

*VMT Assessment &
Local Access, Safety, and Circulation Study*

**SMF Master Plan Update
Sacramento County, California**

DRAFT

August 3, 2020

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EXECUTIVE SUMMARY

This report documents the results of a transportation analysis completed for Sacramento International Airport (SMF) Master Plan Update (MPU) and Cargo Facility project (the “proposed project” or “project”). Located in Sacramento County, California, the project proposes to an expansion of enplanements and land uses as included in the SMF Master Plan as well as an expanded cargo facility north of the airport with access off of Earhart Drive.

The purpose of this report is to provide traffic analysis to identify appropriate improvements for identified deficiencies and to refine roadway network and intersection configurations for the cumulative scenario.

The remaining sections of this report document a vehicle miles traveled (VMT) assessment, as well as a local access, safety, and circulation study. This includes an analysis of the existing traffic conditions, analysis methodologies, and the anticipated impact of the projects on the surrounding roadway network. This study was performed in accordance with the County of Sacramento’s traffic impact analysis guidelines, and the scope of work approved by the County.

This analysis includes evaluation of the following transportation facilities:

- 23 intersections within Sacramento County
- 15 roadway segments within Sacramento County
- I-5 (within the study area)
- SR-99 (within the study area)

Based on the County’s requirements, this VMT Assessment & Access, Safety, and Circulation Study was conducted for the study facilities for the following scenarios:

- Existing (2020) Conditions
- Existing (2020) plus Proposed Project (Master Plan Update) Conditions
- Existing (2020) plus Proposed Project (Cargo Facility) Conditions
- Existing (2020) plus Proposed Project (Master Plan Update and Cargo Facility) Conditions
- Cumulative Conditions⁺
- Cumulative plus Proposed Project (Master Plan Update) Conditions
- Cumulative plus Proposed Project (Cargo Facility) Conditions
- Cumulative plus Proposed Project (Master Plan Update and Cargo Facility) Conditions

Significant findings of this study regarding the proposed Master Plan Update include:

- An overall VMT reduction of 486,941 daily VMT is expected for the proposed Master Plan Update and a finding of less than significant impact for CEQA purposes.
- The MPU project generates vehicle trips that results in Existing (2020) Condition deficiencies which are recommended for improvement.
- It is recommended that the twelve (12) deficiencies related to the MPU project noted in this report be addressed by implementing the recommended improvements.

Significant findings of this study regarding the proposed Cargo Facility include:

- The average VMT per employee for the SACOG Region is 12.58 vehicle miles, while the average VMT per employee for the Cargo Facility is 22.59 vehicle miles. This result indicates a finding of significant impact for the proposed Cargo Facility for CEQA purposes.
- The study area intersections are not anticipated to be negatively impacted by the project traffic during the typical weekday, AM and PM commute peak hours.

- The shift change at the cargo facility was found to exceed the capacity of the existing roadway network immediately adjacent to the site and resulted in the following recommended improvements:
 - Intersection #2 – Elverta Road @ Earhart Drive
 - Install a traffic signal (as warranted and documented later in this report)
 - Install dual northbound right-turn lanes with 175-feet of queue storage (adequate deceleration distance should be provided in addition to this storage)
 - Install eastbound receiving lane to accept the #2 northbound right-turn lane
 - Install westbound dual left-turn lanes with 300-feet of queue storage (adequate deceleration distance should be provided in addition to this storage)
 - Install southbound receiving lanes to accept the westbound left-turn lanes
 - Intersection #3 – Elverta Road @ Power Line Road
 - Install a traffic signal (as warranted and documented later in this report)
 - Install additional eastbound through lane to provide for two (2) through lanes from Earhart Drive to Power Line Road
 - Install an eastbound receiving lane to accept the additional eastbound through approach lane
- The rural roadway segments on Elverta Road from Earhart Drive to SR-99 exceed 6,000 ADT due to the addition of project traffic. Based on functionality criteria, the project shall provide standard section (6-ft paved shoulder, two 12-ft travel lanes, 6-ft paved shoulder) on Elverta Road from Earhart Drive to SR-99.
- It is recommended that the eight (8) deficiencies related to the cargo facility traffic noted in this report be addressed by implementing the recommended improvements.

Significant findings of this study regarding the combination of the Master Plan Update and the Cargo Facility include:

- The combination of the Cargo Facility and the MPU projects results in Cumulative Condition queuing deficiencies.
- It is recommended that the two (2) deficiencies related to the combination of the cargo facility and the MPU projects noted in this report be addressed by implementing the recommended improvements.

Other Significant findings:

- Generally, the MPU project traffic interacts with roadways distinct from the proposed cargo facility.
- It is recommended that, with the implementation of the 4-lane roadway on Elverta Road (east of Metro Air Parkway) included in the General Plan, the intersection of Elverta Road and Metro Air Parkway include signalization.
- It is recommended to implement safety measures such as flexible delineators at the intersection of West Elverta Road with SR-99 Southbound Ramps (#6) to address the observation of compliance issues related to the prohibited westbound left-turn movements.
- It is recommended that future studies and design of I-5 and SR-99 consider existing and anticipated capacity constraints. This report documents the following LOS deficiencies in the Existing (2020) and Cumulative Conditions:
 - Existing (2020) Conditions Deficiencies:
 - SR-99 - Elkhorn Boulevard Off-Ramp (northbound)
 - SR-99 - North of I-5 Southbound On-Ramp (northbound)
 - SR-99 - I-5 Southbound On-Ramp (northbound)
 - Cumulative Conditions Deficiencies:

- I-5 - Metro Parkway Diagonal On-Ramp (southbound)
- SR-99 - Elverta Road Off-Ramp (northbound)
- SR-99 - North of Elkhorn Boulevard Diagonal On-Ramp (northbound)
- SR-99 - Elkhorn Boulevard Diagonal On-Ramp (northbound)
- SR-99 - Elkhorn Boulevard Off-Ramp (northbound)
- SR-99 - North of I-5 Southbound On-Ramp (northbound)
- SR-99 - I-5 Southbound On-Ramp (northbound)
- SR-99 - South of I-5 Southbound On-Ramp (northbound)

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INTRODUCTION

The Sacramento County Department of Airports (SCDA or the Department) owns and operates Sacramento International Airport (SMF or the Airport). The purpose of this Vehicle Miles Traveled (VMT) Assessment and Local Access, Safety, and Circulation Study is to document the offsite impacts associated with the anticipated changes in Airport operations resulting from modifications to the Master Plan in the form of additional gates, and the inclusion of a large-scale cargo facility. This study considers the VMT and localized traffic operations and safety aspects of these two, individual and cumulatively evaluated project components. The outcome of this study will assist SCDA by providing guidance for the continued improvement of SMF over a 20-year planning horizon and beyond as it relates to the “off-airport” network of roadways and freeway systems that serve SMF and the related airport land uses.

Background

SMF is located in Sacramento County, approximately 10 miles northwest of downtown Sacramento. The Airport occupies an approximately 5,900-acre site that is generally bounded by Power Line Road to the east, Garden Highway to the west, the Sacramento River to the west and south, and West Riego Road to the north.

Primary access to the Airport and terminal facilities is provided from the south via the I-5 interchange with Airport Boulevard, with an alternate route provided by Bayou Way. Access to airport facilities on the north portion of the Airport is provide via West Elverta Road and Earhart Drive. West Elverta Road connects to State Route 99 (SR-99) several miles east of the Airport.

The primary sources for changes to traffic and circulation identified in the Airport’s *Master Plan*¹ and being evaluated in this study include:

- The forecasted enplanement (passenger) growth over the 20-year planning horizon and subsequent addition of facilities and employees to support that passenger growth
- The development of near-term Air Cargo Facilities
- The development of Commercial Land Uses in/near the study area over the planning horizon

PROJECT DESCRIPTION

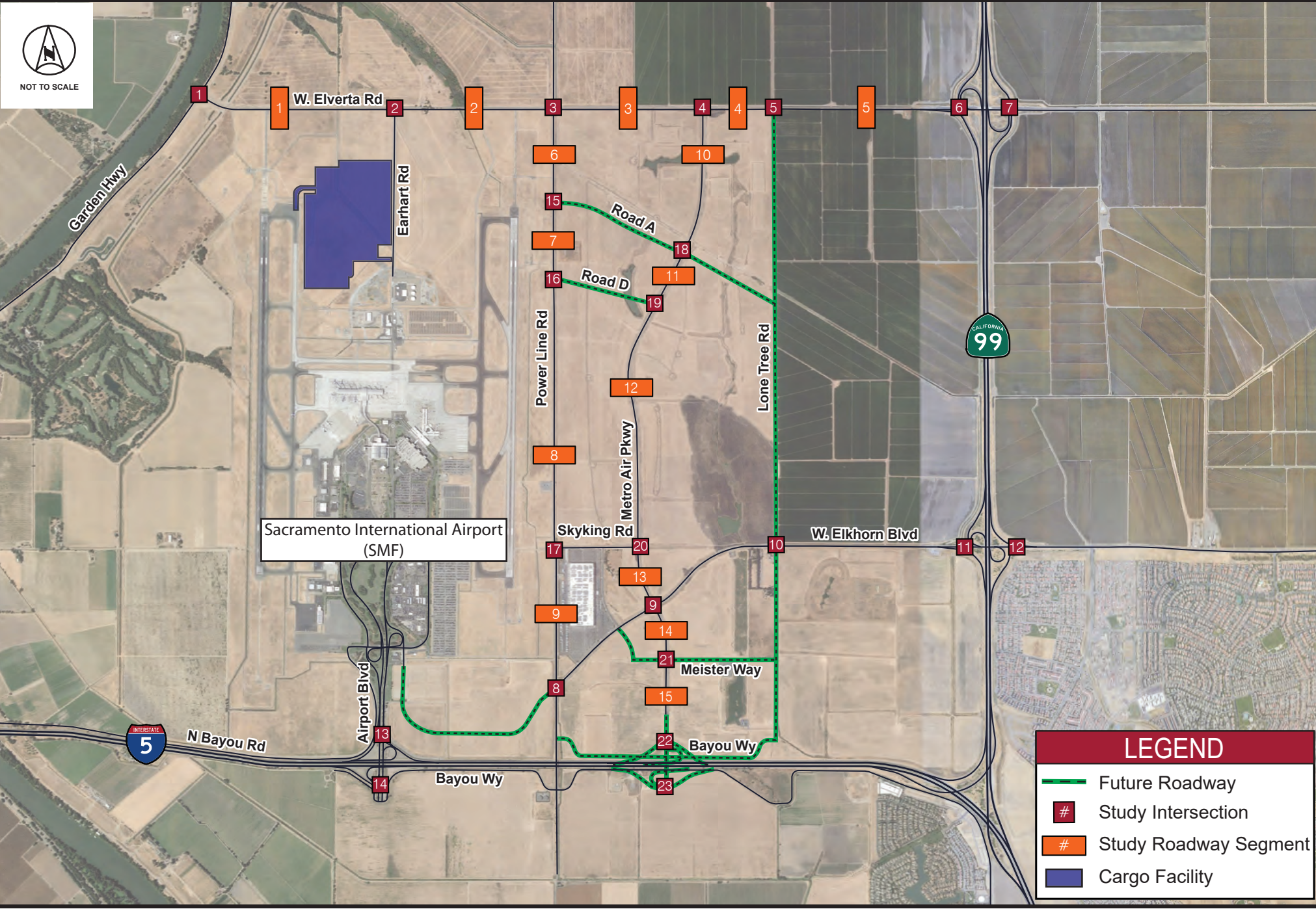
For the purposes of this analysis, the “Proposed Project” is defined as follows:

- **Airport Master Plan Update (MPU)**
The Airport Master Plan Update includes the addition of gates, which equate to additional peak-hour flights, and will be the primary determinant of the change in vehicle traffic conditions. All other land use modifications identified in the updated Master Plan are assumed to serve the airport itself and therefore the additional trips are associated with the airport’s number of gates and flights.
- **Cargo Facility (Cargo)**
A large-scale cargo facility is planned, with access assumed to be achieved exclusively to/from the north (Elverta Road). The addition of this facility necessitates the identified study facilities along Elverta Road, State Route 99 (SR-99), and within the Metro Air Park.

A project vicinity map is shown in **Figure 1**.

¹ *Sacramento International Airport Master Plan, Figure 4-13, Master Plan Projects, July 2020.*

SMF VMT Assessment & Local Access, Safety, and Circulation Study



SB 743/VMT ASSESSMENT

Purpose

This section documents the Vehicle Miles Traveled (VMT) analysis which was completed for the purpose of determining Senate Bill 743 (SB 743) compliance for the Proposed Project. The analysis is separated into two distinct analyses that correspond to these facilities:

- **Master Plan Update**
This scenario focuses on evaluating the impact of the additional aircraft gate expansion and related increase in passengers and employees over the next 20-years as a result of the Airport Master Plan Update.
- **Cargo Facility**
This scenario focuses on evaluating the impact of the proposed Cargo facility based on employee commute trips. While heavy-vehicle VMT is not evaluated quantitatively, discussion is provided for informational purposes.

The following sections provide discussion on the approach, methodology and assumptions, and results for these two analyses.

Approach to Airport Expansion (MPU) Scenario

Passenger flight demand is a unique circumstance considering that, as a transportation mode, there are often few competitive options. Within the Sacramento Region the alternative to passenger flight is primarily passenger vehicle travel although there are some other limited options including long distance bus service. Still, these vehicular alternatives are often not considered feasible when the additional time and cost for travel are factored (extended distance travel has both transportation costs and potential lodging/food costs). As a result, vehicular travel is considered infeasible by many travelers for longer trips, particularly as they extend beyond the state boundaries or farther. Accordingly, the demand for air travel is typically a function of the required trip characteristics and not necessarily the provision of air travel nearby. This phenomenon is demonstrated by the willingness of passengers to leave the immediate SMF market area to obtain flights that include the destination and other characteristics (preferred departure times, reduced layovers, etc.) required by air travelers. The *SMF Catchment Area Analysis*² provides information on the existing unmet passenger flight demand. Specifically, it presents data showing that more than 2.1 million domestic passengers and more than 1.6 million international passengers travel to airports outside of the Sacramento region to take flights. Primarily, these passengers use airports in the Bay Area with San Francisco International Airport (SFO), Oakland International Airport (OAK), and San Jose International Airport (SJC) capturing the majority of the passenger service. Accordingly, if the Airport does not expand and/or provide additional passenger service that meets the need of traveler, these longer vehicular trips to Bay Area airports would be assumed to continue or even expand as the demand for service naturally increases with population growth over time. The provision of additional gates to serve this unmet local demand is a primary catalyst of the Proposed Project. Estimates for future air travel prepared by the Airport currently assume that half of the anticipated growth over the next twenty years will result from recapturing passengers from these Bay Area airports.

Considering that demand for passenger air travel is like other basic demands, namely that the demand for the service exists largely irrespective of the proximity of the service, it is appropriate to establish regional net change metric as its basis. This approach is consistent with the 2018 Office of Planning and Research³ (OPR) guidance in terms of its recommendation regarding land uses with a significant customer basis.

² *SMF Catchment Area Analysis*. Campbell-Hill Aviation Group, LLC. April 2020.

³ *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018), California Governor's Office of Planning and Research

Although the OPR guidance only specifically addresses residential, office, and retail uses, there is discussion⁴ included regarding how a customer component of other uses should utilize the retail methodology as its basis. Given that there is also a significant employment support system that accompanies passenger air service, employee work trips have also been considered in the analysis. Based on discussions with Sacramento County staff, the basis for a significant impact was determined to appropriately be based on the regional net change in VMT resulting from the growth in passenger and employee VMT in the aggregate as compared to existing conditions. Detailed discussion on this methodology is provided in the Methodology and Assumptions section below.

Approach to Cargo Facility Scenario

While the Cargo Facility is expected to provide additional jobs and some related trips to the surrounding area, the facility itself is not expected to be the principal catalyst for new trips. Rather, it is anticipated that these trips would most likely occur regardless of whether this location were developed as it is in response to an existing demand for goods. Accordingly, if this site were not developed, a similar site will be developed elsewhere to meet this demand and, as such, the alternative to this development would likely not eliminate related trips.

Similarly, while the proposed Cargo Facility is expected to add trips to the region due to the increase in employment, the expected heavy vehicle trips, like passenger service, are not in response to the provision of the facility. Specifically, the demand for the goods carried by the heavy-vehicle trucks would exist irrespective of the construction of this facility.

The 2018 OPR Guidance⁵ indicates that, although heavy vehicle traffic can be included for analysis convenience, the provided analysis requirements are specific to passenger-vehicles and light duty trucks. While it may be appropriate to consider heavy vehicle traffic if directed by the lead agency, it is generally understood that the mechanism for regulating and managing VMT, environmental, and other truck impacts is managed through other aspects of California's regulatory and statutory framework. Irrespective of this, regulatory environment and considering the nature of the end-user of this facility, it is reasonable to assume that this location was selected, at least in part, due to how it effects the end user's transportation costs. Most often businesses who have shipping as a significant part of their operations are sensitive to transportation costs and their relative proximity to customers and suppliers. Accordingly, it is reasonable to assume that warehouse/cargo facilities are often located in a manner to reduce VMT given that it is the interest of their business.

Based on this understanding of the facility, and in consultation with Sacramento County staff, it was determined that the threshold of significance would be work VMT per employee (defined as the commute trip to the work) as compared the Sacramento Area Council of Governments (SACOG) region average for the same metric.

Methodology and Assumptions

Travel Demand Models (TDMs) are broadly considered to be amongst the most accurate of available tools to assess VMT. The SACOG Travel Demand Model (SACSIM) was determined to be the best fit for this project considering the geographic location of the project and the detailed roadway network in the model for the Sacramento region. The 2016 release of SACSIM, which includes a 2012 Base Year version and a 2036 Future Year version, was used to analyze the Existing plus Proposed Project and Future plus Proposed Project scenarios for each of the two analysis scenarios (Master Plan Update and Cargo Facility). The Master Plan Update has a forecast of 20 years of growth so rather than using 2036 as the future forecast year, all analyses were grown to 2040 to be consistent with the growth forecasts. In addition, while SACOG has since released a 2019 version of SACSIM, the final release of this model was not available at the onset of this

⁴ 2018 OPR Guidance, Page 5

⁵ 2018 OPR Guidance, Page 4

project. SACSIM covers six different counties: El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba, which are assumed to be the major contributors of the trip origins to the passenger service expansion and proposed cargo facility during a typical weekday.

To determine the VMT related to the Master Plan Update, the Traffic Analysis Zone (TAZ) representing the Airport was split to separate the employment from the passenger trips. This split facilitated the analysis of employment VMT and passenger VMT, as well as making it easier to complete other required analyses including select-zone analyses of the project to understand project distribution. The employment VMT was determined by using SACSIM output data and using a methodology consistent with other adopted methodologies in the region. The individual trip table used for the analysis provides information related to every trip made in the region throughout the day including travel mode, origin location, destination location, origin trip purpose, and destination trip purpose. This analysis included consideration of drive alone, shared ride with two passengers, and shared ride three or more passenger trips. Other non-passenger vehicle trips, including heavy-vehicles, were excluded. In addition, this analysis focused only on home-to-work and work-to-home trips to isolate employment-based VMT.

The distance between origins and destinations was determined by using the average of the single-occupancy vehicle (SOV) skim matrix for the AM and PM peak-periods. Before the VMT for each trip was calculated, each trip was first factored by vehicle occupancy. The VMT for each trip was calculated by multiplying the distance for each trip by the trip's occupancy factor. VMT per employee was then calculated by dividing the total VMT by number of trips. This process was completed for the entire SACOG region, as well as for the Master Plan Update and Cargo Facility. It should be noted that only trips internal to the SACOG region were included in this analysis due to the lack of information regarding trip lengths beyond the limits of the SACSIM model.

To determine the VMT related to airport passengers, the origin-destination trip matrices by select travel modes was used. The four time period trip tables (AM, midday, PM, and evening) were combined into a daily trip table and the drive alone, shared ride with 2 passengers, and shared ride 3 or more passenger matrices were used. Trips by TAZ to and from the airport TAZ were aggregated by travel mode. The average of the AM and PM skim distance was used to again calculate the distance to and from the airport TAZ. This distance was multiplied by the trips to and from the airport to calculate the VMT by TAZ. The VMT was then summed to calculate the airport VMT total.

As part of the analysis, passenger forecasts from SACSIM were normalized to match published forecast data provided by SMF using a factoring approach built on disaggregated output data from the SACSIM model. This normalization was accomplished by utilizing data obtained from a market assessment⁶ commissioned by the Airport on the facility's existing and future demand. Based on this study, the number of existing annual passengers is estimated to be 6,031,630. Using this estimate, SACSIM estimates for average weekday daily passengers were then normalized and a factor for adjusting future year SACSIM model output was established. VMT for future year conditions was factored up consistent with the difference in annual passengers between the model estimates and market forecasts.

As indicated by the Airport it is understood that half of the forecasted growth of the Airport will include recapturing customers that are currently traveling to Bay Area airports. To determine the VMT associated with these existing passengers that are traveling to Bay Area airports, three airports were considered: Oakland International Airport (OAK), San Francisco International Airport (SFO), and San Jose International Airport (SJC). Using domestic travel as a proxy for all travel leakage as described in the catchment study⁷, it was estimated that 56-percent of these trips would travel to SFO, 32-percent would travel to OAK, and 11-

⁶ SMF Aviation Forecast Update – Revised Preliminary Summary. Reynolds, Smith & Hills. June 14, 2019.

⁷ SMF Catchment Area Analysis. Campbell-Hill Aviation Group, LLC. April 2020.

percent would travel to SJC. Note that the catchment study only provides destination data for 87-percent of the market leakage, so for the purposes of analysis these airports were factored up to account for 100-percent based on the assumption that the other 13-percent would have been to airports even farther away. Based on these assumptions, distance was calculated between each TAZ in the model and the three airports before calculating the VMT by multiplying the distance, the share of out-of-region trips for each airport, and the share of total passenger trips for each TAZ. The VMT for each TAZ was totaled to determine the average VMT for each trip heading to one of the three Bay Area airports.

The VMT per passenger was calculated for both Base Year and Future Year Conditions by dividing the total VMT by the number of passengers. The VMT related to the growth of passengers due to the Master Plan Update was calculated by multiplying the difference in VMT per passenger between Base Year and Future Year Conditions by the growth of daily passengers. According to Airport staff, it is anticipated that 50-percent of the passenger growth is expected to be filled by passengers currently traveling to Bay Area airports. Therefore, the VMT reduction related to recapturing these passengers was calculated by first calculating the difference in VMT per passenger for the airport and the average VMT per passenger for the Bay Area airports, and then by multiplying this difference by half of the previously calculated passenger growth.

The overall VMT related to the Master Plan Update was determined by first calculating the additional employee related VMT by taking the difference between the VMT per employee for the airport and the VMT per employee for the SACOG region and multiplying it by the additional employees related to the passenger service expansion. The employee related VMT was then added to the additional passenger VMT before subtracting the VMT related to recapturing passengers currently traveling to the Bay Area airports.

VMT Analysis Results

Table 1 summarizes the findings of the total VMT, total home-based work (HBW) trips, and average home-based work (HBW) per employee VMT. As shown in **Table 1**, the average VMT per employee for the SACOG Region is 12.58 vehicle miles, while the average VMT per employee for the Airport and Cargo Facility is 20.52 and 22.59 vehicle miles, respectively. This result indicates *a finding of significant impact for the proposed Cargo Facility for CEQA purposes*.

Table 1 – VMT per Employee Estimates

Location	Total VMT	Total HBW Trips	Average HBW VMT per Employee
SACOG Region	12,366,389	983,193	12.58
Master Plan Update Employees	24,005	1,170	20.52
Cargo Facility Employees	37,899	1,678	22.59

In addition to calculating the VMT per employee, the passenger-related VMT was also calculated. **Table 2** summarizes the findings of the passenger-related VMT analysis for Existing (2020) and Future (2040) Conditions. As shown in **Table 2**, the number of daily passengers is expected to rise from 23,154 to 39,026 and the associated total daily VMT is expected to rise from 942,366 vehicle miles to 1,594,123 vehicle miles between Existing (2020) and Future (2040) Conditions. However, the VMT per passenger is only expected to rise from 40.70 vehicle miles per passenger to 40.85 vehicle miles per passenger.

Table 2 – VMT per Passenger Estimates

Time Period	Passengers	Total VMT	VMT per Passenger
Existing (2020)	23,154	942,366	40.70
Future (2040)	39,026	1,594,123	40.85

As noted previously, 50-percent of the growth of passengers is expected to be a recapture of passengers currently traveling to the Bay Area airports. As shown in **Table 3**, recapturing these employees results in a reduction of 64.2 VMT per passenger. When considering all passengers to be recaptured, 7,936 passengers of the total growth of 15,872 passengers, this calculation results in a daily VMT reduction of 509,500 vehicle miles. Therefore, when totaling the passenger and employee related VMT, including the expected VMT reduction, an overall VMT reduction of 486,941 daily VMT is expected for the proposed Master Plan Update and **a finding of less than significant impact for CEQA purposes.**

Table 3 – Summary of VMT Analysis for the Airport Master Plan Update

Metric	VMT/ VMT per Passenger/ VMT per Employee
Additional VMT per Passenger ⁸	0.15
Additional Passengers	15,872
VMT for Additional Passengers	2,339
Average Bay Area Airport VMT per Passenger	105.00
VMT Reduction for Recaptured Passengers	-64.20
Total Passengers Recaptured	7,936
Total VMT Reduction for	-509,500
VMT per Employee Increase	10.01
Total Additional Employees	2,020
Total Additional Employee Related VMT	20,220
Net Change in VMT due to Proposed Airport Master Plan Update	-486,941

Cargo Facility VMT Mitigation

Given that the Cargo Facility's Average HBW VMT per Employee is anticipated to result in a finding of significant impact, feasible VMT mitigation measures should be considered to reduce this impact. Considering the circumstances of this facility, the most appropriate and feasible measures for VMT mitigations will likely rely on Transportation Demand Management (TDM) options. Although the ultimate TDM options will need to be determined by the County in cooperation with the project applicant, the following provides discussion on the overall approach of TDM, as well as specific measures that may be appropriate for consideration.

TDM measures are programs that can be implemented to reduce single occupancy vehicle (SOV) travel to and from homes or places of work by offering travelers mode-choice options. The County's *General Plan* specifically supports TDM measures as described to reduce vehicle miles travelled and to reduce Green House Gas emissions, consistent with State goals. Specifically, *General Plan* Policy CI-40 states:

"Whenever possible, the applicant/developer of new and infill development projects shall be conditioned to fund, implement, operate and/or participate in TSM programs to manage travel demand associated with the project."

⁸ Difference between values documented Table 2.

Although there are several TDM options available for consideration, specific TDM measures that could be considered include:

- Managed Carpool Service
- Emergency Ride Home
- On-site TDM Program Manager/Coordinator and Marketing Materials
- Safe, Well-lit, and Accessible Pedestrian/Bicycle Facilities

A managed carpool service would connect drivers with riders, allowing employees of the Project the opportunity to carpool together or with other commuters in the Sacramento area. The project applicant could fund this benefit at no, or minimal cost to employees. More advanced services can also track bicycle trips and transit trips so that an employer can, in turn, track the staff's compliance with TDM measures.

An emergency ride home program is a service for which the project applicant would register and fund that would provide employees that commute to the project site using alternatives to SOVs the peace of mind of knowing that, if an emergency should occur and they are unable to take their alternative mode of travel home, a ride can be called at no charge to the employee. This service would typically be capped for each employee to a predetermined maximum number of rides per period (such as month, quarter, or year). The applicant could also provide funding to its staff for taxi or Uber/Lyft emergency trips instead.

TDM program coordinators encourage employees to sign up and utilize the available TDM resources and benefits provided by the project applicant using often onsite and electronic marketing/informational materials. A program coordinator can also track compliance with TDM measures for the purposes of mitigation monitoring if required by the County.

The project will be required to contribute to constructing off-site pedestrian and bike facility improvements along roadways discussed in detail in other sections of this report. These active transportation improvements are anticipated to provide benefits and connectivity to employees that wish to travel to/from the site on foot, from transit facilities or by bicycle. These improvements will fill system gaps and improve the local sidewalk and bicycle network in this area of the County.

In addition to the approaches discussed above, another option for mitigating VMT includes establishing or joining a Transportation Systems Management Association (TMA). In close proximity to the proposed Cargo Facility, developments within Metro Air Park are required to join the Metro Air Park TMA to help mitigate VMT impacts. The Cargo Facility could establish its own TMA consistent with the Metro Air Park TMA or join the Metro Air Park TMA to help mitigate its VMT impacts. In both cases, the TMA would be funded by a non-revocable funding mechanism such as a Community Facilities District or a County Service Area.

LOCAL ACCESS, SAFETY, AND CIRCULATION STUDY

Study Facilities

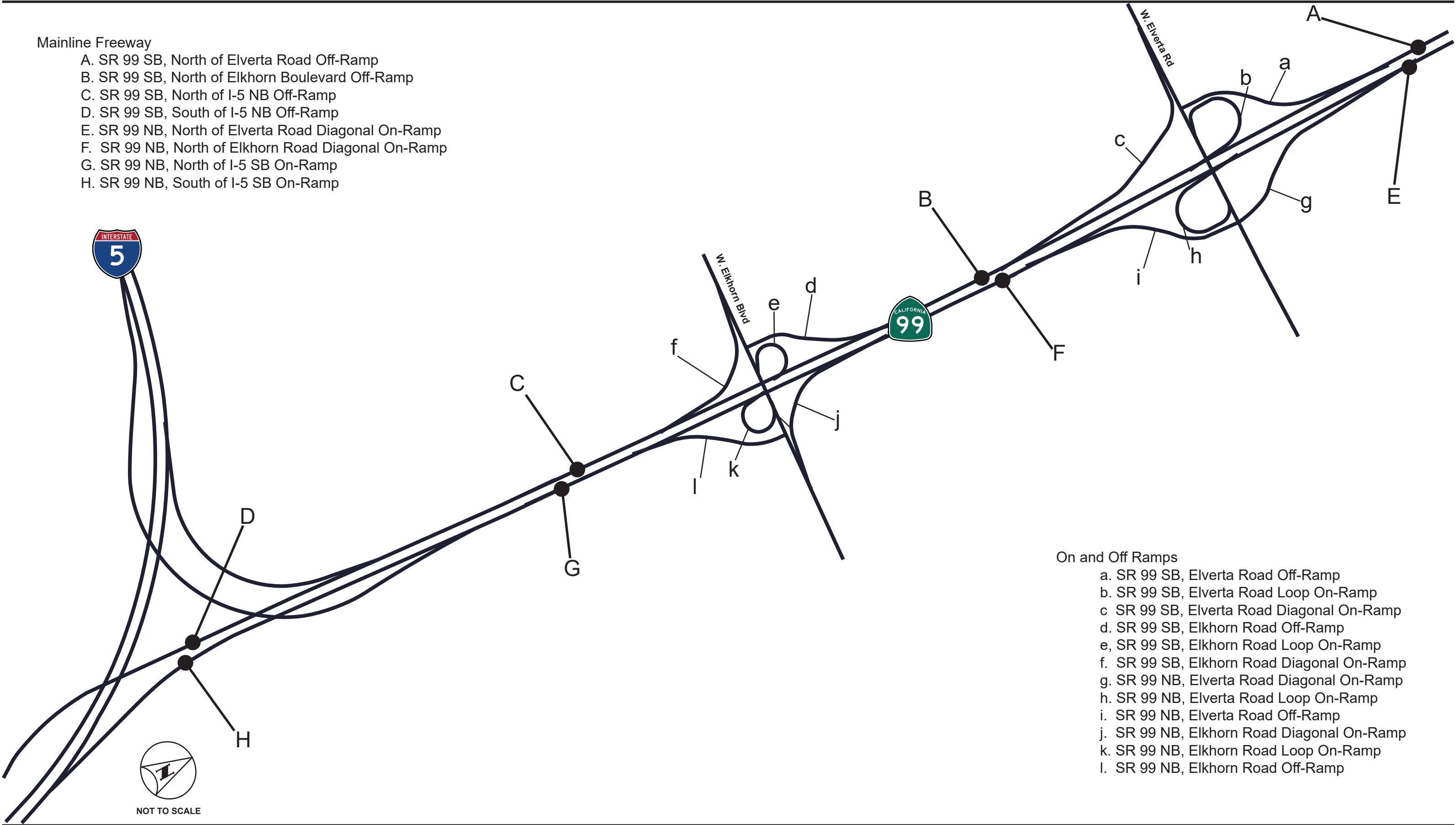
The following is a summary of the study facilities included in this traffic study, all of which are depicted in **Figure 1** (Study Area Intersection and Roadway Segments), **Figure 2** (SR-99 Freeway Study Facilities), and **Figure 3** (I-5 Freeway Study Facilities).

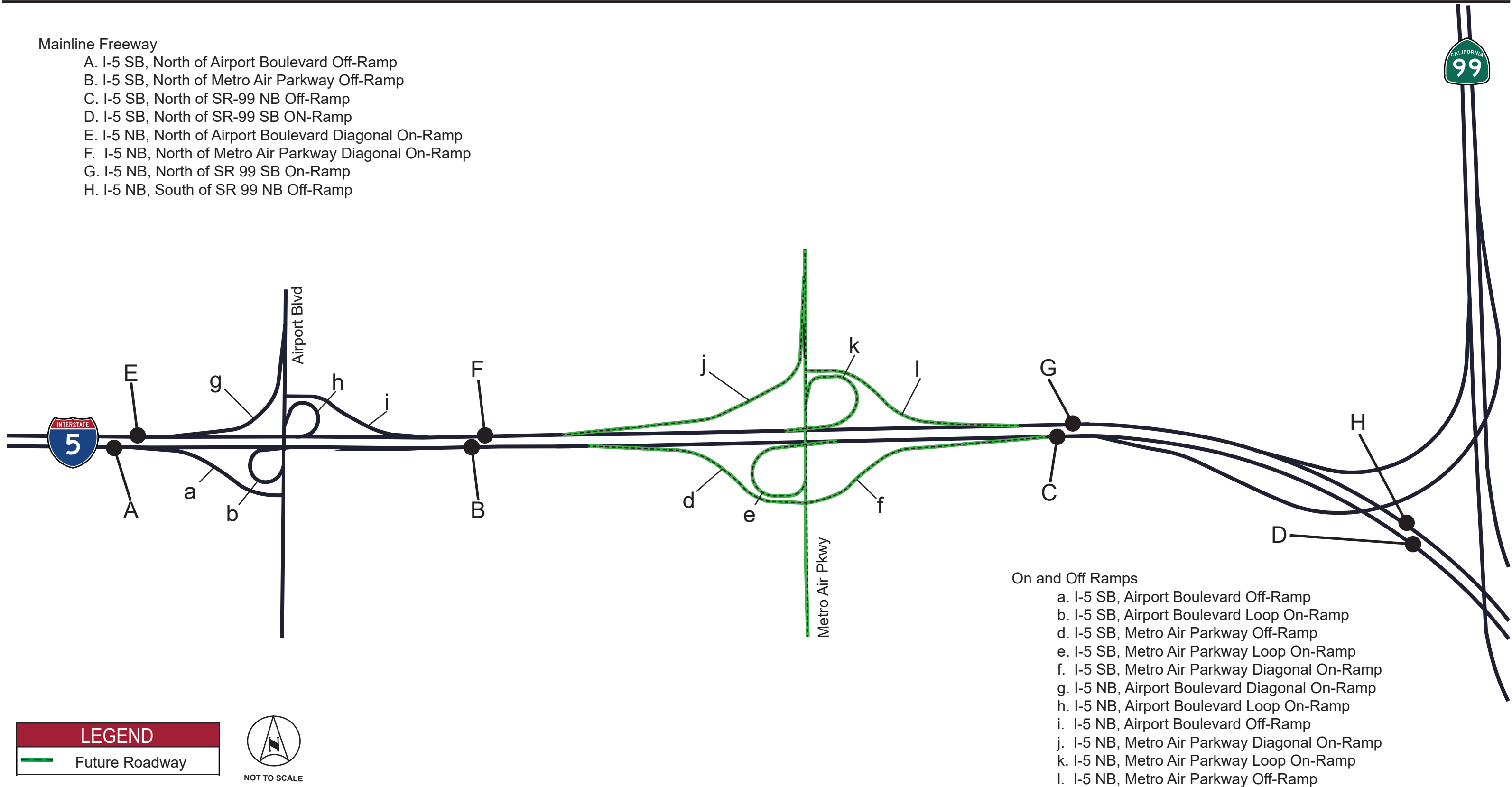
Intersections

Table 4 presents the intersections incorporated in this study, including which intersections are analyzed under each proposed project scenario.

Table 4 – Study Intersections

Intersection		MPU	Cargo
1	Elverta Road @ Garden Highway		X
2	Elverta Road @ Earhart Drive		X
3	Elverta Road @ Power Line Road		X
4	Elverta Road @ Metro Air Parkway		X
5	Elverta Road @ Lone Tree Road (Cumulative Only)		X
6	Elverta Road @ SR-99 Southbound Ramps		X
7	Elverta Road @ SR-99 Northbound Ramps		X
8	Elkhorn Boulevard @ Power Line Road	X	
9	Elkhorn Boulevard @ Metro Air Parkway	X	X
10	Elkhorn Boulevard @ Lone Tree Road (Cumulative Only)	X	
11	Elkhorn Boulevard @ SR-99 Southbound Ramps	X	
12	Elkhorn Boulevard @ SR-99 Northbound Ramps	X	
13	Airport Boulevard @ I-5 Northbound Ramps	X	
14	Airport Boulevard @ I-5 Southbound Ramps	X	
15	Power Line Road @ Road A (Cumulative Only)		X
16	Power Line Road @ Road D (Cumulative Only)		X
17	Power Line Road @ Skyking Road		X
18	Metro Air Parkway @ Road A (Cumulative Only)		X
19	Metro Air Parkway @ Road D (Cumulative Only)		X
20	Metro Air Parkway @ Skyking Road		X
21	Metro Air Parkway @ Meister Way (Cumulative Only)		X
22	Metro Air Parkway @ I-5 Northbound Ramps (Cumulative Only)		X
23	Metro Air Parkway @ I-5 Southbound Ramps (Cumulative Only)		X





Roadway Segments

Table 5 presents the roadway segments incorporated in this study, including which segments were analyzed for rural roadway functionality.

Table 5 – Study Roadway Segments

Segment		LOS	Rural Roadway Functionality
1	Elverta Road, Garden Highway to Earhart Drive	X	X
2	Elverta Road, Earhart Drive to Power Line Road	X	X
3	Elverta Road, Power Line Road to Metro Air Parkway	X	X
4	Elverta Road, Metro Air Parkway to Lone Tree Road	X	X
5	Elverta Road, Lone Tree Road to SR-99	X	X
6	Power Line Road, Elverta Road to Road A	X	X
7	Power Line Road, Road A to Road D	X	X
8	Power Line Road, Road D to Skyking Road	X	X
9	Power Line Road, Skyking Road to Elkhorn Boulevard	X	
10	Metro Air Parkway, Elverta Road to Road A	X	
11	Metro Air Parkway, Road A to Road D	X	
12	Metro Air Parkway, Road D to Skyking Road	X	
13	Metro Air Parkway, Skyking Road to Elkhorn Boulevard	X	
14	Metro Air Parkway, Elkhorn Boulevard to Meister Way	X	
15	Metro Air Parkway, Meister Way to I-5	X	

Freeway Facilities

The following freeway facilities are included in the study, per the county-provided scope of study (as shown in **Figure 2** and **Figure 3**).

- SR-99 North of Elverta Road (basic segments, merge/diverge/weave)
- SR-99 South of Elverta Road (basic segments, merge/diverge/weave)
- SR-99 South of Elkhorn Boulevard (basic segments, merge/diverge/weave)
- I-5 North of Airport Boulevard (basic segments, merge/diverge/weave)
- I-5 South of Airport Boulevard (basic segments, merge/diverge/weave)
- I-5 South of Metro Air Parkway (basic segments, merge/diverge/weave)
- I-5 South of SR-99 (basic segments, merge/diverge/weave)

Assessment of Proposed Project

In an effort to inform the required roadway segment and intersection configurations necessary to accommodate the Proposed Project, a weekday AM and PM peak-hour access, safety, and circulation analysis was completed. This analysis includes a Level of Service (LOS) analysis for the following scenarios:

- Existing (2020) Conditions
- Existing (2020) plus Proposed Project (Master Plan Update) Conditions
- Existing (2020) plus Proposed Project (Cargo Facility) Conditions
- Existing (2020) plus Proposed Project (Master Plan Update and Cargo Facility) Conditions
- Cumulative Conditions⁺
- Cumulative plus Proposed Project (Master Plan Update) Conditions
- Cumulative plus Proposed Project (Cargo Facility) Conditions
- Cumulative plus Proposed Project (Master Plan Update and Cargo Facility) Conditions

⁺ Scenario established using the Metro Air Park SPA version of SACOG's SACMET model.

Traffic Modeling

For purposes of this study, “cumulative” is defined as the time in which the area surrounding Metro Air Parkway is fully built out as reflected in the land use assumptions for the Metro Air Park Special Planning Area (SPA). This planning horizon is not intended to be comprehensive and inclusive of all potential development within the County, but provides a focused understanding of the anticipated development of the land uses surrounding the project site.

Traffic forecasting was conducted using the Metro Air Park SPA version of SACOG’s SACMET (Metro Air Park (MAP) model) model for Cumulative No Project Conditions (all MAP SPA land uses are included, but no growth for the Airport or Cargo Facility). This model provides the baseline to which project volumes from the Airport and Cargo Facility from SACOG’s latest version of the SACSIM model (SACSIM15) were added to the volumes from the MAP Model for the plus project scenarios. In effect, due to the limitations of SACMET with regards to airport passenger trips, the vehicle trips related to the Airport and Cargo Facility were layered on to the volumes from the MAP model to develop analysis volumes for all Cumulative plus Proposed Project scenarios. As a part of this effort, the Traffic Analysis Zone (TAZ) structure and roadway network in SACSIM15 were refined in the vicinity of the Airport and Cargo Facility to provide more detailed results related to the forecasting of major roadways both within and immediately adjacent to the Airport.

The following model assumptions were used for this study:

- The commercial development along the Elkhorn Boulevard Extension was included for all Cumulative scenarios (No Project, MPU, Cargo Facility, and MPU plus Cargo Facility)
 - Converted developable acres (51.9 acres) to square feet using a FAR of 0.2 (452,153-sf)
 - Used the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual, 10th Edition* to convert square feet to employees based on the ratio of daily trip generation rates for Land Use 820 (Shopping Center), resulting in 904.2 employees
 - Based on existing commercial areas, split employment across Food (226.0), Office (90.4), Retail (497.4), Service (45.2) and Industrial (45.2) jobs
- Used the average head count per shift (3 shifts per day) for the Cargo Facility (1,105) to convert into total daily employment (3,315)
 - Split employment across Office (232.0), Other (99.5), and Industrial (2983.5) employment categories based on other industrial/warehousing employment areas
- Did not modify the passenger trip generation rates or employment at the Airport Cumulative Conditions as several sensitivity analyses showed that attempting to increase passenger trips within the model had negative effects across the region.
 - In addition, it was assumed that the employment within the model accurately represented current employment and passenger conditions
- Passenger and Employment growth at the airport was determined by performing select zone analyses at airport.
 - The employment was split from the TAZ representing the Airport to be able to track passenger and employment trips separately
 - The volume of passenger trips and employment trips at each study facility (intersection, roadway segment, and freeway facility) was tracked and grown according to the calculated 20-year annual growth based on the market forecast commissioned by the airport:
 - 2018: 6,031,630; 2038: 10,166,400; Total Growth: 68.55-percent
- No land use south of I-5 was modified
- Difference method was used to determine volumes at all study facilities for every scenario except Existing No Project
- The roadway network surrounding the airport was modified slightly within the model to make it more representative of the existing roadway network with an emphasis on the Crossfield Drive/Aviation Drive intersections

The LOS analyses were completed for the study area intersections, roadway segments, and freeway facilities. LOS was determined for 2020 and Cumulative based on the analysis scenarios listed above.

Traffic Assessment Methodology

Level of Service Definitions

Analysis of transportation facility significant operational performance is based on the concept of Level of Service (LOS). The LOS of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual (HCM)*, 6th Edition.

Intersection Analysis

The study intersections were evaluated using the Caltrans District 3 approved version of the Synchro software Version 10. Peak hour delay and level of service were calculated for each intersection consistent with *Highway Capacity Manual (HCM)* analysis procedures. **Table 6** presents intersection LOS definitions as defined in the HCM.

Table 6 – Intersection Level of Service Criteria

Level of Service (LOS)	Un-Signalized	Signalized
	Average Control Delay* (sec/veh)	Average Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

Source: *Highway Capacity Manual*, 6th Edition

* Applied to the worst lane/lane group(s) for SSSC

Roadway Segment Analysis

The roadway segment analysis was performed in accordance with the County's guidelines⁹.

Table 7 – Roadway Segment Level of Service Thresholds

Roadway Classification	LOS A	LOS B	LOS C	LOS D	LOS E
2-Lane Arterial (Moderate Access Control)	10,800	12,600	14,400	16,200	18,000
6-Lane Arterial (Moderate Access Control)	32,400	37,800	43,200	48,600	54,000
4-Lane Arterial (High Access Control)	24,000	28,000	32,000	36,000	40,000
2-Lane Rural Road, 24' of pavement, 6' paved shoulders	2,200	4,300	7,100	12,200	20,000
Rural, 2-lane Road, 24'-36' of pavement, No Shoulders	1,000	2,100	3,400	6,000	12,800

Source: *Sacramento County Traffic Analysis Guidelines* (July 2020)

Rural Roadway Functionality

The analysis of the functionality of rural roads includes review of impacts to identified substandard roadways. A substandard roadway is defined as having either travel lanes less than 12-feet in width or

⁹Traffic Analysis Guidelines, Sacramento County, July 2020.

paved shoulders less than 6-feet in width. Impact to substandard roadways is defined in one of two ways:

- If a proposed project increases the substandard rural roadway average daily traffic (ADT) volume above 6,000 daily vehicles
- If a proposed project adds 600 or more new daily vehicles to a substandard roadway that already carried 6,000 or more daily vehicles

Freeway Facility Analysis

Caltrans' traffic study guidelines¹⁰ specify the use of vehicle density (passenger cars/mile/lane) as the appropriate measure of effectiveness for freeway facilities. The LOS criteria for basic freeway segments and freeway merge/diverge segments are summarized in **Table 8**. We understand that Caltrans District 3 prefers weaving sections to be analyzed using the Leisch Method¹¹. As such, the freeway weaving sections in this study are evaluated using this methodology.

Table 8 – Freeway Facility Level of Service Criteria

Level of Service (LOS)	Basic Segments Density (pc/mi/ln)	Merge/Diverge Segments Density (pc/mi/ln)
A	≤ 11	≤ 10
B	> 11 – 18	> 10 – 20
C	> 18 – 26	> 20 – 28
D	> 26 – 35	> 28 – 35
E	> 35 – 45	> 35
F*	> 45*	*

Source: *Highway Capacity Manual, 6th Edition*

* Demand exceeds capacity

Signal Warrants

The evaluation of the need for traffic signalization was based on the peak-hour warrant methodologies noted in the current, published edition of the *California Manual on Uniform Traffic Control Devices (CMUTCD)*.

Queuing

Vehicle queuing was evaluated for the AM and PM peak-hours for the following locations:

- All freeway ramp terminals
- Existing and future proposed turn pockets where the project is expected to increase turning movement volumes

Queuing for these locations was approximated using the *Synchro* computer software. 95th percentile vehicle queues were compared against available vehicle storage lengths to determine if the queues are anticipated to exceed their available storage and adversely affect adjacent through travel lanes.

¹⁰ *Guide for the Preparation of Traffic Impact Studies*, Caltrans, December 2002.

¹¹ *Procedure for Analysis and Design of Weaving Sections*, Federal Highway Administration, February 1984

Access and Safety Evaluation

Cargo Facility Access

As discussed above, the cargo facility is a separate and distinct project component. Accordingly, the evaluation of the facility requires consideration of its unique access, staffing/shift change pattern, and overall operating dynamics. Based on coordination with the project applicant, the follow are the primary parameters upon which the evaluation of this project components is based:

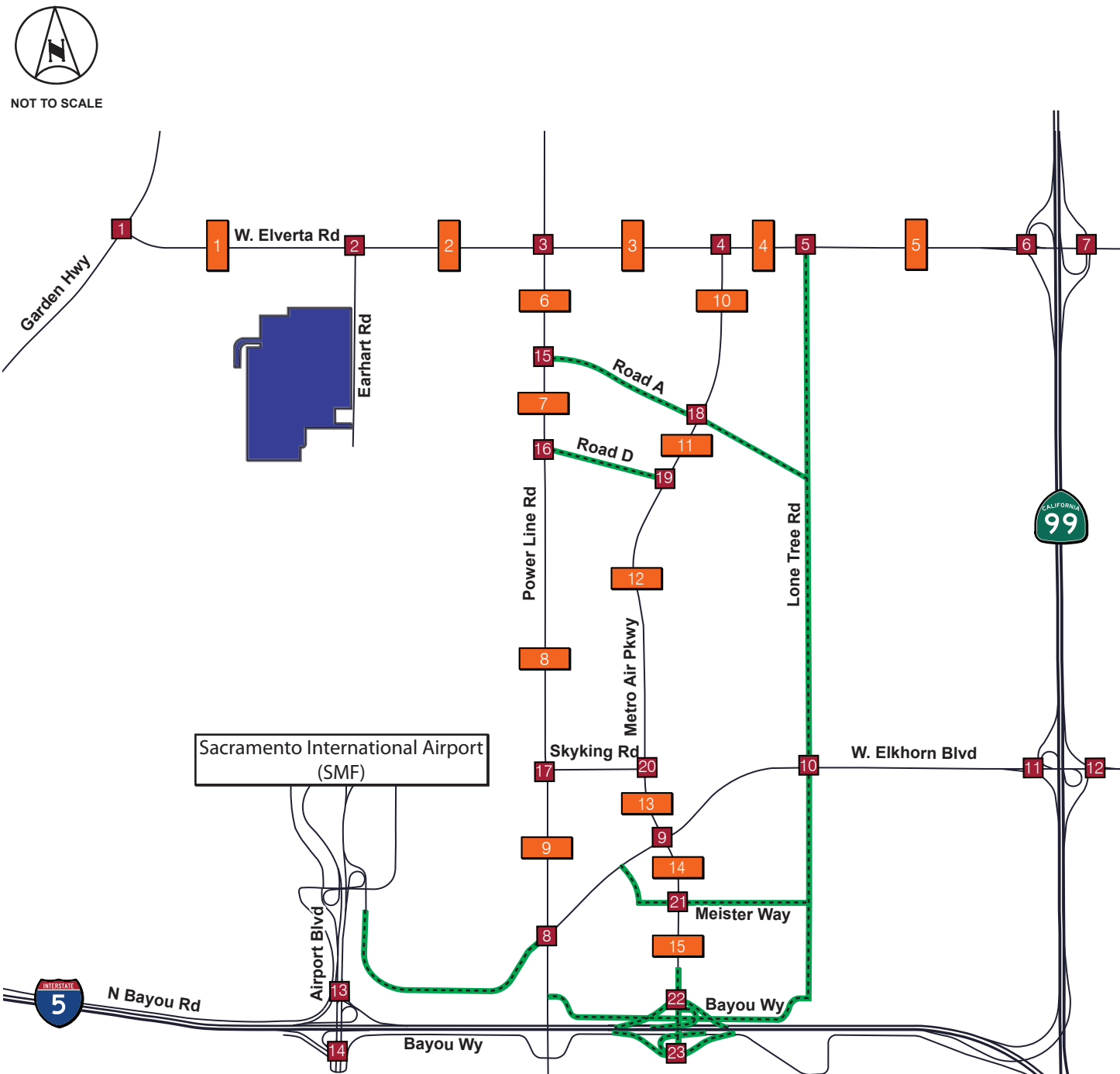
- All access is concentrated at the Elverta Road intersection with Earhart Drive (Intersection #2).
- Three (3), equally staffed shifts are anticipated throughout the typical day:
 - 05:00 – 13:00
 - 13:00 – 21:00
 - 21:00 – 05:00
- Although the shift-change time periods are located outside the traditional peak-hours (07:00 – 09:00 and 16:00 – 18:00) which are the focus of the operations analyses contained herein, it was important to size this point of access (Study Intersection #2) based on the facility's unique recurring peak-period operations.
- Each shift will employ up to 1,500 employees. Each shift will have a 30-minute staggered start time allowing the total number of employees to be split, essentially divided equally across the two, 30-minute periods preceding each shift starting time.
 - As an example, for the shift that starts at 05:00, 750 employees would arrive for a 04:30 start time and 750 employees would arrive for a 05:00 start time.
 - In this example, the corresponding departing employees would also be staggered by 30-minutes on the outbound side of the operations.
- Although understood to represent a meaningful proportion of the facility's overall functionality and operations, truck trips are assumed to occur more evenly throughout the typical day and will not be concentrated within the established shift change periods. As such, these truck trips (estimated to be up to 310 daily trips) are not assumed to impact the focused access evaluation for the Elverta Road intersection with Earhart Drive (Intersection #2).

Based on this defined routine and predictable operation for the cargo facility, the evaluation of the Elverta Road intersection with Earhart Drive (Intersection #2) incorporated the following analysis parameters:

- Conservatively includes overlapping 750 entering and 750 exiting employees during the same analysis period.
- Applies conservative Peak-Hour Factors (PHF) that account for the peaking dynamics described above:
 - 0.50 for the westbound left (entering) and northbound right (exiting)
 - 0.70 for all other movements
- A 4-percent heavy-vehicle factor for the westbound left (entering) and northbound right (exiting) movements. All other movements were assumed to be 2-percent.

The existing (2020) lane configuration at each of the study area intersection is provided in **Figure 4** and **Figure 5**. The existing (2020) peak hour traffic volumes are provided in **Figure 6** and **Figure 7**.

The cumulative lane configuration at each of the study area intersection is provided in **Figure 8** and **Figure 9**. The cumulative peak hour traffic volumes are provided in **Figure 10** and **Figure 11**.



