E   |   |   | E   |   |
| Timer - Assigned Phs   | 1   | 2   | 3   | 4   | 5   | 6   | 7  | 8   |   |   |   |   |
| Phs Duration (G+Y+Rc), s   | 13.9  | 66.6  | 11.0  | 15.8  | 20.5  | 60.0  | 10.7   | 16.1  |   |   |   |   |
| Change Period (Y+Rc), s  | 4.6   | 6.2   | 5.8   | * 5.8   | 4.6   | 6.2   | 4.6  | 5.8   |   |   |   |   |
| Max Green Setting (Gmax), s  | 6.4   | 63.3  | 5.2   | * 24  | 15.9  | 53.8  | 6.1  | 23.0  |   |   |   |   |
| Max Q Clear Time (g_c+I1), s   | 3.4   | 51.7  | 7.2   | 6.1   | 17.9  | 55.8  | 8.1  | 6.5   |   |   |   |   |
| Green Ext Time (p_c), s  | 0.0   | 8.8   | 0.0   | 1.8   | 0.0   | 0.0   | 0.0  | 0.6   |   |   |   |   |
| <b>Intersection Summary</b>  |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 6th Ctrl Delay   |   |   |   | 71.9  |   |   |  |   |   |   |   |   |
| HCM 6th LOS  |   |   |   | E   |   |   |  |   |   |   |   |   |
| <b>Notes</b>   |   |   |   |   |   |   |  |   |   |   |   |   |
| * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. |   |   |   |   |   |   |  |   |   |   |   |   |



Timings

8: Hesperia Rd. & Nisqualli Rd.

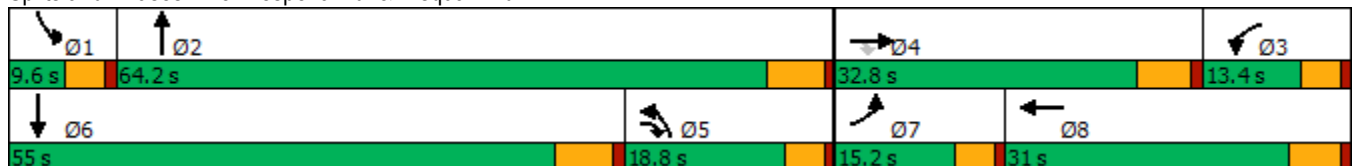


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations  |       |       |       |       |       |       |       |      |       |
| Traffic Volume (vph) | 236   | 90    | 499   | 101   | 88    | 331   | 1449  | 20   | 1349  |
| Future Volume (vph)  | 236   | 90    | 499   | 101   | 88    | 331   | 1449  | 20   | 1349  |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |       |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 32.8  | 9.6   | 9.6   | 30.8  | 9.6   | 27.2  | 9.6  | 33.2  |
| Total Split (s)      | 15.2  | 32.8  | 18.8  | 13.4  | 31.0  | 18.8  | 64.2  | 9.6  | 55.0  |
| Total Split (%)      | 12.7% | 27.3% | 15.7% | 11.2% | 25.8% | 15.7% | 53.5% | 8.0% | 45.8% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lead  | Lag   | Lag   | Lag   | Lag   | Lag   | Lead | Lead  |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 10.6  | 11.5  | 31.5  | 9.7   | 10.6  | 14.2  | 63.8  | 5.0  | 48.8  |
| Actuated g/C Ratio   | 0.10  | 0.11  | 0.30  | 0.09  | 0.10  | 0.13  | 0.61  | 0.05 | 0.46  |
| v/c Ratio            | 0.80  | 0.47  | 0.56  | 0.70  | 0.39  | 0.83  | 0.75  | 0.27 | 0.89  |
| Control Delay        | 65.3  | 51.8  | 33.6  | 71.2  | 30.5  | 61.7  | 18.6  | 57.6 | 34.1  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 65.3  | 51.8  | 33.6  | 71.2  | 30.5  | 61.7  | 18.6  | 57.6 | 34.1  |
| LOS                  | E     | D     | C     | E     | C     | E     | B     | E    | C     |
| Approach Delay       |       | 44.7  |       |       | 47.5  |       | 26.1  |      | 34.4  |
| Approach LOS         |       | D     |       |       | D     |       | C     |      | C     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 105.4  
 Natural Cycle: 120  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 33.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 84.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)