LEGEND

Future Roadway

Study Intersection

Study Roadway Segment

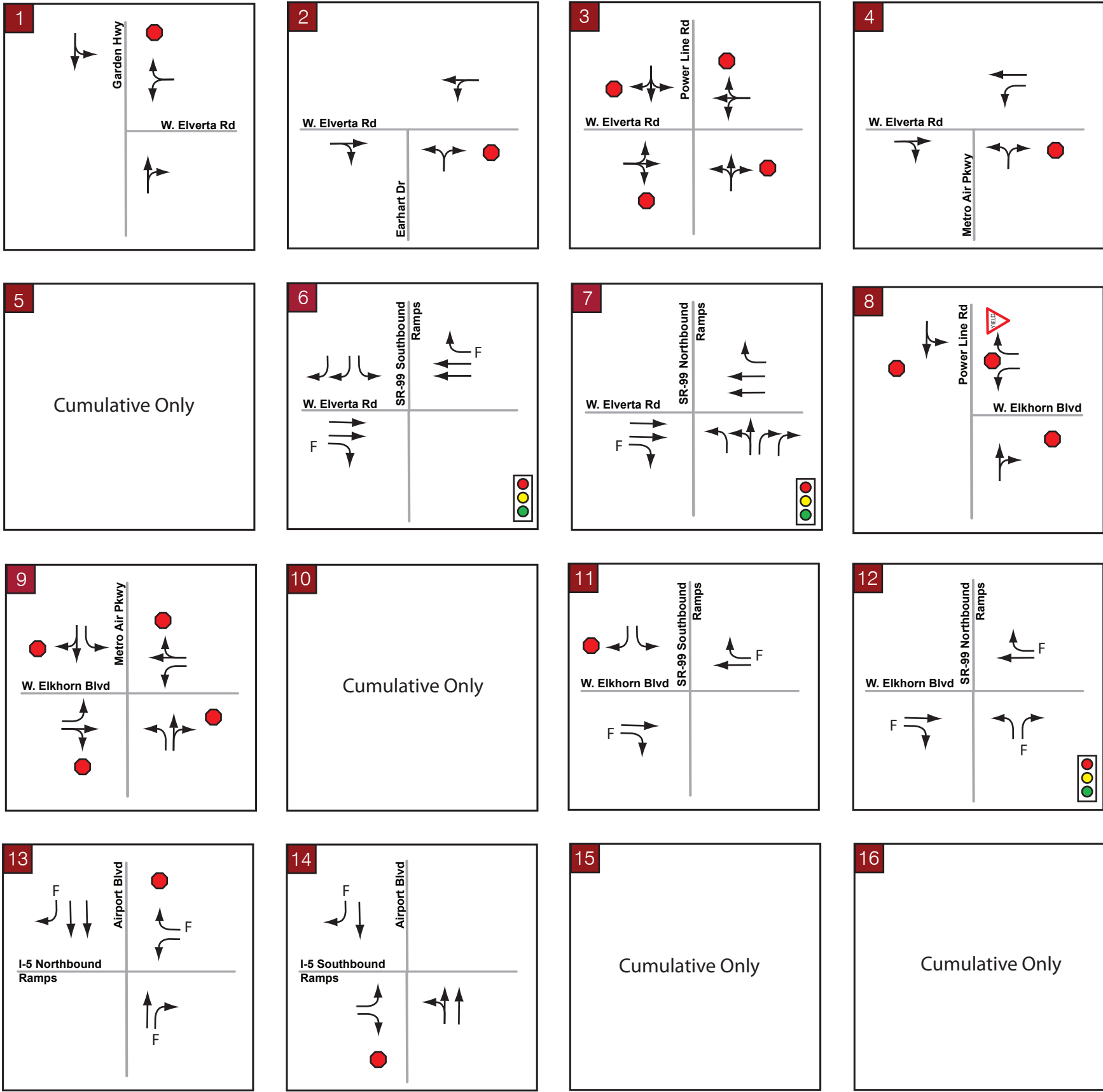
Cargo Facility

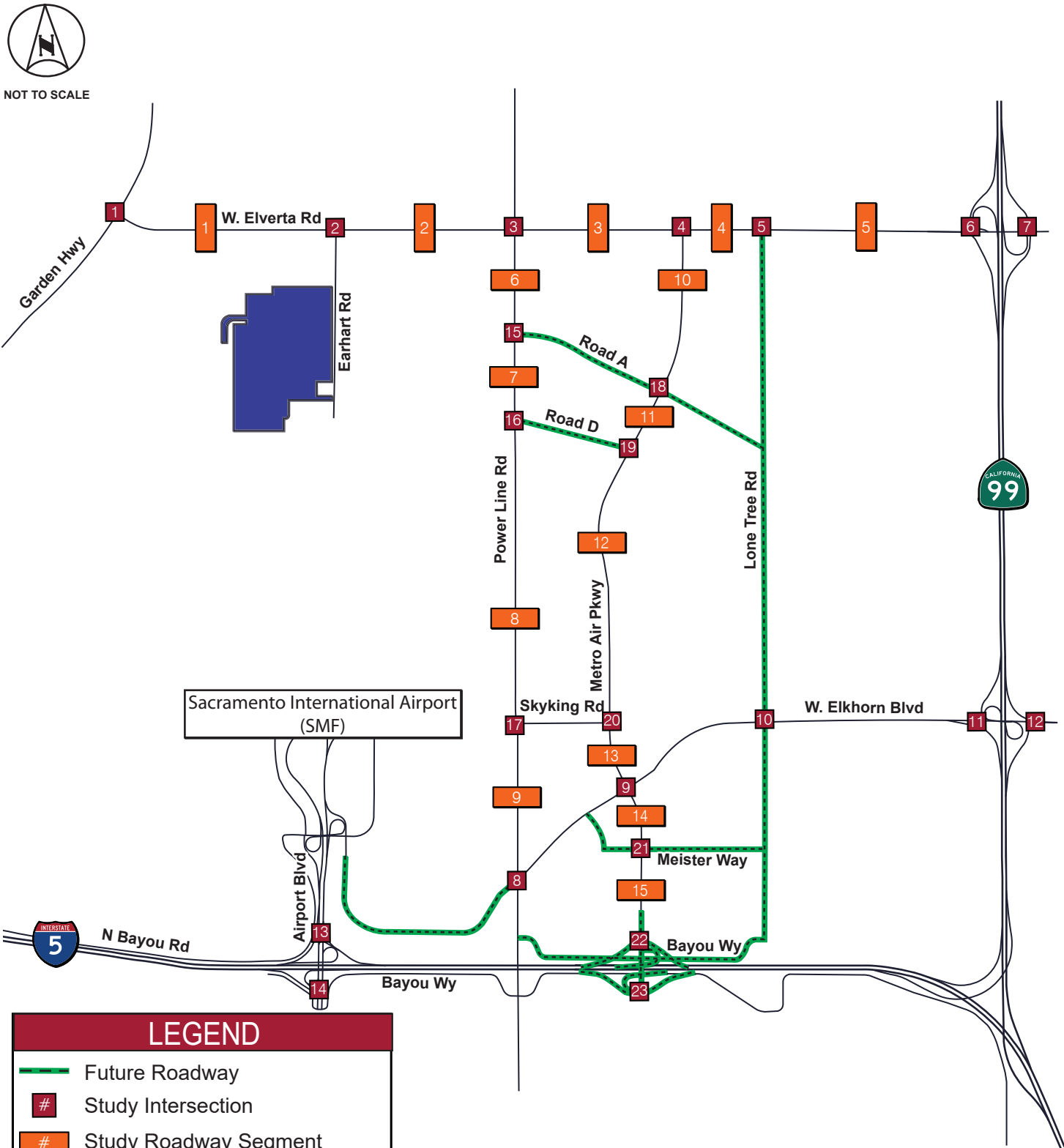
Signalized Study Intersection

Stop Controlled Approach

Yield Controlled Movement

Free Movement





LEGEND

Future Roadway

#

Study Intersection

#

Study Roadway Segment

Cargo Facility

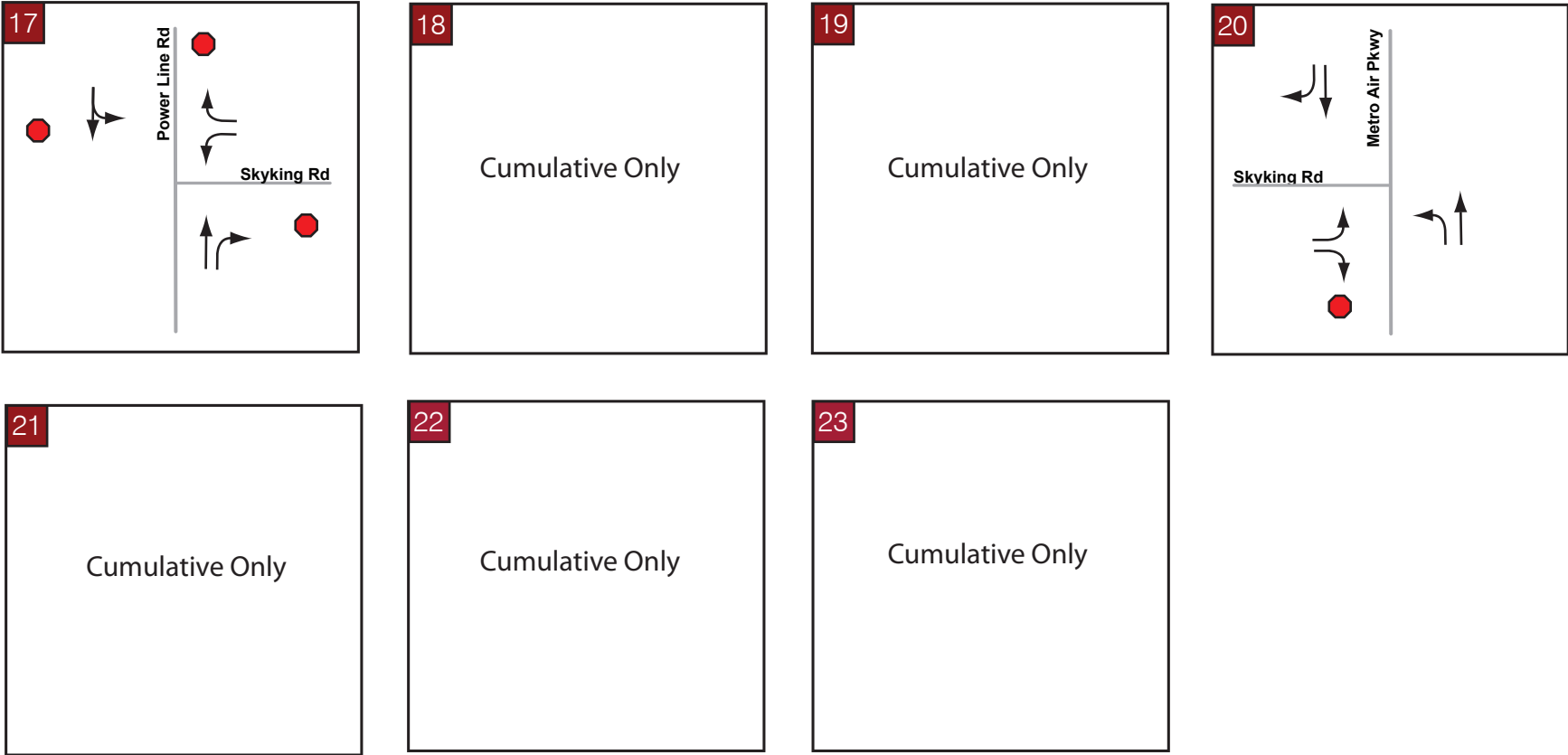
Signalized Study Intersection

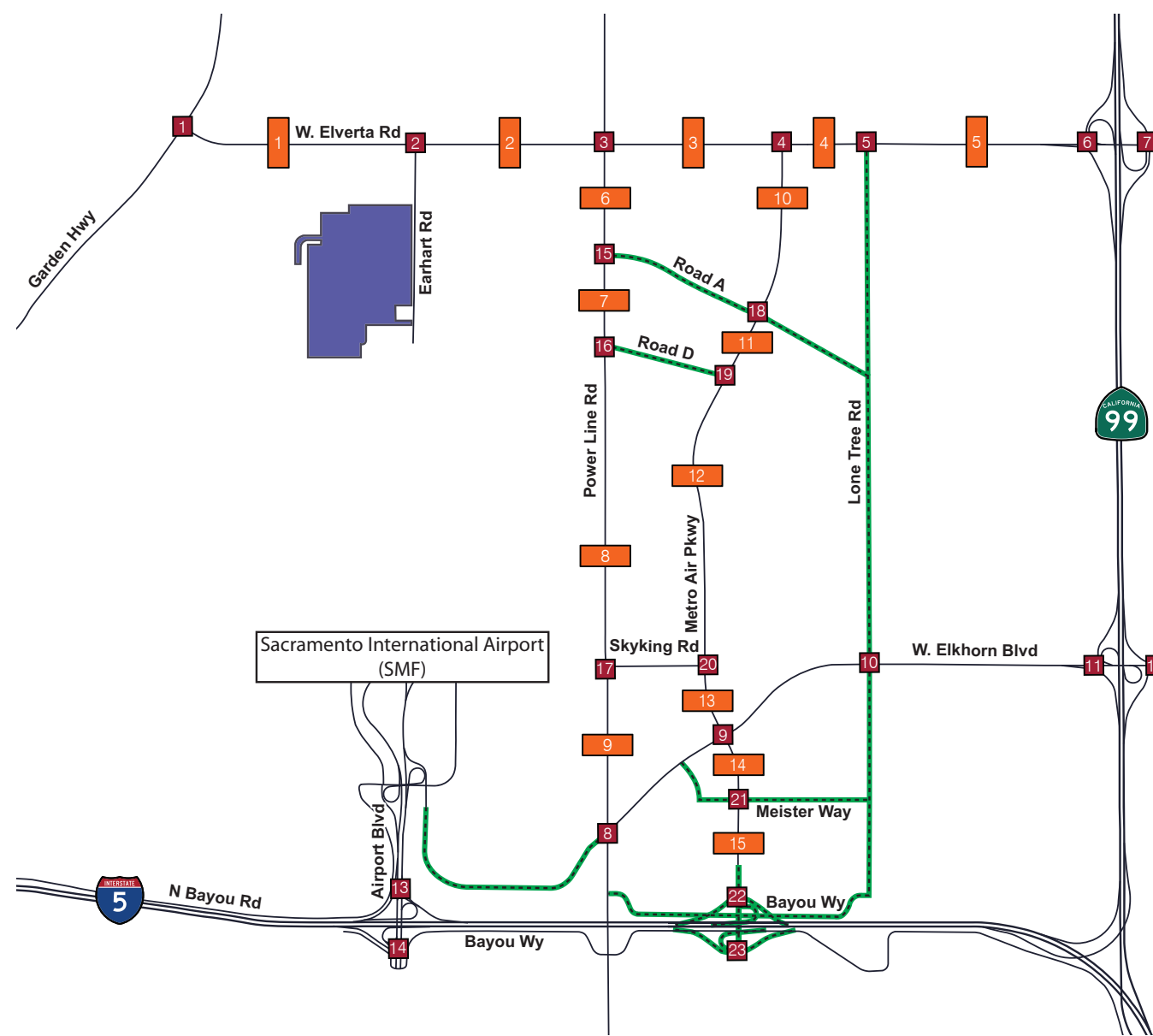
Stop Controlled Approach

Yield Controlled Movement

F

Free Movement





1 9 / 7 4 / 6 Garden Hwy 1 / 15 21 / 11 Elverta Rd 2 / 23 1 / 19	2 12 / 21 36 / 1 Elverta Rd 4 / 30 0 / 1 Earhart Dr 3 / 27	3 4 / 3 2 / 0 Power Line Rd 50 / 18 39 / 5 Elverta Rd 2 / 5 2 / 11 2 / 61	4 76 / 29 97(2) / 8 Elverta Rd 12 / 102 0 / 1 Metro Air Pkwy 1 / 0(1) 7 / 65
5 Cumulative Only	6 89 / 12 66 / 60 SR-99 SB Ramp 297 / 79 92 / 30 Elverta Rd 12 / 148 11 / 23	7 48 / 52 364 / 89 Elverta Rd 45 / 17 62 / 580 64 / 154 10 / 54 SR-99 NB Ramps	8 41 / 10 3 / 4 Power Line Rd 2 / 3 122 / 36(1) Elkhorn Blvd (0) / (1) 16 / 107 65 / 283
9 23 / 3 12 / 73 Metro Air Pkwy 78 / 22 504 / 390 6 / 3(1) Elkhorn Blvd 4 / 4 0 / 1 2 / 0	10 Cumulative Only	11 26 / 22 107 / 104 SR-99 SB Ramp 775 / 355 525 / 400 Elkhorn Blvd 44 / 253 88 / 314	12 106 / 137 982 / 459 Elkhorn Blvd 138 / 333 4 / 50 SR-99 NB Ramp 226 / 257 523 / 883
13 208 / 333 974 / 1708 (13) / (7) Airport Blvd 1259 / 1170 15 / 13 I-5 NB Ramp (0) / (4) 297 / 319 73 / 60	14 921 / 1392 70 / 353 (0) / (10) Airport Blvd 211 / 221 59 / 585 0 / 10 148 / 160 I-5 SB Ramp	15 Cumulative Only	16 Cumulative Only

LEGEND

Future Roadway

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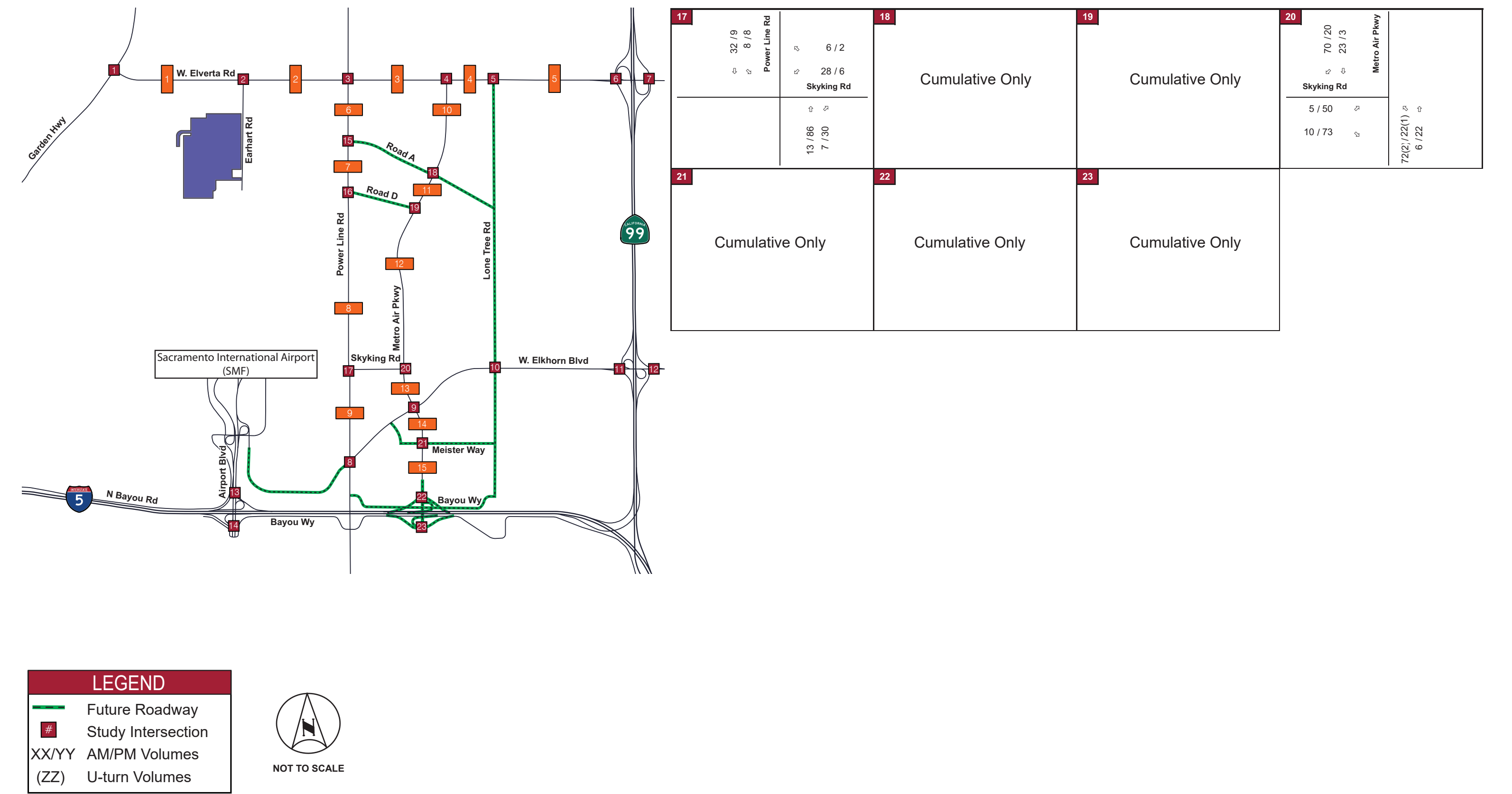
Study Intersection

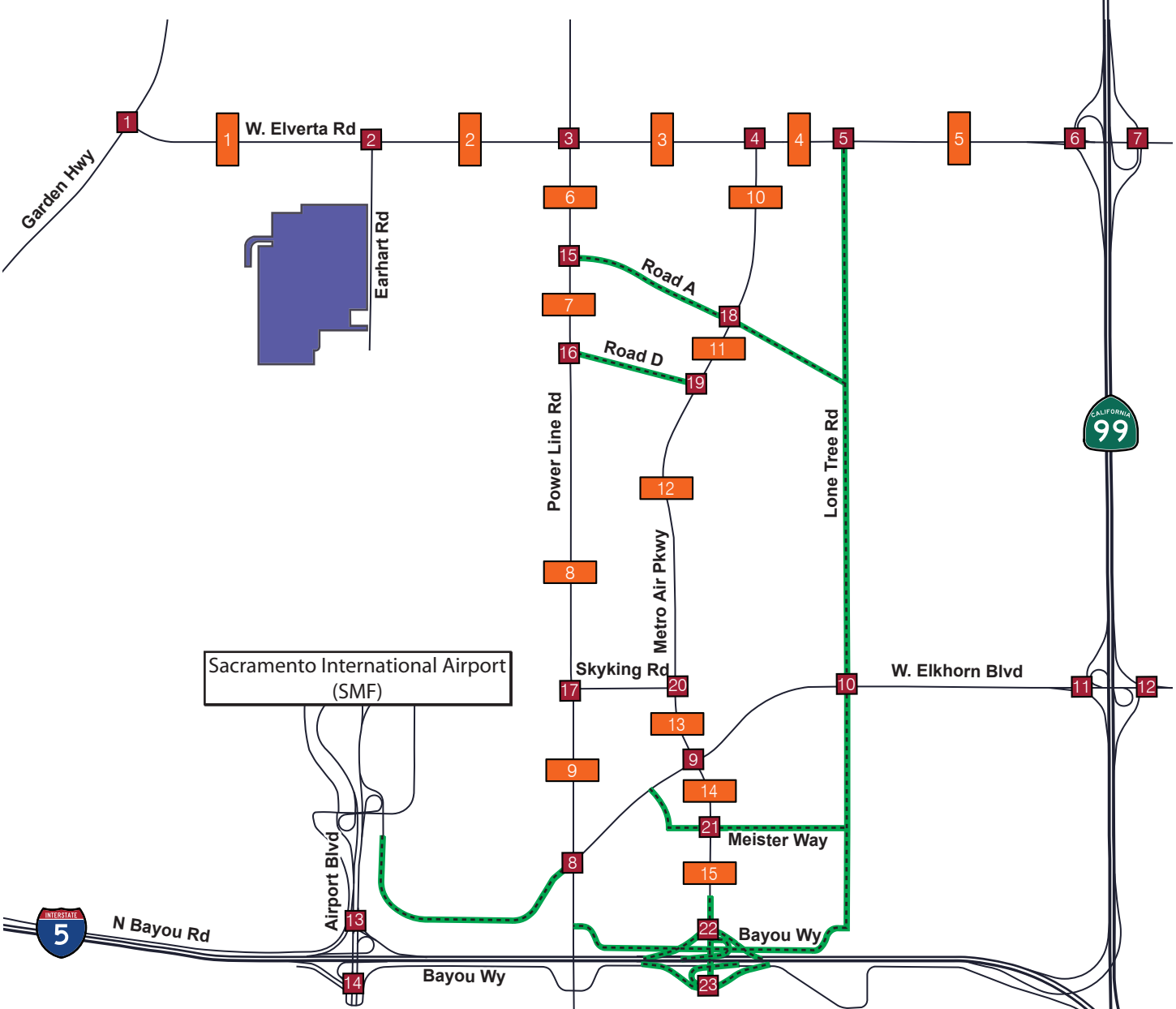
XX/YYAM/PM Volumes

(ZZ)U-turn Volumes



NOT TO SCALE





LEGEND

Future Roadway

Study Intersection

Study Roadway Segment

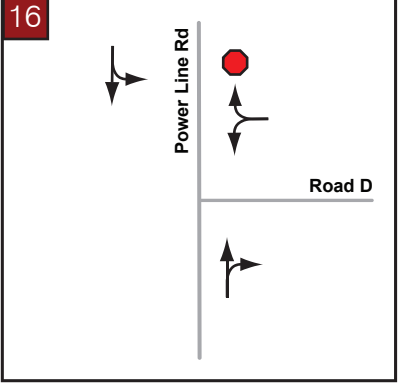
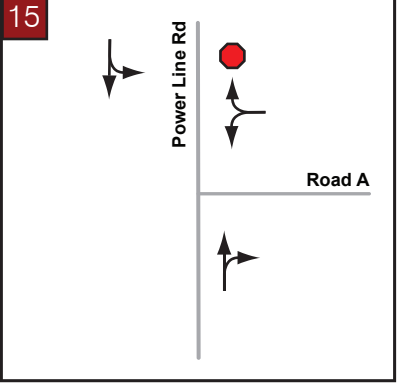
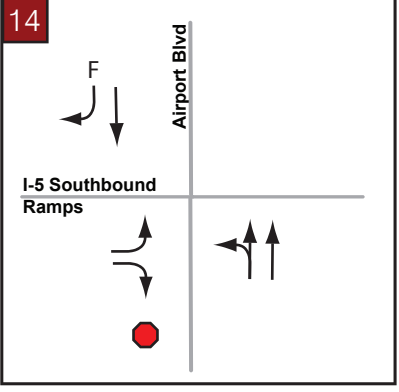
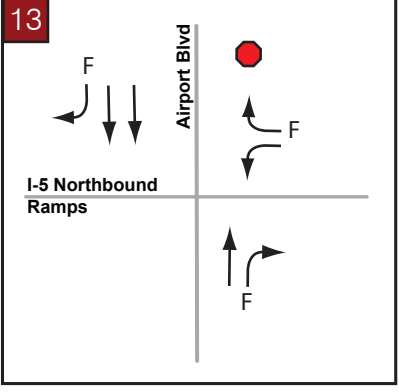
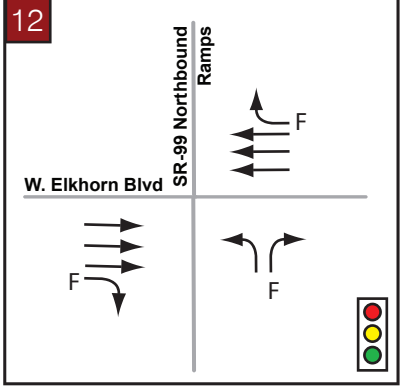
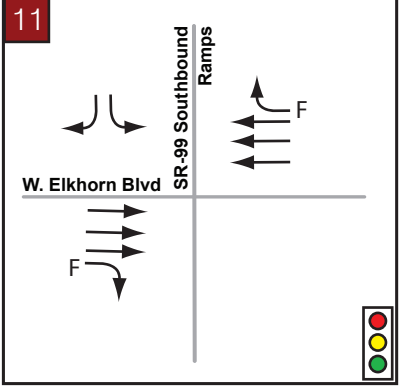
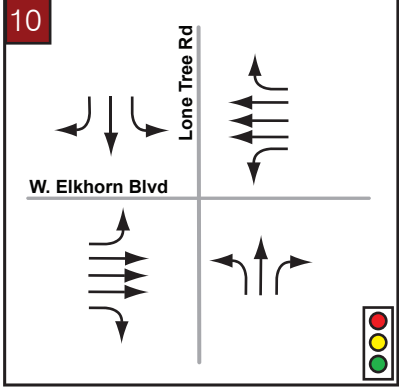
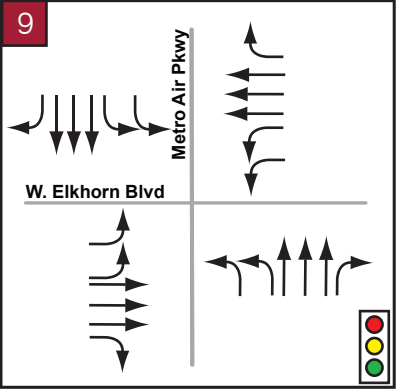
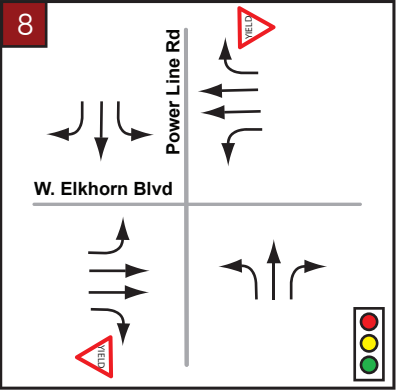
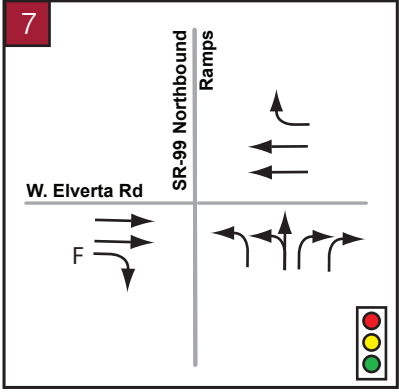
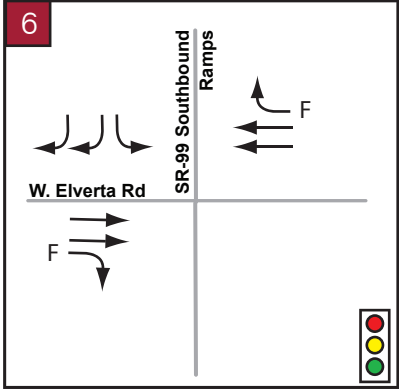
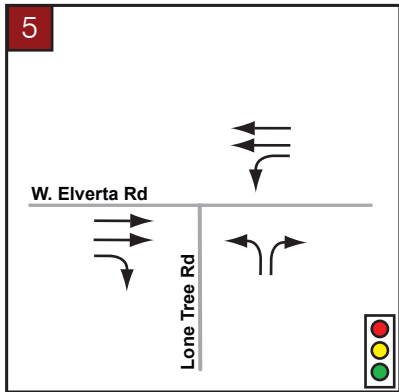
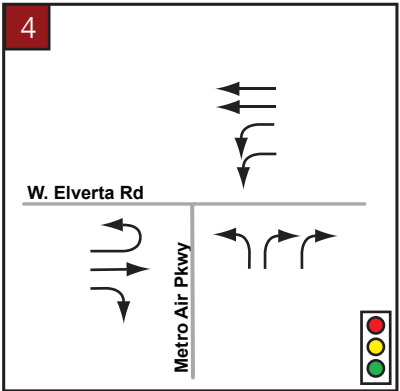
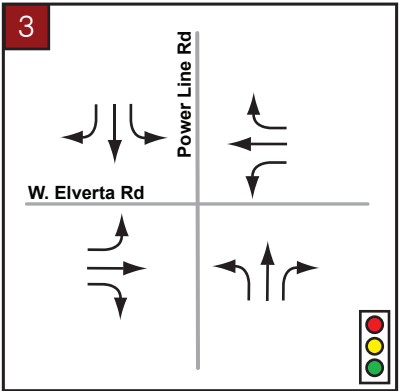
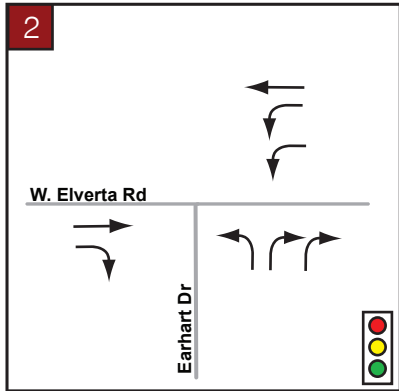
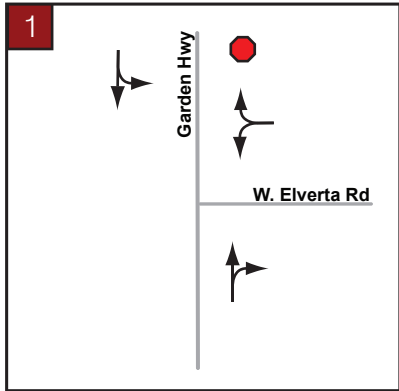
Cargo Facility

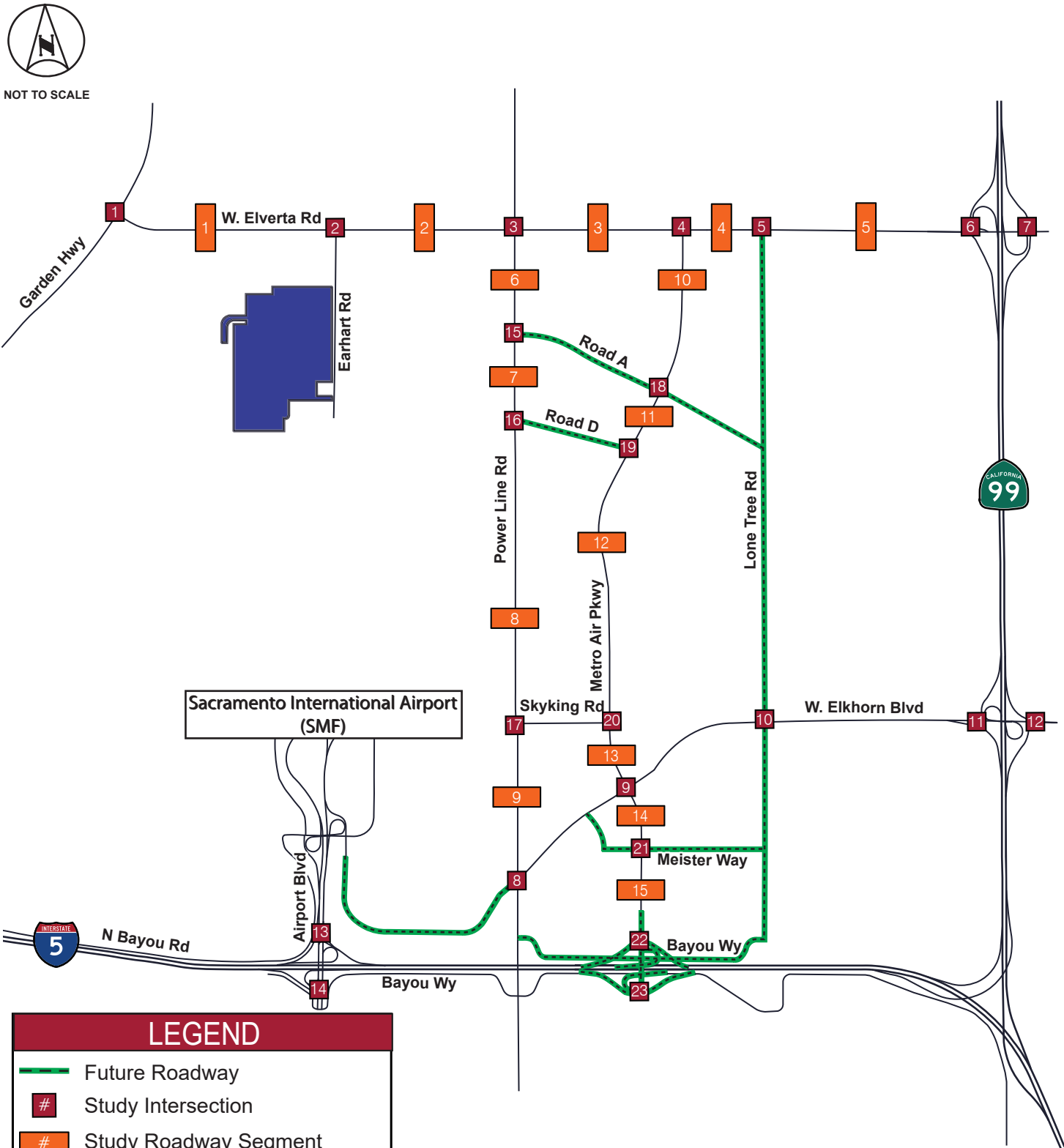
Signalized Study Intersection

Stop Controlled Approach

Yield Controlled Movement

Free Movement





LEGEND

Future Roadway

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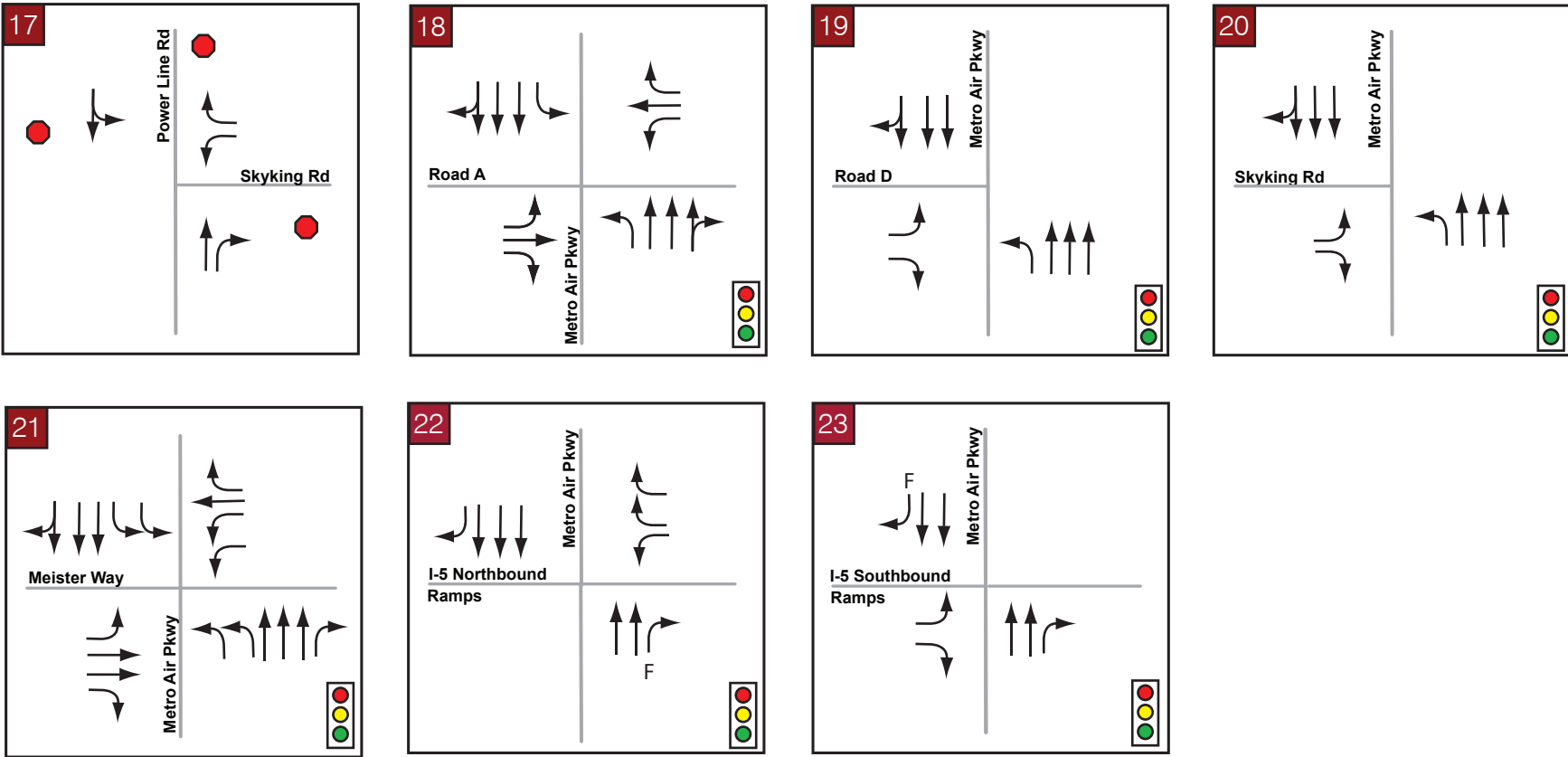
Study Intersection

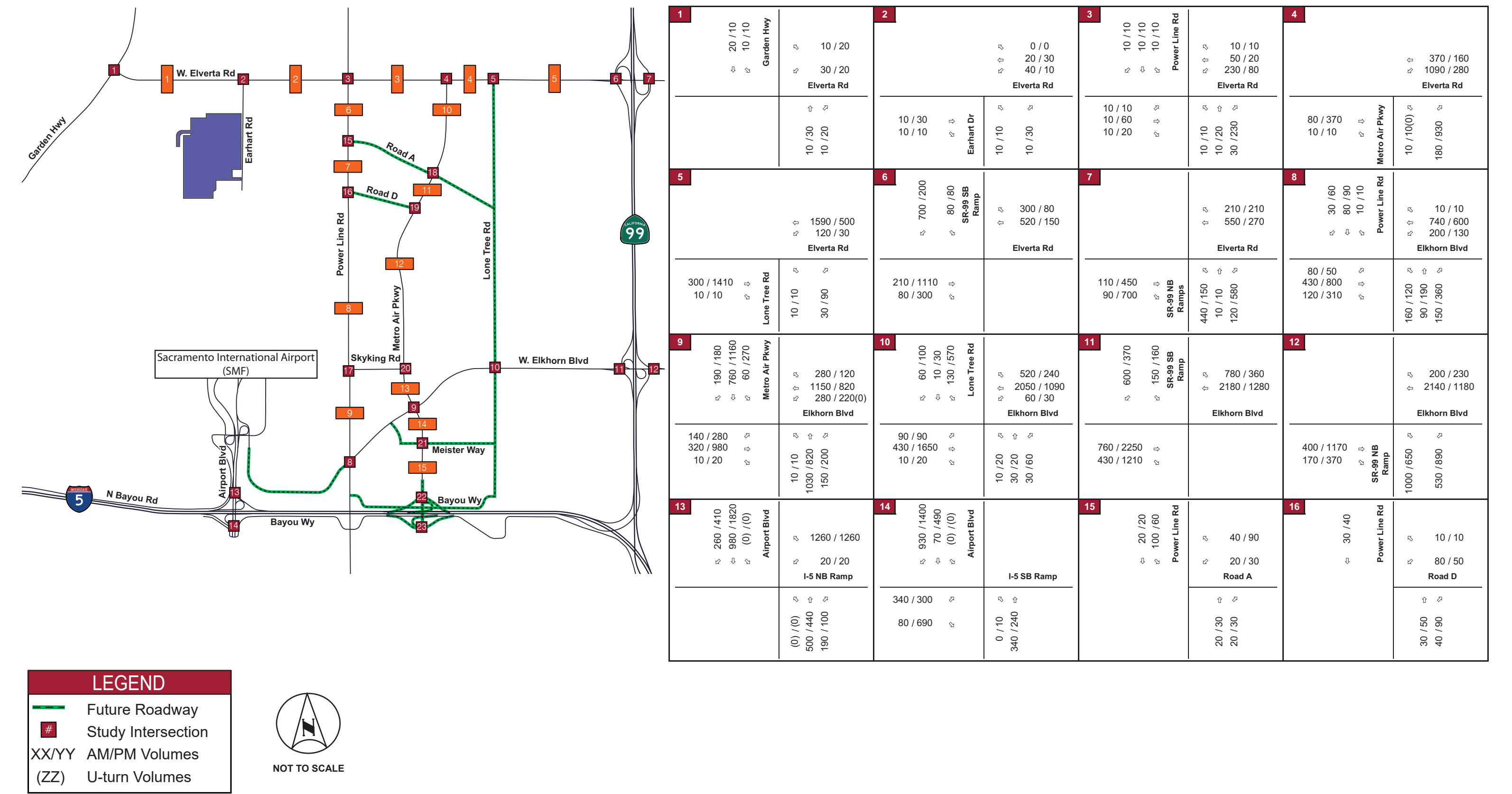
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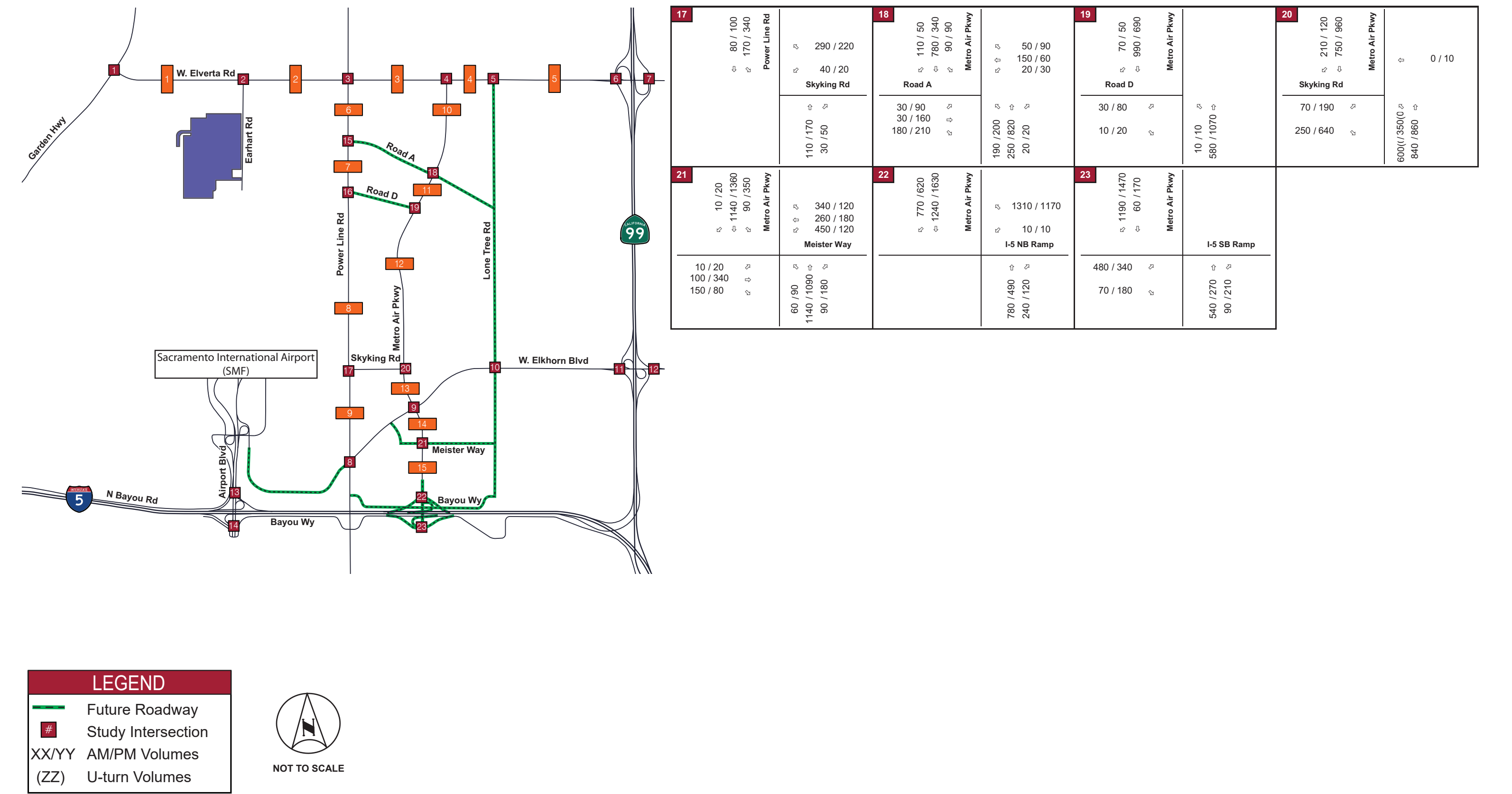
Study Roadway Segment

Cargo Facility

F

Free Movement





Safety Evaluation

Based on the collision data provided by the County and as shown in **Table 9**, the calculated collision rate on Elverta Road (within the general project limits) is nearly two times the statewide rate for similar facilities.

Table 9 – Elverta Road Crash Data Summary

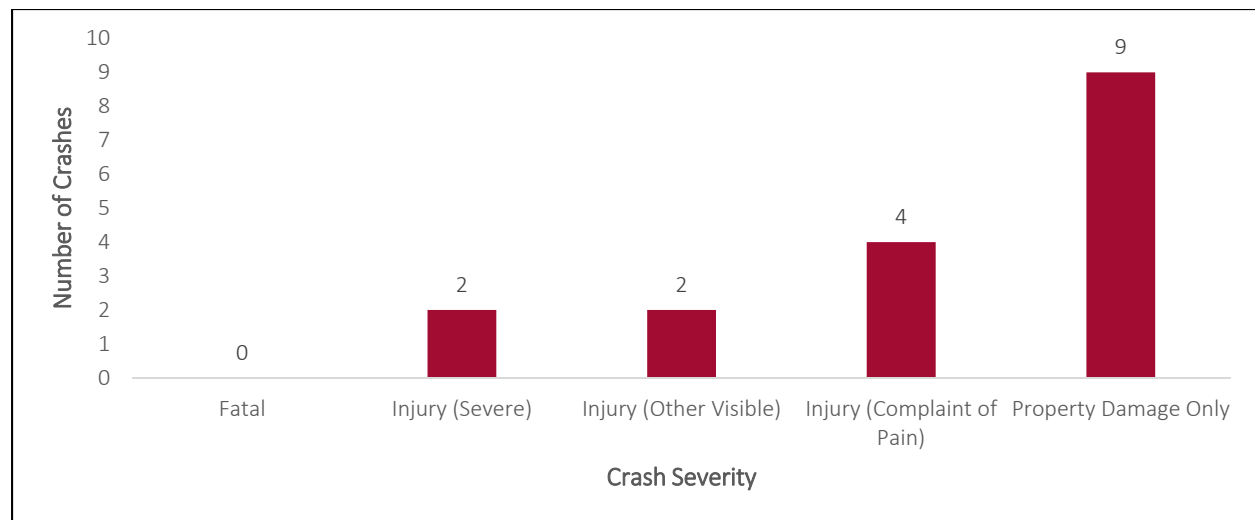
Road Segment (project limits only)	Total Collisions in 5 years	Calculated Collision Rate (ACC/MVM)	Statewide Rate* (ACC/MVM)
Elverta Road	17	2.06	1.11

Notes: ACC/MVM = Accidents per Million Vehicle Miles

*Per 2016 Collision Data on California State Highways, Urban 2 and 3 LN

As shown in **Figure 12**, of the 17 crashes that have occurred in the most recent five-year period resulted in no fatalities and approximately half of the crashes resulted in property damage only.

Figure 12 – Elverta Road Crash Severity Distribution



Per the Federal Highway Administration's (FHWA) Crash Modification Factor (CMF) Clearinghouse website¹², the following anticipated and recommended improvements along Elverta Road are anticipated to reduce the predicted number and severity of crashes (the lower the CMF, the larger the impact on reducing anticipated crashes):

- Widen shoulder (CMFs range from 0.5 to 0.82)
- Install an additional lane (CMFs range from 0.74 to 0.76)
- Install left turn lane (CMFs range from 0.57 to 0.92)
- Install right turn lane (CMFs range from 0.77 to 0.91)
- Install traffic signal (CMF of 0.56 for all crashes and 0.23 for angle crashes, while 1.15 for rear-end crashes)

Traffic counts collected at the intersection of West Elverta Road with SR-99 Southbound Ramps (Intersection #6) indicated drivers were performing prohibited westbound left-turns. Implementing safety measures such as flexible delineators are recommended at Intersection #6 to address the observation of prohibited westbound left-turn movements at Intersection #6.

¹² www.cmfclearinghouse.org

The recommendations included with the proposed projects (MPU and Cargo Facility), as well as the Sacramento County *General Plan* roadway capacity projects, are anticipated to decrease the frequency of severe crashes resulting from improved roadway geometry, including paved shoulders, right- and left-turn lanes, intersection signalization, etc.

Intersection Analysis Results

LOS for each scenario was determined using methods defined in the *Highway Capacity Manual*, using appropriate traffic analysis software (Synchro®) and analysis procedures consistent with the County's current, published *TIS Guidelines*⁹. The intersection capacity analysis conducted for each of the analysis scenarios resulted in LOS and turn lane storage queueing recommendations as described in the following sections.

The method of intersection control is listed as "Signal" for a signalized intersection, "AWSC" for an all-way stop-controlled intersection, and "SSSC" for a side-street stop-controlled intersection. The overall level of service is reported for signalized intersections and all-way stop-controlled intersections. However, per HCM methodology, only the worst movement is reported for SSSC intersections.

The existing conditions analysis used the lane configurations presented in **Figure 4** and the peak hour traffic volumes associated with each analysis scenario as follows:

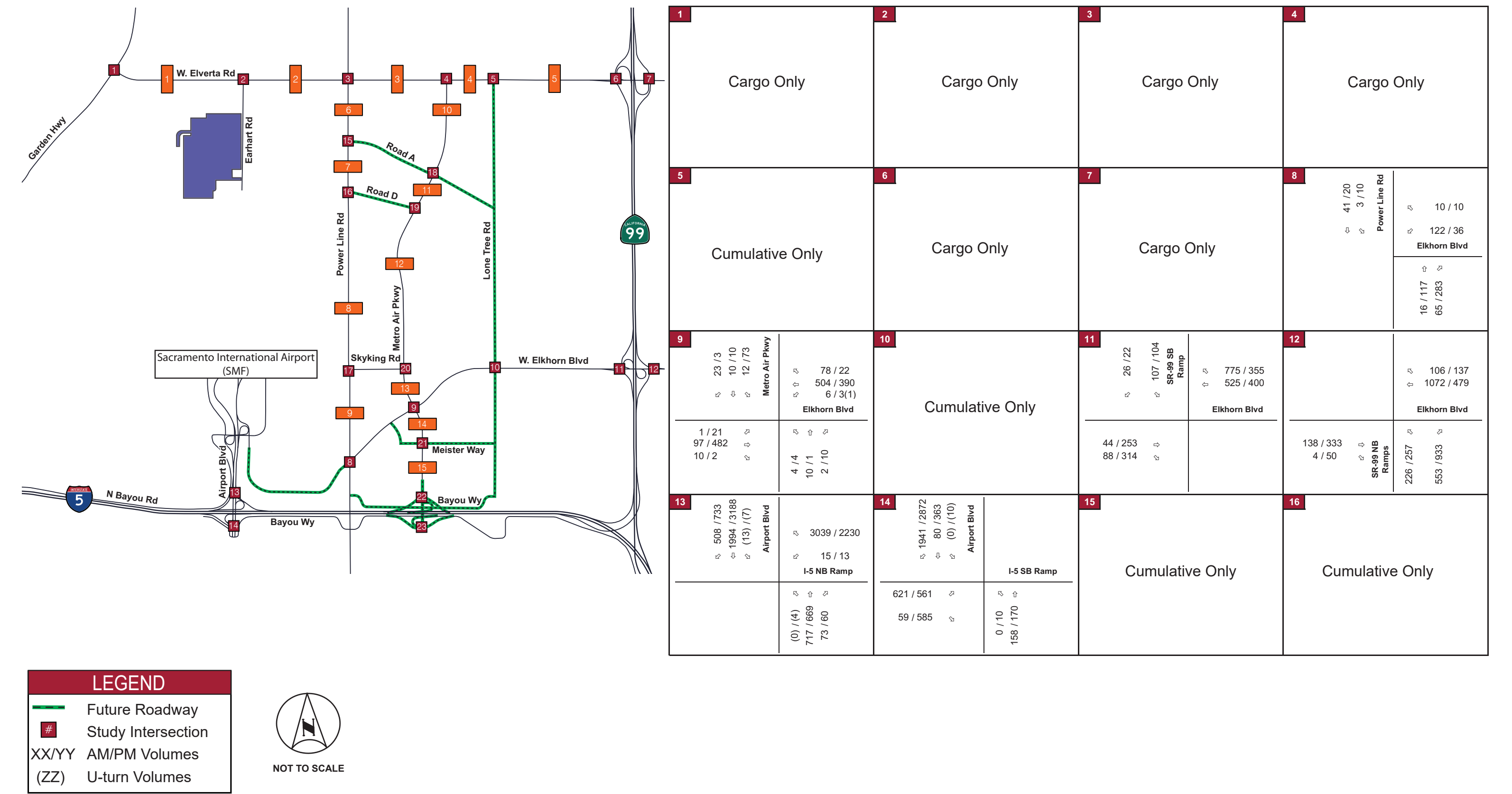
- Existing (2020) - **Figure 6** and **Figure 7**
- Existing (2020) Plus MPU - **Figure 13** and **Figure 14**
- Existing (2020) Plus Cargo - **Figure 15** and **Figure 16**
- Existing (2020) Plus MPU Plus Cargo - **Figure 17** and **Figure 18**

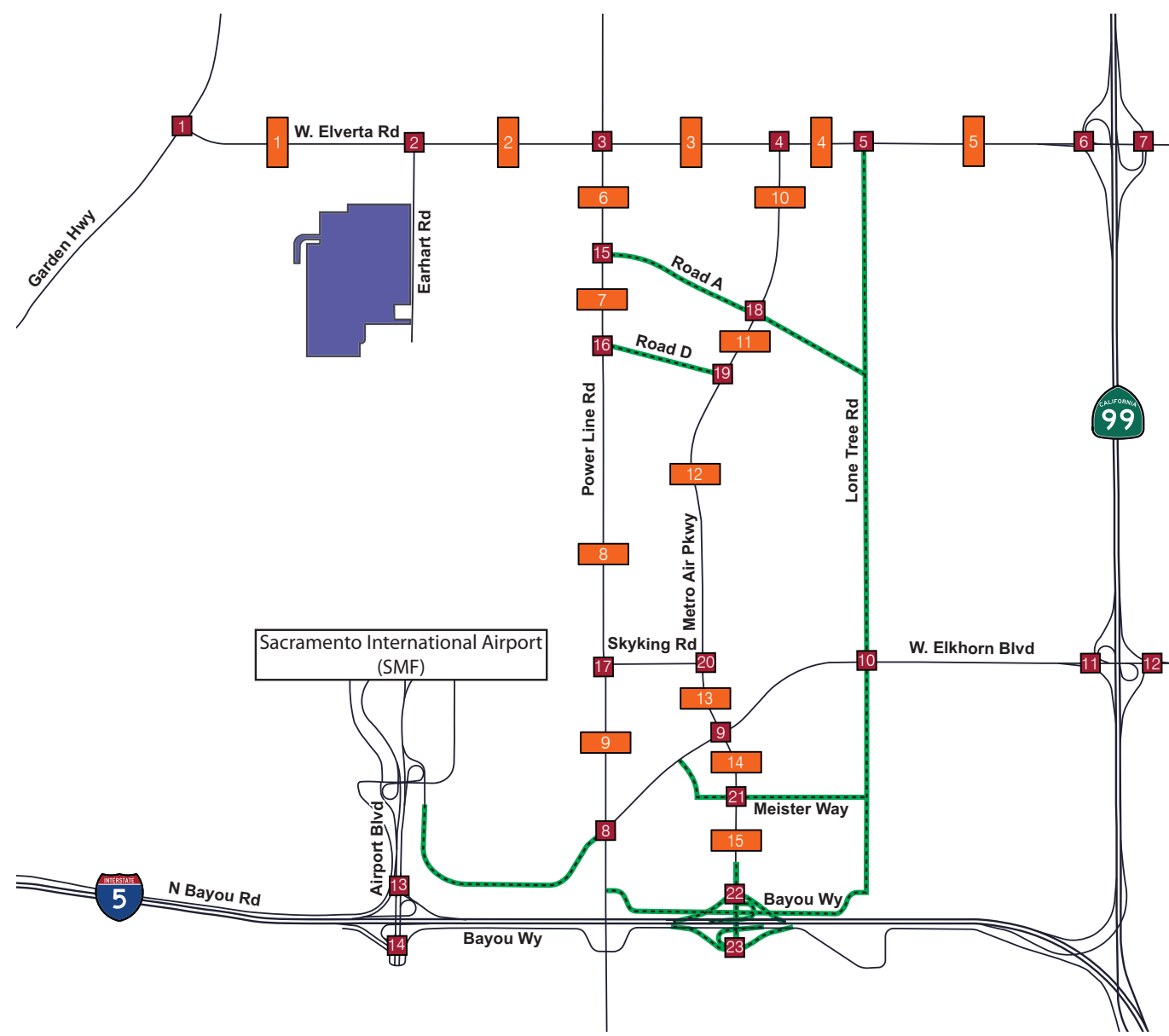
The cumulative analysis used the lane configurations presented in **Figure 8** and **Figure 9** and the peak hour traffic volumes associated with each analysis scenario as follows:

- Cumulative - **Figure 10** and **Figure 11**
- Cumulative Plus MPU - **Figure 19** and **Figure 20**
- Cumulative Plus Cargo - **Figure 21** and **Figure 22**
- Cumulative Plus MPU Plus Cargo - **Figure 23** and **Figure 24**

Table 10 presents the intersection operating conditions for the Existing (2020) scenario. As noted in **Table 4**, some of the intersections are specific to the MPU analysis and some to the Cargo Facility analysis, while the combined (MPU plus Cargo Scenario) includes all study area intersections. As indicated in **Table 10**, the study intersections operate between LOS A and LOS F under Existing (2020) Conditions. Analysis worksheets are provided in **Appendix B**. The LOS F results were calculated only at SSSC intersections for some side street movements. During these conditions the side street, minor movements are anticipated to experience significant delay.

Table 11 presents the intersection operating conditions for the Cumulative scenario. As indicated in **Table 11**, the study intersections operate between LOS A and LOS F under Cumulative Conditions. Analysis worksheets are provided in **Appendix C**. Similar to the Existing Conditions, for the Cumulative Scenarios, LOS F results were calculated for some SSSC intersections based on the average side street vehicle delay. During these conditions the side street, minor movements are anticipated to experience significant delay. The delay incurred by the proposed Green Line Extension was accounted for at the intersection of Metro Air Parkway with Meister Way (Intersection #21).





17	18	19	20
Cargo Only	Cumulative Only	Cumulative Only	Cargo Only
21	22	23	
Cumulative Only	Cumulative Only	Cumulative Only	

LEGEND

Future Roadway

#

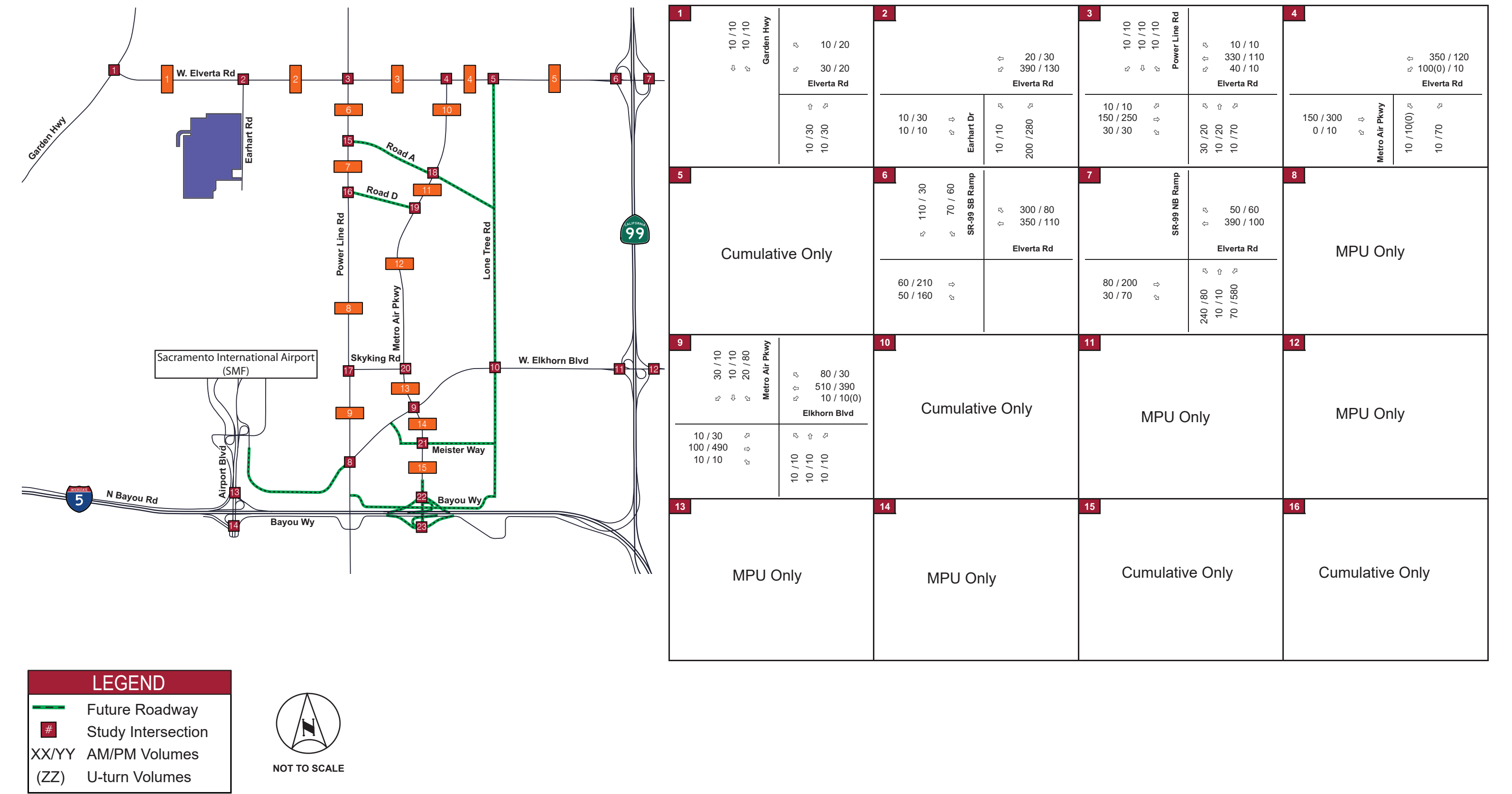
Study Intersection

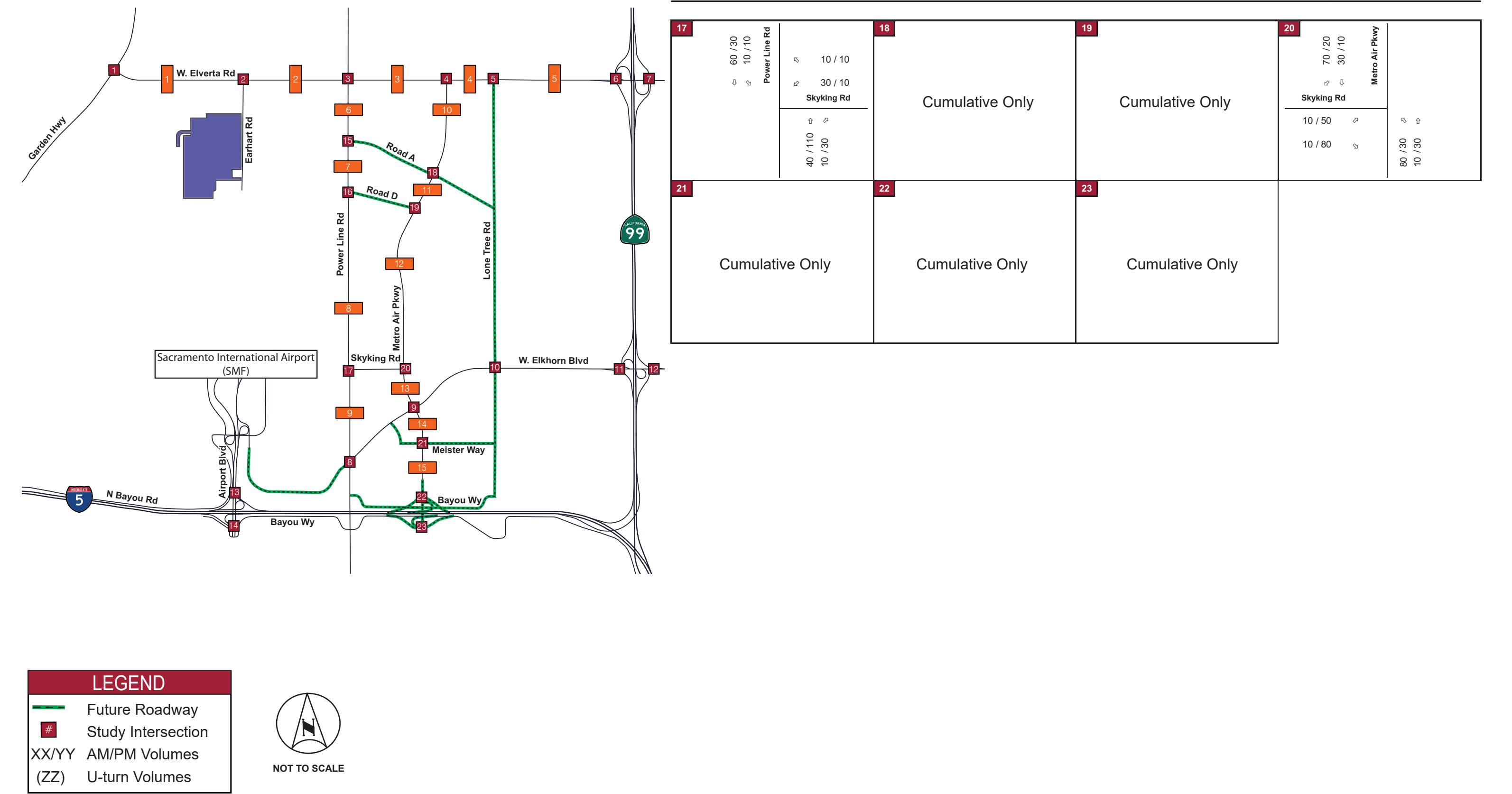
XX/YY AM/PM Volumes

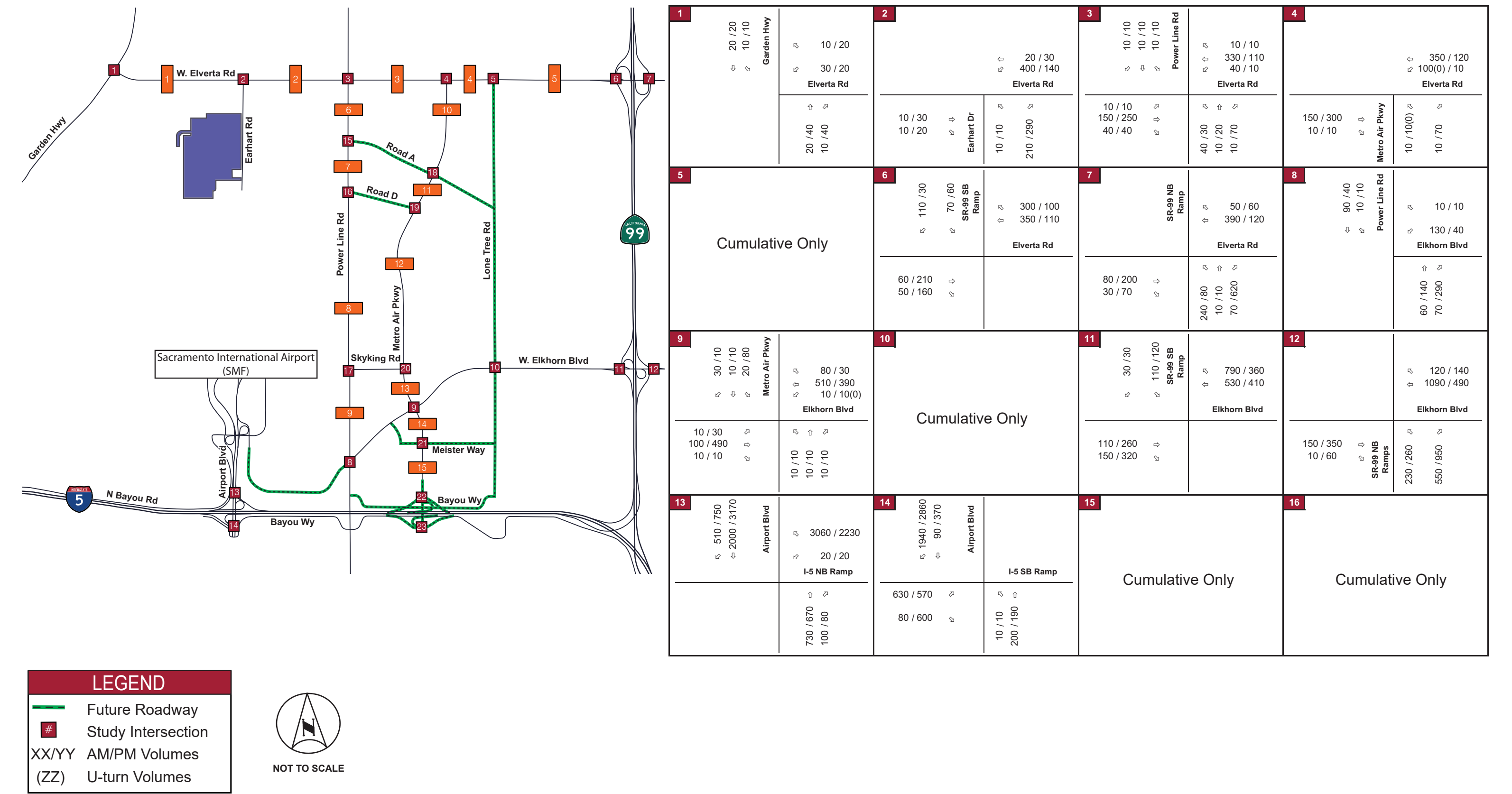
(ZZ) U-turn Volumes

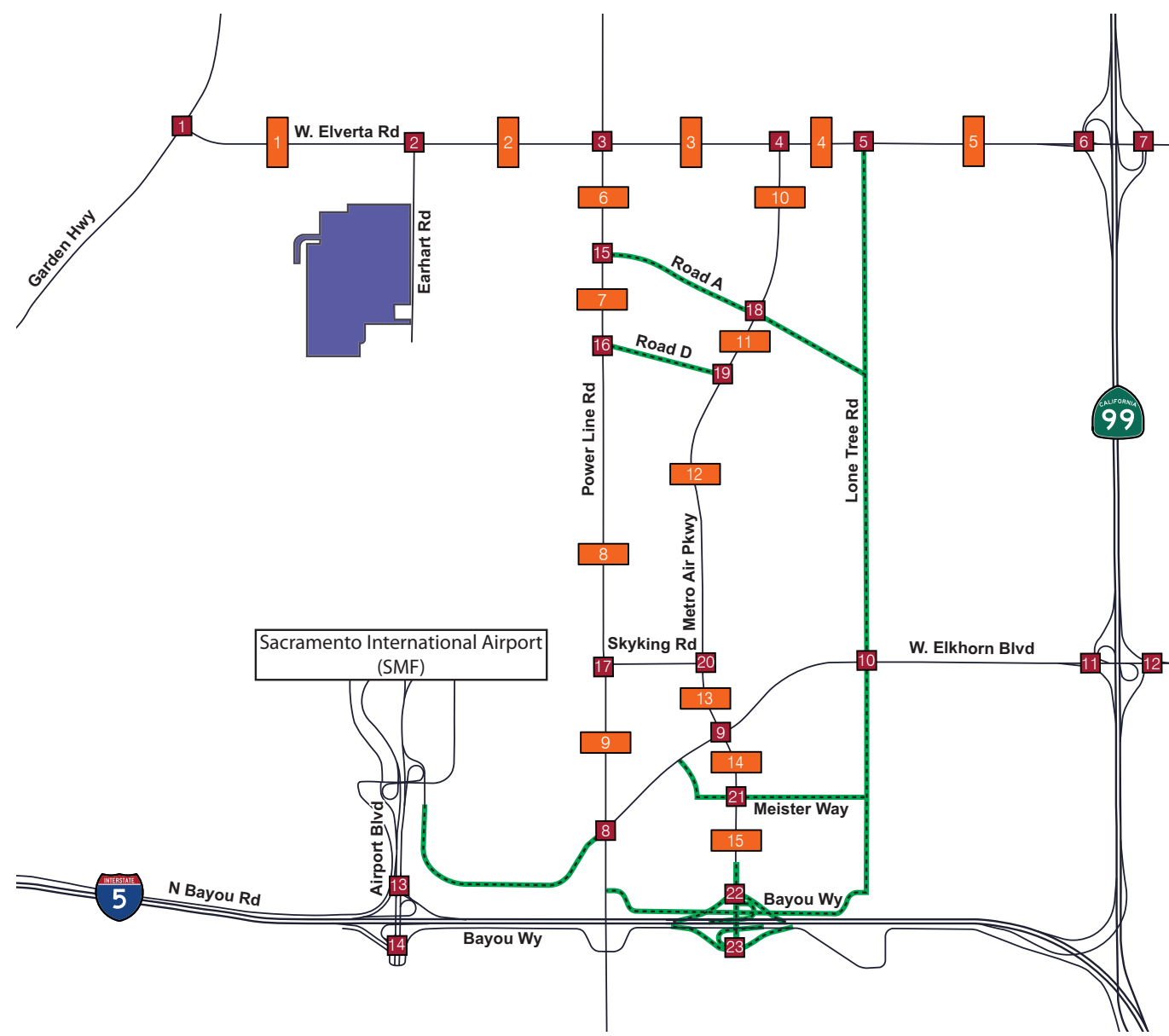


NOT TO SCALE









17 70 / 40 10 / 10 ↓ ↘ ↑ ↙ Power Line Rd 10 / 10 30 / 10 ↘ ↙ ↑ ↓ Skyking Rd	18 Cumulative Only	19 Cumulative Only	20 70 / 20 30 / 10 ↘ ↓ ↑ ↙ Skyking Rd 10 / 50 10 / 80 ↘ ↙ ↑ ↓ Metro Air Pkwy 80(0) / 30(0) 10 / 30 ↘ ↙ ↑ ↓
21 Cumulative Only	22 Cumulative Only	23 Cumulative Only	

LEGEND

Future Roadway

#

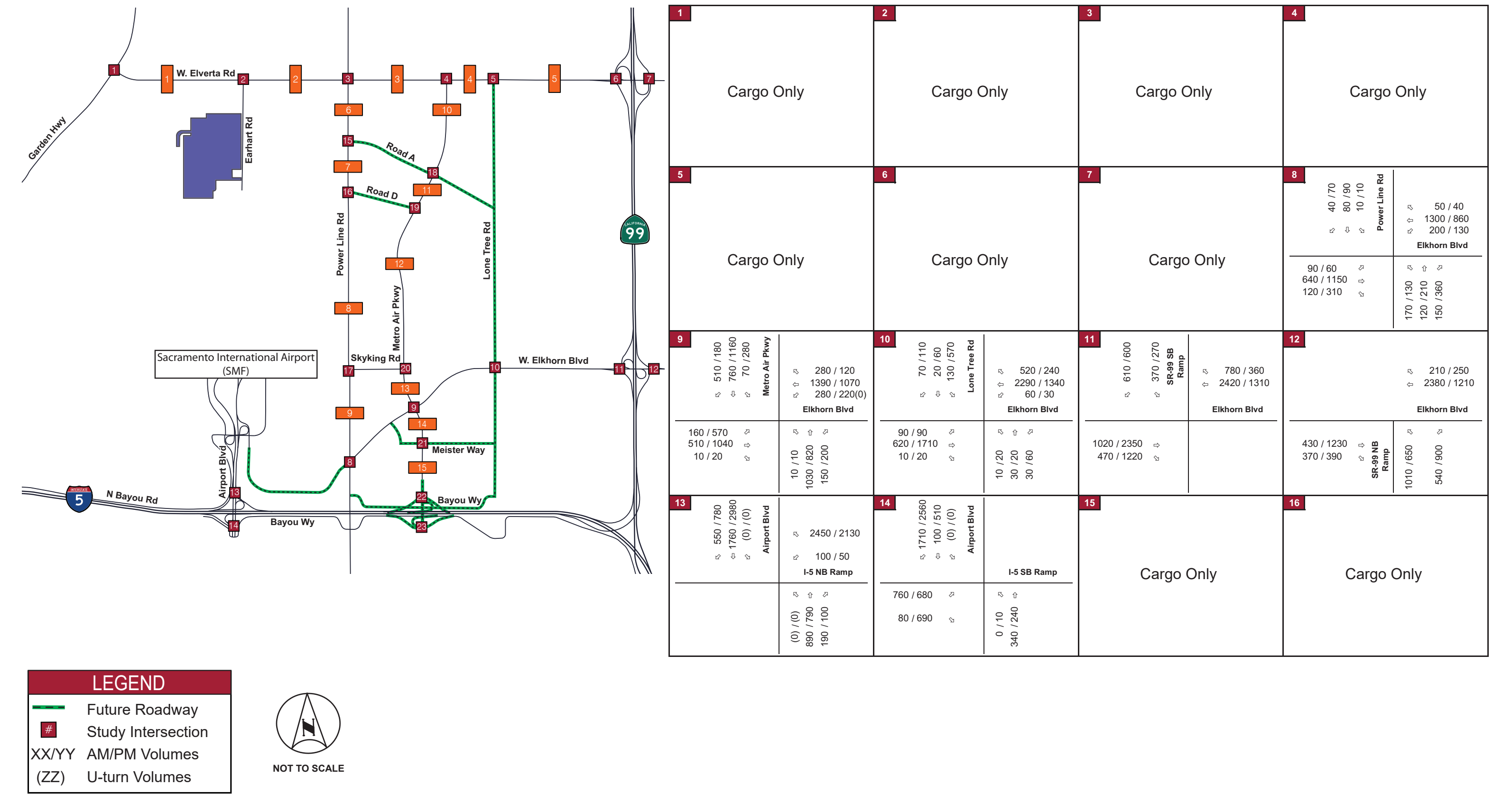
Study Intersection

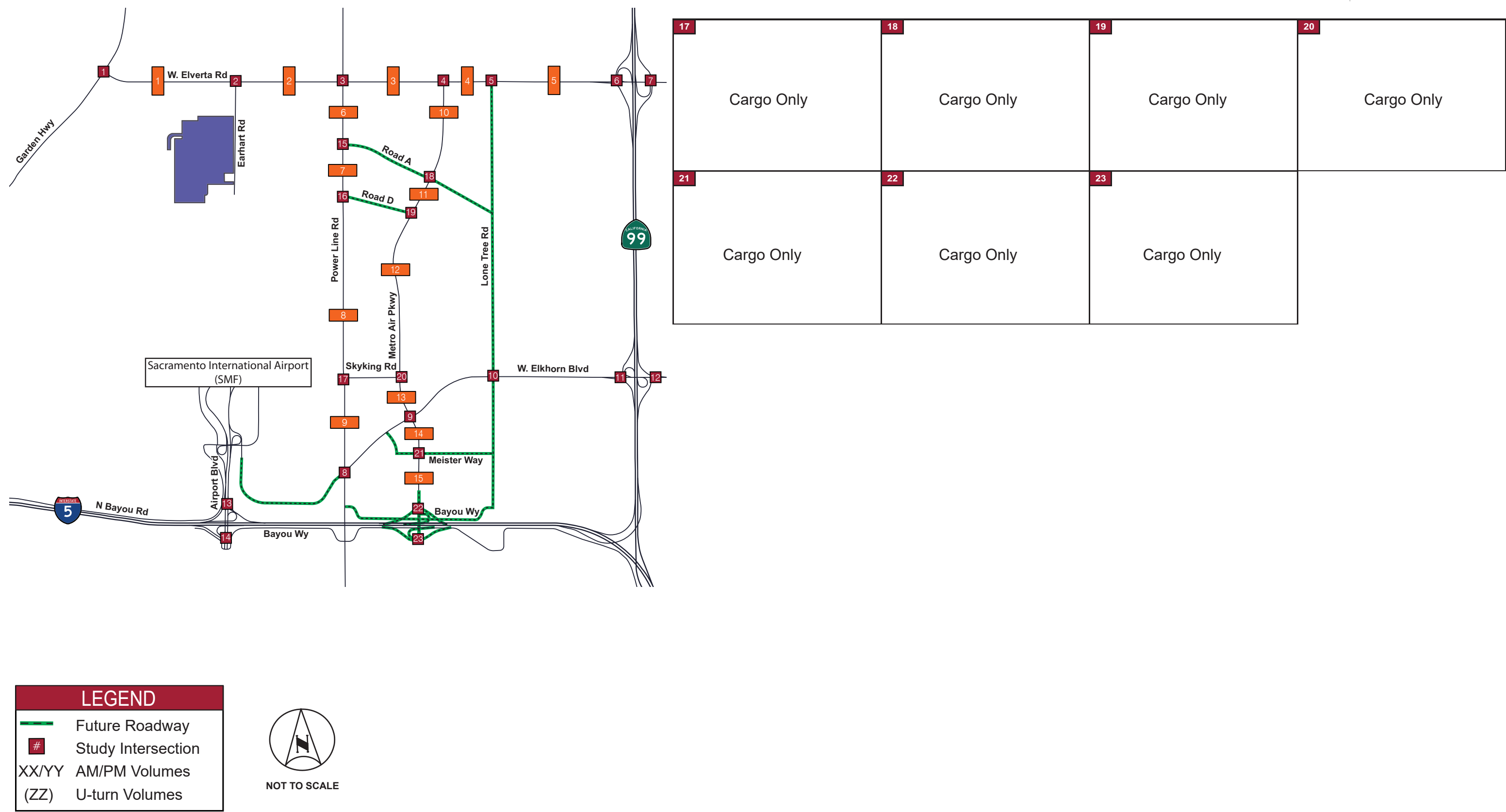
XX/YY AM/PM Volumes

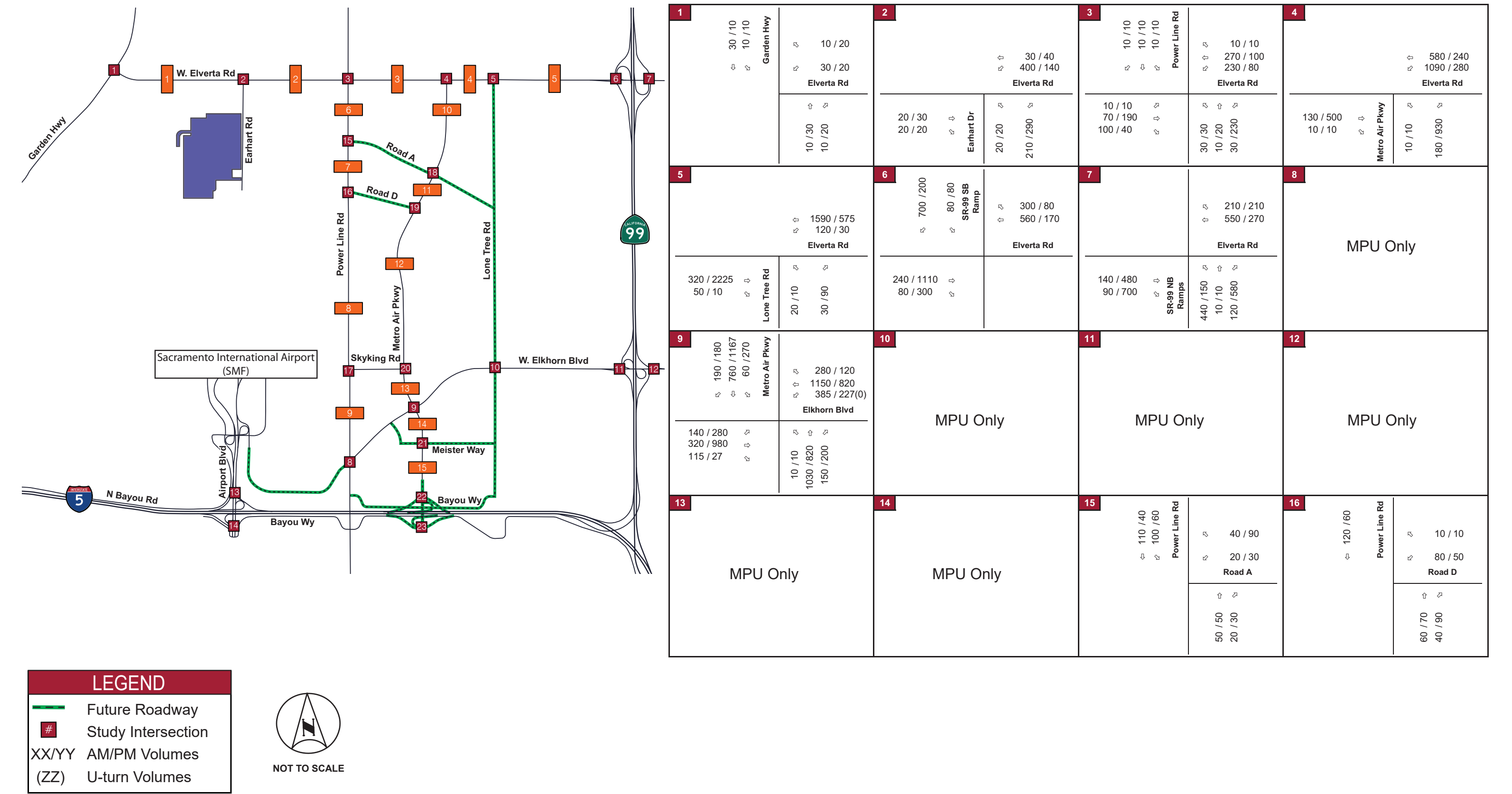
(ZZ) U-turn Volumes

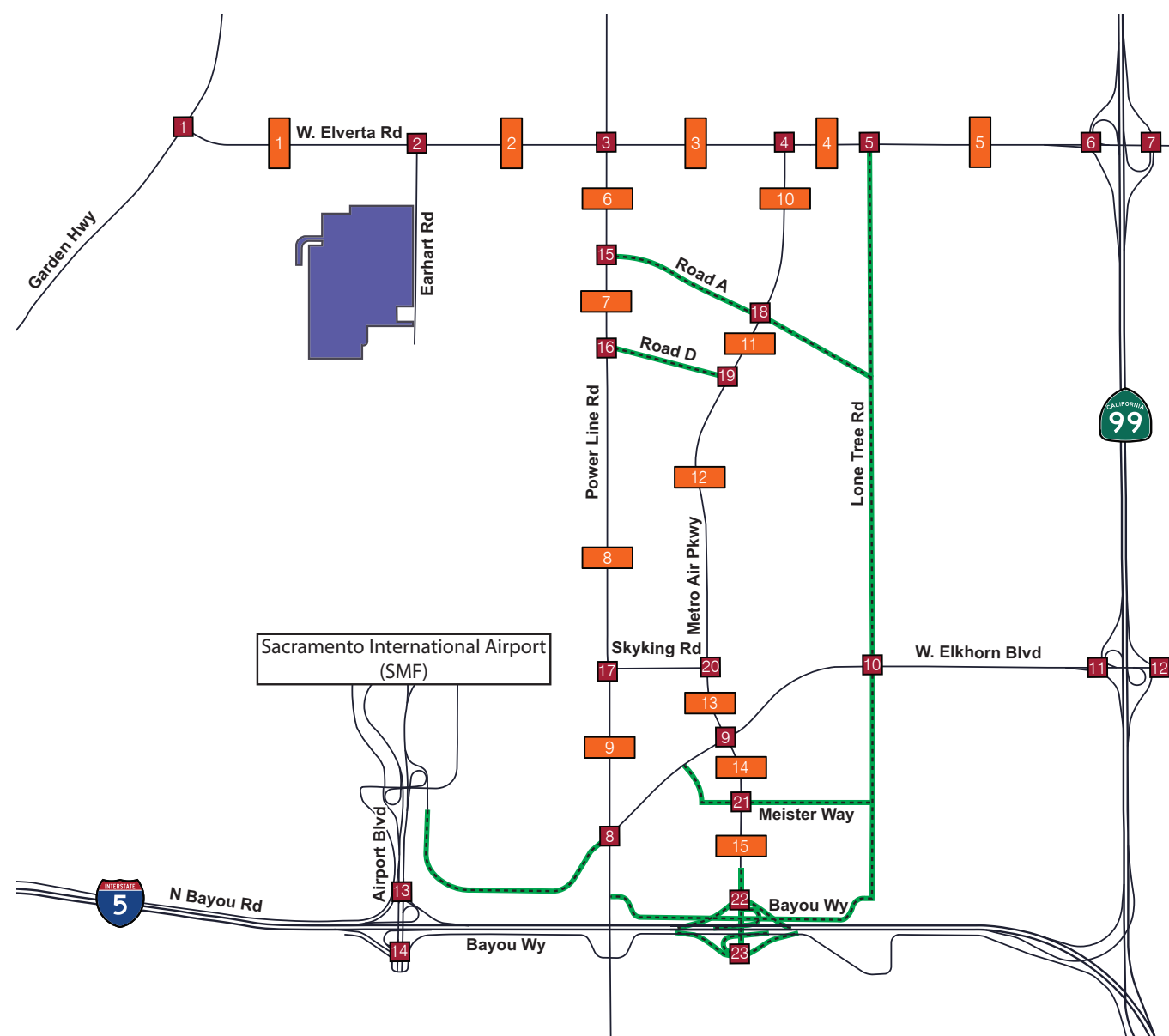


NOT TO SCALE







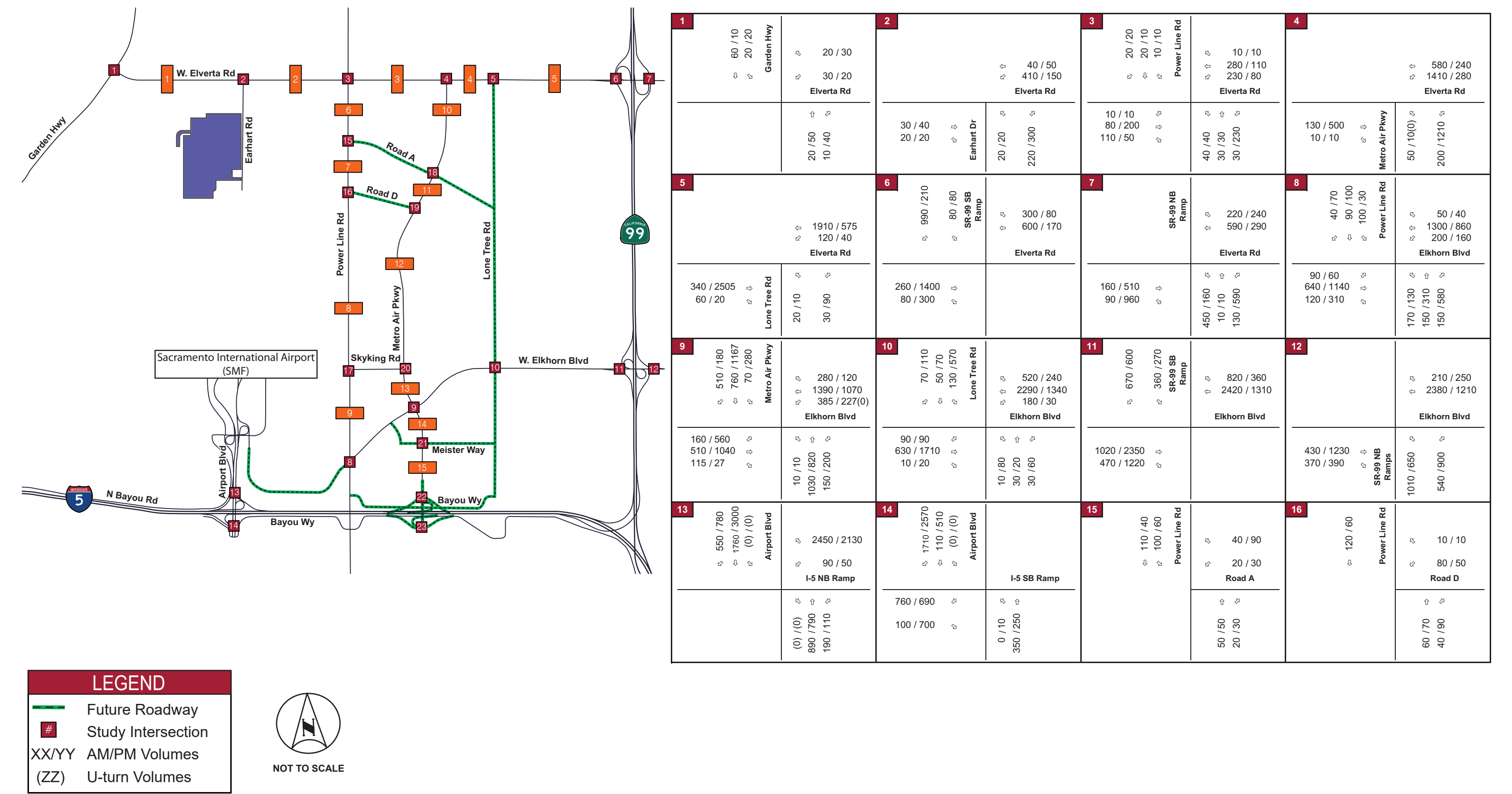


17	↕ 180 / 130 ↕ 170 / 340 Power Line Rd	↕ 290 / 220 ↕ 40 / 20 Skyking Rd	↕ 110 / 50 ↕ 780 / 340 ↕ 90 / 90 Metro Air Pkwy	↕ 50 / 90 ↕ 150 / 60 ↕ 20 / 30	19	↕ 70 / 50 ↕ 990 / 690 Metro Air Pkwy	↕ 10 / 10 ↕ 580 / 1070 ↕	20	↕ 210 / 120 ↕ 750 / 960 Metro Air Pkwy	↕ 600(t) / 350(t) ↕ 840 / 860
21	↕ 10 / 20 ↕ 1140 / 1360 ↕ 90 / 370 Metro Air Pkwy	↕ 370 / 120 ↕ 290 / 180 ↕ 450 / 120 Meister Way	↕ 770 / 660 ↕ 1350 / 1650 Metro Air Pkwy	↕ 1310 / 1170 ↕ 10 / 10 I-5 NB Ramp	23	↕ 1300 / 1480 ↕ 60 / 170 Metro Air Pkwy	↕ 490 / 340 70 / 180 ↕ 540 / 270 ↕ 90 / 210			

LEGEND	
	Future Roadway
	Study Intersection
XX/YY	AM/PM Volumes
(ZZ)	U-turn Volumes



NOT TO SCALE



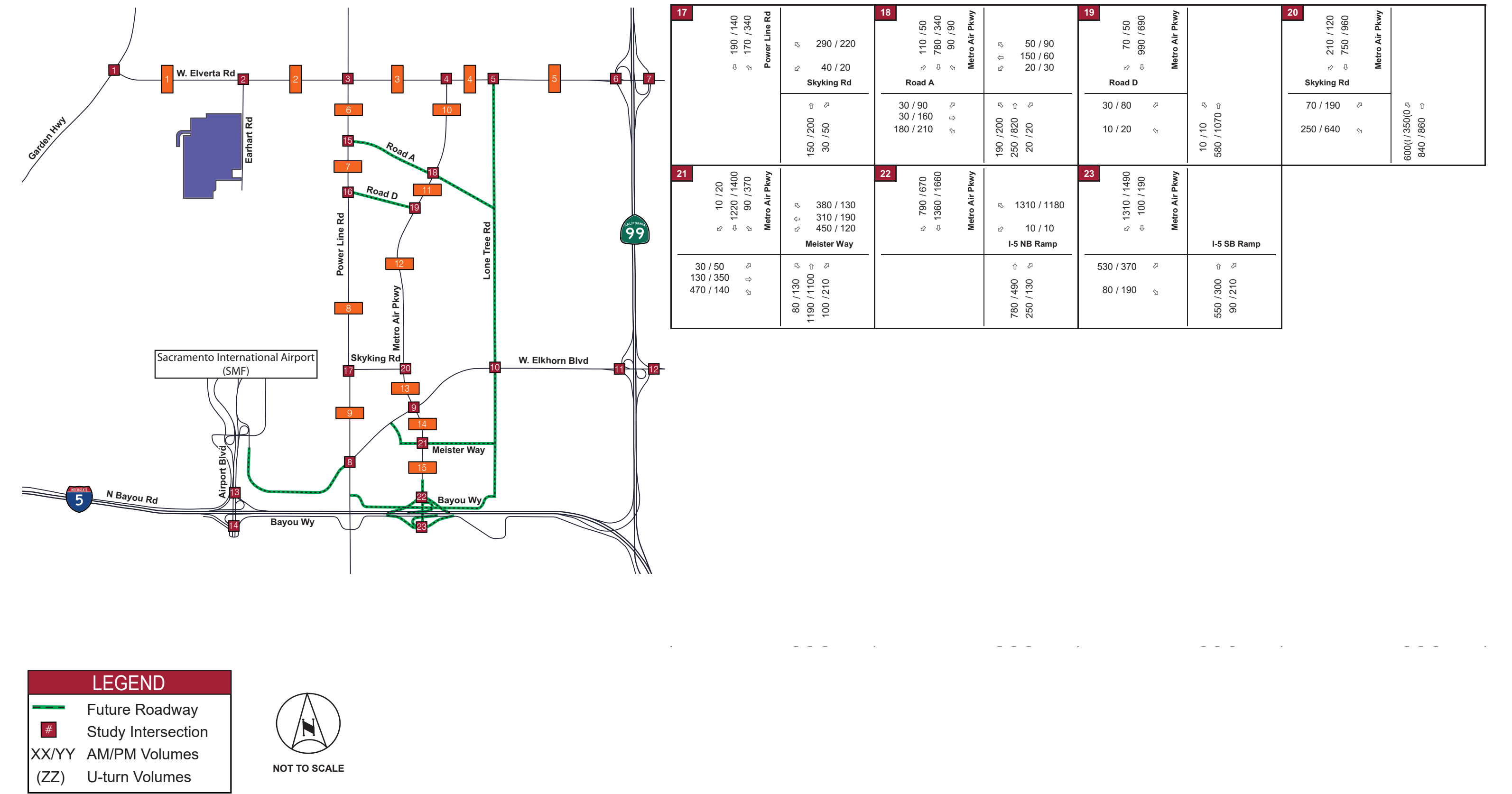


Table 10 – Existing (2020) Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Existing		Existing plus MPU		Existing plus Cargo		Existing plus MPU plus Cargo	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	Elverta Road @ Garden Highway	SSSC	AM	5.8 (8.7)	A (A)			5.3 (8.8)	A (A)	4.3 (8.9)	A (A)
			PM	3.3 (8.7)	A (A)			3.6 (8.9)	A (A)	2.9 (9.0)	A (A)
2	Elverta Road @ Earhart Drive	SSSC	AM	5.3 (8.3)	A (A)			8.2 (10.0)	A (B)	8.3 (10.1)	A (B)
			PM	3.0 (8.5)	A (A)			7.9 (10.0)	A (B)	7.9 (10.1)	A (B)
3	Elverta Road @ Power Line Road	AWSC	AM	7.4	A			10.1	B	10.2	B
			PM	7.2	A			9.1	A	9.2	A
4	Elverta Road @ Metro Air Parkway	SSSC	AM	0.4 (8.6)	A (A)			1.6 (12.0)	A (B)	1.6 (12.1)	A (B)
			PM	3.2 (9.1)	A (A)			1.8 (10.7)	A (B)	1.8 (10.7)	A (B)
6	Elverta Road @ SR-99 Southbound Ramps	Signal	AM	3.3	A			4.4	A	4.5	A
			PM	4.0	A			3.6	A	4.0	A
7	Elverta Road @ SR-99 Northbound Ramps	Signal	AM	7.4	A			10.1	A	10.1	B
			PM	5.9	A			6.8	A	5.7	A
8	Elkhorn Boulevard @ Power Line Road	Signal	AM	8.3	A	8.2	A			8.5	A
			PM	8.8	A	9.0	A			9.4	A
9	Elkhorn Boulevard @ Metro Air Parkway	Signal	AM	17.1	C	18.0	C	19.2	C	19.2	C
			PM	16.7	C	17.0	C	19.3	C	19.3	C
11	Elkhorn Boulevard @ SR-99 Southbound Ramps	SSSC	AM	2.7 (14.5)	A (B)	2.7 (14.5)	A (B)			2.7 (15.9)	A (C)
			PM	2.4 (16.0)	A (C)	2.4 (16.0)	A (C)			2.9 (16.9)	A (C)
12	Elkhorn Boulevard @ SR-99 Northbound Ramps	Signal	AM	8.4	A	10.2	B			10.8	B
			PM	6.2	A	6.3	A			6.3	A
13	Airport Boulevard @ I-5 Northbound Ramps	SSSC	AM	0.2 (16.3)	A (C)	0.3 (55.5)	A (F)			0.4 (57.6)	A (F)
			PM	0.3 (26.2)	A (D)	0.5 (138.0)	A (F)			0.8 (163.9)	A (F)
14	Airport Boulevard @ I-5 Southbound Ramps	SSSC	AM	5.7 (10.7)	A (B)	15.0 (21.4)	B (C)			18.1 (27.7)	C (D)
			PM	16.9(32.2)	C (D)	40.2 (86.1)	E (F)			44.3 (95.1)	E (F)
17	Power Line Road @ Skyking Road	AWSC	AM	7.7	A			7.8	A	7.8	A
			PM	7.5	A			7.8	A	7.9	A
20	Metro Air Parkway @ Skyking Road	SSSC	AM	0.7 (9.4)	A (A)			3.7 (9.9)	A (A)	3.7 (9.9)	A (A)
			PM	5.7 (9.1)	A (A)			6.3 (9.3)	A (A)	6.3 (9.3)	A (A)

Notes: a - Reported delay for SSSC intersections includes the overall intersection delay, as well the delay and associated LOS for the worst lane/movement.
b - **Bold** represents unacceptable operations and gray shading represents a project induced deficiency resulting in improvement recommendations

Table 11 – Cumulative Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Cumulative		Cumulative plus MPU		Cumulative plus Cargo		Cumulative plus MPU plus Cargo	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	Elverta Road @ Garden Highway	SSSC	AM	4.8 (8.9)	A (A)			4.3 (8.9)	A (A)	3.7 (9.1)	A (A)
			PM	3.9 (8.8)	A (A)			3.9 (8.8)	A (A)	3.5 (9.1)	A (A)
2	Elverta Road @ Earhart Drive	Existing SSSC Prop. Signal	AM	8.5	A			9.2	A	9.4	A
			PM	8.2	A			8.8	A	8.9	A
3	Elverta Road @ Power Line Road	Signal	AM	19.7	B			17.6	B	18.2	B
			PM	21.0	C			20.9	C	21.0	A
4	Elverta Road @ Metro Air Parkway	Signal	AM	11.6	B			11.7	B	13.8	B
			PM	24.3	C			31.2	C	64.3	E
5	Elverta Road @ Lone Tree Road	Signal	AM	6.6	A			6.7	A	8.4	A
			PM	8.7	A			11.4	B	17.3	B
6	Elverta Road @ SR-99 Southbound Ramps	Signal	AM	8.4	A			8.6	A	10.9	B
			PM	9.4	A			9.4	A	11.0	B
7	Elverta Road @ SR-99 Northbound Ramps	Signal	AM	13.8	B			13.8	A	15.0	B
			PM	8.0	A			8.2	A	8.2	A
8	Elkhorn Boulevard @ Power Line Road	Signal	AM	22.1	C	28.9	C			37.2	D
			PM	25.4	C	32.0	C			58.0	E
9	Elkhorn Boulevard @ Metro Air Parkway	Signal	AM	26.0	C	33.3	C	26.6	C	34.3	C
			PM	28.5	C	38.6	D	28.6	C	38.2	D
10	Elkhorn Boulevard @ Lone Tree Road	Signal	AM	21.5	C	24.2	C			58.0	E
			PM	40.1	D	41.8	C			42.0	D
11	Elkhorn Boulevard @ SR-99 Southbound Ramps	Signal	AM	27.3	C	35.5	D			39.8	D
			PM	13.6	B	30.3	C			30.3	C
12	Elkhorn Boulevard @ SR-99 Northbound Ramps	Signal	AM	65.5	E	94.2	F			94.2	F
			PM	12.0	B	12.2	B			12.2	B
13	Airport Boulevard @ I-5 Northbound Ramps	SSSC	AM	0.3 (20.1)	A (C)	9.3 (254.6)	A (F)			7.0 (214.1)	A (F)
			PM	0.3 (32.0)	A (D)	5.5 (418.1)	A (F)			5.4 (418.1)	A (F)
14	Airport Boulevard @ I-5 Southbound Ramps	SSSC	AM	6.6 (14.0)	A (B)	47.4 (78.9)	F (F)			50.9 (87.1)	F (F)
			PM	56.6 (128.1)	F (F)	149.6 (325.4)	F (F)			157.1 (341.4)	F (F)

Notes: a - Reported delay for SSSC intersections includes the overall intersection delay, as well the delay and associated LOS for the worst lane/movement.
 b - **Bold** represents unacceptable operations and gray shading represents a project induced deficiency resulting in improvement recommendations

Table 11 – Cumulative Intersection Levels of Service (continued)

ID	Intersection	Control	Peak Hour	Cumulative		Cumulative plus MPU		Cumulative plus Cargo		Cumulative plus MPU plus Cargo	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
15	Power Line Road @ Road A	SSSC	AM	5.9 (9.3)	A (A)			4.0 (9.8)	A (A)	4.0 (9.8)	A (A)
			PM	6.0 (9.3)	A (A)			5.3 (9.5)	A (A)	5.3 (9.5)	A (A)
16	Power Line Road @ Road D	SSSC	AM	4.4 (9.3)	A (A)			2.9 (10.0)	A (A)	2.9 (10.0)	A (A)
			PM	2.4 (9.4)	A (A)			2.1 (9.7)	A (A)	2.1 (9.7)	A (A)
17	Power Line Road @ Skyking Road	AWSC	AM	10.7	B			12.8	B	13.1	B
			PM	14.9	B			16.3	C	17.0	C
18	Metro Air Parkway @ Road A	Signal	AM	21.1	C			21.1	C	21.1	C
			PM	20.0	B			20.0	B	20.0	B
19	Metro Air Parkway @ Road D	Signal	AM	6.2	A			6.2	A	6.2	A
			PM	6.5	A			6.5	A	6.5	A
20	Metro Air Parkway @ Skyking Road	Signal	AM	45.9	D			45.9	D	45.9	D
			PM	48.0	D			48.0	D	48.0	D
21	Metro Air Parkway @ Meister Way	Signal	AM	38.9	D			52.0	D	56.1	E
			PM	39.5	D			41.0	D	40.9	D
22	Metro Air Parkway @ I-5 Northbound Ramps	Signal	AM	50.3	D			49.7	D	52.2	D
			PM	29.2	C			31.5	C	32.8	C
23	Metro Air Parkway @ I-5 Southbound Ramps	Signal	AM	10.1	B			10.2	B	10.6	B
			PM	8.4	A			8.4	A	8.6	A

Notes: a - Reported delay for SSSC intersections includes the overall intersection delay, as well the delay and associated LOS for the worst lane/movement.
 b - **Bold** represents unacceptable operations and gray shading represents a project induced deficiency resulting in improvement recommendations

Shift Change Scenario

In addition to the LOS analyses provided in the previous sections, an additional scenario was analyzed specific to the off-peak shift changes associated with the proposed cargo facility. For this additional scenario, Elverta Road intersections #2 and #3 were analyzed based on the previously described shift-change pattern in which 750 employees arrive and 750 depart the proposed facility during the peak-hour. This scenario represents the peak, recurring conditions and is used to identify the anticipated capacity needed at the subject intersections.

Figure 25 provides an overview of the shift-change volumes and resulting intersection configuration that is required to accommodate the cargo facility's operations as described above. As noted, this configuration is included in the operations analyses contained in this document although the facility's contributions to traffic during the traditional peak-hours is considered to be nominal.

This project access location (Intersection #2) should be designed in a manner consistent with Sacramento County's standards to ensure adequate sight-distance and geometric elements are provided. As depicted in **Figure 25**, the combination of peak entering and exiting vehicles necessitates the identified lane configuration to accommodate all vehicle types anticipated to use travel this route.

Table 12 presents the anticipated operations at the intersection during the off-peak shift-change periods. Detailed analysis results are included in **Appendix D**.

Table 12 – Shift Change Scenario, Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Existing plus MPU plus Cargo		Cumulative plus MPU plus Cargo	
				Delay (sec)	LOS	Delay (sec)	LOS
2	Elverta Road @ Earhart Drive	Signal	AM	15.6	B	17.1	B
			PM	20.2	C	20.3	C
3	Elverta Road @ Powerline Road	Existing AWSC	AM	538.5	F	N/A	
			PM	608.5	F		
3	Elverta Road @ Powerline Road	Prop. Signal	AM	44.9	D	45.4	D
			PM	79.4	E	79.2	E

Based on the results of the shift change scenario analysis, the following improvements are recommended to accommodate the shift change traffic volumes (and are used in the operations analyses):

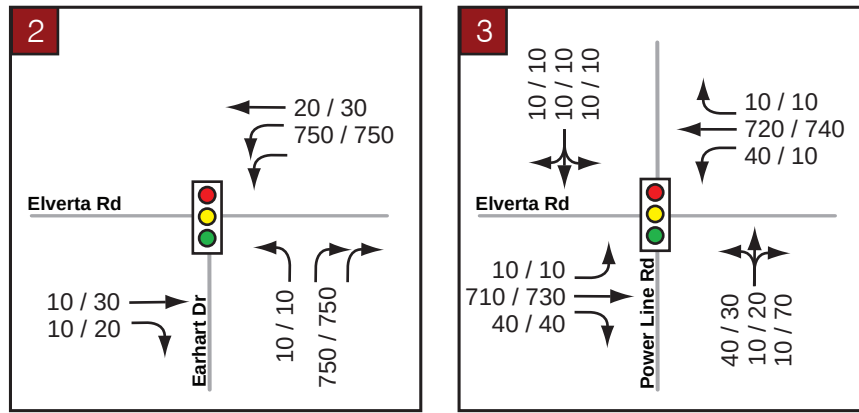
- Intersection #2 – Elverta Road @ Earhart Drive
 - Install a traffic signal (as warranted and documented later in this report)
 - Install dual northbound right-turn lanes with 175-feet of queue storage (adequate deceleration distance should be provided in addition to this storage)
 - Install eastbound receiving lane to accept the #2 northbound right-turn lane
 - Install westbound dual left-turn lanes with 300-feet of queue storage (adequate deceleration distance should be provided in addition to this storage)
 - Install southbound receiving lanes to accept the westbound left-turn lanes
- Intersection #3 – Elverta Road @ Power Line Road
 - Install a traffic signal (as warranted and documented later in this report)
 - Install additional eastbound through lane to provide for two (2) through lanes from Earhart Drive to Power Line Road
 - Install eastbound receiving lane for the additional eastbound through approach lane

Roadway Segment Analysis Results

The analysis of each of the roadway segments was conducted in a manner consistent with Sacramento County's *Traffic Impact Analysis Guidelines*⁹ within which existing and anticipated Average Daily Traffic

(ADT) are used. **Table 13** presents the roadway segment operating conditions for the Existing (2020) scenario. As indicated in **Table 13**, the study roadway segments operate between LOS A and LOS B under Existing (2020) Conditions. **Table 14** presents the roadway segment operating conditions for the Cumulative scenario. As indicated in **Table 14**, the study roadway segments operate between LOS A and LOS C under Cumulative Conditions.

Existing plus MPU plus Cargo Shift Change Conditions



Cumulative plus MPU plus Cargo Shift Change Conditions

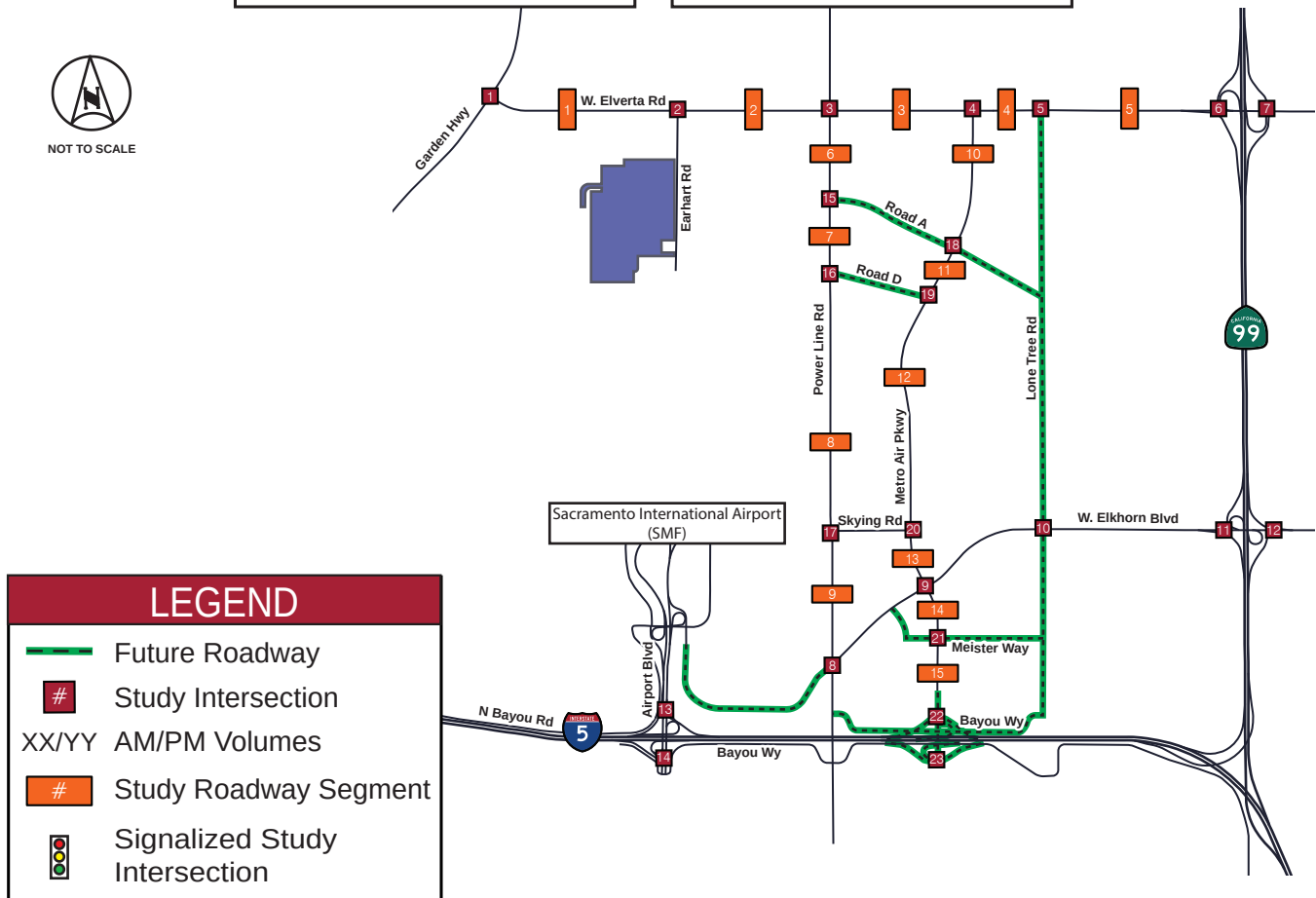
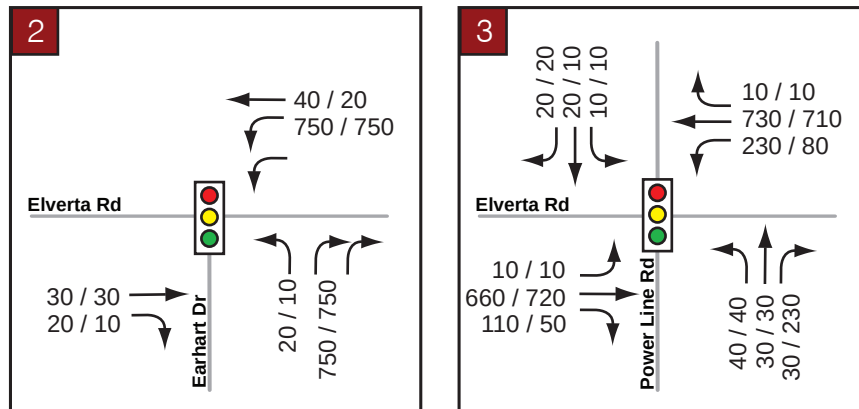


Table 13 – Existing (2020) Roadway Segment Levels of Service

ID	Location	Facility Type	# of Lanes	Existing		Existing plus MPU		Existing plus Cargo		Existing plus MPU plus Cargo	
				Daily Volume	LOS	Daily Volume	LOS	Daily Volume	LOS	Daily Volume	LOS
1	Elverta Road, Garden Highway to Earhart Drive	Rural, <24' of pavement, <6' paved shoulders	2	563	A	570	A	600	A	620	A
2	Elverta Road, Earhart Drive to Power Line Road	Rural, <24' of pavement, <6' paved shoulders	2	876	A	880	A	6,860	E	6,940	E
3	Elverta Road, Power Line Road to Metro Air Parkway	Rural, <24' of pavement, <6' paved shoulders	2	1,232	B	1,240	B	6,620	E	6,620	E
4	Elverta Road, Metro Air Parkway to Lone Tree Road	Rural, <24' of pavement, <6' paved shoulders	2	1,812	B	1,820	B	7,200	E	7,200	E
5	Elverta Road, Lone Tree Road to SR-99	Rural, <24' of pavement, <6' paved shoulders	2	1,790	B	1,790	B	6,980	E	6,980	E
6	Power Line Road, Elverta Road to Road A	Rural, <24' of pavement, <6' paved shoulders	2	539	A	550	A	1,140	B	1,220	B
7	Power Line Road, Road A to Road D	Rural, <24' of pavement, <6' paved shoulders	2	539	A	550	A	1,140	B	1,220	B
8	Power Line Road, Road D to Skyking Road	Rural, <24' of pavement, <6' paved shoulders	2	539	A	550	A	1,140	B	1,220	B
9	Power Line Road, Skyking Road to Elkhorn Boulevard	Rural, 24' of pavement, 6' paved shoulders	2	1,023	A	1,030	A	1,620	A	1,710	A
10	Metro Air Parkway, Elverta Road to Road A	Rural, 24' of pavement, 6' paved shoulders	2	602	A	610	A	610	A	610	A
11	Metro Air Parkway, Road A to Road D	Rural, 24' of pavement, 6' paved shoulders	2	602	A	610	A	610	A	610	A
12	Metro Air Parkway, Road D to Skyking Road	Rural, 24' of pavement, 6' paved shoulders	2	602	A	610	A	610	A	610	A
13	Metro Air Parkway, Skyking Road to Elkhorn Boulevard	Rural, 24' of pavement, 6' paved shoulders	2	1,710	A	1,710	A	1,710	A	1,710	A
14	Metro Air Parkway, Elkhorn Boulevard to Meister Way	Cumulative Only									
15	Metro Air Parkway, Meister Way to I-5	Cumulative Only									

Notes: a - **Bold** represents unacceptable operations and gray shading represents a project induced deficiency resulting in improvement recommendations

Table 14 – Cumulative Roadway Segment Levels of Service

ID	Location	Facility Type	# of Lanes	Cumulative		Cumulative plus MPU		Cumulative plus Cargo		Cumulative plus MPU plus Cargo	
				Daily Volume	LOS	Daily Volume	LOS	Daily Volume	LOS	Daily Volume	LOS
1	Elverta Road, Garden Highway to Earhart Drive	Rural, <24' of pavement, <6' shoulders	2	600	A	600	A	600	A	600	A
2	Elverta Road, Earhart Drive to Power Line Road	Rural, <24' of pavement, <6' shoulders	2	900	A	900	A	5,260	D	5,260	D
3	Elverta Road, Power Line Road to Metro Air Parkway	Rural, <24' of pavement, <6' shoulders	2	5,700	D	5,700	D	9,270	E	9,270	E
4	Elverta Road, Metro Air Parkway to Lone Tree Road	Arterial, High Access Control	4	18,600	A	19,520	A	21,930	A	22,860	A
5	Elverta Road, Lone Tree Road to SR-99	Arterial, High Access Control	4	19,800	A	20,720	A	23,040	A	23,960	A
6	Power Line Road, Elverta Road to Road A	Rural, <24' of pavement, <6' shoulders	2	3,000	C	3,000	C	3,780	D	3,780	D
7	Power Line Road, Road A to Road D	Rural, <24' of pavement, <6' shoulders	2	1,100	B	1,100	B	1,880	B	1,880	B
8	Power Line Road, Road D to Skyking Road	Arterial, Moderate Access Control	2	5,200	A	5,200	A	5,980	A	5,980	A
9	Power Line Road, Skyking Road to Elkhorn Boulevard	Arterial, Moderate Access Control	2	3,100	A	3,100	A	3,880	A	3,880	A
10	Metro Air Parkway, Elverta Road to Road A	Arterial, Moderate Access Control	6	13,100	A	14,020	A	13,100	A	14,020	A
11	Metro Air Parkway, Road A to Road D	Arterial, Moderate Access Control	6	18,600	A	19,520	A	18,600	A	19,520	A
12	Metro Air Parkway, Road D to Skyking Road	Arterial, Moderate Access Control	6	24,500	A	25,420	A	24,500	A	25,420	A
13	Metro Air Parkway, Skyking Road to Elkhorn Boulevard	Arterial, Moderate Access Control	6	33,200	B	34,120	B	33,200	B	34,120	B
14	Metro Air Parkway, Elkhorn Boulevard to Meister Way	Arterial, Moderate Access Control	6	38,000	C	38,000	C	38,000	C	38,000	C
15	Metro Air Parkway, Meister Way to I-5	Arterial, Moderate Access Control	6	56,600	F	56,600	F	56,890	F	56,900	F

Notes: a - **Bold** represents unacceptable operations and gray shading represents a project induced deficiency resulting in improvement recommendations

Rural Roadway Functionality Analysis Results

Based on the Existing and Cumulative roadway segment ADTs, the functionality of the rural roadway segments was analyzed. Based on this analysis it was determined that the addition of the cargo facility would result in significant impacts under Existing Conditions and Cumulative Conditions. Based on functionality criteria, the project shall provide standard section (6' paved shoulder, two 12' travel lanes, 6' paved shoulder) on Elverta Road from Earhart Drive to SR-99.