04/07/2022



| Movement                     | EBL  | EBT  | EBR  | WBL   | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|-------|------|-------|------|------|------|------|------|------|
| Lane Configurations          | ↔↔   | ↑    | ↔↔   | ↔     | ↔↔   |       | ↔↔   | ↔↔   |      | ↔    | ↔↔   |      |
| Traffic Volume (veh/h)       | 236  | 90   | 499  | 101   | 88   | 52    | 331  | 1449 | 117  | 20   | 1349 | 89   |
| Future Volume (veh/h)        | 236  | 90   | 499  | 101   | 88   | 52    | 331  | 1449 | 117  | 20   | 1349 | 89   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0     | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 |      | 1.00 | 1.00  |      | 1.00  | 1.00 |      | 1.00 | 1.00 |      | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        |      | No   |      |       | No   |       |      | No   |      |      | No   |      |
| Adj Sat Flow, veh/h/ln       | 1700 | 1900 | 1900 | 1800  | 1900 | 1900  | 1700 | 1900 | 1900 | 1800 | 1900 | 1900 |
| Adj Flow Rate, veh/h         | 257  | 98   | 542  | 110   | 96   | 57    | 360  | 1575 | 127  | 22   | 1466 | 97   |
| Peak Hour Factor             | 0.92 | 0.92 | 0.92 | 0.92  | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 0    | 0    | 0    | 0     | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Cap, veh/h                   | 316  | 185  | 729  | 147   | 218  | 121   | 418  | 2003 | 160  | 39   | 1604 | 106  |
| Arrive On Green              | 0.10 | 0.10 | 0.10 | 0.09  | 0.10 | 0.10  | 0.13 | 0.58 | 0.58 | 0.02 | 0.45 | 0.45 |
| Sat Flow, veh/h              | 3238 | 1900 | 3220 | 1714  | 2241 | 1241  | 3238 | 3472 | 278  | 1714 | 3526 | 232  |
| Grp Volume(v), veh/h         | 257  | 98   | 542  | 110   | 76   | 77    | 360  | 856  | 846  | 22   | 787  | 776  |
| Grp Sat Flow(s),veh/h/ln     | 1619 | 1900 | 1610 | 1714  | 1805 | 1677  | 1619 | 1900 | 1850 | 1714 | 1900 | 1858 |
| Q Serve(g_s), s              | 8.0  | 5.1  | 2.8  | 6.5   | 4.1  | 4.5   | 11.2 | 35.7 | 36.7 | 1.3  | 39.7 | 40.3 |
| Cycle Q Clear(g_c), s        | 8.0  | 5.1  | 2.8  | 6.5   | 4.1  | 4.5   | 11.2 | 35.7 | 36.7 | 1.3  | 39.7 | 40.3 |
| Prop In Lane                 | 1.00 |      | 1.00 | 1.00  |      | 0.74  | 1.00 |      | 0.15 | 1.00 |      | 0.13 |
| Lane Grp Cap(c), veh/h       | 316  | 185  | 729  | 147   | 175  | 163   | 418  | 1096 | 1067 | 39   | 864  | 845  |
| V/C Ratio(X)                 | 0.81 | 0.53 | 0.74 | 0.75  | 0.43 | 0.47  | 0.86 | 0.78 | 0.79 | 0.57 | 0.91 | 0.92 |
| Avail Cap(c_a), veh/h        | 333  | 498  | 1260 | 147   | 442  | 410   | 447  | 1096 | 1067 | 83   | 900  | 881  |
| HCM 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 |
| Upstream Filter(I)           | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 45.6 | 44.3 | 37.1 | 46.0  | 43.8 | 44.0  | 43.9 | 16.8 | 17.0 | 49.8 | 26.1 | 26.3 |
| Incr Delay (d2), s/veh       | 12.6 | 2.4  | 1.5  | 16.9  | 1.7  | 2.1   | 14.0 | 3.7  | 4.2  | 4.7  | 12.9 | 14.1 |
| Initial Q Delay(d3),s/veh    | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 3.7  | 2.4  | 6.2  | 3.3   | 1.8  | 1.9   | 5.1  | 14.1 | 14.2 | 0.6  | 19.0 | 19.1 |
| Unsig. Movement Delay, s/veh |      |      |      |       |      |       |      |      |      |      |      |      |
| LnGrp Delay(d),s/veh         | 58.1 | 46.6 | 38.6 | 62.9  | 45.5 | 46.1  | 57.9 | 20.5 | 21.2 | 54.5 | 39.0 | 40.3 |
| LnGrp LOS                    | E    | D    | D    | E     | D    | D     | E    | C    | C    | D    | D    | D    |
| Approach Vol, veh/h          |      | 897  |      |       | 263  |       |      | 2062 |      |      | 1585 |      |
| Approach Delay, s/veh        |      | 45.1 |      |       | 53.0 |       |      | 27.3 |      |      | 39.9 |      |
| Approach LOS                 |      | D    |      |       | D    |       |      | C    |      |      | D    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4     | 5    | 6     | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 6.9  | 65.6 | 14.6 | 15.8  | 19.5 | 53.0  | 14.6 | 15.8 |      |      |      |      |
| Change Period (Y+Rc), s      | 4.6  | 6.2  | 5.8  | * 5.8 | 6.2  | * 6.2 | 4.6  | 5.8  |      |      |      |      |
| Max Green Setting (Gmax), s  | 5.0  | 58.0 | 8.8  | * 27  | 14.2 | * 49  | 10.6 | 25.2 |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 3.3  | 38.7 | 8.5  | 7.1   | 13.2 | 42.3  | 10.0 | 6.5  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0  | 11.2 | 0.0  | 2.6   | 0.1  | 4.6   | 0.0  | 0.6  |      |      |      |      |