Table 15 and **Table 16** present the rural roadway functionality and ADT for Existing (2020) Conditions and Cumulative Conditions, respectively.

Table 15 – Existing (2020) Rural Roadway Functionality Evaluation

ID	Roadway Segment	Existing Roadways			ADT			
		Travel Lanes	Pavement Width ¹ (ft)	Substandard? ²	Existing	Existing plus MPU	Existing plus Cargo	Existing plus MPU plus Cargo
1	Elverta Road, Garden Highway to Earhart Drive	2	<36	Yes	563	570	600	620
2	Elverta Road, Earhart Drive to Power Line Road	2	<36	Yes	876	880	6,860	6,940
3	Elverta Road, Power Line Road to Metro Air Parkway	2	<36	Yes	1,232	1,240	6,620	6,620
4	Elverta Road, Metro Air Parkway to Lone Tree Road	2	<36	Yes	1,812	1,820	7,200	7,200
5	Elverta Road, Lone Tree Road to SR-99	2	<36	Yes	1,790	1,790	6,980	6,980
6	Power Line Road, Elverta Road to Road A	2	<36	Yes	539	550	1,140	1,220
7	Power Line Road, Road A to Road D	2	<36	Yes	539	550	1,140	1,220
8	Power Line Road, Road D to Skyking Road	2	<36	Yes	539	550	1,140	1,220

Note: Gray shading represents a project induced deficiency resulting in improvement recommendations

¹ Pavement Width is defined as the width of the both travel lanes to roadside shoulders.

² Substandard rural roads are defined as rural, 2-lane roadway segments with travel lanes narrower than 12 feet and/or roadside shoulders narrower than 6 feet.

Table 16 – Cumulative Rural Roadway Functionality Evaluation

ID	Roadway Segment	Cumulative Roadways			ADT			
		Travel Lanes	Pavement Width ¹ (ft)	Substandard? ²	Cumulative	Cumulative plus MPU	Cumulative plus Cargo	Cumulative plus MPU plus Cargo
1	Elverta Road, Garden Highway to Earhart Drive	2	<36	Yes	600	600	600	600
2	Elverta Road, Earhart Drive to Power Line Road	2	<36	Yes	900	900	5,260	5,260
3	Elverta Road, Power Line Road to Metro Air Parkway	2	<36	Yes	5,700	5,700	9,270	9,270
4	Elverta Road, Metro Air Parkway to Lone Tree Road	4	N/A due to General Plan widening improvements					
5	Elverta Road, Lone Tree Road to SR-99	4	N/A due to General Plan widening improvements					
6	Power Line Road, Elverta Road to Road A	2	<36	Yes	3,000	3,000	3,780	3,780
7	Power Line Road, Road A to Road D	2	<36	Yes	1,100	1,100	1,880	1,880
8	Power Line Road, Road D to Skyking Road	2	<36	Yes	5,200	5,200	5,980	5,980

Note: Gray shading represents a project induced deficiency resulting in improvement recommendations

¹ Pavement Width is defined as the width of the both travel lanes to roadside shoulders.

² Substandard rural roads are defined as rural, 2-lane roadway segments with travel lanes narrower than 12 feet and/or roadside shoulders narrower than 6 feet.

Freeway Analysis Results

The analysis of each of the identified freeway segments, ramps, and merge areas was conducted. The results show that some of the segments analyzed experience high vehicle density and associated poor LOS. It is recommended that future studies and design of I-5 and SR-99 consider existing and anticipated capacity constraints as documented in this report.

Table 17 and **Table 18** present the freeway LOS for the Existing (2020) scenarios for I-5 and SR-99 respectively. **Table 19** and **Table 20** present the freeway LOS for the Cumulative scenarios for I-5 and SR-99 respectively. Analysis worksheets are provided in **Appendix E**.

Table 17 – Existing (2020) Freeway Level of Service (I-5)

I-5				Existing (2020)		Existing plus MPU		Existing plus Cargo		Existing plus Cargo plus MPU	
Direction	Segment	Type	Peak Hour	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS
Southbound	North of Airport Boulevard Off-Ramp	Basic	AM	19.6	C	26.3	D	19.4	C	19.4	C
			PM	22.8	C	22.8	C	22.8	C	22.8	C
	Airport Boulevard Off-Ramp	Diverge	AM	28.8	D	39.1	E	28.9	D	28.9	D
			PM	29.2	D	29.2	D	29.2	D	29.2	D
	Airport Boulevard Loop On-Ramp	Merge	AM	22.0	C	30.8	D	22.1	C	22.1	C
			PM	27.5	C	37.1	F	27.4	C	36.8	F
	North of SR-99 Northbound Off-Ramp	Basic	AM	15.0	B	15.0	B	15.0	B	15.0	B
			PM	30.9	D	56.7	F	30.7	D	55.4	F
Northbound	North of Airport Blvd Diagonal On-Ramp	Basic	AM	18.3	C	6.7	A	18.5	C	6.7	A
			PM	15.4	B	10.3	A	15.6	B	10.5	A
	Airport Blvd Diagonal On-Ramp	Merge	AM	25.1	C	11.4	B	25.2	C	11.4	B
			PM	22.0	C	15.7	B	22.1	C	16.0	B
	Airport Blvd Loop On-Ramp	Merge	AM	23.1	C	6.8	A	23.2	C	6.8	A
			PM	18.9	B	9.2	A	19.0	B	9.3	A
	Airport Blvd Off-Ramp	Diverge	AM	21.6	C	21.6	C	21.6	C	21.6	C
			PM	16.1	B	16.1	B	16.1	B	16.1	B
	North of SR-99 Southbound Diagonal On-Ramp	Basic	AM	30.3	D	30.3	D	30.3	D	30.3	D
			PM	23.8	C	23.8	C	23.8	C	23.8	C
	North of SR-99 Northbound Off-Ramp	Basic	AM	20.5	C	20.5	C	20.5	C	20.5	C
			PM	20.3	C	20.3	C	20.3	C	20.3	C

Notes: a- Density measured in passenger cars/lane/mile (pc/lane/mi)
 b- **Bold** represents unacceptable operations
 c – Gray shading represents a project induced deficiency resulting in improvement recommendations

Table 18 – Existing (2020) Freeway Level of Service (SR-99)

SR-99				Existing (2020)		Existing plus MPU		Existing plus Cargo		Existing plus Cargo plus MPU	
Direction	Segment	Type	Peak Hour	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS
Southbound	North of Elverta Road Off-Ramp	Basic	AM	16.5	B	16.5	B	16.5	B	16.5	B
			PM	13.2	B	13.2	B	13.2	B	13.2	B
	Elverta Road Off-Ramp	Diverge	AM	19.3	B	19.3	B	19.3	B	19.3	B
			PM	15.1	B	15.1	B	15.1	B	15.1	B
	Elverta Road Loop On-Ramp	Merge	AM	22.9	C	23.5	C	22.7	C	22.7	C
			PM	18.0	B	18.1	B	17.8	B	18.0	B
	Elverta Rd Diagonal On-Ramp	Merge	AM	23.2	C	23.8	C	23.3	C	23.3	C
			PM	18.3	B	18.5	B	19.3	B	19.5	B
	North of Elkhorn Boulevard Off-Ramp	Basic	AM	17.8	B	18.4	C	17.9	B	17.9	B
			PM	13.4	B	13.6	B	14.3	B	14.5	B
	Elkhorn Boulevard Off-Ramp	Diverge	AM	23.7	C	24.4	C	23.8	C	23.8	C
			PM	18.3	B	18.4	B	19.4	B	19.6	B
	Elkhorn Boulevard Loop On-Ramp	Merge	AM	28.7	D	29.3	D	28.9	D	28.9	D
			PM	20.3	C	20.5	C	21.2	C	21.4	C
	Elkhorn Boulevard Diagonal On-Ramp	Merge	AM	30.5	D	31.1	D	31.2	D	31.2	D
			PM	23.8	C	23.9	C	24.7	C	24.9	C
	North of I-5 Northbound Off-Ramp	Basic	AM	24.6	C	25.3	C	25.5	C	25.5	C
			PM	17.7	B	17.9	B	18.6	C	18.8	C
	I-5 Northbound Off-Ramp	Diverge	AM	28.9	D	29.5	D	29.7	D	29.7	D
			PM	21.6	C	21.8	C	22.7	C	22.8	C
	South of I-5 Northbound Off-Ramp	Basic	AM	16.6	B	17.2	B	17.3	B	17.3	B
			PM	14.9	B	15.1	B	15.8	B	15.9	B

Notes: a- Density measured in passenger cars/lane/mile (pc/ln/mi)
 b- **Bold** represents unacceptable operations
 c – Gray shading represents a project induced deficiency resulting in improvement recommendations

Table 18 – Existing (2020) Freeway Level of Service (SR-99) (continued)

SR-99				Existing (2020)		Existing plus MPU		Existing plus Cargo		Existing plus Cargo plus MPU	
Direction	Segment	Type	Peak Hour	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS
Northbound	North of Elverta Road Diagonal On-Ramp	Basic	AM	10.8	A	10.4	A	9.5	A	9.5	A
			PM	24.2	C	23.1	C	23.8	C	22.8	C
	Elverta Rd Diagonal On-Ramp	Merge	AM	15.2	B	14.7	B	13.7	B	13.7	B
			PM	29.4	D	28.5	D	29.0	D	28.1	D
	Elverta Road Loop On-Ramp	Merge	AM	14.6	B	14.0	B	13.0	B	13.0	B
			PM	28.7	D	27.8	C	28.2	D	27.3	C
	Elverta Road Off-Ramp	Diverge	AM	4.3	A	4.0	A	4.4	A	4.4	A
			PM	24.2	C	23.7	C	24.3	C	23.7	C
	North of Elkhorn Boulevard Diagonal On-Ramp	Basic	AM	11.2	B	11.0	A	11.3	B	11.3	B
			PM	29.9	D	29.3	D	30.0	D	29.2	D
	Elkhorn Boulevard Diagonal On-Ramp	Merge	AM	15.7	B	15.5	B	15.8	B	15.8	B
			PM	33.8	D	33.4	D	33.8	D	33.3	D
	Elkhorn Boulevard Loop On-Ramp	Merge	AM	14.8	B	14.5	B	14.7	B	14.7	B
			PM	32.5	D	32.1	D	32.5	D	32.0	D
	Elkhorn Boulevard Off-Ramp	Diverge	AM	21.3	C	21.3	C	21.3	C	21.3	C
			PM	44.3	F	44.3	F	44.3	F	44.3	F
	North of I-5 Southbound On-Ramp	Basic	AM	16.1	B	16.1	B	16.1	B	16.1	B
			PM	47.7	F	47.7	F	47.7	F	47.7	F
	I-5 Southbound On-Ramp	Merge	AM	22.2	C	22.2	C	22.2	C	22.2	C
			PM	42.8	F	42.8	F	42.8	F	42.8	F
	South of I-5 Southbound On-Ramp	Basic	AM	13.3	B	13.3	B	13.3	B	13.3	B
			PM	30.1	D	30.1	D	30.1	D	30.1	D

Notes: a- Density measured in passenger cars/lane/mile (pc/lane/mi)
 b- **Bold** represents unacceptable operations
 c – Gray shading represents a project induced deficiency resulting in improvement recommendations

Table 19 – Cumulative Freeway Level of Service (I-5)

I-5				Cumulative		Cumulative plus MPU		Cumulative plus Cargo		Cumulative plus Cargo plus MPU	
Direction	Segment	Type	Peak Hour	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS
Southbound	North of Airport Boulevard Off-Ramp	Basic	AM	22.1	C	26.0	C	21.9	C	25.7	C
			PM	34.1	D	51.5	F	33.9	D	51.2	F
	Airport Boulevard Off-Ramp	Diverge	AM	27.6	C	31.2	D	27.4	C	31.0	D
			PM	37.2	E	45.1	F	37.1	E	45.0	F
	Airport Boulevard Loop On-Ramp	Merge	AM	33.3	D	47.2	F	33.3	D	47.2	F
			PM	51.3	F	71.9	F	51.3	F	72.1	F
	North of Metro Parkway Off-Ramp	Basic	AM	17.5	B	17.5	B	17.5	B	17.5	B
			PM	28.2	D	28.2	D	28.2	D	28.2	D
	Metro Parkway Off-Ramp	Diverge	AM	20.8	C	20.8	C	20.8	C	20.8	C
			PM	31.4	D	31.4	D	31.4	D	31.4	D
	Metro Parkway Loop On-Ramp	Merge	AM	24.1	C	23.7	C	25.0	C	24.6	C
			PM	36.4	E	36.1	E	36.5	F	36.2	E
	Metro Parkway Diagonal On-Ramp	Merge	AM	23.6	C	23.3	C	24.6	C	24.2	C
			PM	37.1	F	36.9	F	37.2	F	37.0	F
	North of SR-99 Northbound Off-Ramp	Weave	AM	24.4	B	24.0	C	25.5	B	25.1	C
			PM	50.6	E	49.7	E	50.9	E	50.0	E
	North of SR-99 Southbound On-Ramp	Basic	AM	20.0	C	19.6	C	20.9	C	20.5	C
			PM	31.2	D	30.8	D	31.3	D	30.9	D

Notes: a- Density measured in passenger cars/lane/mile (pc/lane/mi)
 b- **Bold** represents unacceptable operations
 c - Gray shading represents a project induced deficiency resulting in improvement recommendations

Table 19 – Cumulative Freeway Level of Service (I-5) (continued)

I-5				Cumulative		Cumulative plus MPU		Cumulative plus Cargo		Cumulative plus Cargo plus MPU	
Direction	Segment	Type	Peak Hour	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS
Northbound	North of Airport Blvd Diagonal On-Ramp	Basic	AM	22.4	C	13.9	B	23.5	C	14.9	B
			PM	24.0	C	18.8	C	24.2	C	19.0	C
	Airport Blvd Diagonal On-Ramp	Merge	AM	28.0	C	18.9	B	29.0	D	20.1	C
			PM	29.3	D	24.3	C	29.5	D	24.4	C
	Airport Blvd Loop On-Ramp	Merge	AM	25.5	C	13.9	B	26.5	C	15.1	B
			PM	25.6	C	17.3	B	25.7	C	17.5	B
	Airport Blvd Off-Ramp	Diverge	AM	23.1	C	23.1	C	24.3	C	24.4	C
			PM	24.1	C	24.1	C	24.2	C	24.2	C
	North of Metro Parkway Diagonal On-Ramp	Basic	AM	32.6	D	32.6	D	34.3	D	34.5	D
			PM	34.1	D	34.1	D	34.2	D	34.2	D
	Metro Parkway Diagonal On-Ramp	Merge	AM	31.4	D	31.4	D	32.3	D	32.4	D
			PM	32.1	D	32.1	D	32.2	D	32.2	D
	Metro Parkway Loop On-Ramp	Merge	AM	22.4	C	22.3	C	22.4	C	22.4	C
			PM	20.6	C	20.5	C	20.6	C	20.5	C
	Metro Parkway Off-Ramp	Diverge	AM	37.7	E	37.7	E	37.7	E	37.7	E
			PM	33.2	D	33.2	D	33.2	D	33.2	D
	North of SR-99 Southbound Diagonal On-Ramp	Basic	AM	33.2	D	33.2	D	33.2	D	33.2	D
			PM	27.0	D	27.0	D	27.0	D	27.0	D
	North of SR-99 Northbound Off-Ramp	Basic	AM	22.4	C	22.4	C	22.4	C	22.4	C
			PM	23.1	C	23.1	C	23.1	C	23.1	C

Notes: a- Density measured in passenger cars/lane/mile (pc/lane/mi)
 b- **Bold** represents unacceptable operations
 c - Gray shading represents a project induced deficiency resulting in improvement recommendations

Table 20 – Cumulative Freeway Level of Service (SR-99)

SR-99				Cumulative		Cumulative plus MPU		Cumulative plus Cargo		Cumulative plus Cargo plus MPU	
Direction	Segment	Type	Peak Hour	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS
Southbound	North of Elverta Road Off-Ramp	Basic	AM	35.9	E	35.9	E	35.9	E	35.9	E
			PM	17.1	B	17.1	B	17.1	B	17.1	B
	Elverta Road Off-Ramp	Diverge	AM	36.3	E	36.3	E	36.3	E	36.3	E
			PM	19.9	B	19.9	B	19.9	B	19.9	B
	Elverta Road Loop On-Ramp	Merge	AM	32.7	D	30.1	D	32.7	D	30.2	D
			PM	20.5	C	20.5	C	20.5	C	20.5	C
	Elverta Rd Diagonal On-Ramp	Merge	AM	33.7	D	31.0	D	33.7	D	31.1	D
			PM	23.2	C	23.1	C	23.2	C	23.1	C
	North of Elkhorn Boulevard Off-Ramp	Basic	AM	29.9	D	26.2	D	29.9	D	26.3	D
			PM	17.9	B	17.8	B	17.9	B	17.8	B
	Elkhorn Boulevard Off-Ramp	Diverge	AM	35.2	E	32.3	D	35.2	E	32.4	D
			PM	23.8	C	23.7	C	23.8	C	23.7	C
	Elkhorn Boulevard Loop On-Ramp	Merge	AM	33.7	D	29.0	D	33.5	D	29.0	D
			PM	21.8	C	18.7	B	21.8	C	18.7	B
	Elkhorn Boulevard Diagonal On-Ramp	Merge	AM	38.4	E	34.0	D	38.2	E	34.0	D
			PM	32.8	D	29.7	D	32.8	D	29.7	D
	North of I-5 Northbound Off-Ramp	Basic	AM	37.0	E	29.5	D	36.6	E	29.5	D
			PM	28.3	D	24.4	C	28.3	D	24.4	C
	I-5 Northbound Off-Ramp	Diverge	AM	37.8	E	33.0	D	37.6	E	33.0	D
			PM	32.0	D	28.7	D	32.0	D	28.7	D
	South of I-5 Northbound Off-Ramp	Basic	AM	25.0	C	20.1	C	24.7	C	20.1	C
			PM	24.3	C	21.0	C	24.3	C	21.0	C

Notes: a- Density measured in passenger cars/lane/mile (pc/ln/mi)
 b- **Bold** represents unacceptable operations
 c - Gray shading represents a project induced deficiency resulting in improvement recommendations

Table 20 – Cumulative Freeway Level of Service (SR-99) (continued)

SR-99				Cumulative		Cumulative plus MPU		Cumulative plus Cargo		Cumulative plus Cargo plus MPU	
Direction	Segment	Type	Peak Hour	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS	Density ^a	LOS
Northbound	North of Elverta Road Diagonal On-Ramp	Basic	AM	8.2	A	9.6	A	8.2	A	9.6	A
			PM	53.8	F	65.8	F	53.8	F	65.3	F
	Elverta Rd Diagonal On-Ramp	Merge	AM	12.0	B	13.7	B	12.0	B	13.6	B
			PM	44.0	F	46.7	F	44.0	F	46.6	F
	Elverta Road Loop On-Ramp	Merge	AM	9.9	A	11.5	B	9.9	A	11.5	B
			PM	41.6	F	43.9	F	41.6	F	43.8	F
	Elverta Road Off-Ramp	Diverge	AM	2.9	A	4.8	A	2.9	A	4.8	A
			PM	33.8	F	34.1	F	33.8	F	34.1	F
	North of Elkhorn Boulevard Diagonal On-Ramp	Basic	AM	10.2	A	11.6	B	10.2	A	11.6	B
			PM	48.5	F	49.3	F	48.5	F	49.3	F
	Elkhorn Boulevard Diagonal On-Ramp	Merge	AM	14.5	B	16.2	B	14.5	B	16.2	B
			PM	42.5	F	42.7	F	42.5	F	42.7	F
	Elkhorn Boulevard Loop On-Ramp	Merge	AM	12.6	B	14.1	B	12.6	B	14.1	B
			PM	40.3	E	40.4	E	40.3	E	40.4	E
	Elkhorn Boulevard Off-Ramp	Diverge	AM	25.0	C	25.0	C	25.0	C	25.0	C
			PM	53.8	F	53.8	F	53.8	F	53.8	F
	North of I-5 Southbound On-Ramp	Basic	AM	19.2	C	19.2	C	19.2	C	19.2	C
			PM	94.6	F	94.6	F	94.6	F	94.6	F
	I-5 Southbound On-Ramp	Merge	AM	25.6	C	25.6	C	25.6	C	25.6	C
			PM	51.4	F	51.4	F	51.4	F	51.4	F
	South of I-5 Southbound On-Ramp	Basic	AM	16.3	B	16.3	B	16.3	B	16.3	B
			PM	48.5	F	48.5	F	48.5	F	48.5	F

Notes: a- Density measured in passenger cars/lane/mile (pc/ln/mi)
 b- **Bold** represents unacceptable operations
 c- Gray shading represents a project induced deficiency resulting in improvement recommendations

Signal Warrant Results

Peak-hour traffic signal warrant analyses were conducted for the “Cargo” component of the Proposed Project at Intersection #2 (Elverta Road and Earhart Drive). The shift change scenario was included in this evaluation. Additionally, peak-hour traffic signal warrant analyses were conducted at Intersection #3 (Elverta Road and Power Line Road) for the typical peak-hours and the shift change scenario. Traffic signal warrant worksheets are provided in **Appendix F**.

Intersection 2 – Elverta Road and Earhart Drive

The peak hour warrant was satisfied for the Cumulative plus MPU plus Cargo Shift Change Scenario.

Intersection 3 – Elverta Road and Power Line Road

The peak hour warrant was not satisfied for the Cumulative plus MPU plus Cargo Scenario for the traditional peak-hours.

The peak hour warrant was satisfied for the Cumulative plus MPU plus Cargo Shift Change Scenario.

Based on these findings and to accommodate safe and efficient vehicle movements at these intersections, it is recommended that a traffic signal be installed at Intersection #2 (Elverta Road and Earhart Drive) and at Intersection #3 (Elverta Road and Power Line Road). The peak-hour signal warrant was not satisfied at Intersection #3 (Elverta Road and Power Line Road) for the typical peak-hours. However, the peak-hour warrant was satisfied for the Cumulative plus MPU plus Cargo Shift Change Scenario.

Queuing Analysis Results

Vehicle queuing was evaluated for the analysis scenarios as summarized in **Table 21** through **Table 29** using the 95% queue as calculated in Synchro software. Analysis worksheets for anticipated vehicle queues under No Build and Build Conditions are provided in **Appendix B** for the Existing (2020) scenarios and **Appendix C** for the Cumulative scenarios. Sacramento County Improvement Standards were used to develop assumptions for the turn pocket lengths for new or reconstructed intersections. A list of turn pocket length assumptions is provided below:

- Collector turn pocket length at arterial or thoroughfare: 175-feet
- Arterial turn pocket length at collector: 180-feet to 300-feet
- Arterial turn pocket length at arterial or thoroughfare: 375-feet
- Thoroughfare turn pocket length at arterial or thoroughfare: 400-feet

Table 21 – Elverta Road @ Earhart Drive (#2) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
Elverta Road @ Earhart Drive	NBR				
Existing	175	0	175	25	
Existing plus Cargo		25		50	
Existing plus Cargo plus MPU		25		50	
Cumulative		3		6	
Cumulative plus Cargo		15		18	
Cumulative plus Cargo plus MPU		15		18	
	EBR				
Existing	175	0	175	0	
Existing plus Cargo		0		0	
Existing plus Cargo plus MPU		0		0	
Cumulative		10		10	
Cumulative plus Cargo		15		14	
Cumulative plus Cargo plus MPU		15		14	
	WBL				
Existing	300	25	300	0	
Existing plus Cargo		25		25	
Existing plus Cargo plus MPU		25		25	
Cumulative		22		9	
Cumulative plus Cargo		144		57	
Cumulative plus Cargo plus MPU		147		60	

Table 22 – Elverta Road @ SR-99 SB Ramps (#6) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
Elverta Road @ SR-99 SB Ramps	SBL				
Existing		1000+	22	1000+	21
Existing plus Cargo			23		21
Existing plus Cargo plus MPU			23		24
Cumulative			28		48
Cumulative plus Cargo			29		48
Cumulative plus Cargo plus MPU			35		62
	SBR				
Existing		650	19	650	0
Existing plus Cargo			21		4
Existing plus Cargo plus MPU			21		4
Cumulative			47		33
Cumulative plus Cargo			47		33
Cumulative plus Cargo plus MPU			155		37

Table 23 – Elverta Road @ SR-99 NB Ramps (#7) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
Elverta Road @ SR-99 NB Ramps	NBL				
Existing	495	150	495	110	
Existing plus Cargo		151		114	
Existing plus Cargo plus MPU		153		118	
Cumulative		185		76	
Cumulative plus Cargo		185		76	
Cumulative plus Cargo plus MPU		192		81	
	NBR				
Existing	495	0	495	0	
Existing plus Cargo		0		0	
Existing plus Cargo plus MPU		07		0	
Cumulative		10		33	
Cumulative plus Cargo		10		39	
Cumulative plus Cargo plus MPU		11		46	
	WBR				
Existing	290	0	290	0	
Existing plus Cargo		0		0	
Existing plus Cargo plus MPU		0		0	
Cumulative		50		45	
Cumulative plus Cargo		50		45	
Cumulative plus Cargo plus MPU		51		48	

Table 24 – Elkhorn Boulevard @ Power Line Road (#8) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
Elkhorn Boulevard @ Power Line Road	NBL				
Cumulative	175	175	239	175	179
Cumulative plus MPU			264		198
Cumulative plus Cargo plus MPU			264		198
	NBR				
Cumulative	175	175	40	175	138
Cumulative plus MPU			42		153
Cumulative plus Cargo plus MPU			42		466
	SBL				
Cumulative	175	175	24	175	24
Cumulative plus MPU			24		24
Cumulative plus Cargo plus MPU			202		65
	EBL				
Cumulative	300	300	126	300	70
Cumulative plus MPU			149		91
Cumulative plus Cargo plus MPU			149		91
	WBL				
Cumulative	300	300	285	300	179
Cumulative plus MPU			295		179
Cumulative plus Cargo plus MPU			295		230
	WBR				
Cumulative	300	300	0	300	0
Cumulative plus MPU			0		0
Cumulative plus Cargo plus MPU			0		0
Note: Shaded and bolded cells indicate queue lengths exceed available storage capacity.					

Table 25 – Elkhorn Boulevard @ Metro Air Parkway (#9) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
Elkhorn Boulevard @ Metro Air Parkway	NBL				
Cumulative	400	14	400	14	
Cumulative plus MPU		14		14	
Cumulative plus Cargo plus MPU		14		14	
	SBL				
Cumulative	400	48	400	229	
Cumulative plus MPU		55		240	
Cumulative plus Cargo plus MPU		55		240	
	EBL				
Cumulative	375	93	375	169	
Cumulative plus MPU		103		439	
Cumulative plus Cargo plus MPU		103		428	
	WBL				
Cumulative	400	169	400	138	
Cumulative plus MPU		169		138	
Cumulative plus Cargo plus MPU		276		142	
Note: Shaded and bolded cells indicate queue lengths exceed available storage capacity.					

Table 26 – Elkhorn Boulevard @ SR-99 NB Ramps (#12) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
Elkhorn Boulevard @ SR-99 NB Ramps	NBL				
Existing		1000+	151	1000+	112
Existing plus MPU			151		114
Existing plus Cargo plus MPU			153		118
Cumulative			1122		431
Cumulative plus MPU			1136		438
Cumulative plus Cargo plus MPU			1136		438

Table 27 – Meister Way @ Metro Air Parkway (#21) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
Meister Way @ Metro Air Parkway	NBL				
Cumulative	400	400	56	400	70
Cumulative plus Cargo			56		91
Cumulative plus Cargo plus MPU			80		113
	NBR				
Cumulative	400	400	0	400	28
Cumulative plus Cargo			0		43
Cumulative plus Cargo plus MPU			0		51
	SBL				
Cumulative	400	400	90	400	239
Cumulative plus Cargo			90		257
Cumulative plus Cargo plus MPU			90		257
	EBL				
Cumulative	175	175	27	175	42
Cumulative plus Cargo			27		42
Cumulative plus Cargo plus MPU			59		101
	EBR				
Cumulative	175	175	8	175	0
Cumulative plus Cargo			385		0
Cumulative plus Cargo plus MPU			405		0
	WBL				
Cumulative	375	375	310	375	107
Cumulative plus Cargo			310		107
Cumulative plus Cargo plus MPU			310		107
Note: Shaded and bolded cells indicate queue lengths exceed available storage capacity.					

Table 28 – I-5 NB Ramps @ Metro Air Parkway (#22) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
I-5 NB Ramps @ Metro Air Parkway	SBR				
Cumulative	400	0	400	0	
Cumulative plus Cargo		69		63	
Cumulative plus Cargo plus MPU		71		63	
	WBL				
Cumulative	1000+	12	1000+	12	
Cumulative plus Cargo		12		12	
Cumulative plus Cargo plus MPU		12		12	
	WBR				
Cumulative	1000+	550	1000+	305	
Cumulative plus Cargo		550		305	
Cumulative plus Cargo plus MPU		550		311	

Table 29 – I-5 SB Ramps @ Metro Air Parkway (#23) Queuing Analysis Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
I-5 SB Ramps @ Metro Air Parkway	NBR				
Cumulative	1000+	1000+	25	1000+	36
Cumulative plus Cargo			26		36
Cumulative plus Cargo plus MPU			27		36
	SBR				
Cumulative	1000+	1000+	0	1000+	165
Cumulative plus Cargo			25		172
Cumulative plus Cargo plus MPU			25		179
	EBL				
Cumulative	1000+	1000+	194	1000+	122
Cumulative plus Cargo			200		122
Cumulative plus Cargo plus MPU			228		135
	EBR				
Cumulative	1000+	1000+	16	1000+	26
Cumulative plus Cargo			16		26
Cumulative plus Cargo plus MPU			18		26

Deficiencies and Improvements

Standards of Deficiency

Sacramento County *Traffic Impact Analysis Guidelines*⁹ were referenced to identify deficiencies at the study area intersections and roadway segments. The following criteria were used:

- *Roadways Segments*: The project is considered to have a significant effect if it would:
 - result in a roadway segment operating at an acceptable LOS (E or better) to deteriorate to an unacceptable LOS; or
 - increase the V/C ratio by more than 0.05 at a roadway segment that is operating at an unacceptable LOS without the project.
- *Signalized Intersections*: The project is considered to have a significant effect if it would:
 - result in a signalized intersection operating at an acceptable LOS to deteriorate to an unacceptable LOS; or
 - increase the average delay by more than 5 seconds at a signalized intersection that is operating at an unacceptable LOS without the project.
- *Unsignalized Intersections*: The project is considered to have a significant effect if it would:
 - result in an unsignalized intersection movement/approach operating at an acceptable LOS to deteriorate to an unacceptable LOS, and also cause the intersection to meet a traffic signal warrant; or
 - for an unsignalized intersection that meets a signal warrant, increase the delay by more than 5 seconds at a movement/approach that is operating at an unacceptable LOS without the project.

Based on the Caltrans' *Transportation Concept Report* for SR-99, LOS E or better is acceptable and project induced deficiencies resulted in improvement recommendations if LOS deteriorated to LOS F or if there was a 5-percent increase in density on a segment already experiencing LOS F without the project traffic.

For I-5, based on the January 14, 2020, *Caltrans Traffic Congestion and Safety Issues on I-5 and Airport Boulevard Memorandum*, a project induced deficiency resulting in an improvement recommendation was prepared if the density of the segment increased by 5-percent on a facility already experiencing LOS E without traffic, or if the project traffic deteriorated the facility to LOS F.

Intersection queue storage deficiencies were determined based on the anticipated project traffic exceeding the existing or planned storage.

Deficiencies and Improvements

The evaluation revealed that several intersection improvements, freeway improvements, and intersection queue storage improvements, are needed for the Existing (2020) and Cumulative Conditions to improve the roadway network due to the project triggered deficiencies. The recommendations to improve the deficiencies are described in the following sections. Consistent with the County's guidelines, the project applicant(s) will be responsible for improving upon the cumulative deficiencies by providing a fair share contribution towards the implementation of recommended improvements for the intersection or roadway segment to an acceptable LOS, or to a level that is equal to or better than pre-project operations.

Intersections (Master Plan Update)

The following intersection deficiencies were identified as part of the Proposed Master Plan Update:

Deficiency MPU-1- Elkhorn Boulevard @ SR-99 Northbound Ramps (#12)

In the AM peak-hour, this intersection is expected to exceed deficiency thresholds for unacceptable operations under Cumulative Conditions due to the proposed MPU project. Because this deficiency is projected to occur when project traffic is added to future traffic, this is a cumulative deficiency.

Improvement MPU-1 – Install dual northbound left turn lane to accommodate off-ramp volumes and improve operations.

Deficiency MPU-2 – Airport Boulevard @ I-5 Northbound Ramps (#13)

This intersection is expected to exceed deficiency thresholds for unacceptable operations under Existing (2020) Conditions in the AM and PM peak-hours, and is expected to experience an increase in delay due to the proposed MPU project as well as in the Existing MPU plus Cargo scenario. In the Cumulative scenario, deficiency was also determined with the addition of the proposed MPU project for the AM and PM peak-hours, as well as for the MPU plus Cargo scenario.

Improvement MPU-2 – When warranted, install a traffic signal or roundabout as recommended as the result of an Intersection Control Evaluation (ICE) to provide improved access from the side street.

Deficiency MPU-3- Airport Boulevard @ I-5 Southbound Ramps (#14)

This intersection is expected to exceed deficiency thresholds for unacceptable operations under Existing (2020) Conditions in the AM peak-hour and is expected to experience an increase in delay due to the proposed MPU project, as well as in the PM peak-hour of the Existing MPU plus Cargo scenario. In the Cumulative scenario, deficiency was also determined with the addition of the proposed MPU project for the PM peak-hour as well as for the MPU plus Cargo scenario.

Improvement MPU-3 – When warranted, install a traffic signal or roundabout as recommended as the result of an Intersection Control Evaluation (ICE) to provide improved access from the minor side street.

With the recommended improvements implemented, the LOS at each of the listed intersections improved to acceptable levels as shown in **Table 30** for the Existing (2020) and **Table 31** Cumulative. Detailed calculations are included in **Appendix G**.

Table 30 – Existing (2020) Intersection Level of Service Improved

ID	Intersection	Control	Peak Hour	Existing plus MPU		Existing plus MPU (Improved)		Existing plus MPU plus Cargo		Existing plus MPU plus Cargo (Improved)	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
13	Airport Boulevard @ I-5 Northbound Ramps	Existing SSSC Proposed Signal	AM	0.3 (55.5)	A (F)	3.4	A	0.4 (57.6)	A (F)	3.6	A
			PM	0.5 (138.0)	A (F)	32.0	C	0.8 (163.9)	A (F)	49.5	D
14	Airport Boulevard @ I-5 Southbound Ramps	Existing SSSC Proposed Signal	AM	15.0 (21.4)	B (C)	N/A		18.1 (27.7)	C (D)	N/A	
			PM	40.2 (86.1)	E (F)	11.6	B	44.3 (95.1)	E (F)	11.7	B

Table 31 – Cumulative Intersection Level of Service Improved

ID	Intersection	Control	Peak Hour	Cumulative plus MPU		Cumulative plus MPU (Improved)		Cumulative plus MPU plus Cargo		Cumulative plus MPU plus Cargo (Improved)	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
12	Elkhorn Boulevard @ SR-99 Northbound Ramps	Signal	AM	94.2	F	18.6	B	94.2	F	18.6	B
			PM	12.2	B	N/A		12.7	B	N/A	
13	Airport Boulevard @ I-5 Northbound Ramps	Existing SSSC Proposed Signal	AM	9.3 (254.6)	A (F)	5.3	A	7.0 (214.1)	A (F)	5.1	A
			PM	5.5 (418.1)	A (F)	21.6	C	5.4 (418.1)	A (F)	23.1	C
14	Airport Boulevard @ I-5 Southbound Ramps	Existing SSSC Proposed Signal	AM	47.4 (78.9)	F (F)	10.5	B	50.9 (87.1)	F (F)	10.5	B
			PM	149.6 (325.4)	F (F)	21.9	C	157.1 (341.4)	F (F)	22.8	C

Intersections (Cargo Facility)

None of the study area intersections were calculated to have deficiencies in the Existing (2020) Conditions with the addition of the proposed Cargo Facility under the traditional AM and PM peak-hours, thus no improvements are recommended as part of the deficiency analysis.

Deficiency Cargo-1 – Elverta Road @ Earhart Drive Road (#2)

Signalization of the intersection is assumed as a part of the project. However, analysis of the Shift Change scenario indicates queues resulting from the addition of the project require adequate storage accommodation.

Improvement Cargo-1 – Install dual northbound right-turn lanes with 175-feet of queue storage (adequate deceleration distance should be provided in addition to this storage). Install eastbound receiving lane to accept the #2 northbound right-turn lane. Install westbound dual left-turn lanes with 300-feet of queue storage (adequate deceleration distance should be provided in addition to this storage). Install southbound receiving lanes to accept the westbound left-turn lanes.

Deficiency Cargo-2 – Elverta Road @ Power Line Road (#3)

In the Shift Change scenario, this intersection is expected to exceed deficiency thresholds for unacceptable operations under Existing Conditions due the proposed cargo facility project.

Improvement Cargo-2 – Install a traffic signal. Install additional eastbound through lane to provide for two (2) through lanes from Earhart Drive to Power Line Road. Install eastbound receiving lane to accept the addition eastbound through approach lane.

Rural Roadway Functionality (Cargo Facility)

Deficiency Cargo-3 – Elverta Road, Earhart Drive to Power Line Road

The rural roadway segment of Elverta Road, between Earhart Drive and Power Line Road, would operate deficiently under Existing Conditions with the addition of the cargo facility because the addition of the cargo facility causes the average daily traffic volume to exceed 6,000.

Improvement Cargo-3 – This deficiency can be improved by reconstructing the rural roadway segment to the County standard of 12-foot vehicle lanes with 6-foot paved shoulders.

Deficiency Cargo-4 – Elverta Road, Power Line Road to Metro Air Parkway [Existing Conditions]

The rural roadway segment of Elverta Road, between Power Line Road and Metro Air Parkway, would operate deficiently under Existing Conditions with the addition of the cargo facility because the addition of the cargo facility causes the average daily traffic volume to exceed 6,000.

Improvement Cargo-4 – This deficiency can be improved by reconstructing the rural roadway segment to the County standard of 12-foot vehicle lanes with 6-foot paved shoulders.

Deficiency Cargo-5 – Elverta Road, Metro Air Parkway to Lone Tree Road

The rural roadway segment of Elverta Road, between Metro Air Parkway to Lone Tree Road, would operate deficiently under Existing Conditions with the addition of the cargo facility because the addition of the cargo facility causes the average daily traffic volume to exceed 6,000.

Improvement Cargo-5 – This deficiency can be improved by reconstructing the rural roadway segment to the County standard of 12-foot vehicle lanes with 6-foot paved shoulders.

Deficiency Cargo-6 – Elverta Road, Lone Tree Road to SR-99

The rural roadway segment of Elverta Road, between Lone Tree Road to SR-99, would operate deficiently under Existing Conditions with the addition of the cargo facility because the addition of the cargo facility causes the average daily traffic volume to exceed 6,000.

Improvement Cargo-6 – This deficiency can be improved by reconstructing the rural roadway segment to the County standard of 12-foot vehicle lanes with 6-foot paved shoulders.

Deficiency Cargo-7 – Elverta Road, Power Line Road to Metro Air Parkway [Cumulative Conditions]

The rural roadway segment of Elverta Road, between Power Line Road and Metro Air Parkway, would operate deficiently under Cumulative Conditions with the addition of the cargo facility because the addition of the cargo facility causes the average daily traffic volume to exceed 6,000.

Improvement Cargo-7 – This deficiency can be improved by reconstructing the rural roadway segment to the County standard of 12-foot vehicle lanes with 6-foot paved shoulders.

Deficient Freeway Segments

It should be noted that there are a number of freeway segments that are not significantly influenced by the proposed project operations, but that in the existing (2020) condition or the cumulative condition are shown to operate with substandard conditions (LOS F). For freeway segments operating deficiently under no project conditions, an increase in density of more than 1.0 passenger cars per hour per lane under plus project conditions was considered a project induced deficiency. The following is a summary of the freeway segments that were documented to operate at LOS F under the existing and cumulative baseline conditions:

- Existing (2020) Conditions Deficiencies:
 - SR-99 - Elkhorn Boulevard Off-Ramp (northbound)
 - SR-99 - North of I-5 Southbound On-Ramp (northbound)
 - SR-99 - I-5 Southbound On-Ramp (northbound)
- Cumulative Conditions Deficiencies:
 - I-5 - Metro Parkway Diagonal On-Ramp (southbound)
 - SR-99 - Elverta Road Off-Ramp (northbound)
 - SR-99 - North of Elkhorn Boulevard Diagonal On-Ramp (northbound)
 - SR-99 - Elkhorn Boulevard Diagonal On-Ramp (northbound)
 - SR-99 - Elkhorn Boulevard Off-Ramp (northbound)
 - SR-99 - North of I-5 Southbound On-Ramp (northbound)
 - SR-99 - I-5 Southbound On-Ramp (northbound)
 - SR-99 - South of I-5 Southbound On-Ramp (northbound)

Freeways (Master Plan Update)

The following freeway segment deficiencies were identified as part of the Proposed Master Plan Update:

Deficiency MPU-4 – I-5 Airport Boulevard Loop On-Ramp (southbound)

This merge freeway segment is expected to exceed deficiency thresholds for unacceptable operations under Existing (2020) Conditions in the PM peak-hour and is expected to experience an increase in delay due to the proposed MPU project, as well as in the Existing MPU plus Cargo scenario. In the Cumulative scenario, deficiency was also determined with the addition of the proposed MPU project for the PM peak-hours as well as for the MPU plus Cargo scenario.

Improvement MPU-4 – This deficiency can be improved by adding a mainline lane to I-5 in the southbound direction. The freeway is anticipated to be improved to three lanes in the southbound and northbound directions in the future.

Deficiency MPU-5 – I-5 North of SR-99 Northbound Off-Ramp (southbound)

This basic freeway segment is expected to exceed deficiency thresholds for unacceptable operations under Existing (2020) Conditions in the PM peak-hour and is expected to experience an increase in delay due to the proposed MPU project, as well as in the Existing MPU plus Cargo scenario. It should be noted that in cumulative there is an auxiliary lane planned which improves operations and the deficiency was not calculated in the cumulative scenarios.

Improvement MPU-5 – This deficiency can be improved by adding a mainline lane to I-5 in the southbound direction. The freeway is anticipated to be improved to three lanes in

the southbound and northbound directions in the future.

Deficiency MPU-6 – I-5 North of Airport Boulevard Off-Ramp (southbound)

This basic freeway segment is expected to exceed deficiency thresholds for unacceptable operations under Cumulative conditions in the PM peak-hour and is expected to experience an increase in delay due to the proposed MPU project, as well as in the PM peak hours of the MPU plus Cargo scenario. Because this deficiency is projected to occur when project traffic is added to future traffic, this is a cumulative deficiency.

Improvement MPU-6 – This deficiency can be improved by adding a mainline lane to I-5 in the southbound direction. The freeway is anticipated to be improved to three lanes in the southbound and northbound directions in the future.

Deficiency MPU-7 - I-5 Airport Boulevard Off-Ramp (southbound)

This diverge freeway segment is expected to exceed deficiency thresholds for unacceptable operations under Cumulative Conditions in the PM peak-hour and is expected to experience an increase in delay due to the proposed MPU project, as well as in the PM peak hours of the MPU plus Cargo scenario. Because this deficiency is projected to occur when project traffic is added to future traffic, this is a cumulative deficiency.

Improvement MPU-7 – This deficiency can be improved by adding a mainline lane to I-5 in the southbound direction. The freeway is anticipated to be improved to three lanes in the southbound and northbound directions in the future.

Deficiency MPU-8 – SR-99 North of Elverta Road Diagonal On-Ramp (northbound)

This basic freeway segment is expected to exceed deficiency thresholds for unacceptable operations under Cumulative Conditions in the PM peak-hour and is expected to experience an increase in delay due to the proposed MPU project. Because this deficiency is projected to occur when project traffic is added to future traffic, this is a cumulative deficiency.

Improvement MPU-8 – This deficiency can be improved by adding a mainline lane to SR-99 in the northbound direction.

Deficiency MPU-9 – SR-99 Elverta Rd Diagonal On-Ramp (northbound)

This merge freeway segment is expected to exceed deficiency thresholds for unacceptable operations under Cumulative Conditions in the PM peak-hour and is expected to experience an increase in delay due to the proposed MPU project. Because this deficiency is projected to occur when project traffic is added to future traffic, this is a cumulative deficiency.

Improvement MPU-9 – This deficiency can be improved by adding a mainline lane to SR-99 in the northbound direction.

Deficiency MPU-10 – SR-99 Elverta Road Loop On-Ramp (northbound)

This merge freeway segment is expected to exceed deficiency thresholds for unacceptable operations under Cumulative Conditions in the PM peak-hour and is expected to experience an increase in delay due to the proposed MPU project. Because this deficiency is projected to occur when project traffic is added to future traffic, this is a cumulative deficiency.

Improvement MPU-10 – This deficiency can be improved by adding a mainline lane to SR-99 in the northbound direction.

Improvement calculation worksheets are included in **Appendix H**.

Freeways (Cargo Facility)

There are no freeway deficiencies identified as part of the Proposed Cargo Facility:

Queuing (Master Plan Update)

Based on the queuing analysis conducted as part of this study the following improvements are recommended as part of the proposed Master Plan Update:

Deficiency MPU-11 – Elkhorn Boulevard @ Power Line Road (#8) Northbound Left Queue Storage

The proposed northbound left-turn storage capacity is deficient in the Cumulative scenario Cumulative plus MPU scenario and in the Cumulative plus Cargo plus MPU scenario.

Improvement MPU-11 – It is recommended that this intersection movement be monitored and if excess queuing is observed, then an additional 100-feet of storage is recommended to be provided for a total of 275-feet (adequate deceleration distance should be provided in addition to this storage).

Deficiency MPU-12 – Elkhorn Boulevard @ Metro Air Parkway (#9) Eastbound Left Queue Storage

The proposed eastbound left-turn storage capacity is deficient in the Cumulative plus MPU scenario and in the Cumulative plus Cargo plus MPU scenario.

Improvement MPU-12 – It is recommended that this intersection movement be monitored and if excess queuing is observed, then an additional 75-feet of storage is recommended to be provided for a total of 450-feet (adequate deceleration distance should be provided in addition to this storage).

Queuing (Cargo Facility)

Based on the queuing analysis conducted as part of this study the following improvements are recommended as part of the proposed Master Plan Update:

Deficiency Cargo-8–Metro Air Parkway @ Meister Way (#21) Eastbound Right Queue Storage

The proposed eastbound right-turn storage capacity is deficient in the Cumulative plus Cargo scenario and in the Cumulative plus Cargo plus MPU scenario.

Improvement Cargo-8 – It is recommended that this intersection movement be monitored and if excess queuing is observed, then an additional 250-feet of storage is recommended to be provided for a total of 425-feet (adequate deceleration distance should be provided in addition to this storage).

Queuing (Cargo Facility and Master Plan Update)

Based on the queuing analysis conducted as part of this study the following improvements are recommended as part of the proposed Cargo Facility and Master Plan Update:

Deficiency MPU+Cargo-1 Elkhorn Boulevard @ Power Line Road (#8) Northbound Right Queue Storage

The proposed northbound right-turn storage capacity is deficient in the Cumulative plus Cargo plus MPU scenario.

Improvement MPU+Cargo-1 – It is recommended that this intersection movement be monitored and if excess queuing is observed, then an additional 300-feet of storage is recommended to be provided for a total of 475-feet (adequate deceleration distance should be provided in addition to this storage).

Deficiency MPU+Cargo-2 Elkhorn Boulevard @ Power Line Road (#8) Southbound Left Queue Storage

The proposed southbound left-turn storage capacity is deficient in the Cumulative plus Cargo plus MPU scenario.

Improvement MPU+Cargo-2 – It is recommended that this intersection movement be monitored and if excess queuing is observed, then an additional 50-feet of storage is recommended to be provided for a total of 225-feet (adequate deceleration distance should be provided in addition to this storage).

CONCLUSIONS

Significant findings of this study regarding the proposed Master Plan Update include:

- An overall VMT reduction of 486,941 daily VMT is expected for the proposed Master Plan Update and a finding of less than significant impact for CEQA purposes.
- The MPU project generates vehicle trips that results in Existing (2020) Condition deficiencies which are recommended for improvement.
- It is recommended that the twelve (12) deficiencies related to the MPU project noted in this report be addressed by implementing the recommended improvements.

Significant findings of this study regarding the proposed cargo facility include:

- The average VMT per employee for the SACOG Region is 12.58 vehicle miles, while the average VMT per employee for the Cargo Facility is 22.59 vehicle miles. This result indicates a finding of significant impact for the proposed Cargo Facility for CEQA purposes.
- The study area intersections are not anticipated to be negatively impacted by the project traffic during the typical weekday, AM and PM commute peak hours.
- The shift change at the cargo facility was found to exceed the capacity of the existing roadway network immediately adjacent to the site and resulted in the following recommended improvements:
 - Intersection #2 – Elverta Road @ Earhart Drive
 - Install a traffic signal (as warranted and documented later in this report)
 - Install dual northbound right-turn lanes with 175-feet of queue storage (adequate deceleration distance should be provided in addition to this storage)
 - Install eastbound receiving lane to accept the #2 northbound right-turn lane
 - Install westbound dual left-turn lanes with 300-feet of queue storage (adequate deceleration distance should be provided in addition to this storage)
 - Install southbound receiving lanes to accept the westbound left-turn lanes
 - Intersection #3 – Elverta Road @ Power Line Road
 - Install a traffic signal (as warranted and documented later in this report)
 - Install additional eastbound through lane to provide for two (2) through lanes from Earhart Drive to Power Line Road
 - Install an eastbound receiving lane to accept the additional eastbound through approach lane
- The rural roadway segments on Elverta Road from Earhart Drive to SR-99 exceed 6,000 ADT due to the addition of project traffic. Based on functionality criteria, the project shall provide standard section (6-ft paved shoulder, two 12-ft travel lanes, 6-ft paved shoulder) on Elverta Road from Earhart Drive to SR-99.
- It is recommended that the eight (8) deficiencies related to the cargo facility traffic noted in this report be addressed by implementing the recommended improvements.

Significant findings of this study regarding the combination of the Master Plan Update and the cargo facility include:

- The combination of the cargo facility and the MPU projects results in Cumulative Condition queuing deficiencies.
- It is recommended that the two (2) deficiencies related to the combination of the cargo facility and the MPU projects noted in this report be addressed by implementing the recommended improvements.

Other Significant findings:

- Generally, the MPU project traffic interacts with roadways distinct from the proposed cargo facility.
- It is recommended that, with the implementation of the 4-lane roadway on Elverta Road (east of Metro Air Parkway) included in the General Plan, the intersection of Elverta Road and Metro Air Parkway include signalization.
- It is recommended to implement safety measures such as flexible delineators at the intersection of West Elverta Road with SR-99 Southbound Ramps (#6) to address the observation of compliance issues related to the prohibited westbound left-turn movements.
- It is recommended that future studies and design of I-5 and SR-99 consider existing and anticipated capacity constraints. This report documents the following LOS deficiencies in the Existing (2020) and Cumulative Conditions:
 - Existing (2020) Conditions Deficiencies:
 - SR-99 - Elkhorn Boulevard Off-Ramp (northbound)
 - SR-99 - North of I-5 Southbound On-Ramp (northbound)
 - SR-99 - I-5 Southbound On-Ramp (northbound)
 - Cumulative Conditions Deficiencies:
 - I-5 - Metro Parkway Diagonal On-Ramp (southbound)
 - SR-99 - Elverta Road Off-Ramp (northbound)
 - SR-99 - North of Elkhorn Boulevard Diagonal On-Ramp (northbound)
 - SR-99 - Elkhorn Boulevard Diagonal On-Ramp (northbound)
 - SR-99 - Elkhorn Boulevard Off-Ramp (northbound)
 - SR-99 - North of I-5 Southbound On-Ramp (northbound)
 - SR-99 - I-5 Southbound On-Ramp (northbound)
 - SR-99 - South of I-5 Southbound On-Ramp (northbound)

Appendix A

Traffic Count Data Sheets

National Data & Surveying Services

Location: Garden Hwy & W Elverta Rd
City: Sacramento
Control: 1-Way Stop(WB)

Intersection Turning Movement Count

Project ID: 20-07093-001
Date: 3/12/2020

Total

NS/EW Streets:	Garden Hwy				Garden Hwy				W Elverta Rd				W Elverta Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
6:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	4
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:30 AM	0	1	2	0	0	1	0	0	0	0	0	0	4	0	0	0	8
6:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	4	0	0	0	8
7:00 AM	0	1	1	0	1	3	0	0	0	0	0	0	3	0	1	0	10
7:15 AM	0	0	1	0	1	2	0	0	0	0	0	0	3	0	0	0	7
7:30 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	1	0	0	2	3	0	0	0	0	0	0	2	0	0	0	8
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	8	0	0	0	9
8:15 AM	0	1	0	0	1	3	0	0	0	0	0	0	3	0	0	0	8
8:30 AM	0	0	1	0	1	2	0	0	0	0	0	0	8	0	1	0	13
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
TOTAL VOLUMES :	NL 0	NT 4	NR 7	NU 0	SL 6	ST 23	SR 0	SU 0	EL 0	ET 0	ER 0	EU 0	WL 39	WT 0	WR 2	WU 0	TOTAL 81
APPROACH %'s :	0.00%	36.36%	63.64%	0.00%	20.69%	79.31%	0.00%	0.00%					95.12%	0.00%	4.88%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	2	1	0	4	9	0	0	0	0	0	0	21	0	1	0	38
PEAK HR FACTOR :	0.000	0.500	0.250	0.000	0.500	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.656	0.000	0.250	0.000	0.731
	0.750				0.650								0.611				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
4:00 PM	0	4	5	0	4	2	0	0	0	0	0	0	2	0	4	0	21
4:15 PM	0	5	7	0	0	2	0	0	0	0	0	0	2	0	0	0	16
4:30 PM	0	4	6	0	1	1	0	0	0	0	0	0	5	0	4	0	21
4:45 PM	0	3	7	0	1	1	0	0	0	0	0	0	1	0	3	0	16
5:00 PM	0	10	5	0	0	2	0	0	0	0	0	0	2	0	1	0	20
5:15 PM	0	6	3	0	2	2	0	0	0	0	0	0	3	0	2	0	18
5:30 PM	0	6	2	0	0	2	0	0	0	0	0	0	4	0	5	0	19
5:45 PM	0	5	2	0	2	1	0	0	0	0	0	0	0	0	3	0	13
6:00 PM	0	6	12	0	2	2	0	0	0	0	0	0	4	0	5	0	31
6:15 PM	0	0	8	0	3	2	0	0	0	0	0	0	0	0	1	0	14
6:30 PM	0	5	7	0	1	1	0	0	0	0	0	0	1	0	1	0	16
6:45 PM	0	2	3	0	4	0	0	0	0	0	0	0	1	0	4	0	14
TOTAL VOLUMES :	NL 0	NT 56	NR 67	NU 0	SL 20	ST 18	SR 0	SU 0	EL 0	ET 0	ER 0	EU 0	WL 25	WT 0	WR 33	WU 0	TOTAL 219
APPROACH %'s :	0.00%	45.53%	54.47%	0.00%	52.63%	47.37%	0.00%	0.00%					43.10%	0.00%	56.90%	0.00%	
PEAK HR :	05:15 PM - 06:15 PM																TOTAL
PEAK HR VOL :	0	23	19	0	6	7	0	0	0	0	0	0	11	0	15	0	81
PEAK HR FACTOR :	0.000	0.958	0.396	0.000	0.750	0.875	0.000	0.000	0.000	0.000	0.000	0.000	0.688	0.000	0.750	0.000	0.653
	0.583				0.813								0.722				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Earhart Dr & W Elverta Rd

City: Sacramento

Control: 1-Way Stop(NB)

Project ID: 20-07093-002

Date: 3/12/2020

Total

NS/EW Streets:	Earhart Dr				Earhart Dr				W Elverta Rd				W Elverta Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0.5 NT	0.5 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
6:00 AM	0	0	1	0	0	0	0	0	0	2	0	0	12	3	0	0	18
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	13
6:30 AM	0	0	2	0	0	0	0	0	0	2	0	0	7	5	0	0	16
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	8
7:00 AM	0	0	4	0	0	0	0	0	0	2	0	0	3	2	0	0	11
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	2	3	0	0	7
7:30 AM	0	0	1	0	0	0	0	0	0	1	0	0	4	0	0	0	6
7:45 AM	0	0	2	0	0	0	0	0	0	2	0	0	3	2	0	0	9
8:00 AM	0	0	1	0	0	0	0	0	0	1	0	0	1	9	0	0	12
8:15 AM	0	0	1	0	0	0	0	0	0	1	0	0	3	3	0	0	8
8:30 AM	0	0	1	0	0	0	0	0	0	2	0	0	2	9	0	0	14
8:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	3	1	0	0	6
TOTAL VOLUMES :	NL 0	NT 0	NR 15	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 15	ER 0	EU 0	WL 57	WT 41	WR 0	WU 0	TOTAL 128
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	100.00%	0.00%	0.00%	58.16%	41.84%	0.00%	0.00%	
PEAK HR :	06:00 AM - 07:00 AM																TOTAL
PEAK HR VOL :	0	0	3	0	0	0	0	0	0	4	0	0	36	12	0	0	55
PEAK HR FACTOR :	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.692	0.600	0.000	0.000	0.764
	0.375								0.500				0.800				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0.5 NT	0.5 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
4:00 PM	0	0	18	0	0	0	0	0	0	11	0	0	0	5	0	0	34
4:15 PM	0	0	6	0	0	0	0	0	0	7	1	0	0	3	0	0	17
4:30 PM	0	0	2	0	0	0	0	0	0	6	0	0	1	9	0	0	18
4:45 PM	0	0	1	0	0	0	0	0	0	6	0	0	0	4	0	0	11
5:00 PM	0	0	2	0	0	0	0	0	0	4	0	0	1	2	0	0	9
5:15 PM	0	0	3	0	0	0	0	0	0	8	0	0	0	7	0	0	18
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	8	0	0	10
5:45 PM	0	0	1	0	0	0	0	0	0	2	0	0	0	1	0	0	4
6:00 PM	0	0	0	0	0	0	0	0	0	11	0	0	3	8	0	0	22
6:15 PM	0	0	1	0	0	0	0	0	0	13	0	0	0	2	0	0	16
6:30 PM	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0	0	10
6:45 PM	0	0	1	0	0	0	0	0	0	11	0	0	0	4	0	0	16
TOTAL VOLUMES :	NL 0	NT 0	NR 35	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 88	ER 1	EU 0	WL 5	WT 56	WR 0	WU 0	TOTAL 185
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	98.88%	1.12%	0.00%	8.20%	91.80%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	27	0	0	0	0	0	0	30	1	0	1	21	0	0	80
PEAK HR FACTOR :	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.682	0.250	0.000	0.250	0.583	0.000	0.000	0.588
	0.375								0.705				0.550				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Power Line Rd & W Elverta Rd

City: Sacramento

Control: 4-Way Stop

Project ID: 20-07093-003

Date: 3/12/2020

Total

NS/EW Streets:	Power Line Rd				Power Line Rd				W Elverta Rd				W Elverta Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
6:00 AM	0	0	0	0	0	1	0	0	0	3	0	0	6	16	0	0	26
6:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	7	15	0	0	24
6:30 AM	0	1	0	0	0	0	0	0	0	4	0	0	14	10	0	0	29
6:45 AM	1	0	1	0	1	0	0	0	0	0	0	0	11	8	0	0	22
7:00 AM	1	0	0	0	0	1	0	0	0	6	0	0	9	5	1	0	23
7:15 AM	0	0	0	0	0	0	0	0	0	1	1	0	13	5	0	0	20
7:30 AM	1	1	1	0	0	1	0	0	0	4	0	0	11	5	0	0	24
7:45 AM	1	0	1	0	0	1	0	0	0	4	1	0	8	3	0	0	19
8:00 AM	0	2	3	0	0	0	0	0	0	1	1	0	5	10	0	0	22
8:15 AM	0	0	2	0	0	0	0	0	0	2	0	0	4	6	0	0	14
8:30 AM	1	1	2	0	0	1	0	0	0	1	2	0	3	10	2	0	23
8:45 AM	0	0	1	0	3	1	0	0	0	2	0	0	4	4	0	0	15
TOTAL VOLUMES :	NL 5	NT 5	NR 11	NU 0	SL 4	ST 8	SR 0	SU 0	EL 0	ET 28	ER 5	EU 0	WL 95	WT 97	WR 3	WU 0	TOTAL 261
APPROACH %'s :	23.81%	23.81%	52.38%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%	84.85%	15.15%	0.00%	48.72%	49.74%	1.54%	0.00%	
PEAK HR :	06:00 AM - 07:00 AM																TOTAL
PEAK HR VOL :	1	1	1	0	1	3	0	0	0	7	0	0	38	49	0	0	101
PEAK HR FACTOR :	0.250	0.250	0.250	0.000	0.250	0.375	0.000	0.000	0.000	0.438	0.000	0.000	0.679	0.766	0.000	0.000	0.871
	0.375				0.500				0.438				0.906				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	0 WL	1 WT	0 WR	0 WU	
4:00 PM	1	0	10	0	0	1	0	0	0	28	4	0	1	4	0	0	49
4:15 PM	0	3	15	0	0	0	0	0	0	11	2	0	0	3	0	0	34
4:30 PM	3	4	19	0	0	1	0	0	0	8	0	0	3	8	0	0	46
4:45 PM	1	4	17	0	0	1	0	0	0	7	0	0	1	3	0	0	34
5:00 PM	1	2	16	0	0	1	0	0	3	8	0	0	3	2	0	0	36
5:15 PM	2	3	20	0	2	1	0	0	0	7	0	0	2	6	0	0	43
5:30 PM	1	4	24	0	0	1	0	0	0	5	0	0	1	6	0	0	42
5:45 PM	0	2	16	0	0	0	1	0	0	3	1	0	0	2	0	0	25
6:00 PM	2	1	11	0	0	1	0	0	0	8	2	0	1	9	0	0	35
6:15 PM	0	1	2	0	0	2	0	0	0	15	0	0	3	1	1	0	25
6:30 PM	0	0	1	0	0	1	0	0	0	7	1	0	3	2	0	0	15
6:45 PM	1	0	2	0	0	0	0	0	2	6	0	0	0	3	0	0	14
TOTAL VOLUMES :	NL 12	NT 24	NR 153	NU 0	SL 2	ST 10	SR 1	SU 0	EL 5	ET 113	ER 10	EU 0	WL 18	WT 49	WR 1	WU 0	TOTAL 398
APPROACH %'s :	6.35%	12.70%	80.95%	0.00%	15.38%	76.92%	7.69%	0.00%	3.91%	88.28%	7.81%	0.00%	26.47%	72.06%	1.47%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	5	11	61	0	0	3	0	0	0	54	6	0	5	18	0	0	163
PEAK HR FACTOR :	0.417	0.688	0.803	0.000	0.000	0.750	0.000	0.000	0.000	0.482	0.375	0.000	0.417	0.563	0.000	0.000	0.832
	0.740				0.750				0.469				0.523				

National Data & Surveying Services

Location: Metro Air Pkwy & W Elverta Rd
City: Sacramento
Control: 1-Way Stop(NB)

Intersection Turning Movement Count

Project ID: 20-07093-004
Date: 3/12/2020

Total

NS/EW Streets:	Metro Air Pkwy				Metro Air Pkwy				W Elverta Rd				W Elverta Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	1 WL	1 WT	0 WR	0 WU	
6:00 AM	0	0	1	0	0	0	0	0	0	5	0	0	3	22	0	0	31
6:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	7	22	0	0	30
6:30 AM	0	0	2	0	0	0	0	0	0	4	0	0	26	25	0	0	57
6:45 AM	1	0	1	0	0	0	0	0	0	1	0	0	15	20	0	1	39
7:00 AM	0	0	0	0	0	0	0	0	0	6	0	0	30	14	0	1	51
7:15 AM	0	0	4	0	0	0	0	0	0	1	0	0	26	17	0	0	48
7:30 AM	0	0	0	0	0	0	0	0	0	3	1	0	17	15	0	0	36
7:45 AM	0	0	1	0	0	0	0	0	0	4	0	0	12	12	0	0	29
8:00 AM	0	0	3	0	0	0	0	0	0	1	0	0	7	12	0	0	23
8:15 AM	0	0	2	0	0	0	0	0	0	6	1	0	3	9	0	0	21
8:30 AM	1	0	0	1	0	0	0	0	0	2	0	0	0	14	0	0	18
8:45 AM	0	0	0	0	0	0	0	0	0	3	2	0	3	8	0	0	16
TOTAL VOLUMES :	NL 2	NT 0	NR 15	NU 1	SL 0	ST 0	SR 0	SU 0	EL 0	ET 36	ER 4	EU 0	WL 149	WT 190	WR 0	WU 2	TOTAL 399
APPROACH %'s :	11.11%	0.00%	83.33%	5.56%					0.00%	90.00%	10.00%	0.00%	43.70%	55.72%	0.00%	0.59%	
PEAK HR :	06:30 AM - 07:30 AM																TOTAL
PEAK HR VOL :	1	0	7	0	0	0	0	0	0	12	0	0	97	76	0	2	195
PEAK HR FACTOR :	0.250	0.000	0.438	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.808	0.760	0.000	0.500	0.855
	0.500									0.500				0.858			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	1 WL	1 WT	0 WR	0 WU	
4:00 PM	0	0	11	0	0	0	0	0	0	41	0	0	0	4	0	0	56
4:15 PM	0	0	11	0	0	0	0	0	0	25	1	0	1	3	0	0	41
4:30 PM	0	0	22	0	0	0	0	0	0	27	0	0	0	11	0	0	60
4:45 PM	0	0	14	1	0	0	0	0	0	22	1	0	3	4	0	0	45
5:00 PM	0	0	20	0	0	0	0	0	0	26	0	0	1	5	0	0	52
5:15 PM	0	0	9	0	0	0	0	0	0	27	0	0	4	9	0	0	49
5:30 PM	0	0	15	0	0	0	0	0	0	30	0	0	5	5	0	0	55
5:45 PM	0	0	13	0	0	0	0	0	0	19	0	0	7	2	0	0	41
6:00 PM	1	0	27	1	0	0	0	0	0	19	0	0	5	8	0	0	61
6:15 PM	1	0	12	0	0	0	0	0	0	17	0	0	3	4	0	0	37
6:30 PM	1	0	7	0	0	0	0	0	0	8	0	0	1	4	0	0	21
6:45 PM	0	0	2	0	0	0	0	0	0	8	0	0	2	3	0	0	15
TOTAL VOLUMES :	NL 3	NT 0	NR 163	NU 2	SL 0	ST 0	SR 0	SU 0	EL 0	ET 269	ER 2	EU 0	WL 32	WT 62	WR 0	WU 0	TOTAL 533
APPROACH %'s :	1.79%	0.00%	97.02%	1.19%					0.00%	99.26%	0.74%	0.00%	34.04%	65.96%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	65	1	0	0	0	0	0	102	1	0	8	29	0	0	206
PEAK HR FACTOR :	0.000	0.000	0.739	0.250	0.000	0.000	0.000	0.000	0.000	0.944	0.250	0.000	0.500	0.659	0.000	0.000	0.858
	0.750									0.954				0.712			

National Data & Surveying Services

Location: SR-99 SB Ramps & W Elverta Rd
City: Sacramento
Control: Signalized

Intersection Turning Movement Count

Project ID: 20-07093-005
Date: 3/12/2020

Total

NS/EW Streets:	SR-99 SB Ramps				SR-99 SB Ramps				W Elverta Rd				W Elverta Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	1 SL	0 ST	2 SR	0 SU	0 EL	2 ET	1 ER	0 EU	0 WL	2 WT	1 WR	0 WU	
6:00 AM	0	0	0	0	14	0	10	0	0	2	4	0	1	14	50	0	95
6:15 AM	0	0	0	0	17	0	10	0	0	0	0	0	4	23	54	0	108
6:30 AM	0	0	0	0	16	0	26	0	0	2	3	0	6	28	85	0	166
6:45 AM	0	0	0	0	11	0	11	0	0	3	1	0	3	20	62	0	111
7:00 AM	0	0	0	0	17	0	30	0	0	4	4	0	3	19	66	0	143
7:15 AM	0	0	0	0	21	0	20	0	0	2	2	0	0	23	80	0	148
7:30 AM	0	0	0	0	21	0	14	0	0	2	2	0	0	16	56	0	111
7:45 AM	0	0	0	0	10	0	12	0	0	3	2	0	2	19	49	0	97
8:00 AM	0	0	0	0	14	0	5	0	0	3	3	0	0	8	49	0	82
8:15 AM	0	0	0	0	16	0	2	0	0	3	2	0	1	11	61	0	96
8:30 AM	0	0	0	0	10	0	3	0	0	1	1	0	0	11	47	0	73
8:45 AM	0	0	0	0	3	0	4	0	0	0	3	0	2	7	33	0	52
TOTAL VOLUMES :	NL 0	NT 0	NR 0	NU 0	SL 170	ST 0	SR 147	SU 0	EL 0	ET 25	ER 27	EU 0	WL 22	WT 199	WR 692	WU 0	TOTAL 1282
APPROACH %'s :					53.63%	0.00%	46.37%	0.00%	0.00%	48.08%	51.92%	0.00%	2.41%	21.80%	75.79%	0.00%	
PEAK HR :	06:30 AM - 07:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	65	0	87	0	0	11	10	0	12	90	293	0	568
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.774	0.000	0.725	0.000	0.000	0.688	0.625	0.000	0.500	0.804	0.862	0.000	0.855
							0.809				0.656				0.830		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	1 SL	0 ST	2 SR	0 SU	0 EL	2 ET	1 ER	0 EU	0 WL	2 WT	1 WR	0 WU	
4:00 PM	0	0	0	0	19	0	0	0	0	32	20	0	0	1	16	0	88
4:15 PM	0	0	0	0	17	0	0	0	0	27	10	0	2	5	21	0	82
4:30 PM	0	0	0	0	17	0	4	0	0	43	4	0	0	10	21	0	99
4:45 PM	0	0	0	0	12	0	3	0	0	30	9	0	0	2	12	0	68
5:00 PM	0	0	0	0	15	0	2	0	0	42	3	0	1	5	25	0	93
5:15 PM	0	0	0	0	15	0	2	0	0	31	6	0	1	12	20	0	87
5:30 PM	0	0	0	0	11	0	2	0	0	41	2	0	0	8	17	0	81
5:45 PM	0	0	0	0	7	0	3	0	0	30	3	0	0	6	21	0	70
6:00 PM	0	0	0	0	10	0	7	0	0	33	13	0	0	6	17	0	86
6:15 PM	0	0	0	0	6	0	3	0	0	16	11	0	1	5	23	0	65
6:30 PM	0	0	0	0	9	0	0	0	0	12	5	0	1	3	10	0	40
6:45 PM	0	0	0	0	8	0	1	0	0	7	3	0	0	5	21	0	45
TOTAL VOLUMES :	NL 0	NT 0	NR 0	NU 0	SL 146	ST 0	SR 27	SU 0	EL 0	ET 344	ER 89	EU 0	WL 6	WT 68	WR 224	WU 0	TOTAL 904
APPROACH %'s :					84.39%	0.00%	15.61%	0.00%	0.00%	79.45%	20.55%	0.00%	2.01%	22.82%	75.17%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	59	0	11	0	0	146	22	0	2	29	78	0	347
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.868	0.000	0.688	0.000	0.000	0.849	0.611	0.000	0.500	0.604	0.780	0.000	0.876
							0.833				0.894				0.826		

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR-99 NB Ramps & W Elverta Rd

City: Sacramento

Control: Signalized

Project ID: 20-07093-006

Date: 3/12/2020

Total

NS/EW Streets:	SR-99 NB Ramps				SR-99 NB Ramps				W Elverta Rd				W Elverta Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1.5 NL	0.5 NT	2 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	2 ET	1 ER	0 EU	0 WL	2 WT	1 WR	0 WU	
6:00 AM	14	0	11	0	0	0	0	0	0	13	3	0	0	52	9	0	102
6:15 AM	18	0	14	0	0	0	0	0	0	17	0	0	0	62	18	0	129
6:30 AM	22	0	18	0	0	0	0	0	0	16	3	0	0	105	14	0	178
6:45 AM	11	0	17	0	0	0	0	0	0	11	3	0	0	74	8	0	124
7:00 AM	6	0	12	0	0	0	0	0	0	17	2	0	0	79	8	0	124
7:15 AM	5	0	14	0	0	0	0	0	0	19	1	0	0	101	17	0	157
7:30 AM	4	0	24	0	0	0	0	0	0	24	0	0	0	66	6	0	124
7:45 AM	2	0	31	0	0	0	0	0	0	14	2	0	0	70	18	0	137
8:00 AM	6	0	22	0	0	0	0	0	0	12	3	0	0	55	13	0	111
8:15 AM	6	0	8	0	0	0	0	0	0	20	1	0	0	63	8	0	106
8:30 AM	10	0	11	0	0	0	0	0	0	9	2	0	0	43	9	0	84
8:45 AM	3	0	17	0	0	0	0	0	0	3	0	0	0	42	8	0	73
TOTAL VOLUMES :	NL 107	NT 0	NR 199	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 175	ER 20	EU 0	WL 0	WT 812	WR 136	WU 0	TOTAL 1449
APPROACH %'s :	34.97%	0.00%	65.03%	0.00%					0.00%	89.74%	10.26%	0.00%	0.00%	85.65%	14.35%	0.00%	
PEAK HR :	06:30 AM - 07:30 AM																TOTAL
PEAK HR VOL :	44	0	61	0	0	0	0	0	0	63	9	0	0	359	47	0	583
PEAK HR FACTOR :	0.500	0.000	0.847	0.000	0.000	0.000	0.000	0.000	0.000	0.829	0.750	0.000	0.000	0.855	0.691	0.000	0.819
	0.656								0.900				0.853				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1.5	0.5	2	0	0	0	0	0	2	1	0	0	2	1	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	0	116	0	0	0	0	0	0	37	11	0	0	17	13	0	194
4:15 PM	6	0	151	0	0	0	0	0	0	37	10	0	0	21	13	0	238
4:30 PM	4	0	131	0	0	0	0	0	0	46	12	0	0	26	18	0	237
4:45 PM	4	0	145	0	0	0	0	0	0	30	15	0	0	14	7	0	215
5:00 PM	2	0	146	0	0	0	0	0	0	39	16	0	0	27	13	0	243
5:15 PM	4	1	125	0	0	0	0	0	0	31	19	0	0	28	15	0	223
5:30 PM	4	1	109	0	0	0	0	0	0	34	20	0	0	20	11	0	199
5:45 PM	3	0	71	0	0	0	0	0	0	21	15	0	0	24	9	0	143
6:00 PM	4	0	78	0	0	0	0	0	0	19	18	0	0	19	13	0	151
6:15 PM	1	0	46	0	0	0	0	0	0	15	11	0	0	29	8	0	110
6:30 PM	1	2	41	0	0	0	0	0	0	14	6	0	0	16	13	0	93
6:45 PM	3	0	29	0	0	0	0	0	0	12	4	0	0	22	5	0	75
TOTAL VOLUMES : APPROACH %'s :	NL 36 2.93%	NT 4 0.33%	NR 1188 96.74%	NU 0 0.00%	SL 0	ST 0	SR 0	SU 0	EL 0 0.00%	ET 335 68.09%	ER 157 31.91%	EU 0 0.00%	WL 0 0.00%	WT 263 65.59%	WR 138 34.41%	WU 0 0.00%	TOTAL 2121
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL : PEAK HR FACTOR :	16 0.667	0 0.000	573 0.949	0 0.000	0 0.000	0 0.000	0 0.000	0 0.000	0 0.000	152 0.826	53 0.828	0 0.000	0 0.000	88 0.815	51 0.708	0 0.000	933 0.960
	0.938								0.884				0.790				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Power Line Rd & W Elkhorn Blvd

City: Sacramento

Control: 3-Way Stop(NB/SB/WB)

Project ID: 20-07093-007

Date: 3/12/2020

Total

NS/EW Streets:	Power Line Rd				Power Line Rd				W Elkhorn Blvd				W Elkhorn Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	1 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	
6:00 AM	0	0	2	0	0	8	0	0	0	0	0	0	4	0	0	0	14
6:15 AM	0	0	6	0	0	6	0	0	0	0	0	0	5	0	1	0	18
6:30 AM	0	3	9	0	0	8	0	0	0	0	0	0	13	0	1	1	35
6:45 AM	0	6	23	0	0	5	0	0	0	0	0	0	11	0	1	0	46
7:00 AM	0	1	23	0	1	6	0	0	0	0	0	0	19	0	1	0	51
7:15 AM	0	3	24	0	0	15	0	0	0	0	0	0	20	0	0	0	62
7:30 AM	0	5	14	0	1	9	0	0	0	0	0	0	38	0	0	0	67
7:45 AM	0	6	3	0	0	10	0	0	0	0	0	0	44	0	0	0	63
8:00 AM	0	5	8	0	0	9	0	0	0	0	0	0	24	0	1	0	47
8:15 AM	0	1	7	0	0	29	0	0	0	0	0	0	14	0	1	0	52
8:30 AM	0	2	4	0	1	4	0	0	0	0	0	0	15	0	1	0	27
8:45 AM	0	0	5	0	0	3	0	0	0	0	0	0	7	0	0	0	15
TOTAL VOLUMES :	NL 0	NT 32	NR 128	NU 0	SL 3	ST 112	SR 0	SU 0	EL 0	ET 0	ER 0	EU 0	WL 214	WT 0	WR 7	WU 1	TOTAL 497
APPROACH %'s :	0.00%	20.00%	80.00%	0.00%	2.61%	97.39%	0.00%	0.00%					96.40%	0.00%	3.15%	0.45%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	15	64	0	2	40	0	0	0	0	0	0	121	0	1	0	243
PEAK HR FACTOR :	0.000	0.625	0.667	0.000	0.500	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.688	0.000	0.250	0.000	0.907
	0.731				0.700								0.693				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	1 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	
4:00 PM	0	14	60	0	0	3	0	0	0	0	0	0	12	0	0	0	89
4:15 PM	0	22	64	0	0	4	0	0	0	0	0	0	3	0	0	0	93
4:30 PM	0	26	68	0	2	5	0	0	0	0	0	0	7	0	0	0	108
4:45 PM	0	22	60	0	0	2	0	0	0	0	0	0	6	0	3	0	93
5:00 PM	0	25	64	1	1	5	0	0	0	0	0	0	10	0	2	0	108
5:15 PM	0	30	70	0	1	3	0	0	0	0	0	0	6	0	1	1	112
5:30 PM	0	34	72	0	2	1	0	0	0	0	0	0	12	0	0	0	121
5:45 PM	0	18	77	0	0	1	0	0	0	0	0	0	8	0	0	0	104
6:00 PM	0	11	39	0	0	3	0	0	0	0	0	0	46	0	0	0	99
6:15 PM	0	3	21	0	1	7	0	0	0	0	0	0	25	0	0	0	57
6:30 PM	0	3	10	0	0	5	0	0	0	0	0	0	10	0	0	0	28
6:45 PM	0	6	4	0	0	1	0	0	0	0	0	0	7	0	0	0	18
TOTAL VOLUMES :	NL 0	NT 214	NR 609	NU 1	SL 7	ST 40	SR 0	SU 0	EL 0	ET 0	ER 0	EU 0	WL 152	WT 0	WR 6	WU 1	TOTAL 1030
APPROACH %'s :	0.00%	25.97%	73.91%	0.12%	14.89%	85.11%	0.00%	0.00%					95.60%	0.00%	3.77%	0.63%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	107	283	1	4	10	0	0	0	0	0	0	36	0	3	1	445
PEAK HR FACTOR :	0.000	0.787	0.919	0.250	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.375	0.250	0.919
	0.922				0.583								0.833				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Metro Air Pkwy & W Elkhorn Blvd

City: Sacramento

Control: 4-Way Stop

Project ID: 20-07093-008

Date: 3/12/2020

Total

NS/EW Streets:	Metro Air Pkwy				Metro Air Pkwy				W Elkhorn Blvd				W Elkhorn Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	1 ET	1 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
6:00 AM	0	0	0	0	3	0	2	1	0	9	0	0	2	24	4	0	45
6:15 AM	1	0	0	0	3	0	1	0	0	7	1	0	2	51	15	0	81
6:30 AM	2	0	0	0	2	0	4	0	0	17	0	0	4	95	26	0	150
6:45 AM	1	0	2	0	3	0	2	0	0	30	0	0	1	128	13	0	180
7:00 AM	1	0	0	0	4	0	7	0	0	25	0	0	1	117	14	0	169
7:15 AM	0	0	0	0	3	0	10	0	1	25	0	0	0	164	25	0	228
7:30 AM	1	1	0	0	11	0	11	0	0	20	0	0	1	70	11	0	126
7:45 AM	1	0	0	0	13	0	12	0	0	13	0	0	2	45	9	0	95
8:00 AM	1	0	0	0	6	0	5	1	1	12	0	0	0	29	11	0	66
8:15 AM	1	0	0	0	5	0	2	0	0	13	0	0	1	21	14	0	57
8:30 AM	0	0	0	0	2	0	1	0	0	3	2	0	2	23	16	0	49
8:45 AM	0	0	0	0	10	0	1	0	0	7	0	1	0	17	13	0	49
TOTAL VOLUMES :	NL 9	NT 1	NR 2	NU 0	SL 65	ST 0	SR 58	SU 2	EL 2	ET 181	ER 3	EU 1	WL 16	WT 784	WR 171	WU 0	TOTAL 1295
APPROACH %'s :	75.00%	8.33%	16.67%	0.00%	52.00%	0.00%	46.40%	1.60%	1.07%	96.79%	1.60%	0.53%	1.65%	80.74%	17.61%	0.00%	
PEAK HR :	06:30 AM - 07:30 AM																TOTAL
PEAK HR VOL :	4	0	2	0	12	0	23	0	1	97	0	0	6	504	78	0	727
PEAK HR FACTOR :	0.500	0.000	0.250	0.000	0.750	0.000	0.575	0.000	0.250	0.808	0.000	0.000	0.375	0.768	0.750	0.000	0.797
	0.500				0.673				0.817				0.778				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	1 ET	1 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
4:00 PM	1	0	3	0	5	0	0	0	12	61	0	0	0	13	4	1	100
4:15 PM	1	0	1	0	7	0	0	0	6	76	2	0	0	11	2	0	106
4:30 PM	0	1	1	0	5	0	0	0	16	56	3	0	0	17	5	1	105
4:45 PM	0	0	1	0	3	0	1	0	14	64	0	0	0	23	11	0	117
5:00 PM	1	0	0	0	13	0	0	0	13	70	1	0	0	37	4	0	139
5:15 PM	0	0	2	0	10	0	0	0	8	68	0	0	0	61	4	0	153
5:30 PM	0	0	0	0	9	0	0	0	9	128	0	0	1	89	5	1	242
5:45 PM	1	0	0	0	10	0	2	0	5	75	0	0	1	104	4	0	202
6:00 PM	2	1	0	0	40	0	1	0	5	153	2	0	0	97	7	0	308
6:15 PM	1	0	0	0	14	0	0	0	2	126	0	0	1	100	6	0	250
6:30 PM	0	0	0	0	9	0	2	0	3	64	1	0	1	31	6	0	117
6:45 PM	0	1	0	0	8	0	1	0	0	19	0	0	2	8	7	0	46
TOTAL VOLUMES :	NL 7	NT 3	NR 8	NU 0	SL 133	ST 0	SR 7	SU 0	EL 93	ET 960	ER 9	EU 0	WL 6	WT 591	WR 65	WU 3	TOTAL 1885
APPROACH %'s :	38.89%	16.67%	44.44%	0.00%	95.00%	0.00%	5.00%	0.00%	8.76%	90.40%	0.85%	0.00%	0.90%	88.87%	9.77%	0.45%	
PEAK HR :	05:30 PM - 06:30 PM																TOTAL
PEAK HR VOL :	4	1	0	0	73	0	3	0	21	482	2	0	3	390	22	1	1002
PEAK HR FACTOR :	0.500	0.250	0.000	0.000	0.456	0.000	0.375	0.000	0.583	0.788	0.250	0.000	0.750	0.938	0.786	0.250	0.813
	0.417				0.463				0.789				0.954				

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR-99 SB Ramps & W Elkhorn Blvd

City: Sacramento

Control: 1-Way Stop(SB)

Project ID: 20-07093-009

Date: 3/12/2020

Total

NS/EW Streets:	SR-99 SB Ramps				SR-99 SB Ramps				W Elkhorn Blvd				W Elkhorn Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	1 SL	0 ST	1 SR	0 SU	0 EL	1 ET	1 ER	0 EU	0 WL	1 WT	1 WR	0 WU	
6:00 AM	0	0	0	0	23	0	1	0	0	2	9	0	0	31	150	0	216
6:15 AM	0	0	0	0	23	0	7	0	0	3	10	0	0	65	164	0	272
6:30 AM	0	0	0	0	18	0	8	0	0	5	12	0	0	113	196	0	352
6:45 AM	0	0	0	0	26	0	8	0	0	12	22	0	0	150	188	0	406
7:00 AM	0	0	0	0	27	0	7	0	0	7	29	0	0	132	166	0	368
7:15 AM	0	0	0	0	24	0	7	0	0	11	19	0	0	159	168	0	388
7:30 AM	0	0	0	0	28	0	3	0	0	13	16	0	0	75	240	0	375
7:45 AM	0	0	0	0	23	0	5	0	0	9	26	0	0	50	233	0	346
8:00 AM	0	0	0	0	23	0	3	0	0	7	8	0	0	43	219	0	303
8:15 AM	0	0	0	0	19	0	3	0	0	5	13	0	0	39	223	0	302
8:30 AM	0	0	0	0	22	0	4	0	0	4	4	0	0	32	233	0	299
8:45 AM	0	0	0	0	12	0	1	0	0	2	12	0	0	41	163	0	231
TOTAL VOLUMES :	NL 0	NT 0	NR 0	NU 0	SL 268	ST 0	SR 57	SU 0	EL 0	ET 80	ER 180	EU 0	WL 0	WT 930	WR 2343	WU 0	TOTAL 3858
APPROACH %'s :					82.46%	0.00%	17.54%	0.00%	0.00%	30.77%	69.23%	0.00%	0.00%	28.41%	71.59%	0.00%	
PEAK HR :	06:45 AM - 07:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	105	0	25	0	0	43	86	0	0	516	762	0	1537
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.938	0.000	0.781	0.000	0.000	0.827	0.741	0.000	0.000	0.811	0.794	0.000	0.946
					0.956					0.896				0.945			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	1 SL	0 ST	1 SR	0 SU	0 EL	1 ET	1 ER	0 EU	0 WL	1 WT	1 WR	0 WU	
4:00 PM	0	0	0	0	28	0	2	0	0	50	18	0	0	21	103	0	222
4:15 PM	0	0	0	0	21	0	0	0	0	60	19	0	0	10	99	0	209
4:30 PM	0	0	0	0	27	0	2	0	0	52	18	0	0	29	99	0	227
4:45 PM	0	0	0	0	37	0	3	0	0	56	18	0	0	35	81	0	230
5:00 PM	0	0	0	0	34	0	7	0	0	50	29	0	0	31	81	0	232
5:15 PM	0	0	0	0	18	0	5	0	0	71	14	0	0	67	76	0	251
5:30 PM	0	0	0	0	35	0	9	0	0	75	58	0	0	84	94	0	355
5:45 PM	0	0	0	0	30	0	6	0	0	49	44	0	0	110	80	0	319
6:00 PM	0	0	0	0	20	0	4	0	0	82	108	0	0	112	79	0	405
6:15 PM	0	0	0	0	16	0	2	0	0	41	97	0	0	85	94	0	335
6:30 PM	0	0	0	0	32	0	0	0	0	21	57	0	0	30	91	0	231
6:45 PM	0	0	0	0	21	0	2	0	0	17	15	0	0	18	74	0	147
TOTAL VOLUMES :	NL 0	NT 0	NR 0	NU 0	SL 319	ST 0	SR 42	SU 0	EL 0	ET 624	ER 495	EU 0	WL 0	WT 632	WR 1051	WU 0	TOTAL 3163
APPROACH %'s :					88.37%	0.00%	11.63%	0.00%	0.00%	55.76%	44.24%	0.00%	0.00%	37.55%	62.45%	0.00%	
PEAK HR :	05:30 PM - 06:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	101	0	21	0	0	247	307	0	0	391	347	0	1414
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.721	0.000	0.583	0.000	0.000	0.753	0.711	0.000	0.000	0.873	0.923	0.000	0.873
					0.693					0.729				0.966			

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR-99 NB Ramps & W Elkhorn Blvd

City: Sacramento

Control: Signalized

Project ID: 20-07093-010

Date: 3/12/2020

Total

NS/EW Streets:	SR-99 NB Ramps				SR-99 NB Ramps				W Elkhorn Blvd				W Elkhorn Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	0 NT	1 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	1 ET	1 ER	0 EU	0 WL	1 WT	1 WR	0 WU	
6:00 AM	28	0	23	0	0	0	0	0	0	22	1	0	0	151	20	0	245
6:15 AM	47	0	37	0	0	0	0	0	0	26	0	0	0	177	27	0	314
6:30 AM	100	0	41	0	0	0	0	0	0	27	4	0	0	212	28	0	412
6:45 AM	107	0	58	0	0	0	0	0	0	38	3	0	0	224	29	0	459
7:00 AM	92	0	61	0	0	0	0	0	0	30	1	0	0	214	30	0	428
7:15 AM	130	0	92	0	0	0	0	0	0	33	1	0	0	194	19	0	469
7:30 AM	48	0	113	0	0	0	0	0	0	42	1	0	0	270	33	0	507
7:45 AM	28	0	152	0	0	0	0	0	0	25	1	0	0	265	28	0	499
8:00 AM	16	0	157	0	0	0	0	0	0	35	0	0	0	236	24	0	468
8:15 AM	24	0	120	0	0	0	0	0	0	20	0	0	0	247	29	0	440
8:30 AM	22	0	80	0	0	0	0	0	0	21	0	0	0	249	18	0	390
8:45 AM	24	0	107	0	0	0	0	0	0	21	1	0	0	173	21	0	347
TOTAL VOLUMES :	NL 666	NT 0	NR 1041	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 340	ER 13	EU 0	WL 0	WT 2612	WR 306	WU 0	TOTAL 4978
APPROACH %'s :	39.02%	0.00%	60.98%	0.00%					0.00%	96.32%	3.68%	0.00%	0.00%	89.51%	10.49%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	222	0	514	0	0	0	0	0	0	135	3	0	0	965	104	0	1943
PEAK HR FACTOR :	0.427	0.000	0.818	0.000	0.000	0.000	0.000	0.000	0.000	0.804	0.750	0.000	0.000	0.894	0.788	0.000	0.958
	0.829									0.802				0.882			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	0 NT	1 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	1 ET	1 ER	0 EU	0 WL	1 WT	1 WR	0 WU	
4:00 PM	14	0	260	0	0	0	0	0	0	76	7	0	0	112	38	0	507
4:15 PM	6	0	201	0	0	0	0	0	0	70	11	0	0	91	45	0	424
4:30 PM	20	0	231	0	0	0	0	0	0	69	10	0	0	113	46	0	489
4:45 PM	31	0	233	0	0	0	0	0	0	82	9	0	0	88	44	0	487
5:00 PM	26	0	247	0	0	0	0	0	0	77	8	0	0	84	31	0	473
5:15 PM	41	0	195	0	0	0	0	0	0	72	14	0	0	99	35	0	456
5:30 PM	53	0	212	0	0	0	0	0	0	94	16	0	0	120	41	0	536
5:45 PM	79	0	228	0	0	0	0	0	0	74	9	0	0	116	19	0	525
6:00 PM	78	0	229	0	0	0	0	0	0	86	9	0	0	114	39	0	555
6:15 PM	68	0	182	0	0	0	0	0	0	57	6	0	0	113	27	0	453
6:30 PM	27	0	166	0	0	0	0	0	0	42	3	0	0	97	23	0	358
6:45 PM	14	0	154	0	0	0	0	0	0	41	1	0	0	78	24	0	312
TOTAL VOLUMES :	NL 457	NT 0	NR 2538	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 840	ER 103	EU 0	WL 0	WT 1225	WR 412	WU 0	TOTAL 5575
APPROACH %'s :	15.26%	0.00%	84.74%	0.00%					0.00%	89.08%	10.92%	0.00%	0.00%	74.83%	25.17%	0.00%	
PEAK HR :	05:15 PM - 06:15 PM																TOTAL
PEAK HR VOL :	251	0	864	0	0	0	0	0	0	326	48	0	0	449	134	0	2072
PEAK HR FACTOR :	0.794	0.000	0.943	0.000	0.000	0.000	0.000	0.000	0.000	0.867	0.750	0.000	0.000	0.935	0.817	0.000	0.933
	0.908									0.850				0.905			

National Data & Surveying Services

Location: Airport Blvd & I-5 NB Ramps

City: Sacramento

Control: 1-Way Stop (WB)

Intersection Turning Movement Count

Project ID: 20-07093-011

Date: 3/12/2020

Total

NS/EW Streets:	Airport Blvd				Airport Blvd				I-5 NB Ramps				I-5 NB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	1 NR	0 NU	0 SL	2 ST	1 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	
6:00 AM	0	30	6	0	0	55	14	1	0	0	0	0	1	0	170	0	277
6:15 AM	0	32	4	0	0	64	13	0	0	0	0	0	3	0	161	0	277
6:30 AM	0	48	8	1	0	99	11	0	0	0	0	0	3	0	216	0	386
6:45 AM	0	47	2	0	0	118	19	1	0	0	0	0	1	0	182	0	370
7:00 AM	0	38	12	0	0	116	13	0	0	0	0	0	1	0	173	0	353
7:15 AM	0	47	23	1	0	104	23	0	0	0	0	0	1	0	197	0	396
7:30 AM	0	45	22	0	0	94	20	1	0	0	0	0	2	0	207	0	391
7:45 AM	0	48	34	0	0	117	21	1	0	0	0	0	0	0	210	0	431
8:00 AM	0	53	19	0	0	139	36	3	0	0	0	0	5	0	197	0	452
8:15 AM	0	47	11	0	0	180	41	1	0	0	0	0	2	0	228	0	510
8:30 AM	0	57	12	0	0	169	23	3	0	0	0	0	2	0	233	0	499
8:45 AM	0	52	9	0	0	198	46	2	0	0	0	0	1	0	229	0	537
TOTAL VOLUMES :	NL 0	NT 544	NR 162	NU 2	SL 0	ST 1453	SR 280	SU 13	EL 0	ET 0	ER 0	EU 0	WL 22	WT 0	WR 2403	WU 0	TOTAL 4879
APPROACH %'s :	0.00%	76.84%	22.88%	0.28%	0.00%	83.22%	16.04%	0.74%					0.91%	0.00%	99.09%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	209	51	0	0	686	146	9	0	0	0	0	10	0	887	0	1998
PEAK HR FACTOR :	0.000	0.917	0.671	0.000	0.000	0.866	0.793	0.750	0.000	0.000	0.000	0.000	0.500	0.000	0.952	0.000	0.930
	0.903				0.855								0.954				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	1 NR	0 NU	0 SL	2 ST	1 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	
4:00 PM	0	48	9	2	0	289	36	2	0	0	0	0	3	0	168	0	557
4:15 PM	0	53	7	1	0	307	50	2	0	0	0	0	2	0	196	0	618
4:30 PM	0	63	10	1	0	288	56	0	0	0	0	0	3	0	190	0	611
4:45 PM	0	43	11	0	0	240	57	1	0	0	0	0	0	0	191	0	543
5:00 PM	0	49	11	0	0	279	54	1	0	0	0	0	3	0	186	0	583
5:15 PM	0	55	14	2	0	326	51	0	0	0	0	0	1	0	151	0	600
5:30 PM	0	48	7	1	0	220	44	2	0	0	0	0	1	0	145	0	468
5:45 PM	0	40	8	0	0	166	39	3	0	0	0	0	4	0	182	0	442
6:00 PM	0	47	10	0	0	130	21	1	0	0	0	0	6	0	170	0	385
6:15 PM	0	56	6	2	0	160	31	0	0	0	0	0	2	0	194	0	451
6:30 PM	0	42	7	0	0	212	27	2	0	0	0	0	2	0	179	0	471
6:45 PM	0	34	5	0	0	224	36	0	0	0	0	0	5	0	171	0	475
TOTAL VOLUMES :	NL 0	NT 578	NR 105	NU 9	SL 0	ST 2841	SR 502	SU 14	EL 0	ET 0	ER 0	EU 0	WL 32	WT 0	WR 2123	WU 0	TOTAL 6204
APPROACH %'s :	0.00%	83.53%	15.17%	1.30%	0.00%	84.63%	14.95%	0.42%					1.48%	0.00%	98.52%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	208	39	2	0	1114	217	4	0	0	0	0	8	0	763	0	2355
PEAK HR FACTOR :	0.000	0.825	0.886	0.500	0.000	0.907	0.952	0.500	0.000	0.000	0.000	0.000	0.667	0.000	0.973	0.000	0.953
	0.841				0.930								0.973				

National Data & Surveying Services

Location: Airport Blvd & I-5 SB Ramps

City: Sacramento

Control: 1-Way Stop(EB)

Intersection Turning Movement Count

Project ID: 20-07093-012

Date: 3/12/2020

Total

NS/EW Streets:	Airport Blvd				Airport Blvd				I-5 SB Ramps				I-5 SB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	2 NT	0 NR	0 NU	0 SL	2 ST	1 SR	0 SU	0 EL	1 ET	1 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
6:00 AM	1	16	0	0	0	3	53	0	23	0	4	0	0	0	0	0	100
6:15 AM	1	13	0	0	0	0	67	0	24	0	7	0	0	0	0	0	112
6:30 AM	0	21	0	0	0	6	92	2	33	0	12	0	0	0	0	0	166
6:45 AM	3	11	0	0	0	10	112	0	38	0	19	0	0	0	0	0	193
7:00 AM	0	20	0	0	0	5	114	0	29	0	20	0	0	0	0	0	188
7:15 AM	1	41	0	0	0	7	93	0	33	0	24	0	0	0	0	0	199
7:30 AM	2	44	0	1	0	7	95	0	30	0	18	0	0	0	0	0	197
7:45 AM	0	49	0	0	0	7	103	0	26	0	13	0	0	0	1	0	199
8:00 AM	0	36	0	0	0	12	126	0	36	0	16	0	0	0	1	0	227
8:15 AM	0	25	0	0	0	12	181	0	30	0	10	0	0	0	1	0	259
8:30 AM	0	25	0	0	0	14	155	0	40	0	11	0	0	0	0	0	245
8:45 AM	0	18	0	0	0	11	187	0	42	0	4	0	0	0	3	0	265
TOTAL VOLUMES :	NL 8	NT 319	NR 0	NU 1	SL 0	ST 94	SR 1378	SU 2	EL 384	ET 0	ER 158	EU 0	WL 0	WT 0	WR 6	WU 0	TOTAL 2350
APPROACH %'s :	2.44%	97.26%	0.00%	0.30%	0.00%	6.38%	93.49%	0.14%	70.85%	0.00%	29.15%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	104	0	0	0	49	649	0	148	0	41	0	0	0	5	0	996
PEAK HR FACTOR :	0.000	0.722	0.000	0.000	0.000	0.875	0.868	0.000	0.881	0.000	0.641	0.000	0.000	0.000	0.417	0.000	0.940
	0.722				0.881				0.909				0.417				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	2 NT	0 NR	0 NU	0 SL	2 ST	1 SR	0 SU	0 EL	1 ET	1 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	1	20	0	0	0	51	230	1	38	0	76	0	0	0	1	0	418
4:15 PM	0	24	0	0	0	64	252	1	39	0	95	0	0	0	0	0	475
4:30 PM	0	29	0	0	0	67	219	3	40	0	81	0	0	0	0	0	439
4:45 PM	2	22	0	0	0	49	194	1	32	0	96	0	0	0	1	0	397
5:00 PM	1	23	0	0	0	50	219	0	39	0	88	0	0	0	1	0	421
5:15 PM	3	30	0	0	0	64	276	2	33	0	116	0	0	0	0	0	524
5:30 PM	0	19	0	1	0	43	181	0	39	0	86	0	0	0	1	0	370
5:45 PM	0	20	0	1	0	24	148	0	26	0	86	0	0	0	0	0	305
6:00 PM	3	33	0	0	0	16	121	1	30	0	27	0	0	0	1	0	232
6:15 PM	0	27	0	0	0	11	153	0	35	0	16	0	0	0	0	0	242
6:30 PM	1	18	0	0	0	15	197	1	29	0	17	0	0	0	3	0	281
6:45 PM	2	10	0	0	0	9	219	0	26	0	13	0	0	0	1	0	280
TOTAL VOLUMES :	NL 13	NT 275	NR 0	NU 2	SL 0	ST 463	SR 2409	SU 10	EL 406	ET 0	ER 797	EU 0	WL 0	WT 0	WR 9	WU 0	TOTAL 4384
APPROACH %'s :	4.48%	94.83%	0.00%	0.69%	0.00%	16.07%	83.59%	0.35%	33.75%	0.00%	66.25%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	6	104	0	0	0	230	908	6	144	0	381	0	0	0	2	0	1781
PEAK HR FACTOR :	0.500	0.867	0.000	0.000	0.000	0.858	0.822	0.500	0.900	0.000	0.821	0.000	0.000	0.000	0.500	0.000	0.850
	0.833				0.836				0.881				0.500				

National Data & Surveying Services

Location: Power Line Rd & Skyking Rd
City: Sacramento
Control: 3-Way Stop(NB/SB/WB)

Intersection Turning Movement Count

Project ID: 20-07093-013
Date: 3/12/2020

Total

NS/EW Streets:	Power Line Rd				Power Line Rd				Skyking Rd				Skyking Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	1 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	
6:00 AM	0	0	0	0	0	7	0	0	0	0	0	0	1	0	1	0	9
6:15 AM	0	1	1	0	1	7	0	0	0	0	0	0	2	0	7	0	19
6:30 AM	0	3	1	0	2	4	0	0	0	0	0	0	3	0	7	0	20
6:45 AM	0	5	2	0	0	5	0	0	0	0	0	0	0	0	0	0	12
7:00 AM	0	2	0	0	1	6	0	0	0	0	0	0	1	0	4	0	14
7:15 AM	0	1	1	0	1	14	0	0	0	0	0	0	1	0	0	0	18
7:30 AM	0	2	2	0	1	9	0	0	0	0	0	0	0	0	1	0	15
7:45 AM	0	4	2	0	2	9	0	0	0	0	0	0	2	0	0	0	19
8:00 AM	0	5	1	0	2	9	0	0	0	0	0	0	1	0	0	0	18
8:15 AM	0	1	1	0	2	4	0	0	0	0	0	0	24	0	4	0	36
8:30 AM	0	2	0	0	2	3	0	0	0	0	0	0	1	0	0	0	8
8:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	0	2	0	6
TOTAL VOLUMES :	NL 0	NT 26	NR 11	NU 0	SL 14	ST 80	SR 0	SU 0	EL 0	ET 0	ER 0	EU 0	WL 37	WT 0	WR 26	WU 0	TOTAL 194
APPROACH %'s :	0.00%	70.27%	29.73%	0.00%	14.89%	85.11%	0.00%	0.00%					58.73%	0.00%	41.27%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	12	6	0	7	31	0	0	0	0	0	0	27	0	5	0	88
PEAK HR FACTOR :	0.000	0.600	0.750	0.000	0.875	0.861	0.000	0.000	0.000	0.000	0.000	0.000	0.281	0.000	0.313	0.000	0.611
	0.750				0.864								0.286				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	1 NR	0 NU	0 SL	1 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	1 WL	0 WT	1 WR	0 WU	
4:00 PM	0	13	1	0	4	6	0	0	0	0	0	0	0	0	0	0	24
4:15 PM	0	13	8	0	0	1	0	0	0	0	0	0	2	0	2	0	26
4:30 PM	0	25	2	0	0	4	0	0	0	0	0	0	1	0	1	0	33
4:45 PM	0	19	7	0	2	2	0	0	0	0	0	0	0	0	1	0	31
5:00 PM	0	17	8	0	5	3	0	0	0	0	0	0	4	0	0	0	37
5:15 PM	0	26	6	0	1	2	0	0	0	0	0	0	1	0	0	0	36
5:30 PM	0	24	9	0	0	2	0	0	0	0	0	0	1	0	1	0	37
5:45 PM	0	15	4	0	0	1	0	0	0	0	0	0	0	0	3	0	23
6:00 PM	0	5	5	0	0	2	0	0	0	0	0	0	1	0	0	0	13
6:15 PM	0	3	0	0	5	5	0	0	0	0	0	0	3	0	0	0	16
6:30 PM	0	2	1	0	1	5	0	0	0	0	0	0	0	0	0	0	9
6:45 PM	0	3	3	0	0	0	0	0	0	0	0	0	1	0	0	0	7
TOTAL VOLUMES :	NL 0	NT 165	NR 54	NU 0	SL 18	ST 33	SR 0	SU 0	EL 0	ET 0	ER 0	EU 0	WL 14	WT 0	WR 8	WU 0	TOTAL 292
APPROACH %'s :	0.00%	75.34%	24.66%	0.00%	35.29%	64.71%	0.00%	0.00%					63.64%	0.00%	36.36%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	86	30	0	8	9	0	0	0	0	0	0	6	0	2	0	141
PEAK HR FACTOR :	0.000	0.827	0.833	0.000	0.400	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.500	0.000	0.953
	0.879				0.531								0.500				

National Data & Surveying Services

Location: Metro Air Pkwy & Skyking Rd
City: Sacramento
Control: 1-Way Stop(EB)

Intersection Turning Movement Count

Project ID: 20-07093-014
Date: 3/12/2020

Total

NS/EW Streets:	Metro Air Pkwy				Metro Air Pkwy				Skyking Rd				Skyking Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	0 SL	1 ST	1 SR	0 SU	1 EL	0 ET	1 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
6:00 AM	4	0	0	0	0	1	2	0	0	0	4	0	0	0	0	0	11
6:15 AM	13	1	0	0	0	2	4	0	0	0	3	0	0	0	0	0	23
6:30 AM	23	2	0	1	0	4	16	0	1	0	1	0	0	0	0	0	48
6:45 AM	10	1	0	0	0	3	13	0	1	0	3	0	0	0	0	0	31
7:00 AM	17	0	0	0	0	6	21	0	0	0	4	0	0	0	0	0	48
7:15 AM	22	3	0	1	0	10	20	0	3	0	2	0	0	0	0	0	61
7:30 AM	10	1	0	0	0	12	5	0	0	0	13	0	0	0	0	0	41
7:45 AM	11	0	0	0	0	10	1	0	0	0	12	0	0	0	0	0	34
8:00 AM	10	1	0	0	0	7	3	0	2	0	5	0	0	0	0	0	28
8:15 AM	11	2	0	0	0	1	3	0	0	0	5	0	0	0	0	0	22
8:30 AM	15	1	0	0	0	1	0	0	0	0	2	0	0	0	0	0	19
8:45 AM	13	2	0	0	0	3	2	0	0	0	10	0	0	0	0	0	30
TOTAL VOLUMES :	NL 159	NT 14	NR 0	NU 2	SL 0	ST 60	SR 90	SU 0	EL 7	ET 0	ER 64	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 396
APPROACH %'s :	90.86%	8.00%	0.00%	1.14%	0.00%	40.00%	60.00%	0.00%	9.86%	0.00%	90.14%	0.00%					
PEAK HR :	06:30 AM - 07:30 AM																TOTAL
PEAK HR VOL :	72	6	0	2	0	23	70	0	5	0	10	0	0	0	0	0	188
PEAK HR FACTOR :	0.783	0.500	0.000	0.500	0.000	0.575	0.833	0.000	0.417	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.770
	0.769				0.775				0.750								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	0 SL	1 ST	1 SR	0 SU	1 EL	0 ET	1 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	4	12	0	0	0	0	0	0	3	0	5	0	0	0	0	0	24
4:15 PM	2	6	0	0	0	1	1	0	3	0	6	0	0	0	0	0	19
4:30 PM	6	16	0	0	0	0	0	0	6	0	5	0	0	0	0	0	33
4:45 PM	11	14	0	0	0	2	3	0	4	0	4	0	0	0	0	0	38
5:00 PM	4	13	0	0	0	0	1	0	3	0	11	0	0	0	0	0	32
5:15 PM	3	7	0	0	0	0	2	0	3	0	10	0	0	0	0	0	25
5:30 PM	6	9	0	0	0	0	7	0	7	0	9	0	0	0	0	0	38
5:45 PM	4	5	0	0	0	2	4	0	8	0	11	0	0	1	0	0	35
6:00 PM	7	6	0	0	0	1	6	0	27	0	40	0	0	0	0	0	87
6:15 PM	5	2	0	1	0	0	3	0	8	0	13	0	0	0	0	0	32
6:30 PM	5	4	0	0	0	1	1	0	3	0	10	0	0	0	0	0	24
6:45 PM	7	1	0	0	0	1	1	0	1	0	8	0	0	0	0	0	19
TOTAL VOLUMES :	NL 64	NT 95	NR 0	NU 1	SL 0	ST 8	SR 29	SU 0	EL 76	ET 0	ER 132	EU 0	WL 0	WT 1	WR 0	WU 0	TOTAL 406
APPROACH %'s :	40.00%	59.38%	0.00%	0.63%	0.00%	21.62%	78.38%	0.00%	36.54%	0.00%	63.46%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:30 PM - 06:30 PM																TOTAL
PEAK HR VOL :	22	22	0	1	0	3	20	0	50	0	73	0	0	1	0	0	192
PEAK HR FACTOR :	0.786	0.611	0.000	0.250	0.000	0.375	0.714	0.000	0.463	0.000	0.456	0.000	0.000	0.250	0.000	0.000	0.552
	0.750				0.821				0.459				0.250				