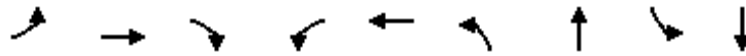
Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 36.2 |
| HCM 6th LOS        | D    |

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings  
8: Hesperia Rd. & Nisqualli Rd.

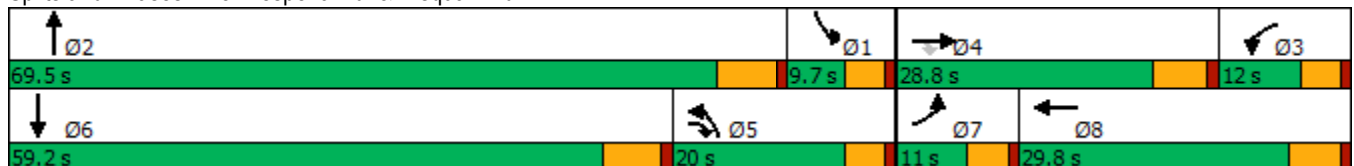


| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations  | ↔↔    | ↑     | ↔↔    | ↔     | ↔↔    | ↔↔    | ↔↔    | ↔    | ↔↔    |
| Traffic Volume (vph) | 215   | 74    | 517   | 119   | 79    | 567   | 1735  | 23   | 1989  |
| Future Volume (vph)  | 215   | 74    | 517   | 119   | 79    | 567   | 1735  | 23   | 1989  |
| Turn Type            | Prot  | NA    | pm+ov | Prot  | NA    | Prot  | NA    | Prot | NA    |
| Protected Phases     | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Permitted Phases     |       |       | 4     |       |       |       |       |      |       |
| Detector Phase       | 7     | 4     | 5     | 3     | 8     | 5     | 2     | 1    | 6     |
| Switch Phase         |       |       |       |       |       |       |       |      |       |
| Minimum Initial (s)  | 5.0   | 10.0  | 5.0   | 5.0   | 10.0  | 5.0   | 10.0  | 5.0  | 10.0  |
| Minimum Split (s)    | 9.6   | 28.8  | 9.6   | 9.6   | 28.8  | 9.6   | 27.2  | 9.6  | 31.2  |
| Total Split (s)      | 11.0  | 28.8  | 20.0  | 12.0  | 29.8  | 20.0  | 69.5  | 9.7  | 59.2  |
| Total Split (%)      | 9.2%  | 24.0% | 16.7% | 10.0% | 24.8% | 16.7% | 57.9% | 8.1% | 49.3% |
| Yellow Time (s)      | 3.6   | 4.8   | 3.6   | 3.6   | 4.8   | 3.6   | 5.2   | 3.6  | 5.2   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   | 1.0  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Lost Time (s)  | 4.6   | 5.8   | 4.6   | 4.6   | 5.8   | 4.6   | 6.2   | 4.6  | 6.2   |
| Lead/Lag             | Lead  | Lead  | Lag   | Lag   | Lag   | Lag   | Lead  | Lag  | Lead  |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | Min   | None | Min   |
| Act Effct Green (s)  | 6.4   | 10.8  | 28.8  | 10.4  | 11.6  | 15.4  | 69.2  | 5.1  | 53.0  |
| Actuated g/C Ratio   | 0.06  | 0.10  | 0.27  | 0.10  | 0.11  | 0.14  | 0.64  | 0.05 | 0.49  |
| v/c Ratio            | 1.16  | 0.40  | 0.62  | 0.75  | 0.34  | 1.27  | 0.79  | 0.30 | 1.23  |
| Control Delay        | 159.2 | 51.9  | 37.3  | 77.3  | 27.3  | 175.4 | 18.3  | 60.0 | 137.0 |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   |
| Total Delay          | 159.2 | 51.9  | 37.3  | 77.3  | 27.3  | 175.4 | 18.3  | 60.0 | 137.0 |
| LOS                  | F     | D     | D     | E     | C     | F     | B     | E    | F     |
| Approach Delay       |       | 71.2  |       |       | 50.2  |       | 55.1  |      | 136.2 |
| Approach LOS         |       | E     |       |       | D     |       | E     |      | F     |