VOLUME

W Elverta Rd Bet. Garden Hwy & Earhart Dr

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_001

DAILY TOTALS					NB	SB	EB					WB	Total			
					0	0	281					277	558			
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL				
00:00			1	0	1		12:00			4	5	9				
00:15			0	0	0		12:15			5	3	8				
00:30			0	0	0		12:30			3	4	7				
00:45			2	3	0	2	3	12:45		7	19	6	18	13	37	
01:00			0	0	0		13:00			7	8	15				
01:15			1	0	1		13:15			14	8	22				
01:30			0	1	1		13:30			15	9	24				
01:45			2	3	0	1	2	4	13:45		6	42	2	27	8	69
02:00			0	0	0		14:00			9	8	17				
02:15			0	0	0		14:15			9	9	18				
02:30			1	0	1		14:30			3	5	8				
02:45			2	3	1	1	3	4	14:45		4	25	6	28	10	53
03:00			0	0	0		15:00			12	2	14				
03:15			0	0	0		15:15			7	5	12				
03:30			0	0	0		15:30			11	5	16				
03:45			0	0	0		15:45			5	35	3	15	8	50	
04:00			0	1	1		16:00			7	5	12				
04:15			0	0	0		16:15			6	4	10				
04:30			0	2	2		16:30			5	4	9				
04:45			0	2	5	2	5	16:45		5	23	3	16	8	39	
05:00			0	1	1		17:00			12	3	15				
05:15			2	0	2		17:15			3	4	7				
05:30			0	1	1		17:30			6	4	10				
05:45			0	2	3	5	3	7	17:45		4	25	3	14	7	39
06:00			0	0	0		18:00			8	3	11				
06:15			3	3	6		18:15			6	6	12				
06:30			0	10	10		18:30			8	3	11				
06:45			0	3	8	21	8	24	18:45		5	27	3	15	8	42
07:00			0	2	2		19:00			6	1	7				
07:15			1	3	4		19:15			1	2	3				
07:30			2	5	7		19:30			3	3	6				
07:45			1	4	3	13	4	17	19:45		3	13	3	9	6	22
08:00			0	8	8		20:00			3	2	5				
08:15			2	5	7		20:15			0	3	3				
08:30			0	2	2		20:30			1	2	3				
08:45			1	3	2	17	3	20	20:45		1	5	0	7	1	12
09:00			3	3	6		21:00			2	1	3				
09:15			1	2	3		21:15			1	2	3				
09:30			1	6	7		21:30			3	2	5				
09:45			1	6	3	14	4	20	21:45		0	6	0	5	0	11
10:00			5	2	7		22:00			3	2	5				
10:15			3	4	7		22:15			1	0	1				
10:30			5	7	12		22:30			0	1	1				
10:45			3	16	6	19	9	35	22:45		0	4	1	4	1	8
11:00			5	6	11		23:00			0	1	1				
11:15			1	2	3		23:15			0	0	0				
11:30			2	6	8		23:30			0	0	0				
11:45			3	11	8	22	11	33	23:45		3	3	0	1	3	4
TOTALS	54				118	172	TOTALS	227				159	386			
SPLIT %	31.4%				68.6%	30.8%	SPLIT %	58.8%				41.2%	69.2%			

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0	281					277	558				
AM Peak Hour			10:00	06:15	10:15		PM Peak Hour			13:15	12:45	12:45					
AM Pk Volume			16	23	39		PM Pk Volume			44	31	74					
Pk Hr Factor			0.800	0.575	0.813		Pk Hr Factor			0.733	0.861	0.771					
7 - 9 Volume	0	0	7	30	37		4 - 6 Volume	0	0	48	30	78					
7 - 9 Peak Hour			07:30	07:30	07:30		4 - 6 Peak Hour			16:15	16:00	16:15					
7 - 9 Pk Volume	0	0	5	21	26		4 - 6 Pk Volume	0	0	28	16	42					
Pk Hr Factor	0.000	0.000	0.625	0.656	0.813		Pk Hr Factor	0.000	0.000	0.583	0.800	0.700					

VOLUME

W Elverta Rd Bet. Garden Hwy & Earhart Dr

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_001

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	305					269	574
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			2	0	2		12:00			2	3	5	
00:15			1	0	1		12:15			3	3	6	
00:30			1	0	1		12:30			8	3	11	
00:45			1	5	1	5	12:45			7	20	4	13
01:00			0	0	0		13:00			8	5	13	
01:15			0	0	0		13:15			8	7	15	
01:30			0	0	0		13:30			4	3	7	
01:45			2	2	1	1	13:45			5	25	4	19
02:00			0	0	0		14:00			6	6	12	
02:15			0	1	1		14:15			11	5	16	
02:30			0	0	0		14:30			7	2	9	
02:45			1	1	0	1	14:45			7	31	5	18
03:00			0	0	0		15:00			3	6	9	
03:15			0	0	0		15:15			7	3	10	
03:30			0	0	0		15:30			7	3	10	
03:45			0	0	0		15:45			9	26	3	15
04:00			0	0	0		16:00			4	7	11	
04:15			0	0	0		16:15			3	6	9	
04:30			0	5	5		16:30			4	4	8	
04:45			1	1	2	7	16:45			4	15	6	23
05:00			0	1	1		17:00			7	7	14	
05:15			0	0	0		17:15			6	6	12	
05:30			0	2	2		17:30			7	2	9	
05:45			1	1	2	5	17:45			8	28	6	21
06:00			3	0	3		18:00			8	4	12	
06:15			0	0	0		18:15			8	3	11	
06:30			0	4	4		18:30			9	3	12	
06:45			1	4	3	7	18:45			8	33	2	12
07:00			2	3	5		19:00			10	3	13	
07:15			4	3	7		19:15			13	2	15	
07:30			2	6	8		19:30			3	2	5	
07:45			1	9	7	19	19:45			7	33	2	9
08:00			1	6	7		20:00			7	1	8	
08:15			2	9	11		20:15			3	2	5	
08:30			1	8	9		20:30			3	2	5	
08:45			3	7	6	29	20:45			5	18	0	5
09:00			7	6	13		21:00			2	1	3	
09:15			2	4	6		21:15			2	0	2	
09:30			3	7	10		21:30			1	2	3	
09:45			1	13	6	35	21:45			1	6	1	4
10:00			7	1	8		22:00			0	0	0	
10:15			2	2	4		22:15			1	2	3	
10:30			4	3	7		22:30			2	4	6	
10:45			1	14	2	21	22:45			0	3	1	7
11:00			1	3	4		23:00			1	1	2	
11:15			3	4	7		23:15			0	1	1	
11:30			1	9	10		23:30			1	0	1	
11:45			3	8	7	23	23:45			0	2	0	2
TOTALS	65				121	186	TOTALS	240				148	388
SPLIT %	34.9%				65.1%	32.4%	SPLIT %	61.9%				38.1%	67.6%

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						305	269						574
AM Peak Hour			11:45	07:45	08:15		PM Peak Hour			18:30	16:00	12:30							
AM Pk Volume			16	30	42		PM Pk Volume			40	23	50							
Pk Hr Factor			0.500	0.833	0.808		Pk Hr Factor			0.769	0.821	0.833							
7 - 9 Volume	0	0	16	48	64		4 - 6 Volume	0	0	43	44	87							
7 - 9 Peak Hour			07:00	07:45	08:00		4 - 6 Peak Hour			17:00	16:00	17:00							
7 - 9 Pk Volume	0	0	9	30	36		4 - 6 Pk Volume	0	0	28	23	49							
Pk Hr Factor	0.000	0.000	0.563	0.833	0.818		Pk Hr Factor	0.000	0.000	0.875	0.821	0.875							

VOLUME

W Elverta Rd Bet. Garden Hwy & Earhart Dr

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_001

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						288	268						556
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00			3	0	3		12:00			5	6	11							
00:15			0	0	0		12:15			4	1	5							
00:30			0	1	1		12:30			2	2	4							
00:45			0	3	0	1	12:45			5	16	5	14	10	30				
01:00			1	0	1		13:00			6	3	9							
01:15			0	0	0		13:15			5	7	12							
01:30			0	1	1		13:30			7	5	12							
01:45			2	3	0	1	13:45			6	24	5	20	11	44				
02:00			0	0	0		14:00			7	4	11							
02:15			0	0	0		14:15			8	7	15							
02:30			0	1	1		14:30			8	3	11							
02:45			3	3	2	3	14:45			5	28	6	20	11	48				
03:00			2	1	3		15:00			4	3	7							
03:15			0	2	2		15:15			6	5	11							
03:30			0	0	0		15:30			9	4	13							
03:45			0	2	0	3	15:45			5	24	4	16	9	40				
04:00			0	1	1		16:00			9	6	15							
04:15			0	0	0		16:15			7	2	9							
04:30			0	2	2		16:30			7	9	16							
04:45			0	0	3	3	16:45			8	31	4	21	12	52				
05:00			0	0	0		17:00			5	3	8							
05:15			1	0	1		17:15			5	5	10							
05:30			0	1	1		17:30			2	9	11							
05:45			2	3	1	2	17:45			4	16	7	36						
06:00			2	3	5		18:00			14	9	23							
06:15			0	0	0		18:15			11	1	12							
06:30			2	5	7		18:30			8	2	10							
06:45			0	4	3	11	18:45			7	40	5	17	12	57				
07:00			2	4	6		19:00			6	1	7							
07:15			2	3	5		19:15			7	6	13							
07:30			1	1	2		19:30			7	1	8							
07:45			2	7	2	10	19:45			8	28	0	8	8	36				
08:00			1	8	9		20:00			3	3	6							
08:15			1	2	3		20:15			1	1	2							
08:30			2	9	11		20:30			2	0	2							
08:45			0	4	1	20	20:45			0	6	0	4	0	10				
09:00			6	1	7		21:00			2	0	2							
09:15			1	2	3		21:15			0	0	0							
09:30			2	3	5		21:30			3	0	3							
09:45			0	9	5	11	21:45			2	7	1	1	3	8				
10:00			3	4	7		22:00			3	1	4							
10:15			0	13	13		22:15			0	2	2							
10:30			0	11	11		22:30			0	0	0							
10:45			2	5	7	35	22:45			0	3	0	3	0	6				
11:00			7	7	14		23:00			1	0	1							
11:15			8	7	15		23:15			0	1	1							
11:30			5	3	8		23:30			0	0	0							
11:45			1	21	5	22	23:45			0	1	1	2	1	3				
TOTALS			64	122	186		TOTALS			224	146	370							
SPLIT %			34.4%	65.6%	33.5%		SPLIT %			60.5%	39.5%	66.5%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						288	268						556
AM Peak Hour			10:45	10:15	10:30		PM Peak Hour			18:00	17:15	18:00							
AM Pk Volume			22	38	49		PM Pk Volume			40	26	57							
Pk Hr Factor			0.688	0.731	0.817		Pk Hr Factor			0.714	0.722	0.620							
7 - 9 Volume	0	0	11	30	41		4 - 6 Volume	0	0	47	41	88							
7 - 9 Peak Hour			07:00	07:45	07:45		4 - 6 Peak Hour			16:00	16:00	16:00							
7 - 9 Pk Volume	0	0	7	21	27		4 - 6 Pk Volume	0	0	31	21	52							
Pk Hr Factor	0.000	0.000	0.875	0.583	0.614		Pk Hr Factor	0.000	0.000	0.861	0.583	0.813							

VOLUME

W Elverta Rd Bet. Earhart Dr & Power Line Rd

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_002

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						430	436						866
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			3	0	3		12:00			7	5	12							12
00:15			0	0	0		12:15			7	5	12							12
00:30			0	0	0		12:30			2	5	7							7
00:45			2	5	1	1	12:45			7	23	10	25	17	48				
01:00			2	0	2		13:00			9	7	16							16
01:15			1	0	1		13:15			15	15	30							30
01:30			0	1	1		13:30			20	8	28							28
01:45			2	5	0	1	13:45			11	55	4	34	15	89				
02:00			1	0	1		14:00			10	13	23							23
02:15			0	0	0		14:15			11	7	18							18
02:30			0	0	0		14:30			8	7	15							15
02:45			2	3	0		14:45			7	36	7	34	14	70				
03:00			1	0	1		15:00			16	3	19							19
03:15			0	0	0		15:15			20	8	28							28
03:30			0	1	1		15:30			24	4	28							28
03:45			0	1	0	1	15:45			9	69	4	19	13	88				
04:00			1	4	5		16:00			25	5	30							30
04:15			0	5	5		16:15			15	4	19							19
04:30			0	3	3		16:30			5	3	8							8
04:45			0	1	6	18	16:45			5	50	4	16	9	66				
05:00			0	3	3		17:00			14	3	17							17
05:15			2	4	6		17:15			5	4	9							9
05:30			0	8	8		17:30			6	5	11							11
05:45			0	2	14	29	17:45			3	28	2	14	5	42				
06:00			2	19	21		18:00			9	3	12							12
06:15			3	9	12		18:15			7	6	13							13
06:30			1	14	15		18:30			8	3	11							11
06:45			0	6	14	56	18:45			5	29	3	15	8	44				
07:00			4	7	11		19:00			6	2	8							8
07:15			3	9	12		19:15			1	2	3							3
07:30			2	10	12		19:30			3	3	6							6
07:45			2	11	6	32	19:45			3	13	3	10	6	23				
08:00			1	10	11		20:00			3	2	5							5
08:15			4	12	16		20:15			1	3	4							4
08:30			1	4	5		20:30			1	2	3							3
08:45			1	7	4	30	20:45			1	6	1	8	2	14				
09:00			4	4	8		21:00			3	2	5							5
09:15			2	2	4		21:15			1	5	6							6
09:30			2	8	10		21:30			6	6	12							12
09:45			2	10	5	19	21:45			4	14	1	14	5	28				
10:00			7	6	13		22:00			7	2	9							9
10:15			5	5	10		22:15			1	0	1							1
10:30			5	7	12		22:30			0	3	3							3
10:45			7	24	8	26	22:45			0	8	1	6	1	14				
11:00			7	7	14		23:00			1	1	2							2
11:15			2	2	4		23:15			0	0	0							0
11:30			5	7	12		23:30			1	0	1							1
11:45			4	18	15	45	23:45			4	6	0	1	4	7				
TOTALS			93	240	333		TOTALS			337	196	533							533
SPLIT %			27.9%	72.1%	38.5%		SPLIT %			63.2%	36.8%	61.5%							61.5%

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						430	436						866
AM Peak Hour			10:00	05:45	05:45		PM Peak Hour			15:15	12:45	15:15							15:15
AM Pk Volume			24	56	62		PM Pk Volume			78	40	99							99
Pk Hr Factor			0.857	0.737	0.738		Pk Hr Factor			0.780	0.667	0.825							0.825
7 - 9 Volume	0	0	18	62	80		4 - 6 Volume	0	0	78	30	108							108
7 - 9 Peak Hour			07:00	07:30	07:30		4 - 6 Peak Hour			16:00	16:00	16:00							16:00
7 - 9 Pk Volume	0	0	11	38	47		4 - 6 Pk Volume	0	0	50	16	66							66
Pk Hr Factor	0.000	0.000	0.688	0.792	0.734		Pk Hr Factor	0.000	0.000	0.500	0.800	0.550							0.550

VOLUME

W Elverta Rd Bet. Earhart Dr & Power Line Rd

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_002

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	451					429	880
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			6	0	6		12:00			5	3	8	
00:15			2	0	2		12:15			2	2	4	
00:30			2	0	2		12:30			10	6	16	
00:45			2	12	2	12	12:45			5	22	7	18
01:00			0	0	0		13:00			12	5	17	
01:15			0	0	0		13:15			8	7	15	
01:30			0	1	1		13:30			6	6	12	
01:45			2	2	0	1	13:45			7	33	5	23
02:00			0	0	0		14:00			6	8	14	
02:15			1	1	2		14:15			11	6	17	
02:30			0	0	0		14:30			15	8	23	
02:45			1	2	0	1	14:45			9	41	8	30
03:00			0	0	0		15:00			7	8	15	
03:15			0	0	0		15:15			16	5	21	
03:30			0	0	0		15:30			22	4	26	
03:45			0	0	0		15:45			12	57	4	21
04:00			0	0	0		16:00			29	6	35	
04:15			0	4	4		16:15			4	6	10	
04:30			0	9	9		16:30			5	6	11	
04:45			1	1	7	20	16:45			4	42	5	23
05:00			0	4	4		17:00			11	7	18	
05:15			0	3	3		17:15			6	6	12	
05:30			1	9	10		17:30			8	3	11	
05:45			0	1	15	31	17:45			11	36	5	21
06:00			5	18	23		18:00			6	4	10	
06:15			1	7	8		18:15			10	3	13	
06:30			3	11	14		18:30			10	8	18	
06:45			1	10	8	44	18:45			10	36	3	18
07:00			3	5	8		19:00			10	3	13	
07:15			6	10	16		19:15			13	4	17	
07:30			4	9	13		19:30			3	1	4	
07:45			5	18	9	33	19:45			6	32	1	9
08:00			5	11	16		20:00			8	1	9	
08:15			5	11	16		20:15			4	2	6	
08:30			2	11	13		20:30			3	2	5	
08:45			3	15	8	41	20:45			4	19	1	6
09:00			5	6	11		21:00			4	0	4	
09:15			4	5	9		21:15			2	1	3	
09:30			3	8	11		21:30			2	4	6	
09:45			3	15	9	28	21:45			3	11	3	8
10:00			12	2	14		22:00			2	1	3	
10:15			2	6	8		22:15			3	2	5	
10:30			4	4	8		22:30			3	6	9	
10:45			1	19	2	14	22:45			1	9	2	11
11:00			1	4	5		23:00			2	1	3	
11:15			2	5	7		23:15			2	1	3	
11:30			3	10	13		23:30			2	0	2	
11:45			5	11	7	26	23:45			1	7	0	2
TOTALS	106				239	345	TOTALS	345				190	535
SPLIT %	30.7%				69.3%	39.2%	SPLIT %	64.5%				35.5%	60.8%

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						451	429						880
AM Peak Hour			09:15	05:45	05:45		PM Peak Hour			15:15	14:00	15:15							
AM Pk Volume			22	51	60		PM Pk Volume			79	30	98							
Pk Hr Factor			0.458	0.708	0.652		Pk Hr Factor			0.681	0.938	0.700							
7 - 9 Volume	0	0	33	74	107		4 - 6 Volume	0	0	78	44	122							
7 - 9 Peak Hour			07:15	07:45	07:15		4 - 6 Peak Hour			16:00	16:15	16:00							
7 - 9 Pk Volume	0	0	20	42	59		4 - 6 Pk Volume	0	0	42	24	65							
Pk Hr Factor	0.000	0.000	0.833	0.955	0.922		Pk Hr Factor	0.000	0.000	0.362	0.857	0.464							

VOLUME

W Elverta Rd Bet. Earhart Dr & Power Line Rd

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_002

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						446	435						881
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			7	0	7		12:00			7	10	17							
00:15			0	1	1		12:15			5	4	9							
00:30			0	0	0		12:30			3	2	5							
00:45			0	7	0	1	12:45			4	19	7	23	11	42				
01:00			3	0	3		13:00			13	8	21							
01:15			0	1	1		13:15			7	9	16							
01:30			0	1	1		13:30			7	6	13							
01:45			2	5	0	2	13:45			6	33	4	27	10	60				
02:00			2	0	2		14:00			5	7	12							
02:15			0	0	0		14:15			13	6	19							
02:30			0	1	1		14:30			19	10	29							
02:45			3	5	2	3	14:45			10	47	10	33	20	80				
03:00			2	1	3		15:00			8	6	14							
03:15			0	2	2		15:15			12	4	16							
03:30			0	0	0		15:30			20	6	26							
03:45			0	2	0	3	15:45			10	50	5	21	15	71				
04:00			0	3	3		16:00			32	5	37							
04:15			0	5	5		16:15			13	3	16							
04:30			0	5	5		16:30			8	11	19							
04:45			2	2	4	17	16:45			7	60	4	23	11	83				
05:00			0	2	2		17:00			11	4	15							
05:15			1	4	5		17:15			7	8	15							
05:30			0	9	9		17:30			5	7	12							
05:45			3	4	11	26	17:45			4	27	3	22	7	49				
06:00			3	15	18		18:00			10	11	21							
06:15			0	13	13		18:15			15	2	17							
06:30			4	12	16		18:30			9	2	11							
06:45			1	8	8	48	18:45			8	42	4	19	12	61				
07:00			6	7	13		19:00			5	2	7							
07:15			2	5	7		19:15			9	6	15							
07:30			4	5	9		19:30			7	1	8							
07:45			5	17	5	22	19:45			6	27	0	9	6	36				
08:00			2	10	12		20:00			4	1	5							
08:15			2	5	7		20:15			1	1	2							
08:30			2	10	12		20:30			3	0	3							
08:45			2	8	4	29	20:45			0	8	0	2	0	10				
09:00			8	3	11		21:00			2	1	3							
09:15			3	5	8		21:15			0	1	1							
09:30			2	5	7		21:30			3	1	4							
09:45			1	14	6	19	21:45			4	9	4	7	8	16				
10:00			5	7	12		22:00			4	1	5							
10:15			1	17	18		22:15			3	2	5							
10:30			2	12	14		22:30			1	2	3							
10:45			4	12	9	45	22:45			0	8	1	6	1	14				
11:00			6	8	14		23:00			6	0	6							
11:15			8	6	14		23:15			1	1	2							
11:30			7	5	12		23:30			1	0	1							
11:45			3	24	7	26	23:45			0	8	1	2	1	10				
TOTALS			108	241	349		TOTALS			338	194	532							
SPLIT %			30.9%	69.1%	39.6%		SPLIT %			63.5%	36.5%	60.4%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						446	435						881
AM Peak Hour			10:45	05:45	05:45		PM Peak Hour			15:30	14:00	15:15							
AM Pk Volume			25	51	61		PM Pk Volume			75	33	94							
Pk Hr Factor			0.781	0.850	0.847		Pk Hr Factor			0.586	0.825	0.635							
7 - 9 Volume	0	0	25	51	76		4 - 6 Volume	0	0	87	45	132							
7 - 9 Peak Hour			07:00	07:45	07:45		4 - 6 Peak Hour			16:00	16:30	16:00							
7 - 9 Pk Volume	0	0	17	30	41		4 - 6 Pk Volume	0	0	60	27	83							
Pk Hr Factor	0.000	0.000	0.708	0.750	0.854		Pk Hr Factor	0.000	0.000	0.469	0.614	0.561							

VOLUME

W Elverta Rd Bet. Powerline Rd & Metro Air Pkwy

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_003

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	608					561	1,169
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			1	0	1		12:00			11	9	20	
00:15			0	0	0		12:15			8	6	14	
00:30			1	0	1		12:30			8	7	15	
00:45			2	4	2	4	12:45			7	34	8	30
01:00			2	0	2		13:00			11	8	19	
01:15			2	1	3		13:15			15	12	27	
01:30			0	1	1		13:30			20	9	29	
01:45			3	7	4	10	13:45			12	58	5	34
02:00			1	0	1		14:00			15	16	31	
02:15			1	0	1		14:15			12	12	24	
02:30			0	0	0		14:30			14	7	21	
02:45			2	4	2	4	14:45			14	55	9	44
03:00			0	0	0		15:00			13	6	19	
03:15			0	0	0		15:15			26	8	34	
03:30			0	0	0		15:30			29	5	34	
03:45			0	1	1	1	15:45			21	89	4	23
04:00			0	3	3		16:00			28	7	35	
04:15			0	5	5		16:15			34	5	39	
04:30			0	4	4		16:30			10	6	16	
04:45			0	5	5	17	16:45			16	88	3	21
05:00			0	3	3		17:00			20	4	24	
05:15			2	4	6		17:15			11	3	14	
05:30			1	11	12		17:30			17	6	23	
05:45			2	5	12	30	17:45			14	62	5	18
06:00			3	22	25		18:00			16	5	21	
06:15			3	14	17		18:15			14	9	23	
06:30			2	24	26		18:30			10	4	14	
06:45			2	10	20	88	18:45			8	48	3	21
07:00			4	21	25		19:00			7	3	10	
07:15			1	19	20		19:15			3	1	4	
07:30			3	20	23		19:30			3	2	5	
07:45			2	10	17	85	19:45			4	17	2	8
08:00			3	14	17		20:00			3	3	6	
08:15			3	13	16		20:15			3	2	5	
08:30			1	7	8		20:30			2	1	3	
08:45			2	9	9	50	20:45			1	9	2	8
09:00			4	7	11		21:00			3	2	5	
09:15			4	4	8		21:15			3	5	8	
09:30			4	10	14		21:30			8	4	12	
09:45			5	17	12	45	21:45			3	17	1	12
10:00			5	3	8		22:00			7	2	9	
10:15			6	6	12		22:15			0	0	0	
10:30			5	8	13		22:30			2	3	5	
10:45			8	24	20	53	22:45			1	10	2	7
11:00			9	9	18		23:00			2	1	3	
11:15			4	3	7		23:15			3	0	3	
11:30			5	7	12		23:30			1	0	1	
11:45			4	22	17	54	23:45			3	9	0	1
TOTALS	112				334	446	TOTALS	496				227	723
SPLIT %	25.1%				74.9%	38.2%	SPLIT %	68.6%				31.4%	61.8%

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0	608					561	1,169				
AM Peak Hour			11:45	06:30	06:30		PM Peak Hour			15:30	14:00	15:30					
AM Pk Volume			31	82	91		PM Pk Volume			112	44	133					
Pk Hr Factor			0.705	0.854	0.875		Pk Hr Factor			0.824	0.688	0.853					
7 - 9 Volume	0	0	19	116	135		4 - 6 Volume	0	0	150	39	189					
7 - 9 Peak Hour			07:30	07:00	07:00		4 - 6 Peak Hour			16:00	16:00	16:00					
7 - 9 Pk Volume	0	0	11	75	85		4 - 6 Pk Volume	0	0	88	21	109					
Pk Hr Factor	0.000	0.000	0.917	0.893	0.850		Pk Hr Factor	0.000	0.000	0.647	0.750	0.699					

VOLUME

W Elverta Rd Bet. Powerline Rd & Metro Air Pkwy

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_003

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						690		
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			6	0	6		12:00			7	4	11		
00:15			3	0	3		12:15			7	3	10		
00:30			1	0	1		12:30			11	11	22		
00:45			3	13	0	3	13	12:45		9	34	8	26	
01:00			1	0	1		13:00			14	5	19		
01:15			0	0	0		13:15			9	9	18		
01:30			1	1	2		13:30			8	9	17		
01:45			1	3	0	1	4	13:45		9	40	6	29	
02:00			0	0	0		14:00			9	9	18		
02:15			1	1	2		14:15			17	12	29		
02:30			1	0	1		14:30			20	5	25		
02:45			0	2	0	1	3	14:45		12	58	8	34	
03:00			1	0	1		15:00			15	8	23		
03:15			0	0	0		15:15			18	5	23		
03:30			0	1	1		15:30			25	5	30		
03:45			0	1	0	1	2	15:45		21	79	5	23	
04:00			0	1	1		16:00			40	7	47		
04:15			0	4	4		16:15			22	8	30		
04:30			0	10	10		16:30			20	5	25		
04:45			1	1	7	22	8	23	16:45		25	107	3	23
05:00			0	3	3		17:00			24	9	33		
05:15			0	4	4		17:15			19	6	25		
05:30			1	10	11		17:30			29	4	33		
05:45			1	2	16	33	17	35	17:45		20	92	6	25
06:00			3	22	25		18:00			16	7	23		
06:15			1	15	16		18:15			16	7	23		
06:30			5	18	23		18:30			10	5	15		
06:45			1	10	22	77	23	87	18:45		14	56	2	21
07:00			3	15	18		19:00			12	3	15		
07:15			4	26	30		19:15			15	4	19		
07:30			4	30	34		19:30			4	2	6		
07:45			5	16	13	84	18	100	19:45		8	39	2	11
08:00			5	16	21		20:00			10	1	11		
08:15			5	18	23		20:15			4	2	6		
08:30			3	14	17		20:30			4	3	7		
08:45			5	18	11	59	16	77	20:45		3	21	1	7
09:00			6	9	15		21:00			4	2	6		
09:15			6	9	15		21:15			3	1	4		
09:30			3	8	11		21:30			4	4	8		
09:45			5	20	11	37	16	57	21:45		2	13	3	10
10:00			9	4	13		22:00			4	3	7		
10:15			5	5	10		22:15			4	2	6		
10:30			5	7	12		22:30			3	5	8		
10:45			6	25	5	21	11	46	22:45		1	12	2	12
11:00			3	6	9		23:00			3	1	4		
11:15			6	5	11		23:15			3	1	4		
11:30			4	12	16		23:30			2	2	4		
11:45			4	17	10	33	14	50	23:45		3	11	0	4
TOTALS	128				369	497	TOTALS	562				225	787	
SPLIT %	25.8%				74.2%	38.7%	SPLIT %	71.4%				28.6%	61.3%	

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						690	594						1,284
AM Peak Hour			11:45	06:45	06:45		PM Peak Hour			15:30	13:30	15:30							
AM Pk Volume			29	93	105		PM Pk Volume			108	36	133							
Pk Hr Factor			0.659	0.775	0.772		Pk Hr Factor			0.675	0.750	0.707							
7 - 9 Volume	0	0	34	143	177		4 - 6 Volume	0	0	199	48	247							
7 - 9 Peak Hour			07:30	07:15	07:15		4 - 6 Peak Hour			16:00	16:15	16:00							
7 - 9 Pk Volume	0	0	19	85	103		4 - 6 Pk Volume	0	0	107	25	130							
Pk Hr Factor	0.000	0.000	0.950	0.708	0.757		Pk Hr Factor	0.000	0.000	0.669	0.694	0.691							

VOLUME

W Elverta Rd Bet. Powerline Rd & Metro Air Pkwy

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_003

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						676	566						1,242
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			6	0	6		12:00			10	12	22							
00:15			1	2	3		12:15			7	3	10							
00:30			0	0	0		12:30			5	3	8							
00:45			2	9	0	2	11	12:45		4	26	8	26	12	52				
01:00			4	0	4		13:00			10	8	18							
01:15			0	0	0		13:15			7	10	17							
01:30			0	1	1		13:30			7	11	18							
01:45			2	6	0	1	7	13:45		10	34	8	37	18	71				
02:00			2	0	2		14:00			12	10	22							
02:15			0	0	0		14:15			15	14	29							
02:30			0	1	1		14:30			22	4	26							
02:45			3	5	1	2	7	14:45		15	64	10	38	25	102				
03:00			2	2	4		15:00			12	6	18							
03:15			0	1	1		15:15			17	5	22							
03:30			0	0	0		15:30			21	4	25							
03:45			1	3	1	4	7	15:45		18	68	3	18	21	86				
04:00			0	2	2		16:00			38	5	43							
04:15			0	5	5		16:15			26	3	29							
04:30			0	5	5		16:30			27	11	38							
04:45			2	2	5	17	19	16:45		24	115	4	23	28	138				
05:00			1	3	4		17:00			24	5	29							
05:15			3	5	8		17:15			29	8	37							
05:30			0	13	13		17:30			29	7	36							
05:45			2	6	13	34	40	17:45		19	101	2	22	21	123				
06:00			5	21	26		18:00			19	10	29							
06:15			1	22	23		18:15			17	5	22							
06:30			4	24	28		18:30			8	5	13							
06:45			2	12	19	86	98	18:45		8	52	3	23	11	75				
07:00			6	15	21		19:00			6	2	8							
07:15			1	15	16		19:15			9	4	13							
07:30			5	16	21		19:30			8	1	9							
07:45			5	17	12	58	75	19:45		7	30	2	9	9	39				
08:00			4	14	18		20:00			4	1	5							
08:15			3	9	12		20:15			1	1	2							
08:30			3	15	18		20:30			4	0	4							
08:45			6	16	7	45	61	20:45		0	9	0	2	0	11				
09:00			6	4	10		21:00			2	2	4							
09:15			6	9	15		21:15			0	0	0							
09:30			2	6	8		21:30			5	1	6							
09:45			1	15	7	26	41	21:45		3	10	4	7	7	17				
10:00			8	6	14		22:00			5	2	7							
10:15			6	18	24		22:15			4	1	5							
10:30			1	11	12		22:30			3	3	6							
10:45			4	19	8	43	62	22:45		1	13	1	7	2	20				
11:00			10	10	20		23:00			7	0	7							
11:15			12	9	21		23:15			2	2	4							
11:30			6	6	12		23:30			1	1	2							
11:45			6	34	7	32	66	23:45		0	10	1	4	1	14				
TOTALS			144	350	494		TOTALS			532	216	748							
SPLIT %			29.1%	70.9%	39.8%		SPLIT %			71.1%	28.9%	60.2%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						676	566						1,242
AM Peak Hour			11:00	06:00	06:00		PM Peak Hour			16:00	13:30	16:00							
AM Pk Volume			34	86	98		PM Pk Volume			115	43	138							
Pk Hr Factor			0.708	0.896	0.875		Pk Hr Factor			0.757	0.768	0.802							
7 - 9 Volume	0	0	33	103	136		4 - 6 Volume	0	0	216	45	261							
7 - 9 Peak Hour			07:00	07:00	07:00		4 - 6 Peak Hour			16:00	16:30	16:00							
7 - 9 Pk Volume	0	0	17	58	75		4 - 6 Pk Volume	0	0	115	28	138							
Pk Hr Factor	0.000	0.000	0.708	0.906	0.893		Pk Hr Factor	0.000	0.000	0.757	0.636	0.802							

VOLUME

W Elverta Rd Bet. Metro Air Pkwy & Lone Tree Rd

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_004

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						892	836						1,728
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00			2	1	3		12:00			16	14	30							
00:15			0	0	0		12:15			11	8	19							
00:30			2	0	2		12:30			6	10	16							
00:45			2	6	2	7	12:45			10	43	18	83						
01:00			3	0	3		13:00			14	11	25							
01:15			4	1	5		13:15			16	14	30							
01:30			0	1	1		13:30			18	8	26							
01:45			2	9	2	11	13:45			16	64	25	106						
02:00			2	0	2		14:00			12	18	30							
02:15			0	0	0		14:15			14	10	24							
02:30			0	1	1		14:30			20	14	34							
02:45			3	5	4	7	14:45			26	72	33	121						
03:00			1	0	1		15:00			40	6	46							
03:15			0	1	1		15:15			32	9	41							
03:30			1	1	2		15:30			39	4	43							
03:45			0	2	1	3	15:45			27	138	32	162						
04:00			1	3	4		16:00			41	8	49							
04:15			0	5	5		16:15			45	7	52							
04:30			6	4	10		16:30			19	8	27							
04:45			4	11	11	30	16:45			22	127	25	153						
05:00			4	3	7		17:00			23	4	27							
05:15			10	6	16		17:15			16	9	25							
05:30			7	15	22		17:30			31	12	43							
05:45			3	24	18	63	17:45			23	93	38	133						
06:00			4	25	29		18:00			37	9	46							
06:15			3	27	30		18:15			34	13	47							
06:30			1	51	52		18:30			15	6	21							
06:45			4	12	47	158	18:45			9	95	12	126						
07:00			5	44	49		19:00			7	3	10							
07:15			2	54	56		19:15			6	3	9							
07:30			7	31	38		19:30			3	2	5							
07:45			3	17	35	178	19:45			5	21	6	30						
08:00			5	25	30		20:00			3	4	7							
08:15			4	15	19		20:15			3	3	6							
08:30			2	10	12		20:30			1	3	4							
08:45			3	14	10	71	20:45			4	11	8	25						
09:00			5	9	14		21:00			3	3	6							
09:15			8	4	12		21:15			6	4	10							
09:30			4	13	17		21:30			6	4	10							
09:45			9	26	18	61	21:45			3	18	4	30						
10:00			9	5	14		22:00			8	2	10							
10:15			10	7	17		22:15			1	1	2							
10:30			6	9	15		22:30			1	4	5							
10:45			7	32	21	67	22:45			2	12	4	21						
11:00			10	9	19		23:00			4	0	4							
11:15			3	6	9		23:15			3	1	4							
11:30			8	13	21		23:30			2	1	3							
11:45			7	28	17	66	23:45			3	12	3	14						
TOTALS			186	538	724		TOTALS			706	298	1004							
SPLIT %			25.7%	74.3%	41.9%		SPLIT %			70.3%	29.7%	58.1%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						892	836						1,728
AM Peak Hour			11:30	06:30	06:30		PM Peak Hour			15:30	13:45	15:30							
AM Pk Volume			42	192	204		PM Pk Volume			152	51	176							
Pk Hr Factor			0.656	0.889	0.911		Pk Hr Factor			0.844	0.708	0.846							
7 - 9 Volume	0	0	31	218	249		4 - 6 Volume	0	0	220	66	286							
7 - 9 Peak Hour			07:30	07:00	07:00		4 - 6 Peak Hour			16:00	17:00	16:00							
7 - 9 Pk Volume	0	0	19	161	178		4 - 6 Pk Volume	0	0	127	40	153							
Pk Hr Factor	0.000	0.000	0.679	0.745	0.795		Pk Hr Factor	0.000	0.000	0.706	0.667	0.736							

VOLUME

W Elverta Rd Bet. Metro Air Pkwy & Lone Tree Rd

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_004

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0						992					
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL					
00:00			9	1	10		12:00			14	5	19					
00:15			4	0	4		12:15			10	4	14					
00:30			1	0	1		12:30			12	13	25					
00:45			3	17	0	1	12:45			14	50	9	31				
					3	18						23	81				
01:00			1	0	1		13:00			13	4	17					
01:15			1	0	1		13:15			12	9	21					
01:30			2	1	3		13:30			7	8	15					
01:45			1	5	0	1	13:45			11	43	8	29				
					1	6						19	72				
02:00			0	1	1		14:00			15	8	23					
02:15			1	0	1		14:15			22	13	35					
02:30			2	1	3		14:30			25	6	31					
02:45			0	3	0	2	14:45			18	80	10	37				
					0	5						28	117				
03:00			2	0	2		15:00			37	11	48					
03:15			0	0	0		15:15			31	5	36					
03:30			0	2	2		15:30			33	5	38					
03:45			3	5	0	2	15:45			30	131	6	27				
					3	7						36	158				
04:00			1	1	2		16:00			46	9	55					
04:15			0	5	5		16:15			32	8	40					
04:30			4	10	14		16:30			36	5	41					
04:45			4	9	9	25	16:45			31	145	3	25				
					13	34						34	170				
05:00			9	3	12		17:00			32	10	42					
05:15			5	5	10		17:15			31	8	39					
05:30			3	13	16		17:30			35	7	42					
05:45			2	19	16	37	17:45			24	122	13	38				
					18	56						37	160				
06:00			3	28	31		18:00			37	20	57					
06:15			2	25	27		18:15			34	11	45					
06:30			3	51	54		18:30			19	3	22					
06:45			3	11	50	154	18:45			17	107	4	38				
					53	165						21	145				
07:00			8	38	46		19:00			12	3	15					
07:15			9	61	70		19:15			16	5	21					
07:30			8	45	53		19:30			3	2	5					
07:45			8	33	24	168	19:45			6	37	3	13				
					32	201						9	50				
08:00			5	25	30		20:00			9	1	10					
08:15			5	20	25		20:15			4	3	7					
08:30			5	18	23		20:30			7	5	12					
08:45			9	24	12	75	20:45			2	22	2	11				
					21	99						4	33				
09:00			7	11	18		21:00			5	2	7					
09:15			6	7	13		21:15			5	1	6					
09:30			10	14	24		21:30			3	4	7					
09:45			11	34	13	45	21:45			2	15	3	10				
					24	79						5	25				
10:00			8	4	12		22:00			3	3	6					
10:15			6	4	10		22:15			3	4	7					
10:30			7	8	15		22:30			6	6	12					
10:45			7	28	9	25	22:45			1	13	2	15				
					16	53						3	28				
11:00			5	8	13		23:00			6	1	7					
11:15			6	9	15		23:15			3	1	4					
11:30			8	15	23		23:30			3	3	6					
11:45			4	23	10	42	23:45			4	16	0	5				
					14	65						4	21				
TOTALS			211	577	788		TOTALS			781	279	1060					
SPLIT %			26.8%	73.2%	42.6%		SPLIT %			73.7%	26.3%	57.4%					

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						992	856						1,848
AM Peak Hour			11:45	06:30	06:30		PM Peak Hour			16:00	17:30	17:30							
AM Pk Volume			40	200	223		PM Pk Volume			145	51	181							
Pk Hr Factor			0.714	0.820	0.796		Pk Hr Factor			0.788	0.638	0.794							
7 - 9 Volume	0	0	57	243	300		4 - 6 Volume	0	0	267	63	330							
7 - 9 Peak Hour			07:00	07:00	07:00		4 - 6 Peak Hour			16:00	17:00	16:00							
7 - 9 Pk Volume	0	0	33	168	201		4 - 6 Pk Volume	0	0	145	38	170							
Pk Hr Factor	0.000	0.000	0.917	0.689	0.718		Pk Hr Factor	0.000	0.000	0.788	0.731	0.773							

VOLUME

W Elverta Rd Bet. Metro Air Pkwy & Lone Tree Rd

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_004

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	1,023					836	1,859
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			5	0	5		12:00			10	13	23	
00:15			2	2	4		12:15			11	9	20	
00:30			1	0	1		12:30			16	8	24	
00:45			3	11	0	2	12:45			7	44	10	40
01:00			3	0	3		13:00			9	9	18	
01:15			1	0	1		13:15			13	18	31	
01:30			1	1	2		13:30			9	9	18	
01:45			2	7	0	1	13:45			13	44	11	47
02:00			2	0	2		14:00			17	9	26	
02:15			0	0	0		14:15			15	15	30	
02:30			0	1	1		14:30			22	8	30	
02:45			2	4	4	5	14:45			21	75	12	44
03:00			2	1	3		15:00			40	8	48	
03:15			1	2	3		15:15			33	6	39	
03:30			0	1	1		15:30			35	6	41	
03:45			2	5	1	5	15:45			36	144	8	28
04:00			0	2	2		16:00			52	4	56	
04:15			1	6	7		16:15			36	4	40	
04:30			2	7	9		16:30			49	11	60	
04:45			5	8	6	21	16:45			36	173	7	26
05:00			5	4	9		17:00			46	6	52	
05:15			5	9	14		17:15			36	13	49	
05:30			10	18	28		17:30			45	10	55	
05:45			3	23	17	48	17:45			32	159	9	38
06:00			6	25	31		18:00			46	13	59	
06:15			1	29	30		18:15			29	7	36	
06:30			6	51	57		18:30			15	5	20	
06:45			2	15	35	140	18:45			10	100	5	30
07:00			6	44	50		19:00			5	5	10	
07:15			5	43	48		19:15			13	7	20	
07:30			3	32	35		19:30			8	2	10	
07:45			5	19	24	143	19:45			8	34	4	18
08:00			4	19	23		20:00			7	0	7	
08:15			8	12	20		20:15			2	1	3	
08:30			2	14	16		20:30			3	0	3	
08:45			3	17	11	56	20:45			0	12	0	1
09:00			8	9	17		21:00			2	2	4	
09:15			3	11	14		21:15			1	0	1	
09:30			5	8	13		21:30			5	1	6	
09:45			2	18	8	36	21:45			5	13	4	7
10:00			11	9	20		22:00			5	3	8	
10:15			6	17	23		22:15			5	1	6	
10:30			5	10	15		22:30			3	2	5	
10:45			8	30	16	52	22:45			1	14	1	7
11:00			9	12	21		23:00			8	0	8	
11:15			13	8	21		23:15			4	2	6	
11:30			8	9	17		23:30			1	1	2	
11:45			11	41	8	37	23:45			0	13	1	4
TOTALS			198	546	744		TOTALS			825	290	1115	
SPLIT %			26.6%	73.4%	40.0%		SPLIT %			74.0%	26.0%	60.0%	

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						1,023	836						1,859
AM Peak Hour			11:45	06:30	06:30		PM Peak Hour			15:45	13:00	16:30							
AM Pk Volume			48	173	192		PM Pk Volume			173	47	204							
Pk Hr Factor			0.750	0.848	0.842		Pk Hr Factor			0.832	0.653	0.850							
7 - 9 Volume	0	0	36	199	235		4 - 6 Volume	0	0	332	64	396							
7 - 9 Peak Hour			07:30	07:00	07:00		4 - 6 Peak Hour			16:00	17:00	16:30							
7 - 9 Pk Volume	0	0	20	143	162		4 - 6 Pk Volume	0	0	173	38	204							
Pk Hr Factor	0.000	0.000	0.625	0.813	0.810		Pk Hr Factor	0.000	0.000	0.832	0.731	0.850							

VOLUME

W Elverta Rd Bet. Lone Tree Rd & SR-99

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_005

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						858	816						1,674
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			1	1	2		12:00			14	15	29							
00:15			0	0	0		12:15			11	7	18							
00:30			2	0	2		12:30			5	11	16							
00:45			2	5	2	1	12:45			7	37	6	39	13	76				
01:00			3	0	3		13:00			15	10	25							
01:15			3	1	4		13:15			15	15	30							
01:30			0	1	1		13:30			19	7	26							
01:45			2	8	2	2	13:45			16	65	9	41	25	106				
02:00			2	0	2		14:00			12	17	29							
02:15			0	0	0		14:15			12	9	21							
02:30			0	1	1		14:30			21	13	34							
02:45			3	5	4	2	14:45			22	67	7	46	29	113				
03:00			1	0	1		15:00			41	7	48							
03:15			0	1	1		15:15			33	9	42							
03:30			0	2	2		15:30			38	3	41							
03:45			1	2	2	4	15:45			27	139	7	26	34	165				
04:00			1	3	4		16:00			38	5	43							
04:15			2	5	7		16:15			42	7	49							
04:30			6	4	10		16:30			25	6	31							
04:45			4	13	11	19	16:45			21	126	3	21	24	147				
05:00			3	3	6		17:00			23	4	27							
05:15			11	6	17		17:15			16	9	25							
05:30			7	16	23		17:30			31	12	43							
05:45			3	24	17	39	17:45			23	93	14	39	37	132				
06:00			3	25	28		18:00			35	9	44							
06:15			4	27	31		18:15			35	14	49							
06:30			1	51	52		18:30			15	4	19							
06:45			3	11	45	145	18:45			9	94	3	30	12	124				
07:00			3	41	44		19:00			6	3	9							
07:15			4	53	57		19:15			6	3	9							
07:30			6	31	37		19:30			3	2	5							
07:45			3	16	34	156	19:45			5	20	1	9	6	29				
08:00			3	26	29		20:00			3	4	7							
08:15			3	13	16		20:15			3	3	6							
08:30			2	11	13		20:30			1	3	4							
08:45			3	11	9	56	20:45			3	10	7	24						
09:00			5	9	14		21:00			4	3	7							
09:15			5	6	11		21:15			5	4	9							
09:30			3	12	15		21:30			6	4	10							
09:45			8	21	16	35	21:45			2	17	3	29						
10:00			6	5	11		22:00			9	2	11							
10:15			8	7	15		22:15			1	1	2							
10:30			5	9	14		22:30			1	4	5							
10:45			7	26	20	34	22:45			2	13	4	22						
11:00			9	7	16		23:00			5	0	5							
11:15			3	6	9		23:15			3	1	4							
11:30			5	12	17		23:30			2	1	3							
11:45			5	22	15	35	23:45			3	13	3	15						
TOTALS			164	528	692		TOTALS			694	288	982							
SPLIT %			23.7%	76.3%	41.3%		SPLIT %			70.7%	29.3%	58.7%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						858	816						1,674
AM Peak Hour			11:30	06:30	06:30		PM Peak Hour			15:30	17:30	17:30							
AM Pk Volume			35	187	198		PM Pk Volume			145	49	173							
Pk Hr Factor			0.625	0.882	0.868		Pk Hr Factor			0.863	0.875	0.883							
7 - 9 Volume	0	0	27	212	239		4 - 6 Volume	0	0	219	60	279							
7 - 9 Peak Hour			07:00	07:00	07:00		4 - 6 Peak Hour			16:00	17:00	16:00							
7 - 9 Pk Volume	0	0	16	156	172		4 - 6 Pk Volume	0	0	126	39	147							
Pk Hr Factor	0.000	0.000	0.667	0.736	0.754		Pk Hr Factor	0.000	0.000	0.750	0.696	0.750							

VOLUME

W Elverta Rd Bet. Lone Tree Rd & SR-99

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_005

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	985					842	1,827
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			8	1	9		12:00			13	4	17	
00:15			5	0	5		12:15			7	5	12	
00:30			1	0	1		12:30			13	11	24	
00:45			2	16	0	1	12:45			13	46	8	28
01:00			2	0	2		13:00			11	4	15	
01:15			1	0	1		13:15			16	10	26	
01:30			2	1	3		13:30			8	8	16	
01:45			1	6	0	1	13:45			12	47	7	29
02:00			0	1	1		14:00			15	11	26	
02:15			1	0	1		14:15			20	10	30	
02:30			2	1	3		14:30			24	7	31	
02:45			0	3	0	2	14:45			18	77	7	35
03:00			2	0	2		15:00			39	10	49	
03:15			0	0	0		15:15			28	5	33	
03:30			0	2	2		15:30			38	5	43	
03:45			3	5	0	2	15:45			32	137	6	26
04:00			1	1	2		16:00			46	9	55	
04:15			0	6	6		16:15			34	9	43	
04:30			4	9	13		16:30			39	5	44	
04:45			4	9	9	25	16:45			31	150	3	26
05:00			8	3	11		17:00			35	9	44	
05:15			6	5	11		17:15			32	9	41	
05:30			3	13	16		17:30			36	6	42	
05:45			2	19	17	38	17:45			26	129	13	37
06:00			3	28	31		18:00			36	19	55	
06:15			1	25	26		18:15			40	11	51	
06:30			3	52	55		18:30			19	3	22	
06:45			1	8	47	152	18:45			18	113	4	37
07:00			6	39	45		19:00			14	3	17	
07:15			5	62	67		19:15			16	6	22	
07:30			4	42	46		19:30			5	2	7	
07:45			6	21	24	167	19:45			6	41	2	13
08:00			5	24	29		20:00			10	1	11	
08:15			4	20	24		20:15			4	3	7	
08:30			5	18	23		20:30			5	5	10	
08:45			7	21	13	75	20:45			3	22	2	11
09:00			7	9	16		21:00			5	2	7	
09:15			6	8	14		21:15			5	1	6	
09:30			6	13	19		21:30			3	5	8	
09:45			8	27	14	44	21:45			3	16	2	10
10:00			8	5	13		22:00			3	3	6	
10:15			6	4	10		22:15			2	3	5	
10:30			6	7	13		22:30			6	6	12	
10:45			4	24	11	27	22:45			1	12	2	14
11:00			6	6	12		23:00			6	1	7	
11:15			4	8	12		23:15			3	1	4	
11:30			7	15	22		23:30			3	3	6	
11:45			3	20	11	57	23:45			4	16	0	5
TOTALS	179				571	750	TOTALS	806				271	1077
SPLIT %	23.9%				76.1%	41.1%	SPLIT %	74.8%				25.2%	58.9%

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						985	842						1,827
AM Peak Hour			11:45	06:30	06:30		PM Peak Hour			15:45	17:30	17:30							
AM Pk Volume			36	200	215		PM Pk Volume			151	49	187							
Pk Hr Factor			0.692	0.806	0.802		Pk Hr Factor			0.821	0.645	0.850							
7 - 9 Volume	0	0	42	242	284		4 - 6 Volume	0	0	279	63	342							
7 - 9 Peak Hour			07:00	07:00	07:00		4 - 6 Peak Hour			16:00	17:00	16:00							
7 - 9 Pk Volume	0	0	21	167	188		4 - 6 Pk Volume	0	0	150	37	176							
Pk Hr Factor	0.000	0.000	0.875	0.673	0.701		Pk Hr Factor	0.000	0.000	0.815	0.712	0.800							

VOLUME

W Elverta Rd Bet. Lone Tree Rd & SR-99

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_005

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	1,026					844	1,870
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			6	0	6		12:00			10	13	23	
00:15			2	2	4		12:15			11	8	19	
00:30			1	0	1		12:30			14	9	23	
00:45			3	12	0	2	12:45			6	41	12	42
01:00			3	0	3		13:00			11	8	19	
01:15			1	0	1		13:15			12	12	24	
01:30			1	1	2		13:30			11	8	19	
01:45			1	6	0	1	13:45			12	46	10	38
02:00			3	0	3		14:00			18	13	31	
02:15			0	0	0		14:15			18	8	26	
02:30			0	1	1		14:30			21	12	33	
02:45			2	5	3	4	14:45			23	80	9	42
03:00			2	1	3		15:00			35	11	46	
03:15			1	2	3		15:15			32	8	40	
03:30			0	1	1		15:30			36	7	43	
03:45			2	5	1	5	15:45			33	136	7	33
04:00			0	2	2		16:00			52	3	55	
04:15			1	6	7		16:15			37	5	42	
04:30			1	7	8		16:30			47	14	61	
04:45			5	7	6	21	16:45			39	175	7	29
05:00			3	5	8		17:00			45	7	52	
05:15			6	9	15		17:15			37	14	51	
05:30			7	16	23		17:30			43	10	53	
05:45			3	19	16	46	17:45			33	158	9	40
06:00			6	26	32		18:00			46	13	59	
06:15			1	34	35		18:15			27	8	35	
06:30			5	55	60		18:30			17	3	20	
06:45			4	16	33	148	18:45			10	100	6	30
07:00			8	48	56		19:00			9	8	17	
07:15			6	44	50		19:15			11	7	18	
07:30			4	29	33		19:30			8	2	10	
07:45			5	23	30	151	19:45			9	37	4	21
08:00			7	18	25		20:00			6	0	6	
08:15			5	13	18		20:15			2	1	3	
08:30			4	14	18		20:30			3	0	3	
08:45			4	20	12	57	20:45			1	12	0	1
09:00			7	5	12		21:00			2	2	4	
09:15			4	10	14		21:15			1	0	1	
09:30			4	8	12		21:30			5	1	6	
09:45			3	18	6	29	21:45			5	13	4	7
10:00			9	10	19		22:00			5	3	8	
10:15			7	16	23		22:15			4	1	5	
10:30			4	11	15		22:30			4	2	6	
10:45			8	28	14	51	22:45			1	14	1	7
11:00			10	12	22		23:00			8	0	8	
11:15			12	7	19		23:15			4	2	6	
11:30			8	8	16		23:30			1	1	2	
11:45			12	42	8	35	23:45			0	13	1	4
TOTALS			201	550	751		TOTALS			825	294	1119	
SPLIT %			26.8%	73.2%	40.2%		SPLIT %			73.7%	26.3%	59.8%	

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0	1,026					844	1,870				
AM Peak Hour			11:45	06:30	06:30		PM Peak Hour			16:00	17:15	16:30					
AM Pk Volume			47	180	203		PM Pk Volume			175	46	210					
Pk Hr Factor			0.839	0.818	0.846		Pk Hr Factor			0.841	0.821	0.861					
7 - 9 Volume	0	0	43	208	251		4 - 6 Volume	0	0	333	69	402					
7 - 9 Peak Hour			07:00	07:00	07:00		4 - 6 Peak Hour			16:00	16:30	16:30					
7 - 9 Pk Volume	0	0	23	151	174		4 - 6 Pk Volume	0	0	175	42	210					
Pk Hr Factor	0.000	0.000	0.719	0.786	0.777		Pk Hr Factor	0.000	0.000	0.841	0.750	0.861					

VOLUME

Power Line Rd Bet. W Elverta Rd & Skyking Rd

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_006

DAILY TOTALS					NB	SB						EB	WB						Total
					298	231						0	0						529
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00	0	0			0		12:00	4	6			10							
00:15	0	0			0		12:15	3	1			4							
00:30	0	0			0		12:30	5	1			6							
00:45	2	2	0		2	2	12:45	2	14	5	13	7	27						
01:00	0	1			1		13:00	1	1			2							
01:15	1	0			1		13:15	6	2			8							
01:30	0	0			0		13:30	3	3			6							
01:45	1	2	1	2	2	4	13:45	2	12	2	8	4	20						
02:00	0	0			0		14:00	2	1			3							
02:15	1	0			1		14:15	3	7			10							
02:30	0	0			0		14:30	3	5			8							
02:45	0	1	0		0	1	14:45	7	15	4	17	11	32						
03:00	0	1			1		15:00	4	12			16							
03:15	1	0			1		15:15	5	3			8							
03:30	1	0			1		15:30	6	3			9							
03:45	1	3	1	2	2	5	15:45	11	26	2	20	13	46						
04:00	0	1			1		16:00	16	16			32							
04:15	0	0			0		16:15	14	4			18							
04:30	0	0			0		16:30	12	2			14							
04:45	1	1	0	1	1	2	16:45	8	50	2	24	10	74						
05:00	2	1			3		17:00	3	5			8							
05:15	1	1			2		17:15	8	2			10							
05:30	4	1			5		17:30	12	2			14							
05:45	7	14	1	4	8	18	17:45	14	37	3	12	17	49						
06:00	9	6			15		18:00	9	3			12							
06:15	4	5			9		18:15	7	5			12							
06:30	7	2			9		18:30	3	2			5							
06:45	4	24	6	19	10	43	18:45	3	22	2	12	5	34						
07:00	4	8			12		19:00	2	1			3							
07:15	2	11			13		19:15	3	0			3							
07:30	3	7			10		19:30	1	3			4							
07:45	1	10	5	31	6	41	19:45	2	8	1	5	3	13						
08:00	7	8			15		20:00	1	0			1							
08:15	3	1			4		20:15	1	1			2							
08:30	2	2			4		20:30	3	0			3							
08:45	3	15	3	14	6	29	20:45	0	5	2	3	2	8						
09:00	1	2			3		21:00	0	0			0							
09:15	3	3			6		21:15	3	0			3							
09:30	2	4			6		21:30	4	1			5							
09:45	3	9	2	11	5	20	21:45	0	7	1	2	1	9						
10:00	2	3			5		22:00	1	2			3							
10:15	1	5			6		22:15	0	0			0							
10:30	2	4			6		22:30	1	1			2							
10:45	5	10	3	15	8	25	22:45	0	2	0	3	0	5						
11:00	2	5			7		23:00	1	0			1							
11:15	3	1			4		23:15	0	0			0							
11:30	1	3			4		23:30	0	0			0							
11:45	2	8	4	13	6	21	23:45	0	1	0		0	1						
TOTALS	99	112			211		TOTALS	199	119			318							
SPLIT %	46.9%	53.1%			39.9%		SPLIT %	62.6%	37.4%			60.1%							

DAILY TOTALS					NB	SB						EB	WB						Total
					298	231						0	0						529
AM Peak Hour	05:45	06:45			06:45		PM Peak Hour	15:45	14:15			15:45							
AM Pk Volume	27	32			45		PM Pk Volume	53	28			77							
Pk Hr Factor	0.750	0.727			0.865		Pk Hr Factor	0.828	0.583			0.602							
7 - 9 Volume	25	45	0	0	70		4 - 6 Volume	87	36	0	0	123							
7 - 9 Peak Hour	08:00	07:00			07:15		4 - 6 Peak Hour	16:00	16:00			16:00							
7 - 9 Pk Volume	15	31	0	0	44		4 - 6 Pk Volume	50	24	0	0	74							
Pk Hr Factor	0.536	0.705	0.000	0.000	0.733		Pk Hr Factor	0.781	0.375	0.000	0.000	0.578							