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 107.6  
 Natural Cycle: 130  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.27  
 Intersection Signal Delay: 88.8  
 Intersection LOS: F  
 Intersection Capacity Utilization 113.2%  
 ICU Level of Service H  
 Analysis Period (min) 15

Splits and Phases: 8: Hesperia Rd. & Nisqualli Rd.



HCM 6th Signalized Intersection Summary  
8: Hesperia Rd. & Nisqualli Rd.

Ottawa Business Center (JN 14035)  
04/07/2022



| Movement                     | EBL   | EBT  | EBR  | WBL   | WBT  | WBR  | NBL   | NBT  | NBR  | SBL  | SBT   | SBR   |
|------------------------------|-------|------|------|-------|------|------|-------|------|------|------|-------|-------|
| Lane Configurations          | ↔↔    | ↑    | ↔↔   | ↔     | ↔↔   |      | ↔↔    | ↔↔   |      | ↔    | ↔↔    |       |
| Traffic Volume (veh/h)       | 215   | 74   | 517  | 119   | 79   | 62   | 567   | 1735 | 119  | 23   | 1989  | 224   |
| Future Volume (veh/h)        | 215   | 74   | 517  | 119   | 79   | 62   | 567   | 1735 | 119  | 23   | 1989  | 224   |
| Initial Q (Qb), veh          | 0     | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0     | 0     |
| Ped-Bike Adj(A_pbT)          | 1.00  |      | 1.00 | 1.00  |      | 1.00 | 1.00  |      | 1.00 | 1.00 |       | 1.00  |
| Parking Bus, Adj             | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  |
| Work Zone On Approach        |       | No   |      |       | No   |      |       | No   |      |      | No    |       |
| Adj Sat Flow, veh/h/ln       | 1700  | 1900 | 1900 | 1800  | 1900 | 1900 | 1700  | 1900 | 1900 | 1800 | 1900  | 1900  |
| Adj Flow Rate, veh/h         | 222   | 76   | 404  | 123   | 81   | 64   | 585   | 1789 | 123  | 24   | 2051  | 128   |
| Peak Hour Factor             | 0.97  | 0.97 | 0.97 | 0.97  | 0.97 | 0.97 | 0.97  | 0.97 | 0.97 | 0.97 | 0.97  | 0.97  |
| Percent Heavy Veh, %         | 0     | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0     | 0     |
| Cap, veh/h                   | 192   | 176  | 756  | 117   | 226  | 163  | 461   | 1973 | 134  | 122  | 1735  | 107   |
| Arrive On Green              | 0.06  | 0.09 | 0.09 | 0.07  | 0.11 | 0.11 | 0.14  | 0.56 | 0.56 | 0.07 | 0.49  | 0.49  |
| Sat Flow, veh/h              | 3238  | 1900 | 3220 | 1714  | 2004 | 1442 | 3238  | 3518 | 239  | 1714 | 3542  | 219   |
| Grp Volume(v), veh/h         | 222   | 76   | 404  | 123   | 72   | 73   | 585   | 957  | 955  | 24   | 1090  | 1090  |
| Grp Sat Flow(s),veh/h/ln     | 1619  | 1900 | 1610 | 1714  | 1805 | 1640 | 1619  | 1900 | 1857 | 1714 | 1900  | 1861  |
| Q Serve(g_s), s              | 6.4   | 4.1  | 0.0  | 7.4   | 4.0  | 4.5  | 15.4  | 48.2 | 50.3 | 1.4  | 53.0  | 53.0  |