VOLUME

Power Line Rd Bet. W Elverta Rd & Skyking Rd

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_006

DAILY TOTALS					NB	SB	EB					WB	Total
					350	235	0					0	585
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	0	0			0		12:00	5	2			7	
00:15	0	0			0		12:15	3	2			5	
00:30	0	0			0		12:30	3	6			9	
00:45	0	0			0		12:45	2	13	3	13	5	26
01:00	0	0			0		13:00	5	2			7	
01:15	0	0			0		13:15	6	2			8	
01:30	0	0			0		13:30	2	2			4	
01:45	0	1	1		1	1	13:45	5	18	2	8	7	26
02:00	0	0			0		14:00	4	2			6	
02:15	0	0			0		14:15	2	4			6	
02:30	2	1			3		14:30	8	2			10	
02:45	0	2	0	1	0	3	14:45	10	24	4	12	14	36
03:00	0	0			0		15:00	3	7			10	
03:15	0	0			0		15:15	7	7			14	
03:30	0	1			1		15:30	10	4			14	
03:45	0	0	1		0	1	15:45	9	29	7	25	16	54
04:00	0	1			1		16:00	15	8			23	
04:15	1	0			1		16:15	21	2			23	
04:30	0	1			1		16:30	16	6			22	
04:45	0	1	0	2	0	3	16:45	17	69	3	19	20	88
05:00	1	1			2		17:00	9	2			11	
05:15	0	1			1		17:15	16	2			18	
05:30	1	3			4		17:30	17	1			18	
05:45	5	7	1	6	6	13	17:45	9	51	2	7	11	58
06:00	8	6			14		18:00	9	1			10	
06:15	3	4			7		18:15	5	2			7	
06:30	10	4			14		18:30	1	2			3	
06:45	2	23	4	18	6	41	18:45	9	24	3	8	12	32
07:00	1	6			7		19:00	1	1			2	
07:15	3	12			15		19:15	6	2			8	
07:30	2	13			15		19:30	0	1			1	
07:45	2	8	10	41	12	49	19:45	1	8	1	5	2	13
08:00	3	6			9		20:00	2	0			2	
08:15	3	5			8		20:15	0	0			0	
08:30	2	3			5		20:30	1	0			1	
08:45	4	12	2	16	6	28	20:45	1	4	1	1	2	5
09:00	1	3			4		21:00	0	2			2	
09:15	2	3			5		21:15	3	0			3	
09:30	2	1			3		21:30	2	0			2	
09:45	3	8	1	8	4	16	21:45	1	6	4	6	5	12
10:00	3	6			9		22:00	2	0			2	
10:15	7	3			10		22:15	1	1			2	
10:30	4	4			8		22:30	1	1			2	
10:45	3	17	5	18	8	35	22:45	0	4	0	2	0	6
11:00	5	3			8		23:00	2	2			4	
11:15	4	3			7		23:15	1	0			1	
11:30	3	2			5		23:30	0	0			0	
11:45	6	18	6	14	12	32	23:45	1	4	1	3	2	7
TOTALS	96	126			222		TOTALS	254	109			363	
SPLIT %	43.2%	56.8%			37.9%		SPLIT %	70.0%	30.0%			62.1%	

DAILY TOTALS				NB	SB	EB				WB	Total			
				350	235					0				
AM Peak Hour	05:45	07:00			07:15	PM Peak Hour	16:00	15:15			16:00			
AM Pk Volume	26	41			51	PM Pk Volume	69	26			88			
Pk Hr Factor	0.650	0.788			0.850	Pk Hr Factor	0.821	0.813			0.957			
7 - 9 Volume	20	57	0	0	77	4 - 6 Volume	120	26	0	0	146			
7 - 9 Peak Hour	08:00	07:00			07:15	4 - 6 Peak Hour	16:00	16:00			16:00			
7 - 9 Pk Volume	12	41	0	0	51	4 - 6 Pk Volume	69	19	0	0	88			
Pk Hr Factor	0.750	0.788	0.000	0.000	0.850	Pk Hr Factor	0.821	0.594	0.000	0.000	0.957			

VOLUME

Power Line Rd Bet. W Elverta Rd & Skyking Rd

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_006

DAILY TOTALS					NB	SB					EB	WB	Total
					274	219					0	0	493
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	0	0			0	12:00	6	5			11		
00:15	0	0			0	12:15	6	3			9		
00:30	0	0			0	12:30	3	5			8		
00:45	0	0			0	12:45	2	17	1	14	3	31	
01:00	1	0			1	13:00	3	2			5		
01:15	1	0			1	13:15	4	6			10		
01:30	0	1			1	13:30	6	2			8		
01:45	1	3	0	1	1	13:45	4	17	1	11	5	28	
02:00	0	0			0	14:00	4	2			6		
02:15	0	0			0	14:15	4	3			7		
02:30	0	0			0	14:30	2	5			7		
02:45	0	0			0	14:45	3	13	4	14	7	27	
03:00	0	0			0	15:00	3	10			13		
03:15	0	0			0	15:15	7	6			13		
03:30	0	0			0	15:30	5	4			9		
03:45	0	1	1		1	15:45	12	27	3	23	15	50	
04:00	1	0			1	16:00	9	9			18		
04:15	0	0			0	16:15	13	7			20		
04:30	0	0			0	16:30	10	1			11		
04:45	0	1	0		0	16:45	5	37	3	20	8	57	
05:00	0	0			0	17:00	6	3			9		
05:15	1	1			2	17:15	6	4			10		
05:30	1	1			2	17:30	10	3			13		
05:45	7	9	2	4	9	17:45	9	31	2	12	11	43	
06:00	0	6			6	18:00	11	4			15		
06:15	3	6			9	18:15	5	5			10		
06:30	7	9			16	18:30	2	3			5		
06:45	5	15	3	24	8	18:45	3	21	1	13	4	34	
07:00	1	4			5	19:00	1	0			1		
07:15	4	7			11	19:15	2	2			4		
07:30	2	5			7	19:30	2	2			4		
07:45	2	9	4	20	6	19:45	1	6	2	6	3	12	
08:00	4	3			7	20:00	1	1			2		
08:15	1	6			7	20:15	2	0			2		
08:30	2	3			5	20:30	0	1			1		
08:45	1	8	3	15	4	20:45	0	3	1	3	1	6	
09:00	4	1			5	21:00	0	1			1		
09:15	5	6			11	21:15	3	0			3		
09:30	1	3			4	21:30	1	1			2		
09:45	2	12	3	13	5	21:45	0	4	0	2	0	6	
10:00	6	1			7	22:00	0	1			1		
10:15	7	3			10	22:15	1	0			1		
10:30	1	1			2	22:30	1	1			2		
10:45	3	17	4	9	7	22:45	2	4	0	2	2	6	
11:00	3	5			8	23:00	0	0			0		
11:15	5	3			8	23:15	1	0			1		
11:30	1	1			2	23:30	1	1			2		
11:45	7	16	2	11	9	23:45	2	4	0	1	2	5	
TOTALS	90	98			188	TOTALS	184	121			305		
SPLIT %	47.9%	52.1%			38.1%	SPLIT %	60.3%	39.7%			61.9%		

DAILY TOTALS					NB	SB					EB	WB	Total
					274	219					0	0	493
AM Peak Hour	11:45	06:00		05:45	PM Peak Hour	15:45	14:30				15:45		
AM Pk Volume	22	24		40	PM Pk Volume	44	25				64		
Pk Hr Factor	0.786	0.667		0.625	Pk Hr Factor	0.846	0.625				0.800		
7 - 9 Volume	17	35	0	0	52	4 - 6 Volume	68	32	0	0	100		
7 - 9 Peak Hour	07:15	07:00		07:15	4 - 6 Peak Hour	16:00	16:00				16:00		
7 - 9 Pk Volume	12	20	0	0	31	4 - 6 Pk Volume	37	20	0	0	57		
Pk Hr Factor	0.750	0.714	0.000	0.000	0.705	Pk Hr Factor	0.712	0.556	0.000	0.000	0.713		

VOLUME

Metro Air Pkwy Bet. W Elverta Rd & Skyking Rd

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_007

DAILY TOTALS					NB	SB						EB	WB	Total	
					289	283						0	0		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL				
00:00	1	1			2	12:00	0	6			6				
00:15	0	0			0	12:15	2	3			5				
00:30	1	0			1	12:30	1	2			3				
00:45	0	2	0	1	0	12:45	5	8	2	13	7	21			
01:00	1	0			1	13:00	4	2			6				
01:15	3	0			3	13:15	1	2			3				
01:30	0	0			0	13:30	2	4			6				
01:45	0	4	0		0	13:45	5	12	4	12	9	24			
02:00	0	2			2	14:00	3	5			8				
02:15	0	4			4	14:15	2	1			3				
02:30	0	1			1	14:30	3	2			5				
02:45	1	1	1	8	2	14:45	5	13	1	9	6	22			
03:00	1	0			1	15:00	9	2			11				
03:15	0	1			1	15:15	6	1			7				
03:30	1	1			2	15:30	10	2			12				
03:45	0	2	0	2	0	15:45	5	30	1	6	6	36			
04:00	1	0			1	16:00	13	2			15				
04:15	0	0			0	16:15	11	2			13				
04:30	7	0			7	16:30	14	2			16				
04:45	3	11	2	2	5	16:45	4	42	1	7	5	49			
05:00	7	1			8	17:00	7	3			10				
05:15	6	0			6	17:15	5	6			11				
05:30	5	3			8	17:30	15	5			20				
05:45	1	19	1	5	2	17:45	9	36	12	26	21	62			
06:00	1	0			1	18:00	24	4			28				
06:15	0	3			3	18:15	20	5			25				
06:30	2	19			21	18:30	4	3			7				
06:45	2	5	18	40	20	18:45	2	50	2	14	4	64			
07:00	3	17			20	19:00	4	2			6				
07:15	0	37			37	19:15	3	2			5				
07:30	4	13			17	19:30	1	0			1				
07:45	1	8	17	84	18	19:45	2	10	0	4	2	14			
08:00	0	7			7	20:00	0	0			0				
08:15	1	3			4	20:15	1	0			1				
08:30	2	3			5	20:30	0	3			3				
08:45	0	3	1	14	1	20:45	3	4	0	3	3	7			
09:00	1	2			3	21:00	0	1			1				
09:15	3	3			6	21:15	2	0			2				
09:30	5	3			8	21:30	0	1			1				
09:45	2	11	1	9	3	21:45	0	2	0	2	0	4			
10:00	2	2			4	22:00	1	1			2				
10:15	2	1			3	22:15	1	0			1				
10:30	0	2			2	22:30	0	0			0				
10:45	2	6	4	9	6	22:45	0	2	0	1	0	3			
11:00	0	2			2	23:00	3	1			4				
11:15	0	1			1	23:15	0	1			1				
11:30	2	2			4	23:30	1	1			2				
11:45	2	4	4	9	6	23:45	0	4	0	3	0	7			
TOTALS	76	183			259	TOTALS	213	100			313				
SPLIT %	29.3%	70.7%			45.3%	SPLIT %	68.1%	31.9%			54.7%				

DAILY TOTALS					NB	SB					EB	WB	Total	
					289	283					0	0	572	
AM Peak Hour	04:30	06:30		06:30			PM Peak Hour	17:30	17:15			17:30		
AM Pk Volume	23	91		98			PM Pk Volume	68	27			94		
Pk Hr Factor	0.821	0.615		0.662			Pk Hr Factor	0.708	0.563			0.839		
7 - 9 Volume	11	98	0	0	109		4 - 6 Volume	78	33	0	0	111		
7 - 9 Peak Hour	07:00	07:00		07:00			4 - 6 Peak Hour	16:00	17:00			17:00		
7 - 9 Pk Volume	8	84	0	0	92		4 - 6 Pk Volume	42	26	0	0	62		
Pk Hr Factor	0.500	0.568	0.000	0.000	0.622		Pk Hr Factor	0.750	0.542	0.000	0.000	0.738		

VOLUME

Metro Air Pkwy Bet. W Elverta Rd & Skyking Rd

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_007

DAILY TOTALS					NB	SB						EB	WB	Total	
					342	288						0	0	630	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00	3	1			4		12:00	3	5			8			
00:15	0	0			0		12:15	3	1			4			
00:30	0	0			0		12:30	3	4			7			
00:45	0	3	0	1	0	4	12:45	6	15	0	10	6	25		
01:00	0	0			0		13:00	3	1			4			
01:15	1	0			1		13:15	1	0			1			
01:30	1	0			1		13:30	2	0			2			
01:45	0	2	0		0	2	13:45	5	11	0	1	5	12		
02:00	0	0			0		14:00	14	2			16			
02:15	0	0			0		14:15	4	3			7			
02:30	1	0			1		14:30	3	2			5			
02:45	0	1	1	1	1	2	14:45	5	26	1	8	6	34		
03:00	1	0			1		15:00	4	1			5			
03:15	0	0			0		15:15	7	4			11			
03:30	0	1			1		15:30	9	0			9			
03:45	3	4	0	1	3	5	15:45	8	28	1	6	9	34		
04:00	1	0			1		16:00	11	4			15			
04:15	0	0			0		16:15	18	1			19			
04:30	5	1			6		16:30	15	3			18			
04:45	2	8	2	3	4	11	16:45	11	55	2	10	13	65		
05:00	13	0			13		17:00	11	4			15			
05:15	1	0			1		17:15	15	4			19			
05:30	2	2			4		17:30	12	5			17			
05:45	3	19	0	2	3	21	17:45	8	46	10	23	18	69		
06:00	0	5			5		18:00	28	10			38			
06:15	1	6			7		18:15	16	5			21			
06:30	6	27			33		18:30	11	1			12			
06:45	2	9	17	55	19	64	18:45	4	59	2	18	6	77		
07:00	3	25			28		19:00	2	2			4			
07:15	1	31			32		19:15	1	1			2			
07:30	0	18			18		19:30	2	2			4			
07:45	1	5	9	83	10	88	19:45	4	9	3	8	7	17		
08:00	1	10			11		20:00	1	3			4			
08:15	1	2			3		20:15	1	1			2			
08:30	2	2			4		20:30	3	4			7			
08:45	2	6	4	18	6	24	20:45	0	5	0	8	0	13		
09:00	3	3			6		21:00	0	1			1			
09:15	1	0			1		21:15	2	0			2			
09:30	1	3			4		21:30	0	0			0			
09:45	2	7	1	7	3	14	21:45	0	2	0	1	0	3		
10:00	2	1			3		22:00	0	0			0			
10:15	1	2			3		22:15	1	2			3			
10:30	1	1			2		22:30	1	1			2			
10:45	0	4	3	7	3	11	22:45	0	2	1	4	1	6		
11:00	4	3			7		23:00	3	0			3			
11:15	0	3			3		23:15	1	0			1			
11:30	4	3			7		23:30	1	1			2			
11:45	3	11	3	12	6	23	23:45	0	5	0	1	0	6		
TOTALS	79	190			269		TOTALS	263	98			361			
SPLIT %	29.4%	70.6%			42.7%		SPLIT %	72.9%	27.1%			57.3%			

DAILY TOTALS					NB	SB						EB	WB	Total	
					342	288						0	0	630	
AM Peak Hour	04:30	06:30			06:30		PM Peak Hour	17:30	17:30			17:30			
AM Pk Volume	21	100			112		PM Pk Volume	64	30			94			
Pk Hr Factor	0.404	0.806			0.848		Pk Hr Factor	0.571	0.750			0.618			
7 - 9 Volume	11	101	0	0	112		4 - 6 Volume	101	33	0	0	134			
7 - 9 Peak Hour	08:00	07:00			07:00		4 - 6 Peak Hour	16:00	17:00			17:00			
7 - 9 Pk Volume	6	83	0	0	88		4 - 6 Pk Volume	55	23	0	0	69			
Pk Hr Factor	0.750	0.669	0.000	0.000	0.688		Pk Hr Factor	0.764	0.575	0.000	0.000	0.908			

VOLUME

Metro Air Pkwy Bet. W Elverta Rd & Skyking Rd

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_007

DAILY TOTALS					NB	SB						EB	WB						Total
					324	281						0	0						605
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00	0	0			0		12:00	0	1			1							
00:15	1	0			1		12:15	2	2			4							
00:30	1	0			1		12:30	5	1			6							
00:45	0	2	0		0	2	12:45	3	10	3	7	6	17						
01:00	2	0			2		13:00	4	2			6							
01:15	0	0			0		13:15	1	2			3							
01:30	1	0			1		13:30	2	1			3							
01:45	0	3	0		0	3	13:45	2	9	4	9	6	18						
02:00	0	0			0		14:00	2	3			5							
02:15	0	0			0		14:15	3	5			8							
02:30	0	0			0		14:30	2	2			4							
02:45	1	1	1	1	2	2	14:45	4	11	2	12	6	23						
03:00	0	0			0		15:00	5	1			6							
03:15	1	0			1		15:15	5	2			7							
03:30	0	2			2		15:30	7	2			9							
03:45	1	2	0	2	1	4	15:45	6	23	4	9	10	32						
04:00	0	0			0		16:00	13	10			23							
04:15	1	1			2		16:15	15	1			16							
04:30	3	1			4		16:30	26	4			30							
04:45	2	6	1	3	3	9	16:45	20	74	4	19	24	93						
05:00	6	0			6		17:00	17	8			25							
05:15	5	3			8		17:15	26	3			29							
05:30	7	2			9		17:30	25	2			27							
05:45	1	19	0	5	1	24	17:45	18	86	1	14	19	100						
06:00	1	4			5		18:00	5	2			7							
06:15	1	6			7		18:15	3	10			13							
06:30	5	24			29		18:30	2	6			8							
06:45	4	11	13	47	17	58	18:45	3	13	1	19	4	32						
07:00	0	29			29		19:00	1	0			1							
07:15	4	28			32		19:15	0	1			1							
07:30	0	16			16		19:30	2	2			4							
07:45	2	6	13	86	15	92	19:45	2	5	2	5	4	10						
08:00	3	8			11		20:00	4	1			5							
08:15	2	4			6		20:15	0	0			0							
08:30	2	1			3		20:30	0	1			1							
08:45	2	9	5	18	7	27	20:45	0	4	0	2	0	6						
09:00	2	2			4		21:00	1	0			1							
09:15	0	2			2		21:15	1	1			2							
09:30	3	1			4		21:30	2	0			2							
09:45	1	6	2	7	3	13	21:45	1	5	0	1	1	6						
10:00	2	3			5		22:00	0	0			0							
10:15	3	1			4		22:15	1	0			1							
10:30	1	0			1		22:30	0	0			0							
10:45	2	8	3	7	5	15	22:45	0	1	0		0	1						
11:00	1	0			1		23:00	0	0			0							
11:15	0	1			1		23:15	2	0			2							
11:30	3	2			5		23:30	0	0			0							
11:45	4	8	5	8	9	16	23:45	0	2	0		0	2						
TOTALS	81	184			265		TOTALS	243	97			340							
SPLIT %	30.6%	69.4%			43.8%		SPLIT %	71.5%	28.5%			56.2%							

DAILY TOTALS					NB	SB						EB	WB						Total
					324	281						0	0						605
AM Peak Hour	04:45	06:30			06:30		PM Peak Hour	16:30	15:45			16:30							
AM Pk Volume	20	94			107		PM Pk Volume	89	19			108							
Pk Hr Factor	0.714	0.810			0.836		Pk Hr Factor	0.856	0.475			0.900							
7 - 9 Volume	15	104	0	0	119		4 - 6 Volume	160	33	0	0	193							
7 - 9 Peak Hour	07:15	07:00			07:00		4 - 6 Peak Hour	16:30	16:00			16:30							
7 - 9 Pk Volume	9	86	0	0	92		4 - 6 Pk Volume	89	19	0	0	108							
Pk Hr Factor	0.563	0.741	0.000	0.000	0.719		Pk Hr Factor	0.856	0.475	0.000	0.000	0.900							

VOLUME

Power Line Rd Bet. Skyking Rd & W Elkhorn Blvd

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_008

DAILY TOTALS					NB	SB	EBWB					Total	
					516	498						0	0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	0	5			5	12:00	7	10			17		
00:15	1	3			4	12:15	2	3			5		
00:30	6	4			10	12:30	5	2			7		
00:45	1	8	5	17	6	25	12:45	8	22	7	22	15	44
01:00	0	2			2	13:00	5	2			7		
01:15	1	7			8	13:15	4	5			9		
01:30	1	0			1	13:30	3	2			5		
01:45	6	8	0	9	6	17	13:45	3	15	7	16	10	31
02:00	4	3			7	14:00	1	2			3		
02:15	4	0			4	14:15	3	9			12		
02:30	4	0			4	14:30	7	5			12		
02:45	0	12	2	5	2	17	14:45	8	19	7	23	15	42
03:00	0	5			5	15:00	6	8			14		
03:15	5	1			6	15:15	8	9			17		
03:30	6	0			6	15:30	10	5			15		
03:45	5	16	4	10	9	26	15:45	18	42	3	25	21	67
04:00	2	3			5	16:00	21	17			38		
04:15	3	3			6	16:15	18	4			22		
04:30	0	0			0	16:30	16	8			24		
04:45	2	7	1	7	3	14	16:45	14	69	7	36	21	105
05:00	1	1			2	17:00	8	4			12		
05:15	4	4			8	17:15	17	4			21		
05:30	5	1			6	17:30	19	3			22		
05:45	13	23	1	7	14	30	17:45	23	67	10	21	33	88
06:00	7	3			10	18:00	19	4			23		
06:15	4	10			14	18:15	7	10			17		
06:30	4	7			11	18:30	4	4			8		
06:45	5	20	7	27	12	47	18:45	4	34	1	19	5	53
07:00	7	16			23	19:00	3	2			5		
07:15	6	10			16	19:15	3	1			4		
07:30	3	15			18	19:30	4	3			7		
07:45	4	20	13	54	17	74	19:45	1	11	2	8	3	19
08:00	3	9			12	20:00	2	4			6		
08:15	4	37			41	20:15	7	9			16		
08:30	7	7			14	20:30	2	5			7		
08:45	4	18	9	62	13	80	20:45	1	12	8	26	9	38
09:00	7	3			10	21:00	0	4			4		
09:15	2	9			11	21:15	8	9			17		
09:30	1	5			6	21:30	2	3			5		
09:45	2	12	12	29	14	41	21:45	0	10	4	20	4	30
10:00	3	3			6	22:00	1	5			6		
10:15	3	6			9	22:15	3	0			3		
10:30	2	2			4	22:30	6	3			9		
10:45	5	13	10	21	15	34	22:45	8	18	0	8	8	26
11:00	2	5			7	23:00	8	2			10		
11:15	4	3			7	23:15	5	3			8		
11:30	5	5			10	23:30	4	1			5		
11:45	5	16	7	20	12	36	23:45	7	24	0	6	7	30
TOTALS	173	268			441		TOTALS	343	230			573	
SPLIT %	39.2%	60.8%			43.5%		SPLIT %	59.9%	40.1%			56.5%	

DAILY TOTALS			NB	SB	EB			WB	Total		
			516	498				0			
AM Peak Hour	05:15	07:30			07:30	PM Peak Hour	17:15	16:00			15:45
AM Pk Volume	29	74			88	PM Pk Volume	78	36			105
Pk Hr Factor	0.558	0.500			0.537	Pk Hr Factor	0.848	0.529			0.691
7 - 9 Volume	38	116	0	0	154	4 - 6 Volume	136	57	0	0	193
7 - 9 Peak Hour	07:00	07:30			07:30	4 - 6 Peak Hour	16:00	16:00			16:00
7 - 9 Pk Volume	20	74	0	0	88	4 - 6 Pk Volume	69	36	0	0	105
Pk Hr Factor	0.714	0.500	0.000	0.000	0.537	Pk Hr Factor	0.821	0.529	0.000	0.000	0.691

VOLUME

Power Line Rd Bet. Skyking Rd & W Elkhorn Blvd

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_008

DAILY TOTALS					NB	SB						EB	WB						Total
					619	472						0	0						1,091
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00	0	1			1		12:00	4	3			7							
00:15	0	3			3		12:15	3	2			5							
00:30	4	4			8		12:30	3	10			13							
00:45	0	4	4	12	4	16	12:45	3	6	21		9	34						
01:00	6	7			13		13:00	3	4			7							
01:15	1	7			8		13:15	12	5			17							
01:30	1	4			5		13:30	2	6			8							
01:45	0	8	7	25	7	33	13:45	7	2	17		9	41						
02:00	0	2			2		14:00	4	1			5							
02:15	3	0			3		14:15	5	5			10							
02:30	5	2			7		14:30	10	2			12							
02:45	2	10	0	4	2	14	14:45	13	32	4	12	17	44						
03:00	5	0			5		15:00	8	3			11							
03:15	9	3			12		15:15	14	9			23							
03:30	4	3			7		15:30	12	5			17							
03:45	3	21	0	6	3	27	15:45	15	49	4	21	19	70						
04:00	4	1			5		16:00	18	6			24							
04:15	9	0			9		16:15	26	3			29							
04:30	0	1			1		16:30	18	8			26							
04:45	2	15	3	5	5	20	16:45	26	88	8	25	34	113						
05:00	4	2			6		17:00	12	9			21							
05:15	2	1			3		17:15	21	3			24							
05:30	1	4			5		17:30	24	1			25							
05:45	6	13	2	9	8	22	17:45	14	71	3	16	17	87						
06:00	11	9			20		18:00	14	5			19							
06:15	4	4			8		18:15	10	8			18							
06:30	9	8			17		18:30	5	2			7							
06:45	6	30	7	28	13	58	18:45	12	41	5	20	17	61						
07:00	8	6			14		19:00	4	1			5							
07:15	3	16			19		19:15	3	2			5							
07:30	4	31			35		19:30	4	3			7							
07:45	7	22	14	67	21	89	19:45	2	13	2	8	4	21						
08:00	3	10			13		20:00	7	3			10							
08:15	3	42			45		20:15	7	1			8							
08:30	8	12			20		20:30	4	5			9							
08:45	4	18	5	69	9	87	20:45	7	25	3	12	10	37						
09:00	2	3			5		21:00	4	5			9							
09:15	6	7			13		21:15	12	2			14							
09:30	6	5			11		21:30	7	1			8							
09:45	2	16	3	18	5	34	21:45	2	25	3	11	5	36						
10:00	5	9			14		22:00	5	2			7							
10:15	10	8			18		22:15	7	3			10							
10:30	3	5			8		22:30	3	2			5							
10:45	7	25	8	30	15	55	22:45	2	17	1	8	3	25						
11:00	5	4			9		23:00	6	1			7							
11:15	6	4			10		23:15	2	6			8							
11:30	5	5			10		23:30	6	0			6							
11:45	1	17	8	21	9	38	23:45	8	22	0	7	8	29						
TOTALS	199	294			493		TOTALS	420	178			598							
SPLIT %	40.4%	59.6%			45.2%		SPLIT %	70.2%	29.8%			54.8%							

DAILY TOTALS					NB	SB						EB	WB						Total
					619	472						0	0						1,091
AM Peak Hour	05:45	07:30			07:30		PM Peak Hour	16:00	16:15			16:00							
AM Pk Volume	30	97			114		PM Pk Volume	88	28			113							
Pk Hr Factor	0.682	0.577			0.633		Pk Hr Factor	0.846	0.778			0.831							
7 - 9 Volume	40	136	0	0	176		4 - 6 Volume	159	41	0	0	200							
7 - 9 Peak Hour	07:00	07:30			07:30		4 - 6 Peak Hour	16:00	16:15			16:00							
7 - 9 Pk Volume	22	97			114		4 - 6 Pk Volume	88	28	0	0	113							
Pk Hr Factor	0.688	0.577	0.000	0.000	0.633		Pk Hr Factor	0.846	0.778	0.000	0.000	0.831							

VOLUME

Power Line Rd Bet. Skyking Rd & W Elkhorn Blvd

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_008

DAILY TOTALS					NB	SB						EB	WB						Total
					588	447						0	0						1,035
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00	0	1			1		12:00	13	6			19							
00:15	1	0			1		12:15	4	5			9							
00:30	1	0			1		12:30	5	9			14							
00:45	1	3	0	1	1	4	12:45	3	25	3	23	6	48						
01:00	5	1			6		13:00	4	13			17							
01:15	9	0			9		13:15	2	7			9							
01:30	5	3			8		13:30	12	2			14							
01:45	6	25	2	6	8	31	13:45	4	22	8	30	12	52						
02:00	6	1			7		14:00	5	6			11							
02:15	0	0			0		14:15	4	4			8							
02:30	0	3			3		14:30	5	8			13							
02:45	1	7	0	4	1	11	14:45	7	21	5	23	12	44						
03:00	3	0			3		15:00	8	6			14							
03:15	10	7			17		15:15	10	10			20							
03:30	5	0			5		15:30	13	7			20							
03:45	8	26	1	8	9	34	15:45	15	46	7	30	22	76						
04:00	4	0			4		16:00	14	6			20							
04:15	4	0			4		16:15	21	3			24							
04:30	5	0			5		16:30	27	5			32							
04:45	2	15	3	3	5	18	16:45	26	88	2	16	28	104						
05:00	1	1			2		17:00	25	7			32							
05:15	3	3			6		17:15	32	3			35							
05:30	4	2			6		17:30	33	3			36							
05:45	3	11	3	9	6	20	17:45	19	109	1	14	20	123						
06:00	1	8			9		18:00	10	3			13							
06:15	4	8			12		18:15	3	8			11							
06:30	4	8			12		18:30	3	5			8							
06:45	7	16	5	29	12	45	18:45	6	22	1	17	7	39						
07:00	2	7			9		19:00	2	2			4							
07:15	2	15			17		19:15	1	1			2							
07:30	4	9			13		19:30	2	1			3							
07:45	7	15	11	42	18	57	19:45	8	13	4	8	12	21						
08:00	7	11			18		20:00	3	8			11							
08:15	4	31			35		20:15	3	3			6							
08:30	3	6			9		20:30	5	2			7							
08:45	1	15	6	54	7	69	20:45	7	18	1	14	8	32						
09:00	5	7			12		21:00	8	2			10							
09:15	4	7			11		21:15	6	7			13							
09:30	3	8			11		21:30	3	1			4							
09:45	5	17	5	27	10	44	21:45	0	17	4	14	4	31						
10:00	9	1			10		22:00	1	4			5							
10:15	10	2			12		22:15	1	6			7							
10:30	2	17			19		22:30	2	7			9							
10:45	5	26	4	24	9	50	22:45	2	6	3	20	5	26						
11:00	3	7			10		23:00	1	2			3							
11:15	6	5			11		23:15	3	5			8							
11:30	1	2			3		23:30	5	5			10							
11:45	5	15	3	17	8	32	23:45	1	10	2	14	3	24						
TOTALS	191	224			415		TOTALS	397	223			620							
SPLIT %	46.0%	54.0%			40.1%		SPLIT %	64.0%	36.0%			59.9%							

DAILY TOTALS					NB	SB						EB	WB						Total
					588	447						0	0						1,035
AM Peak Hour	03:15	07:30			07:30		PM Peak Hour	16:45	12:30			16:45							
AM Pk Volume	27	62			84		PM Pk Volume	116	32			131							
Pk Hr Factor	0.675	0.500			0.600		Pk Hr Factor	0.879	0.615			0.910							
7 - 9 Volume	30	96	0	0	126		4 - 6 Volume	197	30	0	0	227							
7 - 9 Peak Hour	07:30	07:30			07:30		4 - 6 Peak Hour	16:45	16:15			16:45							
7 - 9 Pk Volume	22	62	0	0	84		4 - 6 Pk Volume	116	17	0	0	131							
Pk Hr Factor	0.786	0.500	0.000	0.000	0.600		Pk Hr Factor	0.879	0.607	0.000	0.000	0.910							

VOLUME

Metro Air Pkwy Bet. Skyking Rd & W Elkhorn Blvd

Day: Tuesday
Date: 3/10/2020City: Sacramento
Project #: CA20_7094_009

DAILY TOTALS					NB	SB					EB	WB	Total
					839	812					0	0	1,651
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	3	3			6	12:00	15	15			30		
00:15	2	2			4	12:15	20	17			37		
00:30	4	2			6	12:30	19	9			28		
00:45	3	12	4	11	7 23	12:45	19	73	21	62	40 135		
01:00	0	4			4	13:00	6	36			42		
01:15	2	0			2	13:15	9	7			16		
01:30	2	2			4	13:30	10	10			20		
01:45	0	4	0	6	0 10	13:45	6	31	8	61	14 92		
02:00	0	6			6	14:00	15	9			24		
02:15	3	10			13	14:15	8	12			20		
02:30	4	1			5	14:30	6	9			15		
02:45	5	12	3	20	8 32	14:45	6	35	9	39	15 74		
03:00	3	2			5	15:00	13	9			22		
03:15	7	5			12	15:15	7	2			9		
03:30	4	2			6	15:30	9	3			12		
03:45	2	16	1	10	3 26	15:45	7	36	3	17	10 53		
04:00	1	2			3	16:00	15	8			23		
04:15	4	1			5	16:15	17	5			22		
04:30	5	6			11	16:30	12	12			24		
04:45	3	13	6	15	9 28	16:45	18	62	8	33	26 95		
05:00	2	11			13	17:00	14	22			36		
05:15	6	11			17	17:15	10	12			22		
05:30	4	4			8	17:30	13	10			23		
05:45	5	17	2	28	7 45	17:45	29	66	13	57	42 123		
06:00	12	2			14	18:00	9	41			50		
06:15	12	3			15	18:15	18	25			43		
06:30	24	9			33	18:30	18	22			40		
06:45	16	64	6	20	22 84	18:45	8	53	14	102	22 155		
07:00	13	6			19	19:00	11	11			22		
07:15	19	14			33	19:15	14	6			20		
07:30	12	34			46	19:30	11	8			19		
07:45	10	54	15	69	25 123	19:45	17	53	11	36	28 89		
08:00	22	11			33	20:00	12	11			23		
08:15	9	4			13	20:15	12	15			27		
08:30	15	7			22	20:30	7	6			13		
08:45	9	55	15	37	24 92	20:45	4	35	3	35	7 70		
09:00	7	20			27	21:00	7	14			21		
09:15	9	5			14	21:15	10	9			19		
09:30	8	8			16	21:30	9	5			14		
09:45	7	31	8	41	15 72	21:45	7	33	9	37	16 70		
10:00	9	4			13	22:00	5	2			7		
10:15	2	3			5	22:15	4	1			5		
10:30	3	14			17	22:30	2	0			2		
10:45	2	16	3	24	5 40	22:45	1	12	3	6	4 18		
11:00	7	5			12	23:00	8	4			12		
11:15	10	8			18	23:15	1	3			4		
11:30	9	3			12	23:30	2	7			9		
11:45	13	39	11	27	24 66	23:45	6	17	5	19	11 36		
TOTALS	333	308			641	TOTALS	506	504			1010		
SPLIT %	52.0%	48.0%			38.8%	SPLIT %	50.1%	49.9%			61.2%		

DAILY TOTALS				NB	SB	EB				WB	Total			
				839	812					0				
AM Peak Hour	06:30	07:15			07:15	PM Peak Hour	17:45	18:00			17:45			
AM Pk Volume	72	74			137	PM Pk Volume	74	102			175			
Pk Hr Factor	0.750	0.544			0.745	Pk Hr Factor	0.638	0.622			0.875			
7 - 9 Volume	109	106	0	0	215	4 - 6 Volume	128	90	0	0	218			
7 - 9 Peak Hour	07:15	07:15			07:15	4 - 6 Peak Hour	17:00	17:00			17:00			
7 - 9 Pk Volume	63	74	0	0	137	4 - 6 Pk Volume	66	57	0	0	123			
Pk Hr Factor	0.716	0.544	0.000	0.000	0.745	Pk Hr Factor	0.569	0.648	0.000	0.000	0.732			

VOLUME

Metro Air Pkwy Bet. Skyking Rd & W Elkhorn Blvd

Day: Wednesday

Date: 3/11/2020

City: Sacramento

Project #: CA20_7094_009

DAILY TOTALS					NB	SB	EB					WB	Total
					913	891	0					0	1,804
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	0	4			4		12:00	14	11			25	
00:15	0	2			2		12:15	13	11			24	
00:30	2	1			3		12:30	12	17			29	
00:45	5	7	2	9	7	16	12:45	15	54	21	60	36	114
01:00	2	2			4		13:00	20	25			45	
01:15	5	4			9		13:15	5	12			17	
01:30	2	3			5		13:30	8	15			23	
01:45	0	9	0	9	0	18	13:45	18	51	8	60	26	111
02:00	5	0			5		14:00	16	18			34	
02:15	0	8			8		14:15	6	16			22	
02:30	1	9			10		14:30	14	14			28	
02:45	6	12	1	18	7	30	14:45	12	48	8	56	20	104
03:00	4	1			5		15:00	7	13			20	
03:15	3	6			9		15:15	11	9			20	
03:30	7	2			9		15:30	12	9			21	
03:45	2	16	3	12	5	28	15:45	15	45	5	36	20	81
04:00	4	2			6		16:00	10	13			23	
04:15	3	3			6		16:15	23	8			31	
04:30	3	1			4		16:30	21	17			38	
04:45	2	12	3	9	5	21	16:45	27	81	11	49	38	130
05:00	5	11			16		17:00	13	18			31	
05:15	6	6			12		17:15	15	12			27	
05:30	19	3			22		17:30	17	20			37	
05:45	5	35	3	23	8	58	17:45	18	63	14	64	32	127
06:00	7	10			17		18:00	18	32			50	
06:15	24	5			29		18:15	14	21			35	
06:30	29	12			41		18:30	13	11			24	
06:45	19	79	10	37	29	116	18:45	9	54	10	74	19	128
07:00	11	15			26		19:00	8	7			15	
07:15	21	13			34		19:15	15	8			23	
07:30	20	35			55		19:30	8	13			21	
07:45	12	64	18	81	30	145	19:45	12	43	5	33	17	76
08:00	17	15			32		20:00	10	18			28	
08:15	11	5			16		20:15	9	8			17	
08:30	17	6			23		20:30	3	12			15	
08:45	13	58	15	41	28	99	20:45	2	24	5	43	7	67
09:00	10	22			32		21:00	5	3			8	
09:15	5	9			14		21:15	3	10			13	
09:30	11	6			17		21:30	10	6			16	
09:45	10	36	12	49	22	85	21:45	5	23	6	25	11	48
10:00	9	3			12		22:00	7	5			12	
10:15	4	9			13		22:15	5	2			7	
10:30	5	7			12		22:30	3	8			11	
10:45	6	24	11	30	17	54	22:45	3	18	3	18	6	36
11:00	6	7			13		23:00	2	4			6	
11:15	10	7			17		23:15	8	10			18	
11:30	7	18			25		23:30	6	0			6	
11:45	14	37	7	39	21	76	23:45	4	20	2	16	6	36
TOTALS	389	357			746		TOTALS	524	534			1058	
SPLIT %	52.1%	47.9%			41.4%		SPLIT %	49.5%	50.5%			58.6%	

DAILY TOTALS					NB	SB						EB	WB	Total	
					913	891						0	0		
AM Peak Hour	06:15	07:00			07:15		PM Peak Hour	16:15	17:30			17:30			
AM Pk Volume	83	81			151		PM Pk Volume	84	87			154			
Pk Hr Factor	0.716	0.579			0.686		Pk Hr Factor	0.778	0.680			0.770			
7 - 9 Volume	122	122	0	0	244		4 - 6 Volume	144	113	0	0	257			
7 - 9 Peak Hour	07:15	07:00			07:15		4 - 6 Peak Hour	16:15	17:00			16:15			
7 - 9 Pk Volume	70	81	0	0	151		4 - 6 Pk Volume	84	64	0	0	138			
Pk Hr Factor	0.833	0.579	0.000	0.000	0.686		Pk Hr Factor	0.778	0.800	0.000	0.000	0.908			

VOLUME

Metro Air Pkwy Bet. Skyking Rd & W Elkhorn Blvd

Day: Thursday
Date: 3/12/2020City: Sacramento
Project #: CA20_7094_009

DAILY TOTALS					NB	SB						EB	WB	Total	
					859	817						0	0		
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00	3	2			5		12:00	7	4			11			
00:15	12	5			17		12:15	21	10			31			
00:30	2	6			8		12:30	17	9			26			
00:45	5	22	0	13	5	35	12:45	16	61	9	32	25	93		
01:00	1	9			10		13:00	17	43			60			
01:15	3	8			11		13:15	6	3			9			
01:30	5	1			6		13:30	4	14			18			
01:45	5	14	0	18	5	32	13:45	17	44	16	76	33	120		
02:00	4	5			9		14:00	13	11			24			
02:15	2	12			14		14:15	8	15			23			
02:30	0	6			6		14:30	8	12			20			
02:45	0	6	1	24	1	30	14:45	11	40	10	48	21	88		
03:00	0	0			0		15:00	9	10			19			
03:15	9	0			9		15:15	8	7			15			
03:30	4	5			9		15:30	7	8			15			
03:45	4	17	1	6	5	23	15:45	12	36	9	34	21	70		
04:00	0	3			3		16:00	16	5			21			
04:15	1	1			2		16:15	8	7			15			
04:30	0	0			0		16:30	22	5			27			
04:45	1	2	5	9	6	11	16:45	25	71	6	23	31	94		
05:00	1	16			17		17:00	17	11			28			
05:15	9	3			12		17:15	10	10			20			
05:30	9	3			12		17:30	15	9			24			
05:45	15	34	4	26	19	60	17:45	9	51	13	43	22	94		
06:00	5	6			11		18:00	13	41			54			
06:15	13	6			19		18:15	7	13			20			
06:30	26	6			32		18:30	9	11			20			
06:45	14	58	8	26	22	84	18:45	8	37	9	74	17	111		
07:00	16	11			27		19:00	7	9			16			
07:15	27	13			40		19:15	11	9			20			
07:30	12	27			39		19:30	10	10			20			
07:45	11	66	22	73	33	139	19:45	17	45	12	40	29	85		
08:00	14	14			28		20:00	16	12			28			
08:15	15	7			22		20:15	11	14			25			
08:30	15	5			20		20:30	7	7			14			
08:45	17	61	16	42	33	103	20:45	3	37	12	45	15	82		
09:00	7	26			33		21:00	5	5			10			
09:15	7	9			16		21:15	5	12			17			
09:30	12	11			23		21:30	7	6			13			
09:45	9	35	4	50	13	85	21:45	8	25	1	24	9	49		
10:00	3	4			7		22:00	2	8			10			
10:15	7	4			11		22:15	5	1			6			
10:30	14	8			22		22:30	5	3			8			
10:45	5	29	4	20	9	49	22:45	1	13	2	14	3	27		
11:00	4	14			18		23:00	5	0			5			
11:15	6	5			11		23:15	7	9			16			
11:30	14	8			22		23:30	2	6			8			
11:45	11	35	13	40	24	75	23:45	6	20	2	17	8	37		
TOTALS	379	347			726		TOTALS	480	470			950			
SPLIT %	52.2%	47.8%			43.3%		SPLIT %	50.5%	49.5%			56.7%			

DAILY TOTALS				NB	SB	EB				WB	Total			
				859	817					0				
AM Peak Hour	06:30	07:15			07:15	PM Peak Hour	16:30	17:45					12:15	
AM Pk Volume	83	76			140	PM Pk Volume	74	78					142	
Pk Hr Factor	0.769	0.704			0.875	Pk Hr Factor	0.740	0.476					0.592	
7 - 9 Volume	127	115	0	0	242	4 - 6 Volume	122	66	0	0			188	
7 - 9 Peak Hour	07:00	07:15			07:15	4 - 6 Peak Hour	16:30	17:00					16:30	
7 - 9 Pk Volume	66	76	0	0	140	4 - 6 Pk Volume	74	43	0	0			106	
Pk Hr Factor	0.611	0.704	0.000	0.000	0.875	Pk Hr Factor	0.740	0.827	0.000	0.000			0.855	

Appendix B

Analysis Worksheets for Existing (2020) Conditions (Intersections)

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Existing Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	5.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	1	2	1	4	9
Future Vol, veh/h	21	1	2	1	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	1	2	1	4	9
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	20	3	0	0	3	0
Stage 1	3	-	-	-	-	-
Stage 2	17	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	997	1081	-	-	1619	-
Stage 1	1020	-	-	-	-	-
Stage 2	1006	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	995	1081	-	-	1619	-
Mov Cap-2 Maneuver	995	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.7	0		2.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 999		1619	-	
HCM Lane V/C Ratio	-	- 0.022		0.002	-	
HCM Control Delay (s)	-	- 8.7		7.2	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.1		0	-	

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Existing Conditions
AM Peak Hour

Intersection

Int Delay, s/veh 5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	0	36	12	0	3
Future Vol, veh/h	4	0	36	12	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	36	12	0	3

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	4
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.5	8.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1080	-	-	1618	-
HCM Lane V/C Ratio	0.003	-	-	0.022	-
HCM Control Delay (s)	8.3	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Existing Conditions
AM Peak Hour

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	39	50	0	2	2	2	2	4	0
Future Vol, veh/h	0	8	0	39	50	0	2	2	2	2	4	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	8	0	39	50	0	2	2	2	2	4	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.5	7	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	0%	44%	33%
Vol Thru, %	33%	100%	56%	67%
Vol Right, %	33%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	8	89	6
LT Vol	2	0	39	2
Through Vol	2	8	50	4
RT Vol	2	0	0	0
Lane Flow Rate	6	8	89	6
Geometry Grp	1	1	1	1
Degree of Util (X)	0.007	0.009	0.1	0.007
Departure Headway (Hd)	3.973	4.02	4.047	4.173
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	896	890	889	853
Service Time	2.02	2.045	2.057	2.22
HCM Lane V/C Ratio	0.007	0.009	0.1	0.007
HCM Control Delay	7	7.1	7.5	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0	0.3	0

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Existing Conditions
AM Peak Hour

Intersection							
Int Delay, s/veh	0.4						
Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	12	0	2	97	76	1	7
Future Vol, veh/h	12	0	2	97	76	1	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	195	-	0	-
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	12	0	2	97	76	1	7
Major/Minor	Major1	Major2		Minor1			
Conflicting Flow All	0	0	-	12	0	282	12
Stage 1	-	-	-	-	-	12	-
Stage 2	-	-	-	-	-	270	-
Critical Hdwy	-	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	-	1607	-	708	1069
Stage 1	-	-	-	-	-	1011	-
Stage 2	-	-	-	-	-	775	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	~-51	~-51	-	708	1069
Mov Cap-2 Maneuver	-	-	-	-	-	708	-
Stage 1	-	-	-	-	-	1011	-
Stage 2	-	-	-	-	-	775	-
Approach	EB	WB		NB			
HCM Control Delay, s	0			8.6			
HCM LOS				A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT		
Capacity (veh/h)	1005	-	-	+	-		
HCM Lane V/C Ratio	0.008	-	-	-	-		
HCM Control Delay (s)	8.6	-	-	-	-		
HCM Lane LOS	A	-	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-	-		
Notes							
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon	

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing Conditions
AM Peak Hour

						
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	12	11	105	297	66	89
v/c Ratio	0.01	0.01	0.07	0.19	0.10	0.12
Control Delay	8.8	0.0	7.3	0.3	4.3	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	0.0	7.3	0.3	4.3	6.0
Queue Length 50th (ft)	0	0	0	0	0	0
Queue Length 95th (ft)	6	0	29	0	22	19
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3539	1550	3245	1550	1770	2580
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	0.00	0.01	0.03	0.19	0.04	0.03
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑↑
Traffic Volume (vph)	0	12	11	13	92	297	0	0	0	66	0	89
Future Volume (vph)	0	12	11	13	92	297	0	0	0	66	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.0		4.0
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		0.99	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3517	1550				1770		2787
Flt Permitted		1.00	1.00		0.92	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3247	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	12	11	13	92	297	0	0	0	66	0	89
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	86
Lane Group Flow (vph)	0	12	11	0	105	297	0	0	0	66	0	3
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free	Perm	NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free	2		Free						
Actuated Green, G (s)		3.0	20.5		2.6	20.5				6.7		0.4
Effective Green, g (s)		5.4	20.5		5.4	20.5				7.1		0.8
Actuated g/C Ratio		0.26	1.00		0.26	1.00				0.35		0.04
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		932	1550		855	1550				613		108
v/s Ratio Prot		0.00								0.04		0.00
v/s Ratio Perm			0.01		0.03	c0.19						
v/c Ratio		0.01	0.01		0.12	0.19				0.11		0.03
Uniform Delay, d1		5.6	0.0		5.7	0.0				4.5		9.5
Progression Factor		1.01	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		0.0	0.0		0.0	0.3				0.0		0.0
Delay (s)		5.6	0.0		5.8	0.3				4.6		9.5
Level of Service		A	A		A	A				A		A
Approach Delay (s)		2.9			1.7			0.0			7.4	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			3.3									
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			20.5							12.4		
Intersection Capacity Utilization			18.0%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing Conditions
AM Peak Hour

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	64	10	364	48	22	23	62
v/c Ratio	0.04	0.01	0.17	0.05	0.04	0.05	0.05
Control Delay	10.0	0.0	9.0	4.2	19.3	19.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	0.0	9.0	4.2	19.3	19.3	2.3
Queue Length 50th (ft)	1	0	11	0	2	2	0
Queue Length 95th (ft)	21	0	90	17	30	30	7
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3503	1550	3503	1520	1519	1519	2763
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	0.02	0.01	0.10	0.03	0.01	0.02	0.02
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (vph)	0	64	10	0	364	48	45	0	62	0	0	0
Future Volume (vph)	0	64	10	0	364	48	45	0	62	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3539	1550		3539	1548	1681	1681	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3539	1550		3539	1548	1681	1681	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	64	10	0	364	48	45	0	62	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	32	0	0	37	0	0	0
Lane Group Flow (vph)	0	64	10	0	364	16	22	23	25	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		8.8	29.7		7.9	7.9	2.3	2.3	10.5			
Effective Green, g (s)		9.7	29.7		9.7	9.7	3.8	3.8	12.0			
Actuated g/C Ratio		0.33	1.00		0.33	0.33	0.13	0.13	0.40			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		1155	1550		1155	505	215	215	1126			
v/s Ratio Prot		0.02			c0.10		0.01	c0.01	c0.01			
v/s Ratio Perm			0.01			0.01						
v/c Ratio		0.06	0.01		0.32	0.03	0.10	0.11	0.02			
Uniform Delay, d1		6.9	0.0		7.5	6.8	11.4	11.4	5.3			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.0	0.0		0.1	0.0	0.1	0.1	0.0			
Delay (s)		6.9	0.0		7.6	6.8	11.5	11.5	5.3			
Level of Service		A	A		A	A	B	B	A			
Approach Delay (s)		5.9			7.5			7.9			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.4			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.20									
Actuated Cycle Length (s)			29.7			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			20.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Intersection Delay, s/veh 8.3

Intersection LOS A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	122	2	16	65	3	41
Future Vol, veh/h	122	2	16	65	3	41
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	122	2	16	65	3	41
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9.2	7.2	7.6
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	7%
Vol Thru, %	20%	0%	0%	93%
Vol Right, %	80%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	81	122	2	44
LT Vol	0	122	0	3
Through Vol	16	0	0	41
RT Vol	65	0	2	0
Lane Flow Rate	81	122	2	44
Geometry Grp	2	7	7	2
Degree of Util (X)	0.087	0.178	0.002	0.053
Departure Headway (Hd)	3.848	5.251	4.049	4.374
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	936	681	877	823
Service Time	1.849	3.007	1.804	2.377
HCM Lane V/C Ratio	0.087	0.179	0.002	0.053
HCM Control Delay	7.2	9.2	6.8	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.6	0	0.2

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Existing Conditions
AM Peak Hour

Intersection

Intersection Delay, s/veh 17.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	97	0	6	504	78	4	0	2	12	0	23
Future Vol, veh/h	1	97	0	6	504	78	4	0	2	12	0	23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	97	0	6	504	78	4	0	2	12	0	23
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	8.6	19.1	9.1	8.8
HCM LOS	A	C	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	0%	0%	100%	0%	87%	0%	0%
Vol Right, %	0%	100%	0%	0%	0%	13%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	2	1	97	6	582	12	23
LT Vol	4	0	1	0	6	0	12	0
Through Vol	0	0	0	97	0	504	0	0
RT Vol	0	2	0	0	0	78	0	23
Lane Flow Rate	4	2	1	97	6	582	12	23
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.007	0.003	0.002	0.137	0.009	0.737	0.022	0.035
Departure Headway (Hd)	6.728	5.514	5.586	5.083	5.153	4.559	6.676	5.463
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	534	651	643	708	687	786	539	658
Service Time	4.441	3.227	3.296	2.793	2.943	2.348	4.385	3.171
HCM Lane V/C Ratio	0.007	0.003	0.002	0.137	0.009	0.74	0.022	0.035
HCM Control Delay	9.5	8.2	8.3	8.6	8	19.2	9.5	8.4
HCM Lane LOS	A	A	A	A	A	C	A	A
HCM 95th-tile Q	0	0	0	0.5	0	6.7	0.1	0.1

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

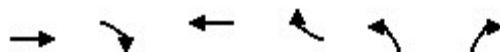
Existing Conditions
AM Peak Hour

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↑	↗				↘		↗
Traffic Vol, veh/h	0	44	88	0	525	775	0	0	0	107	0	26
Future Vol, veh/h	0	44	88	0	525	775	0	0	0	107	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	150	-	-	100	-	-	-	0	-	440
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	44	88	0	525	775	0	0	0	107	0	26

Major/Minor	Major1		Major2				Minor2		
Conflicting Flow All	-	0	-	-	-	0	569	-	525
Stage 1	-	-	-	-	-	-	525	-	-
Stage 2	-	-	-	-	-	-	44	-	-
Critical Hdwy	-	-	-	-	-	-	6.42	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.518	-	3.318
Pot Cap-1 Maneuver	0	-	0	0	-	0	484	0	552
Stage 1	0	-	0	0	-	0	593	0	-
Stage 2	0	-	0	0	-	0	978	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	484	0	552
Mov Cap-2 Maneuver	-	-	-	-	-	-	484	0	-
Stage 1	-	-	-	-	-	-	593	0	-
Stage 2	-	-	-	-	-	-	978	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	484	552
HCM Lane V/C Ratio	-	-	0.221	0.047
HCM Control Delay (s)	-	-	14.5	11.8
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.8	0.1



Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	138	4	982	106	226	523
v/c Ratio	0.11	0.00	0.80	0.07	0.65	0.33
Control Delay	4.7	0.0	15.4	0.1	33.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	0.0	15.4	0.1	33.3	0.6
Queue Length 50th (ft)	16	0	225	0	86	0
Queue Length 95th (ft)	42	0	#601	0	150	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	1297	1583	1283	1583	726	1583
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	0.11	0.00	0.77	0.07	0.31	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑	↑	↑		↑			
Traffic Volume (veh/h)	0	138	4	0	982	106	226	0	523	0	0	0
Future Volume (veh/h)	0	138	4	0	982	106	226	0	523	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	138	0	0	982	0	226	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	1196		0	1196		289	0				
Arrive On Green	0.00	0.64	0.00	0.00	0.64	0.00	0.16	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	0	1870	1585	1781	0	1585			
Grp Volume(v), veh/h	0	138	0	0	982	0	226	0	0			
Grp Sat Flow(s),veh/h/ln	0	1870	1585	0	1870	1585	1781	0	1585			
Q Serve(g_s), s	0.0	1.3	0.0	0.0	18.1	0.0	5.5	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	1.3	0.0	0.0	18.1	0.0	5.5	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1196		0	1196		289	0				
V/C Ratio(X)	0.00	0.12		0.00	0.82		0.78	0.00				
Avail Cap(c_a), veh/h	0	1853		0	1832		1039	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	3.2	0.0	0.0	6.2	0.0	18.3	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	1.8	0.0	1.8	0.0	0.0			
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	0.0	0.3	0.0	0.0	4.0	0.0	2.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.2	0.0	0.0	8.0	0.0	20.0	0.0	0.0			
LnGrp LOS	A	A		A	A		C	A				
Approach Vol, veh/h		138	A		982	A		226	A			
Approach Delay, s/veh		3.2			8.0			20.0				
Approach LOS		A			A			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		34.6				34.6		10.9				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		44.5				* 45		26.5				
Max Q Clear Time (g_c+I1), s		20.1				3.3		7.5				
Green Ext Time (p_c), s		9.0				0.7		0.3				

Intersection Summary

HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing Conditions
AM Peak Hour

Intersection													
Int Delay, s/veh	0.2												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations				↰		↰		↱	↱			↱↱	↰
Traffic Vol, veh/h	0	0	0	15	0	1259	0	297	73	13	0	974	208
Future Vol, veh/h	0	0	0	15	0	1259	0	297	73	13	0	974	208
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	Free	-	-	Free	-	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	15	0	1259	0	297	73	13	0	974	208

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	810	-	-
Stage 1	297	-	-
Stage 2	513	-	-
Critical Hdwy	6.63	-	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	-	-
Pot Cap-1 Maneuver	333	0	0
Stage 1	753	0	0
Stage 2	567	0	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	333	0	-
Mov Cap-2 Maneuver	333	0	-
Stage 1	753	0	-
Stage 2	567	0	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 333	-
HCM Lane V/C Ratio	- 0.045	-
HCM Control Delay (s)	- 16.3	0
HCM Lane LOS	- C	A
HCM 95th %tile Q(veh)	- 0.1	-

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Existing Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	5.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	211	59	0	148	70	921
Future Vol, veh/h	211	59	0	148	70	921
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	211	59	0	148	70	921

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	144	70	70	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	841	992	1530	-	-	0
Stage 1	952	-	-	-	-	0
Stage 2	941	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	841	992	1530	-	-	-
Mov Cap-2 Maneuver	841	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	941	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1530	-	841	992	-
HCM Lane V/C Ratio	-	-	0.251	0.059	-
HCM Control Delay (s)	0	-	10.7	8.9	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0	-	1	0.2	-

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	6	13	7	8	32
Future Vol, veh/h	28	6	13	7	8	32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	6	13	7	8	32
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.9	7.2	7.7
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	20%
Vol Thru, %	100%	0%	0%	0%	80%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	7	28	6	40
LT Vol	0	0	28	0	8
Through Vol	13	0	0	0	32
RT Vol	0	7	0	6	0
Lane Flow Rate	13	7	28	6	40
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.017	0.008	0.04	0.007	0.049
Departure Headway (Hd)	4.613	3.912	5.138	3.938	4.448
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	774	911	696	906	803
Service Time	2.354	1.653	2.877	1.676	2.487
HCM Lane V/C Ratio	0.017	0.008	0.04	0.007	0.05
HCM Control Delay	7.4	6.7	8.1	6.7	7.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0	0.1	0	0.2

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Existing Conditions
AM Peak Hour

Intersection							
Int Delay, s/veh	0.7						
Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	5	10	2	72	6	23	70
Future Vol, veh/h	5	10	2	72	6	23	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	120	-	180	-	-	130
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	5	10	2	72	6	23	70