| Cycle Q Clear(g_c), s        | 6.4   | 4.1  | 0.0  | 7.4   | 4.0  | 4.5  | 15.4  | 48.2 | 50.3 | 1.4  | 53.0  | 53.0  |
| Prop In Lane                 | 1.00  |      | 1.00 | 1.00  |      | 0.88 | 1.00  |      | 0.13 | 1.00 |       | 0.12  |
| Lane Grp Cap(c), veh/h       | 192   | 176  | 756  | 117   | 204  | 185  | 461   | 1065 | 1041 | 122  | 931   | 911   |
| V/C Ratio(X)                 | 1.16  | 0.43 | 0.53 | 1.05  | 0.35 | 0.39 | 1.27  | 0.90 | 0.92 | 0.20 | 1.17  | 1.20  |
| Avail Cap(c_a), veh/h        | 192   | 404  | 1143 | 117   | 400  | 364  | 461   | 1112 | 1086 | 122  | 931   | 911   |
| HCM 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  |
| Upstream Filter(I)           | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  |
| Uniform Delay (d), s/veh     | 50.9  | 46.4 | 36.2 | 50.4  | 44.4 | 44.6 | 46.4  | 21.0 | 21.5 | 47.3 | 27.6  | 27.6  |
| Incr Delay (d2), s/veh       | 114.4 | 1.7  | 0.6  | 96.9  | 1.0  | 1.4  | 137.4 | 9.6  | 11.8 | 0.3  | 88.3  | 98.7  |
| Initial Q Delay(d3),s/veh    | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0   | 0.0   |
| %ile BackOfQ(50%),veh/ln     | 5.6   | 2.0  | 4.5  | 6.2   | 1.8  | 1.8  | 14.7  | 21.0 | 22.0 | 0.6  | 43.9  | 45.6  |
| Unsig. Movement Delay, s/veh |       |      |      |       |      |      |       |      |      |      |       |       |
| LnGrp Delay(d),s/veh         | 165.3 | 48.1 | 36.8 | 147.3 | 45.4 | 45.9 | 183.8 | 30.6 | 33.3 | 47.6 | 115.9 | 126.3 |
| LnGrp LOS                    | F     | D    | D    | F     | D    | D    | F     | C    | C    | D    | F     | F     |
| Approach Vol, veh/h          |       | 702  |      |       | 268  |      |       | 2497 |      |      | 2203  |       |
| Approach Delay, s/veh        |       | 78.7 |      |       | 92.3 |      |       | 67.5 |      |      | 120.3 |       |
| Approach LOS                 |       | E    |      |       | F    |      |       | E    |      |      | F     |       |
| Timer - Assigned Phs         | 1     | 2    | 3    | 4     | 5    | 6    | 7     | 8    |      |      |       |       |
| Phs Duration (G+Y+Rc), s     | 12.3  | 66.9 | 13.2 | 15.8  | 20.0 | 59.2 | 11.0  | 18.0 |      |      |       |       |
| Change Period (Y+Rc), s      | 4.6   | 6.2  | 5.8  | * 5.8 | 4.6  | 6.2  | 4.6   | 5.8  |      |      |       |       |
| Max Green Setting (Gmax), s  | 5.1   | 63.3 | 7.4  | * 23  | 15.4 | 53.0 | 6.4   | 24.0 |      |      |       |       |
| Max Q Clear Time (g_c+1), s  | 3.4   | 52.3 | 9.4  | 6.1   | 17.4 | 55.0 | 8.4   | 6.5  |      |      |       |       |
| Green Ext Time (p_c), s      | 0.0   | 8.3  | 0.0  | 1.8   | 0.0  | 0.0  | 0.0   | 0.6  |      |      |       |       |

Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 90.6 |
| HCM 6th LOS        | F    |

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.