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	173	23	-	93	0	0
Stage 1	23	-	-	-	-	-
Stage 2	150	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	2.218	-	-
Pot Cap-1 Maneuver	817	1054	-	1501	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	817	1054	~-38	~-38	-	-
Mov Cap-2 Maneuver	817	-	-	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7		0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	+	-	817	1054	-	-
HCM Lane V/C Ratio	-	-	0.006	0.009	-	-
HCM Control Delay (s)	-	-	9.4	8.4	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Existing Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	15	23	19	6	7
Future Vol, veh/h	11	15	23	19	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	15	23	19	6	7
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	52	33	0	0	42	0
Stage 1	33	-	-	-	-	-
Stage 2	19	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	957	1041	-	-	1567	-
Stage 1	989	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	953	1041	-	-	1567	-
Mov Cap-2 Maneuver	953	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	1000	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.7	0		3.4		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	1002	1567	-	
HCM Lane V/C Ratio	-	-	0.026	0.004	-	
HCM Control Delay (s)	-	-	8.7	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Existing Conditions
PM Peak Hour

Intersection

Int Delay, s/veh 3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	1	1	21	0	27
Future Vol, veh/h	30	1	1	21	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	1	1	21	0	27

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	31
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1582
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1582
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1043	-	-	1582	-
HCM Lane V/C Ratio	0.026	-	-	0.001	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Existing Conditions
PM Peak Hour

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	54	6	5	18	0	5	11	61	0	3	0
Future Vol, veh/h	0	54	6	5	18	0	5	11	61	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	54	6	5	18	0	5	11	61	0	3	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.3	7	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	0%	22%	0%
Vol Thru, %	14%	90%	78%	100%
Vol Right, %	79%	10%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	60	23	3
LT Vol	5	0	5	0
Through Vol	11	54	18	3
RT Vol	61	6	0	0
Lane Flow Rate	77	60	23	3
Geometry Grp	1	1	1	1
Degree of Util (X)	0.077	0.067	0.027	0.003
Departure Headway (Hd)	3.616	4.03	4.162	4.135
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	986	889	859	860
Service Time	1.657	2.054	2.192	2.184
HCM Lane V/C Ratio	0.078	0.067	0.027	0.003
HCM Control Delay	7	7.3	7.3	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.1	0

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Existing Conditions
PM Peak Hour

Intersection							
Int Delay, s/veh	3.2						
Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	102	1	8	29	1	0	65
Future Vol, veh/h	102	1	8	29	1	0	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	-	195	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	102	1	8	29	1	0	65
Major/Minor	Major1		Major2		Minor1		
Conflicting Flow All	0	0	103	0	0	148	103
Stage 1	-	-	-	-	0	103	-
Stage 2	-	-	-	-	0	45	-
Critical Hdwy	-	-	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1489	-	0	844	952
Stage 1	-	-	-	-	0	921	-
Stage 2	-	-	-	-	0	977	-
Platoon blocked, %	-	-		-	-		
Mov Cap-1 Maneuver	-	-	1489	-	0	840	952
Mov Cap-2 Maneuver	-	-	-	-	0	840	-
Stage 1	-	-	-	-	0	921	-
Stage 2	-	-	-	-	0	972	-
Approach	EB		WB		NB		
HCM Control Delay, s	0		1.6		9.1		
HCM LOS	A						
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT		
Capacity (veh/h)	952	-	-	1489	-		
HCM Lane V/C Ratio	0.068	-	-	0.005	-		
HCM Control Delay (s)	9.1	-	-	7.4	-		
HCM Lane LOS	A	-	-	A	-		
HCM 95th %tile Q(veh)	0.2	-	-	0	-		

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing Conditions
PM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	148	23	30	79	60	12
v/c Ratio	0.10	0.01	0.02	0.05	0.10	0.02
Control Delay	7.1	0.0	7.9	0.1	4.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	0.0	7.9	0.1	4.5	0.1
Queue Length 50th (ft)	1	0	1	0	2	0
Queue Length 95th (ft)	37	0	12	0	21	0
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3539	1550	3539	1550	1770	2586
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	0.04	0.01	0.01	0.05	0.03	0.00
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing Conditions
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↗		↗↗	
Traffic Volume (vph)	0	148	23	0	30	79	0	0	0	60	0	12	
Future Volume (vph)	0	148	23	0	30	79	0	0	0	60	0	12	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0	4.0		4.0	4.0				4.0		4.0	
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88	
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00	
Frt		1.00	0.85		1.00	0.85				1.00		0.85	
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787	
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	148	23	0	30	79	0	0	0	60	0	12	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	12	
Lane Group Flow (vph)	0	148	23	0	30	79	0	0	0	60	0	0	
Confl. Peds. (#/hr)			2			2							
Turn Type		NA	Free		NA	Free				Prot		Prot	
Protected Phases		6			2					8		4	
Permitted Phases			Free			Free							
Actuated Green, G (s)		4.4	21.9		4.0	21.9				6.7		0.3	
Effective Green, g (s)		6.8	21.9		6.8	21.9				7.1		0.7	
Actuated g/C Ratio		0.31	1.00		0.31	1.00				0.32		0.03	
Clearance Time (s)		6.4			6.8					4.4		4.4	
Vehicle Extension (s)		1.0			1.0					1.0		1.0	
Lane Grp Cap (vph)		1098	1550		1098	1550				573		89	
v/s Ratio Prot		c0.04			0.01					c0.03		0.00	
v/s Ratio Perm			0.01			0.05							
v/c Ratio		0.13	0.01		0.03	0.05				0.10		0.00	
Uniform Delay, d1		5.4	0.0		5.3	0.0				5.2		10.3	
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00	
Incremental Delay, d2		0.0	0.0		0.0	0.1				0.0		0.0	
Delay (s)		5.5	0.0		5.3	0.1				5.2		10.3	
Level of Service		A	A		A	A				A		B	
Approach Delay (s)		4.7			1.5			0.0			6.0		
Approach LOS		A			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			4.0									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.17										
Actuated Cycle Length (s)			21.9							12.4			
Intersection Capacity Utilization			14.1%							A			
Analysis Period (min)			15										
c Critical Lane Group													

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing Conditions
PM Peak Hour

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	154	54	89	52	8	9	580
v/c Ratio	0.17	0.03	0.10	0.12	0.03	0.03	0.30
Control Delay	12.2	0.0	11.9	5.0	19.9	19.9	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	0.0	11.9	5.0	19.9	19.9	1.2
Queue Length 50th (ft)	9	0	5	0	1	1	0
Queue Length 95th (ft)	42	0	27	19	15	17	22
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3503	1550	3503	1520	1519	1519	2768
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	0.04	0.03	0.03	0.03	0.01	0.01	0.21
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (vph)	0	154	54	0	89	52	17	0	580	0	0	0
Future Volume (vph)	0	154	54	0	89	52	17	0	580	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3539	1550		3539	1548	1681	1681	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3539	1550		3539	1548	1681	1681	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	154	54	0	89	52	17	0	580	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	41	0	0	263	0	0	0
Lane Group Flow (vph)	0	154	54	0	89	11	8	9	317	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		6.1	33.1		5.2	5.2	4.6	4.6	16.6			
Effective Green, g (s)		7.0	33.1		7.0	7.0	6.1	6.1	18.1			
Actuated g/C Ratio		0.21	1.00		0.21	0.21	0.18	0.18	0.55			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		748	1550		748	327	309	309	1524			
v/s Ratio Prot		c0.04			0.03		0.00	0.01	c0.11			
v/s Ratio Perm			0.03			0.01						
v/c Ratio		0.21	0.03		0.12	0.03	0.03	0.03	0.21			
Uniform Delay, d1		10.8	0.0		10.6	10.4	11.1	11.1	3.8			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.0	0.0		0.0	0.0	0.0	0.0	0.0			
Delay (s)		10.8	0.0		10.6	10.4	11.1	11.1	3.9			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		8.0			10.5			4.1			0.0	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			5.9									
HCM 2000 Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			33.1									
Intersection Capacity Utilization			32.2%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Existing Conditions
PM Peak Hour

Intersection

Intersection Delay, s/veh 8.8

Intersection LOS A

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Vol, veh/h	1	36	3	1	107	283	4	10
Future Vol, veh/h	1	36	3	1	107	283	4	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2
Mvmt Flow	1	36	3	1	107	283	4	10
Number of Lanes	0	1	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8.8	8.9	7.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	29%
Vol Thru, %	27%	0%	0%	71%
Vol Right, %	73%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	391	37	3	14
LT Vol	0	37	0	4
Through Vol	107	0	0	10
RT Vol	284	0	3	0
Lane Flow Rate	391	37	3	14
Geometry Grp	2	7	7	2
Degree of Util (X)	0.389	0.059	0.004	0.017
Departure Headway (Hd)	3.578	5.741	4.534	4.357
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	997	618	779	809
Service Time	1.635	3.53	2.322	2.449
HCM Lane V/C Ratio	0.392	0.06	0.004	0.017
HCM Control Delay	8.9	8.9	7.3	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.9	0.2	0	0.1

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Existing Conditions
PM Peak Hour

Intersection

Intersection Delay, s/veh 16.7

Intersection LOS C

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	21	482	2	1	3	390	22	4	1	0	73	0	3
Future Vol, veh/h	21	482	2	1	3	390	22	4	1	0	73	0	3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	482	2	1	3	390	22	4	1	0	73	0	3
Number of Lanes	1	1	0	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	18.6	15.4	10.2	11.2
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	100%	0%	95%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	5%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	1	21	484	4	412	73	3
LT Vol	4	0	21	0	4	0	73	0
Through Vol	0	1	0	482	0	390	0	0
RT Vol	0	0	0	2	0	22	0	3
Lane Flow Rate	4	1	21	484	4	412	73	3
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.008	0.002	0.033	0.695	0.006	0.597	0.148	0.005
Departure Headway (Hd)	7.543	7.032	5.676	5.17	5.76	5.219	7.319	6.096
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	477	512	627	697	617	688	493	591
Service Time	5.246	4.735	3.442	2.935	3.531	2.989	5.019	3.796
HCM Lane V/C Ratio	0.008	0.002	0.033	0.694	0.006	0.599	0.148	0.005
HCM Control Delay	10.3	9.7	8.6	19	8.6	15.5	11.3	8.8
HCM Lane LOS	B	A	A	C	A	C	B	A
HCM 95th-tile Q	0	0	0.1	5.6	0	4	0.5	0

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Existing Conditions
PM Peak Hour

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑	↑				↑		↑
Traffic Vol, veh/h	0	253	314	0	400	355	0	0	0	104	0	22
Future Vol, veh/h	0	253	314	0	400	355	0	0	0	104	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	150	-	-	100	-	-	-	0	-	440
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	253	314	0	400	355	0	0	0	104	0	22

Major/Minor	Major1		Major2				Minor2		
Conflicting Flow All	-	0	-	-	-	0	653	-	400
Stage 1	-	-	-	-	-	-	400	-	-
Stage 2	-	-	-	-	-	-	253	-	-
Critical Hdwy	-	-	-	-	-	-	6.42	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.518	-	3.318
Pot Cap-1 Maneuver	0	-	0	0	-	0	432	0	650
Stage 1	0	-	0	0	-	0	677	0	-
Stage 2	0	-	0	0	-	0	789	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	432	0	650
Mov Cap-2 Maneuver	-	-	-	-	-	-	432	0	-
Stage 1	-	-	-	-	-	-	677	0	-
Stage 2	-	-	-	-	-	-	789	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	432	650
HCM Lane V/C Ratio	-	-	0.241	0.034
HCM Control Delay (s)	-	-	16	10.7
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.9	0.1

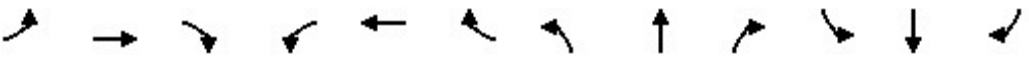
SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing Conditions
PM Peak Hour

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	333	50	459	137	257	883
v/c Ratio	0.37	0.03	0.52	0.09	0.52	0.56
Control Delay	7.9	0.0	9.9	0.1	15.8	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	0.0	9.9	0.1	15.8	1.4
Queue Length 50th (ft)	33	0	53	0	35	0
Queue Length 95th (ft)	94	0	141	0	110	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	1832	1583	1829	1583	1313	1583
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	0.18	0.03	0.25	0.09	0.20	0.56
Intersection Summary						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↑	↗	↗		↗			
Traffic Volume (veh/h)	0	333	50	0	459	137	257	0	883	0	0	0
Future Volume (veh/h)	0	333	50	0	459	137	257	0	883	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	333	0	0	459	0	257	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	754		0	754		417	0				
Arrive On Green	0.00	0.40	0.00	0.00	0.40	0.00	0.23	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	0	1870	1585	1781	0	1585			
Grp Volume(v), veh/h	0	333	0	0	459	0	257	0	0			
Grp Sat Flow(s),veh/h/ln	0	1870	1585	0	1870	1585	1781	0	1585			
Q Serve(g_s), s	0.0	3.2	0.0	0.0	4.8	0.0	3.2	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	3.2	0.0	0.0	4.8	0.0	3.2	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	754		0	754		417	0				
V/C Ratio(X)	0.00	0.44		0.00	0.61		0.62	0.00				
Avail Cap(c_a), veh/h	0	3391		0	3353		1902	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	5.4	0.0	0.0	5.9	0.0	8.5	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.8	0.0	0.6	0.0	0.0			
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	0.0	0.6	0.0	0.0	0.9	0.0	0.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.7	0.0	0.0	6.7	0.0	9.1	0.0	0.0			
LnGrp LOS	A	A		A	A		A	A				
Approach Vol, veh/h		333	A		459	A		257	A			
Approach Delay, s/veh		5.7			6.7			9.1				
Approach LOS		A			A			A				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		15.5				15.5		9.3				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		44.5				* 45		26.5				
Max Q Clear Time (g_c+I1), s		6.8				5.2		5.2				
Green Ext Time (p_c), s		3.2				1.8		0.3				

Intersection Summary

HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing Conditions
PM Peak Hour

Intersection														
Int Delay, s/veh	0.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations				↰		↰			↱	↰			↱↱	↰
Traffic Vol, veh/h	0	0	0	13	0	1170	4	0	319	60	7	0	1708	333
Future Vol, veh/h	0	0	0	13	0	1170	4	0	319	60	7	0	1708	333
Conflicting Peds, #/hr	0	0	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	Free	Free
RT Channelized	-	-	None	-	-	Free	-	-	-	Free	-	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	-	0	-	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	13	0	1170	4	0	319	60	7	0	1708	333
Major/Minor				Minor1		Major1		Major2						
Conflicting Flow All				1187		-		-	0	-	-	-	-	0
Stage 1				319		-		-	-	-	-	-	-	-
Stage 2				868		-		-	-	-	-	-	-	-
Critical Hdwy				6.63		-		-	-	-	-	-	-	-
Critical Hdwy Stg 1				5.43		-		-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.83		-		-	-	-	-	-	-	-
Follow-up Hdwy				3.519		-		-	-	-	-	-	-	-
Pot Cap-1 Maneuver				194		0		0	83	0	-	0	-	0
Stage 1				736		0		0	-	0	-	0	-	0
Stage 2				372		0		0	-	0	-	0	-	0
Platoon blocked, %									-				-	
Mov Cap-1 Maneuver				183		0		-	83	-	-	-	-	-
Mov Cap-2 Maneuver				183		0		-	-	-	-	-	-	-
Stage 1				693		0		-	-	-	-	-	-	-
Stage 2				372		0		-	-	-	-	-	-	-
Approach				WB		NB		SB						
HCM Control Delay, s				26.2		0.6								
HCM LOS				D										
Minor Lane/Major Mvmt		NBTWBLn1WBLn2		SBT										
Capacity (veh/h)		- 183		-										
HCM Lane V/C Ratio		- 0.071		-										
HCM Control Delay (s)		- 26.2		0										
HCM Lane LOS		- D		A										
HCM 95th %tile Q(veh)		- 0.2		-										

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Existing Conditions
PM Peak Hour

Intersection							
Int Delay, s/veh	16.9						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	221	585	10	160	10	353	1392
Future Vol, veh/h	221	585	10	160	10	353	1392
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	Free
Storage Length	0	30	-	-	-	-	290
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	221	585	10	160	10	353	1392

Major/Minor	Minor2	Major1	Major2				
Conflicting Flow All	453	353	353	0	160	-	0
Stage 1	353	-	-	-	-	-	-
Stage 2	100	-	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	6.93	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	3.119	-	-
Pot Cap-1 Maneuver	550	690	1204	-	908	-	0
Stage 1	710	-	-	-	-	-	0
Stage 2	913	-	-	-	-	-	0
Platoon blocked, %				-		-	
Mov Cap-1 Maneuver	537	690	1204	-	908	-	-
Mov Cap-2 Maneuver	537	-	-	-	-	-	-
Stage 1	704	-	-	-	-	-	-
Stage 2	900	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.8	0.5	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1204	-	537	690	-
HCM Lane V/C Ratio	0.008	-	0.412	0.848	-
HCM Control Delay (s)	8	0	16.3	32.2	-
HCM Lane LOS	A	A	C	D	-
HCM 95th %tile Q(veh)	0	-	2	9.6	-

Intersection

Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	2	86	30	8	9
Future Vol, veh/h	6	2	86	30	8	9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	2	86	30	8	9
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.8	7.5	7.7
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	47%
Vol Thru, %	100%	0%	0%	0%	53%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	30	6	2	17
LT Vol	0	0	6	0	8
Through Vol	86	0	0	0	9
RT Vol	0	30	0	2	0
Lane Flow Rate	86	30	6	2	17
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.109	0.032	0.009	0.002	0.021
Departure Headway (Hd)	4.556	3.856	5.26	4.058	4.525
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	789	931	674	870	789
Service Time	2.267	1.567	3.042	1.84	2.563
HCM Lane V/C Ratio	0.109	0.032	0.009	0.002	0.022
HCM Control Delay	7.8	6.7	8.1	6.8	7.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.4	0.1	0	0	0.1

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Existing Conditions
PM Peak Hour

Intersection							
Int Delay, s/veh	5.7						
Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	50	73	1	22	22	3	20
Future Vol, veh/h	50	73	1	22	22	3	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	120	-	180	-	-	130
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	50	73	1	22	22	3	20
Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	69	3	-	23	0	-	0
Stage 1	3	-	-	-	-	-	-
Stage 2	66	-	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	2.218	-	-	-
Pot Cap-1 Maneuver	936	1081	-	1592	-	-	-
Stage 1	1020	-	-	-	-	-	-
Stage 2	957	-	-	-	-	-	-
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	936	1081	~-23	~-23	-	-	-
Mov Cap-2 Maneuver	936	-	-	-	-	-	-
Stage 1	1020	-	-	-	-	-	-
Stage 2	957	-	-	-	-	-	-
Approach	EB		NB		SB		
HCM Control Delay, s	8.8				0		
HCM LOS	A						
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	+		-	936	1081	-	-
HCM Lane V/C Ratio	-		-	0.053	0.068	-	-
HCM Control Delay (s)	-		-	9.1	8.6	-	-
HCM Lane LOS	-		-	A	A	-	-
HCM 95th %tile Q(veh)	-		-	0.2	0.2	-	-
Notes							
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined		*: All major volume in platoon

Intersection

Intersection Delay, s/veh 8.2

Intersection LOS A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	122	10	16	65	3	41
Future Vol, veh/h	122	10	16	65	3	41
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	122	10	16	65	3	41
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9	7.2	7.6
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	7%
Vol Thru, %	20%	0%	0%	93%
Vol Right, %	80%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	81	122	10	44
LT Vol	0	122	0	3
Through Vol	16	0	0	41
RT Vol	65	0	10	0
Lane Flow Rate	81	122	10	44
Geometry Grp	2	7	7	2
Degree of Util (X)	0.087	0.178	0.011	0.054
Departure Headway (Hd)	3.863	5.251	4.049	4.389
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	932	680	877	820
Service Time	1.865	3.009	1.806	2.392
HCM Lane V/C Ratio	0.087	0.179	0.011	0.054
HCM Control Delay	7.2	9.2	6.9	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.6	0	0.2

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Existing + MPU Conditions
AM Peak Hour

Intersection

Intersection Delay, s/veh 18

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	97	10	6	504	78	4	10	2	12	10	23
Future Vol, veh/h	1	97	10	6	504	78	4	10	2	12	10	23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	97	10	6	504	78	4	10	2	12	10	23
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	8.7	20.7	9.2	9
HCM LOS	A	C	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	83%	0%	91%	0%	87%	0%	30%
Vol Right, %	0%	17%	0%	9%	0%	13%	0%	70%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	12	1	107	6	582	12	33
LT Vol	4	0	1	0	6	0	12	0
Through Vol	0	10	0	97	0	504	0	10
RT Vol	0	2	0	10	0	78	0	23
Lane Flow Rate	4	12	1	107	6	582	12	33
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.008	0.021	0.002	0.152	0.009	0.761	0.022	0.053
Departure Headway (Hd)	6.781	6.157	5.669	5.1	5.303	4.708	6.729	5.73
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	580	631	703	676	768	532	624
Service Time	4.531	3.907	3.401	2.832	3.025	2.43	4.474	3.475
HCM Lane V/C Ratio	0.008	0.021	0.002	0.152	0.009	0.758	0.023	0.053
HCM Control Delay	9.6	9	8.4	8.7	8.1	20.8	9.6	8.8
HCM Lane LOS	A	A	A	A	A	C	A	A
HCM 95th-tile Q	0	0.1	0	0.5	0	7.2	0.1	0.2

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Existing + MPU Conditions
AM Peak Hour

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑	↑				↑		↑
Traffic Vol, veh/h	0	44	88	0	525	775	0	0	0	107	0	26
Future Vol, veh/h	0	44	88	0	525	775	0	0	0	107	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	150	-	-	100	-	-	-	0	-	440
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	44	88	0	525	775	0	0	0	107	0	26
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	-	-	-	0	569			-	525	
Stage 1	-	-	-	-	-	-	525			-	-	
Stage 2	-	-	-	-	-	-	44			-	-	
Critical Hdwy	-	-	-	-	-	-	6.42			-	6.22	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42			-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42			-	-	
Follow-up Hdwy	-	-	-	-	-	-	3.518			-	3.318	
Pot Cap-1 Maneuver	0	-	0	0	-	0	484			0	552	
Stage 1	0	-	0	0	-	0	593			0	-	
Stage 2	0	-	0	0	-	0	978			0	-	
Platoon blocked, %	-			-								
Mov Cap-1 Maneuver	-	-	-	-	-	-	484			0	552	
Mov Cap-2 Maneuver	-	-	-	-	-	-	484			0	-	
Stage 1	-	-	-	-	-	-	593			0	-	
Stage 2	-	-	-	-	-	-	978			0	-	
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			14					
HCM LOS							B					
Minor Lane/Major Mvmt	EBT		WBT		SBLn1		SBLn2					
Capacity (veh/h)	-		-		484		552					
HCM Lane V/C Ratio	-		-		0.221		0.047					
HCM Control Delay (s)	-		-		14.5		11.8					
HCM Lane LOS	-		-		B		B					
HCM 95th %tile Q(veh)	-		-		0.8		0.1					

	→	↘	←	↖	↙	↗
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	138	4	1072	106	226	553
v/c Ratio	0.11	0.00	0.82	0.07	0.71	0.35
Control Delay	4.2	0.0	15.6	0.1	38.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	0.0	15.6	0.1	38.6	0.6
Queue Length 50th (ft)	15	0	248	0	86	0
Queue Length 95th (ft)	40	0	#674	0	151	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	1313	1550	1313	1583	658	1563
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	0.11	0.00	0.82	0.07	0.34	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing + MPU Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↑	↗	↗		↗			
Traffic Volume (veh/h)	0	138	4	0	1072	106	226	0	553	0	0	0
Future Volume (veh/h)	0	138	4	0	1072	106	226	0	553	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	138	0	0	1072	0	226	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	1267		0	1285		270	0				
Arrive On Green	0.00	0.68	0.00	0.00	0.69	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	0	1870	1585	1781	0	1585			
Grp Volume(v), veh/h	0	138	0	0	1072	0	226	0	0			
Grp Sat Flow(s),veh/h/ln	0	1870	1585	0	1870	1585	1781	0	1585			
Q Serve(g_s), s	0.0	1.3	0.0	0.0	20.9	0.0	6.1	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	1.3	0.0	0.0	20.9	0.0	6.1	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1267		0	1285		270	0				
V/C Ratio(X)	0.00	0.11		0.00	0.83		0.84	0.00				
Avail Cap(c_a), veh/h	0	1731		0	1731		932	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	2.8	0.0	0.0	5.7	0.0	20.5	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	2.7	0.0	2.6	0.0	0.0			
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	0.0	0.2	0.0	0.0	4.6	0.0	2.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.8	0.0	0.0	8.4	0.0	23.1	0.0	0.0			
LnGrp LOS	A	A		A	A		C	A				
Approach Vol, veh/h		138	A		1072	A		226	A			
Approach Delay, s/veh		2.8			8.4			23.1				
Approach LOS		A			A			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		38.2				38.2		11.5				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		44.5				* 45		26.5				
Max Q Clear Time (g_c+I1), s		22.9				3.3		8.1				
Green Ext Time (p_c), s		9.8				0.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			10.2									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU Conditions
AM Peak Hour

Intersection													
Int Delay, s/veh	0.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations				↰		↰		↱	↰			↱↱	↰
Traffic Vol, veh/h	0	0	0	15	0	3039	0	717	73	13	0	1994	508
Future Vol, veh/h	0	0	0	15	0	3039	0	717	73	13	0	1994	508
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	Free	-	-	Free	-	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	15	0	3039	0	717	73	13	0	1994	508

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1740	-	-
Stage 1	717	-	-
Stage 2	1023	-	-
Critical Hdwy	6.63	-	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	-	-
Pot Cap-1 Maneuver	86	0	0
Stage 1	483	0	0
Stage 2	309	0	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	86	0	-
Mov Cap-2 Maneuver	86	0	-
Stage 1	483	0	-
Stage 2	309	0	-

Approach	WB	NB	SB
HCM Control Delay, s	55.5	0	
HCM LOS	F		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 86	-
HCM Lane V/C Ratio	- 0.174	-
HCM Control Delay (s)	- 55.5	0
HCM Lane LOS	- F	A
HCM 95th %tile Q(veh)	- 0.6	-

Intersection						
Int Delay, s/veh	15					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	621	59	0	158	80	1941
Future Vol, veh/h	621	59	0	158	80	1941
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	621	59	0	158	80	1941

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	159	80	80	0	-	0
Stage 1	80	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	824	980	1517	-	-	0
Stage 1	943	-	-	-	-	0
Stage 2	935	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	824	980	1517	-	-	-
Mov Cap-2 Maneuver	824	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	935	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1517	-	824	980	-
HCM Lane V/C Ratio	-	-	0.754	0.06	-
HCM Control Delay (s)	0	-	21.4	8.9	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	7.2	0.2	-

Intersection

Intersection Delay, s/veh 9
Intersection LOS A

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Vol, veh/h	1	36	10	1	117	283	10	20
Future Vol, veh/h	1	36	10	1	117	283	10	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2
Mvmt Flow	1	36	10	1	117	283	10	20
Number of Lanes	0	1	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8.7	9.1	7.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	33%
Vol Thru, %	29%	0%	0%	67%
Vol Right, %	71%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	401	37	10	30
LT Vol	0	37	0	10
Through Vol	117	0	0	20
RT Vol	284	0	10	0
Lane Flow Rate	401	37	10	30
Geometry Grp	2	7	7	2
Degree of Util (X)	0.402	0.061	0.013	0.037
Departure Headway (Hd)	3.613	5.889	4.681	4.487
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	982	612	769	802
Service Time	1.684	3.589	2.381	2.492
HCM Lane V/C Ratio	0.408	0.06	0.013	0.037
HCM Control Delay	9.1	9	7.4	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	2	0.2	0	0.1

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Existing + MPU Conditions
PM Peak Hour

Intersection

Intersection Delay, s/veh 17

Intersection LOS C

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	21	482	2	1	3	390	22	4	1	10	73	10	3
Future Vol, veh/h	21	482	2	1	3	390	22	4	1	10	73	10	3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	482	2	1	3	390	22	4	1	10	73	10	3
Number of Lanes	1	1	0	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	19.2	15.9	9.6	11.1
HCM LOS	C	C	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	9%	0%	100%	0%	95%	0%	77%
Vol Right, %	0%	91%	0%	0%	0%	5%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	11	21	484	4	412	73	13
LT Vol	4	0	21	0	4	0	73	0
Through Vol	0	1	0	482	0	390	0	10
RT Vol	0	10	0	2	0	22	0	3
Lane Flow Rate	4	11	21	484	4	412	73	13
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.008	0.02	0.034	0.705	0.006	0.606	0.15	0.024
Departure Headway (Hd)	7.603	6.441	5.749	5.242	5.836	5.295	7.375	6.701
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	559	617	682	607	676	489	537
Service Time	5.308	4.146	3.534	3.027	3.627	3.085	5.077	4.403
HCM Lane V/C Ratio	0.008	0.02	0.034	0.71	0.007	0.609	0.149	0.024
HCM Control Delay	10.4	9.3	8.7	19.7	8.7	16	11.4	9.6
HCM Lane LOS	B	A	A	C	A	C	B	A
HCM 95th-tile Q	0	0.1	0.1	5.8	0	4.1	0.5	0.1

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Existing + MPU Conditions
PM Peak Hour

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↑	↗				↖		↗
Traffic Vol, veh/h	0	253	314	0	400	355	0	0	0	104	0	22
Future Vol, veh/h	0	253	314	0	400	355	0	0	0	104	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	150	-	-	100	-	-	-	0	-	440
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	253	314	0	400	355	0	0	0	104	0	22
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	-	-	-	0				653	-	400
Stage 1	-	-	-	-	-	-				400	-	-
Stage 2	-	-	-	-	-	-				253	-	-
Critical Hdwy	-	-	-	-	-	-				6.42	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-				5.42	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.42	-	-
Follow-up Hdwy	-	-	-	-	-	-				3.518	-	3.318
Pot Cap-1 Maneuver	0	-	0	0	-	0				432	0	650
Stage 1	0	-	0	0	-	0				677	0	-
Stage 2	0	-	0	0	-	0				789	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				432	0	650
Mov Cap-2 Maneuver	-	-	-	-	-	-				432	0	-
Stage 1	-	-	-	-	-	-				677	0	-
Stage 2	-	-	-	-	-	-				789	0	-
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			15.1					
HCM LOS							C					
Minor Lane/Major Mvmt	EBT		WBT	SBLn1	SBLn2							
Capacity (veh/h)	-		-	432	650							
HCM Lane V/C Ratio	-		-	0.241	0.034							
HCM Control Delay (s)	-		-	16	10.7							
HCM Lane LOS	-		-	C	B							
HCM 95th %tile Q(veh)	-		-	0.9	0.1							

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing + MPU Conditions
PM Peak Hour

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	333	50	479	137	257	933
v/c Ratio	0.34	0.03	0.49	0.09	0.56	0.60
Control Delay	7.0	0.0	8.5	0.1	17.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	0.0	8.5	0.1	17.5	1.7
Queue Length 50th (ft)	32	0	50	0	39	0
Queue Length 95th (ft)	90	0	139	0	114	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	1831	1550	1831	1583	1255	1563
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	0.18	0.03	0.26	0.09	0.20	0.60
Intersection Summary						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing + MPU Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑	↑	↑		↑			
Traffic Volume (veh/h)	0	333	50	0	479	137	257	0	933	0	0	0
Future Volume (veh/h)	0	333	50	0	479	137	257	0	933	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	333	0	0	479	0	257	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	829		0	867		381	0				
Arrive On Green	0.00	0.44	0.00	0.00	0.46	0.00	0.21	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	0	1870	1585	1781	0	1585			
Grp Volume(v), veh/h	0	333	0	0	479	0	257	0	0			
Grp Sat Flow(s),veh/h/ln	0	1870	1585	0	1870	1585	1781	0	1585			
Q Serve(g_s), s	0.0	3.0	0.0	0.0	4.6	0.0	3.3	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	3.0	0.0	0.0	4.6	0.0	3.3	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	829		0	867		381	0				
V/C Ratio(X)	0.00	0.40		0.00	0.55		0.67	0.00				
Avail Cap(c_a), veh/h	0	3467		0	3467		1867	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	4.7	0.0	0.0	4.8	0.0	9.0	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.6	0.0	0.8	0.0	0.0			
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	0.0	0.4	0.0	0.0	0.7	0.0	0.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.9	0.0	0.0	5.4	0.0	9.7	0.0	0.0			
LnGrp LOS	A	A		A	A		A	A				
Approach Vol, veh/h		333	A		479	A		257	A			
Approach Delay, s/veh		4.9			5.4			9.7				
Approach LOS		A			A			A				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		15.5				15.5		9.3				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		44.5				* 45		26.5				
Max Q Clear Time (g_c+I1), s		6.6				5.0		5.3				
Green Ext Time (p_c), s		3.4				1.8		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			6.3									
HCM 6th LOS			A									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU Conditions
PM Peak Hour

Intersection													
Int Delay, s/veh	0.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations				↰		↰		↱	↱			↱↱	↰
Traffic Vol, veh/h	0	0	0	13	0	2230	0	669	60	7	0	3188	733
Future Vol, veh/h	0	0	0	13	0	2230	0	669	60	7	0	3188	733
Conflicting Peds, #/hr	0	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	Free
RT Channelized	-	-	None	-	-	Free	-	-	Free	-	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	13	0	2230	0	669	60	7	0	3188	733

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2277	-	-
Stage 1	669	-	-
Stage 2	1608	-	-
Critical Hdwy	6.63	-	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	-	-
Pot Cap-1 Maneuver	39	0	0
Stage 1	508	0	0
Stage 2	150	0	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	39	0	-
Mov Cap-2 Maneuver	39	0	-
Stage 1	508	0	-
Stage 2	150	0	-

Approach	WB	NB	SB
HCM Control Delay, s	138	0	
HCM LOS	F		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 39	-
HCM Lane V/C Ratio	- 0.333	-
HCM Control Delay (s)	- 138	0
HCM Lane LOS	- F	A
HCM 95th %tile Q(veh)	- 1.1	-

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Existing + MPU Conditions
PM Peak Hour

Intersection							
Int Delay, s/veh	40.2						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations				 			
Traffic Vol, veh/h	561	585	10	170	10	363	2872
Future Vol, veh/h	561	585	10	170	10	363	2872
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	Free
Storage Length	0	30	-	-	-	-	290
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	561	585	10	170	10	363	2872
Major/Minor	Minor2	Major1		Major2			
Conflicting Flow All	468	363	363	0	170	-	0
Stage 1	363	-	-	-	-	-	-
Stage 2	105	-	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	6.93	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	3.119	-	-
Pot Cap-1 Maneuver	~ 538	681	1194	-	895	-	0
Stage 1	703	-	-	-	-	-	0
Stage 2	908	-	-	-	-	-	0
Platoon blocked, %				-		-	
Mov Cap-1 Maneuver	~ 526	681	1194	-	895	-	-
Mov Cap-2 Maneuver	~ 526	-	-	-	-	-	-
Stage 1	697	-	-	-	-	-	-
Stage 2	895	-	-	-	-	-	-
Approach	EB		NB		SB		
HCM Control Delay, s	59.4		0.4		0.2		
HCM LOS	F						
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	EBLn2	SBT	
Capacity (veh/h)	1194		-	526	681	-	
HCM Lane V/C Ratio	0.008		-	1.067	0.859	-	
HCM Control Delay (s)	8		0	86.1	33.8	-	
HCM Lane LOS	A		A	F	D	-	
HCM 95th %tile Q(veh)	0		-	16.9	10	-	
Notes							
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon	

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Existing + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	10	10	10	10	10
Future Vol, veh/h	30	10	10	10	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	10	10	10	10	10
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	45	15	0	0	20	0
Stage 1	15	-	-	-	-	-
Stage 2	30	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	965	1065	-	-	1596	-
Stage 1	1008	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	959	1065	-	-	1596	-
Mov Cap-2 Maneuver	959	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.8	0		3.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	983	1596	-	
HCM Lane V/C Ratio	-	-	0.041	0.006	-	
HCM Control Delay (s)	-	-	8.8	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

Intersection						
Int Delay, s/veh	8.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	10	390	20	10	200
Future Vol, veh/h	10	10	390	20	10	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	4	2	2	4
Mvmt Flow	10	10	390	20	10	200
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	20	0	815	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	800	-
Critical Hdwy	-	-	4.14	-	6.42	6.24
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.336
Pot Cap-1 Maneuver	-	-	1583	-	347	1059
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	442	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1583	-	261	1059
Mov Cap-2 Maneuver	-	-	-	-	261	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	332	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		7.6		10	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	924	-	-	1583	-	
HCM Lane V/C Ratio	0.227	-	-	0.246	-	
HCM Control Delay (s)	10	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	1	-	

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	150	30	40	330	10	30	10	10	10	10	10
Future Vol, veh/h	10	150	30	40	330	10	30	10	10	10	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	150	30	40	330	10	30	10	10	10	10	10
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	11	8.7	8.4
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	5%	11%	33%
Vol Thru, %	20%	79%	87%	33%
Vol Right, %	20%	16%	3%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	190	380	30
LT Vol	30	10	40	10
Through Vol	10	150	330	10
RT Vol	10	30	10	10
Lane Flow Rate	50	190	380	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.073	0.235	0.459	0.043
Departure Headway (Hd)	5.231	4.453	4.349	5.13
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	684	806	828	696
Service Time	3.273	2.481	2.373	3.176
HCM Lane V/C Ratio	0.073	0.236	0.459	0.043
HCM Control Delay	8.7	8.9	11	8.4
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	0.9	2.4	0.1

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Existing + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	0	100	350	10	10
Future Vol, veh/h	150	0	100	350	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	195	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	150	0	100	350	10	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	150	0	700	150
Stage 1	-	-	-	-	150	-
Stage 2	-	-	-	-	550	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1431	-	405	896
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1431	-	377	896
Mov Cap-2 Maneuver	-	-	-	-	377	-
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	538	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.7		12	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	531	-	-	1431	-	
HCM Lane V/C Ratio	0.038	-	-	0.07	-	
HCM Control Delay (s)	12	-	-	7.7	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing + Cargo Conditions
AM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	60	50	350	300	70	110
v/c Ratio	0.03	0.03	0.18	0.19	0.11	0.16
Control Delay	8.5	0.0	7.6	0.3	6.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	0.0	7.6	0.3	6.1	6.0
Queue Length 50th (ft)	1	0	8	0	5	0
Queue Length 95th (ft)	19	0	82	0	23	21
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3539	1550	3539	1550	1770	2580
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	0.02	0.03	0.10	0.19	0.04	0.04
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘		↗↗
Traffic Volume (vph)	0	60	50	0	350	300	0	0	0	70	0	110
Future Volume (vph)	0	60	50	0	350	300	0	0	0	70	0	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.0		4.0
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	60	50	0	350	300	0	0	0	70	0	110
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	100
Lane Group Flow (vph)	0	60	50	0	350	300	0	0	0	70	0	10
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free			Free						
Actuated Green, G (s)		8.7	28.0		8.3	28.0				8.5		2.1
Effective Green, g (s)		11.1	28.0		11.1	28.0				8.9		2.5
Actuated g/C Ratio		0.40	1.00		0.40	1.00				0.32		0.09
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1402	1550		1402	1550				562		248
v/s Ratio Prot		0.02			0.10					0.04		0.00
v/s Ratio Perm			0.03			c0.19						
v/c Ratio		0.04	0.03		0.25	0.19				0.12		0.04
Uniform Delay, d1		5.2	0.0		5.7	0.0				6.8		11.7
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		0.0	0.0		0.0	0.3				0.0		0.0
Delay (s)		5.2	0.0		5.7	0.3				6.8		11.7
Level of Service		A	A		A	A				A		B
Approach Delay (s)		2.9			3.2			0.0			9.8	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			4.4									
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			28.0							12.4		
Intersection Capacity Utilization			20.3%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing + Cargo Conditions
AM Peak Hour

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	80	30	390	50	120	130	70
v/c Ratio	0.07	0.02	0.35	0.09	0.29	0.31	0.06
Control Delay	12.9	0.0	13.3	5.2	19.3	19.5	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	0.0	13.3	5.2	19.3	19.5	2.1
Queue Length 50th (ft)	5	0	30	0	20	21	0
Queue Length 95th (ft)	28	0	111	20	104	111	7
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3443	1550	3443	1495	1495	1505	2716
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	0.02	0.02	0.11	0.03	0.08	0.09	0.03
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (vph)	0	80	30	0	390	50	240	10	70	0	0	0
Future Volume (vph)	0	80	30	0	390	50	240	10	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1550		3539	1547	1681	1692	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1550		3539	1547	1681	1692	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	80	30	0	390	50	240	10	70	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	36	0	0	0
Lane Group Flow (vph)	0	80	30	0	390	15	120	130	34	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		11.1	38.8		10.2	10.2	7.7	7.7	17.3			
Effective Green, g (s)		12.0	38.8		12.0	12.0	9.2	9.2	18.8			
Actuated g/C Ratio		0.31	1.00		0.31	0.31	0.24	0.24	0.48			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		1094	1550		1094	478	398	401	1350			
v/s Ratio Prot		0.02			c0.11		0.07	c0.08	0.01			
v/s Ratio Perm			c0.02			0.01						
v/c Ratio		0.07	0.02		0.36	0.03	0.30	0.32	0.03			
Uniform Delay, d1		9.5	0.0		10.4	9.3	12.2	12.2	5.2			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.0	0.0		0.1	0.0	0.2	0.2	0.0			
Delay (s)		9.5	0.0		10.5	9.4	12.3	12.4	5.2			
Level of Service		A	A		B	A	B	B	A			
Approach Delay (s)		6.9			10.3			10.8			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			10.1									
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			38.8									
Intersection Capacity Utilization			24.4%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Existing + Cargo Conditions
AM Peak Hour

Intersection

Intersection Delay, s/veh 19.2

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	100	10	10	510	80	10	10	10	20	10	30
Future Vol, veh/h	10	100	10	10	510	80	10	10	10	20	10	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	100	10	10	510	80	10	10	10	20	10	30
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9	22.8	9.3	9.2
HCM LOS	A	C	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	50%	0%	91%	0%	86%	0%	25%
Vol Right, %	0%	50%	0%	9%	0%	14%	0%	75%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	20	10	110	10	590	20	40
LT Vol	10	0	10	0	10	0	20	0
Through Vol	0	10	0	100	0	510	0	10
RT Vol	0	10	0	10	0	80	0	30
Lane Flow Rate	10	20	10	110	10	590	20	40
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.019	0.033	0.016	0.16	0.015	0.788	0.038	0.064
Departure Headway (Hd)	6.879	6.017	5.795	5.228	5.405	4.808	6.822	5.784
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	518	591	616	684	662	755	523	616
Service Time	4.652	3.79	3.545	2.977	3.139	2.542	4.589	3.55
HCM Lane V/C Ratio	0.019	0.034	0.016	0.161	0.015	0.781	0.038	0.065
HCM Control Delay	9.8	9	8.6	9	8.2	23	9.9	8.9
HCM Lane LOS	A	A	A	A	A	C	A	A
HCM 95th-tile Q	0.1	0.1	0	0.6	0	7.9	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	10	40	10	10	60
Future Vol, veh/h	30	10	40	10	10	60
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	10	40	10	10	60
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8	7.4	8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	14%
Vol Thru, %	100%	0%	0%	0%	86%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	10	30	10	70
LT Vol	0	0	30	0	10
Through Vol	40	0	0	0	60
RT Vol	0	10	0	10	0
Lane Flow Rate	40	10	30	10	70
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.052	0.011	0.044	0.011	0.087
Departure Headway (Hd)	4.639	3.938	5.239	4.038	4.47
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	768	902	677	874	797
Service Time	2.391	1.69	3.021	1.819	2.523
HCM Lane V/C Ratio	0.052	0.011	0.044	0.011	0.088
HCM Control Delay	7.6	6.7	8.3	6.9	8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0	0.1	0	0.3

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Existing + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	80	10	30	70
Future Vol, veh/h	10	10	80	10	30	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	120	180	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	10	80	10	30	70
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	200	30	100	0	-	0
Stage 1	30	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	789	1044	1493	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	746	1044	1493	-	-	-
Mov Cap-2 Maneuver	746	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	6.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1493	-	746	1044	-	-
HCM Lane V/C Ratio	0.054	-	0.013	0.01	-	-
HCM Control Delay (s)	7.5	-	9.9	8.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0	0	-	-

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Existing + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	20	30	30	10	10
Future Vol, veh/h	20	20	30	30	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	20	30	30	10	10

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	75	45	0	0	60
Stage 1	45	-	-	-	-
Stage 2	30	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	928	1025	-	-	1544
Stage 1	977	-	-	-	-
Stage 2	993	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	922	1025	-	-	1544
Mov Cap-2 Maneuver	922	-	-	-	-
Stage 1	977	-	-	-	-
Stage 2	986	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	971	1544
HCM Lane V/C Ratio	-	-	0.041	0.006
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Existing + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	7.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	10	130	30	10	280
Future Vol, veh/h	30	10	130	30	10	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	4	2	2	4
Mvmt Flow	30	10	130	30	10	280
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	40	0	325	35
Stage 1	-	-	-	-	35	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.14	-	6.42	6.24
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.336
Pot Cap-1 Maneuver	-	-	1557	-	669	1032
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1557	-	612	1032
Mov Cap-2 Maneuver	-	-	-	-	612	-
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	694	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		6.1		10	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1008	-	-	1557	-	
HCM Lane V/C Ratio	0.288	-	-	0.083	-	
HCM Control Delay (s)	10	-	-	7.5	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	1.2	-	-	0.3	-	

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	250	30	10	110	10	20	20	70	10	10	10
Future Vol, veh/h	10	250	30	10	110	10	20	20	70	10	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	250	30	10	110	10	20	20	70	10	10	10
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	8.5	8.3	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	3%	8%	33%
Vol Thru, %	18%	86%	85%	33%
Vol Right, %	64%	10%	8%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	290	130	30
LT Vol	20	10	10	10
Through Vol	20	250	110	10
RT Vol	70	30	10	10
Lane Flow Rate	110	290	130	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.14	0.351	0.164	0.041
Departure Headway (Hd)	4.567	4.352	4.543	4.884
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	784	826	789	731
Service Time	2.601	2.38	2.576	2.925
HCM Lane V/C Ratio	0.14	0.351	0.165	0.041
HCM Control Delay	8.3	9.7	8.5	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	1.6	0.6	0.1

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Existing + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	300	10	10	120	10	70
Future Vol, veh/h	300	10	10	120	10	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	195	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	300	10	10	120	10	70
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	310	0	445	305
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1250	-	571	735
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	887	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1250	-	566	735
Mov Cap-2 Maneuver	-	-	-	-	566	-
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	880	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		10.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	709	-	-	1250	-	
HCM Lane V/C Ratio	0.113	-	-	0.008	-	
HCM Control Delay (s)	10.7	-	-	7.9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.4	-	-	0	-	

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing + Cargo Conditions
PM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	210	160	110	80	60	30
v/c Ratio	0.09	0.10	0.05	0.05	0.08	0.04
Control Delay	5.8	0.1	6.1	0.1	3.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	0.1	6.1	0.1	3.9	2.8
Queue Length 50th (ft)	0	0	0	0	0	0
Queue Length 95th (ft)	50	0	29	0	21	4
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3539	1550	3539	1550	1770	2586
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	0.06	0.10	0.03	0.05	0.03	0.01
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑↑
Traffic Volume (vph)	0	210	160	0	110	80	0	0	0	60	0	30
Future Volume (vph)	0	210	160	0	110	80	0	0	0	60	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.0		4.0
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	210	160	0	110	80	0	0	0	60	0	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	29
Lane Group Flow (vph)	0	210	160	0	110	80	0	0	0	60	0	1
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free			Free						
Actuated Green, G (s)		6.4	23.7		6.0	23.7				6.5		0.3
Effective Green, g (s)		8.8	23.7		8.8	23.7				6.9		0.7
Actuated g/C Ratio		0.37	1.00		0.37	1.00				0.29		0.03
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1314	1550		1314	1550				515		82
v/s Ratio Prot		c0.06			0.03					0.03		0.00
v/s Ratio Perm			c0.10			0.05						
v/c Ratio		0.16	0.10		0.08	0.05				0.12		0.01
Uniform Delay, d1		5.0	0.0		4.8	0.0				6.2		11.2
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		0.0	0.1		0.0	0.1				0.0		0.0
Delay (s)		5.0	0.1		4.8	0.1				6.2		11.2
Level of Service		A	A		A	A				A		B
Approach Delay (s)		2.9			2.8			0.0			7.9	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			3.6							A		
HCM 2000 Volume to Capacity ratio			0.22									
Actuated Cycle Length (s)			23.7							12.4		
Intersection Capacity Utilization			15.8%							A		
Analysis Period (min)			15									
c Critical Lane Group												

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	200	70	100	60	40	50	580
v/c Ratio	0.24	0.05	0.12	0.15	0.13	0.16	0.33
Control Delay	13.3	0.1	12.8	5.9	18.9	18.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	0.1	12.8	5.9	18.9	18.9	1.3
Queue Length 50th (ft)	13	0	6	0	5	6	0
Queue Length 95th (ft)	55	0	31	23	45	52	21
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3478	1550	3478	1510	1512	1531	2752
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	0.06	0.05	0.03	0.04	0.03	0.03	0.21
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (vph)	0	200	70	0	100	60	80	10	580	0	0	0
Future Volume (vph)	0	200	70	0	100	60	80	10	580	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1550		3539	1548	1681	1702	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1550		3539	1548	1681	1702	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	200	70	0	100	60	80	10	580	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	273	0	0	0
Lane Group Flow (vph)	0	200	70	0	100	15	40	50	307	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		7.7	35.3		6.8	6.8	5.4	5.4	17.2			
Effective Green, g (s)		8.6	35.3		8.6	8.6	6.9	6.9	18.7			
Actuated g/C Ratio		0.24	1.00		0.24	0.24	0.20	0.20	0.53			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		862	1550		862	377	328	332	1476			
v/s Ratio Prot		c0.06			0.03		0.02	0.03	c0.11			
v/s Ratio Perm			0.05			0.01						
v/c Ratio		0.23	0.05		0.12	0.04	0.12	0.15	0.21			
Uniform Delay, d1		10.7	0.0		10.4	10.2	11.7	11.8	4.4			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.1	0.1		0.0	0.0	0.1	0.1	0.0			
Delay (s)		10.8	0.1		10.4	10.2	11.8	11.8	4.4			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		8.0			10.3			5.4			0.0	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.8			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			35.3			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			33.4%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Existing + Cargo Conditions
PM Peak Hour

Intersection

Intersection Delay, s/veh 19.3

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	490	10	10	390	30	10	10	10	80	10	10
Future Vol, veh/h	30	490	10	10	390	30	10	10	10	80	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	490	10	10	390	30	10	10	10	80	10	10
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	22.6	17.7	10.2	11.4
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	50%	0%	98%	0%	93%	0%	50%
Vol Right, %	0%	50%	0%	2%	0%	7%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	20	30	500	10	420	80	20
LT Vol	10	0	30	0	10	0	80	0
Through Vol	0	10	0	490	0	390	0	10
RT Vol	0	10	0	10	0	30	0	10
Lane Flow Rate	10	20	30	500	10	420	80	20
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.022	0.038	0.05	0.76	0.017	0.647	0.168	0.037
Departure Headway (Hd)	7.778	6.907	5.989	5.47	6.098	5.543	7.548	6.679
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	518	599	665	588	651	475	536
Service Time	5.531	4.66	3.714	3.195	3.826	3.271	5.293	4.425
HCM Lane V/C Ratio	0.022	0.039	0.05	0.752	0.017	0.645	0.168	0.037
HCM Control Delay	10.7	9.9	9	23.4	8.9	17.9	11.8	9.7
HCM Lane LOS	B	A	A	C	A	C	B	A
HCM 95th-tile Q	0.1	0.1	0.2	7	0.1	4.7	0.6	0.1

Intersection

Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	10	110	30	10	30
Future Vol, veh/h	10	10	110	30	10	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	10	110	30	10	30
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.6	7.8	7.8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	25%
Vol Thru, %	100%	0%	0%	0%	75%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	30	10	10	40
LT Vol	0	0	10	0	10
Through Vol	110	0	0	0	30
RT Vol	0	30	0	10	0
Lane Flow Rate	110	30	10	10	40
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.14	0.032	0.015	0.012	0.05
Departure Headway (Hd)	4.589	3.889	5.454	4.251	4.521
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	782	920	660	847	787
Service Time	2.314	1.614	3.154	1.951	2.577
HCM Lane V/C Ratio	0.141	0.033	0.015	0.012	0.051
HCM Control Delay	8.1	6.7	8.2	7	7.8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0	0	0.2

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	80	30	30	10	20
Future Vol, veh/h	50	80	30	30	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	120	180	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	80	30	30	10	20

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	100	10	30	0	-	0
Stage 1	10	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	899	1071	1583	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	882	1071	1583	-	-	-
Mov Cap-2 Maneuver	882	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	934	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	3.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1583	-	882	1071	-	-
HCM Lane V/C Ratio	0.019	-	0.057	0.075	-	-
HCM Control Delay (s)	7.3	-	9.3	8.6	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.2	-	-

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	10	20	10	10	20
Future Vol, veh/h	30	10	20	10	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	10	20	10	10	20
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	65	25	0	0	30	0
Stage 1	25	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	941	1051	-	-	1583	-
Stage 1	998	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	935	1051	-	-	1583	-
Mov Cap-2 Maneuver	935	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.9	0		2.4		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	962	1583	-	
HCM Lane V/C Ratio	-	-	0.042	0.006	-	
HCM Control Delay (s)	-	-	8.9	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	8.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	10	400	20	10	210
Future Vol, veh/h	10	10	400	20	10	210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	4	2	2	4
Mvmt Flow	10	10	400	20	10	210
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	20	0	835	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	820	-
Critical Hdwy	-	-	4.14	-	6.42	6.24
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.336
Pot Cap-1 Maneuver	-	-	1583	-	338	1059
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	433	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1583	-	251	1059
Mov Cap-2 Maneuver	-	-	-	-	251	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	322	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		7.7		10.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	924	-	-	1583	-	
HCM Lane V/C Ratio	0.238	-	-	0.253	-	
HCM Control Delay (s)	10.1	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	1	-	

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	150	40	40	330	10	40	10	10	10	10	10
Future Vol, veh/h	10	150	40	40	330	10	40	10	10	10	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	150	40	40	330	10	40	10	10	10	10	10
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	11.2	8.9	8.5
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	67%	5%	11%	33%
Vol Thru, %	17%	75%	87%	33%
Vol Right, %	17%	20%	3%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	200	380	30
LT Vol	40	10	40	10
Through Vol	10	150	330	10
RT Vol	10	40	10	10
Lane Flow Rate	60	200	380	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.088	0.248	0.463	0.043
Departure Headway (Hd)	5.289	4.462	4.389	5.173
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	676	804	821	690
Service Time	3.336	2.491	2.415	3.224
HCM Lane V/C Ratio	0.089	0.249	0.463	0.043
HCM Control Delay	8.9	9	11.2	8.5
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.3	1	2.5	0.1

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	10	100	350	10	10
Future Vol, veh/h	150	10	100	350	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	195	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	150	10	100	350	10	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	160	0	705	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	550	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1419	-	403	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1419	-	375	891
Mov Cap-2 Maneuver	-	-	-	-	375	-
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	538	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.7		12.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	528	-	-	1419	-	
HCM Lane V/C Ratio	0.038	-	-	0.07	-	
HCM Control Delay (s)	12.1	-	-	7.7	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing + MPU + Cargo Conditions
AM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	60	50	370	300	70	110
v/c Ratio	0.03	0.03	0.20	0.19	0.11	0.16
Control Delay	8.5	0.0	7.7	0.3	6.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	0.0	7.7	0.3	6.2	6.0
Queue Length 50th (ft)	1	0	8	0	5	0
Queue Length 95th (ft)	19	0	87	0	23	21
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3539	1550	3320	1550	1770	2580
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	0.02	0.03	0.11	0.19	0.04	0.04
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing + MPU + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘		↗↗
Traffic Volume (vph)	0	60	50	20	350	300	0	0	0	70	0	110
Future Volume (vph)	0	60	50	20	350	300	0	0	0	70	0	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.0		4.0
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3530	1550				1770		2787
Flt Permitted		1.00	1.00		0.94	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3319	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	60	50	20	350	300	0	0	0	70	0	110
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	100
Lane Group Flow (vph)	0	60	50	0	370	300	0	0	0	70	0	10
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free	Perm	NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free	2		Free						
Actuated Green, G (s)		9.0	28.5		8.6	28.5				8.7		2.2
Effective Green, g (s)		11.4	28.5		11.4	28.5				9.1		2.6
Actuated g/C Ratio		0.40	1.00		0.40	1.00				0.32		0.09
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1415	1550		1327	1550				565		254
v/s Ratio Prot		0.02								0.04		0.00
v/s Ratio Perm			0.03		c0.11	c0.19						
v/c Ratio		0.04	0.03		0.28	0.19				0.12		0.04
Uniform Delay, d1		5.2	0.0		5.8	0.0				6.9		11.8
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		0.0	0.0		0.0	0.3				0.0		0.0
Delay (s)		5.2	0.0		5.8	0.3				6.9		11.8
Level of Service		A	A		A	A				A		B
Approach Delay (s)		2.9			3.3			0.0			9.9	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			4.5									
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			28.5							12.4		
Intersection Capacity Utilization			24.1%									
Analysis Period (min)			15									
c Critical Lane Group												

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	80	30	390	50	120	130	70
v/c Ratio	0.07	0.02	0.35	0.09	0.29	0.31	0.06
Control Delay	12.9	0.0	13.3	5.2	19.3	19.5	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	0.0	13.3	5.2	19.3	19.5	2.1
Queue Length 50th (ft)	5	0	30	0	20	21	0
Queue Length 95th (ft)	28	0	111	20	104	111	7
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3443	1550	3443	1495	1495	1505	2716
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	0.02	0.02	0.11	0.03	0.08	0.09	0.03
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing + MPU + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (vph)	0	80	30	0	390	50	240	10	70	0	0	0
Future Volume (vph)	0	80	30	0	390	50	240	10	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1550		3539	1547	1681	1692	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1550		3539	1547	1681	1692	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	80	30	0	390	50	240	10	70	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	36	0	0	0
Lane Group Flow (vph)	0	80	30	0	390	15	120	130	34	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		11.1	38.8		10.2	10.2	7.7	7.7	17.3			
Effective Green, g (s)		12.0	38.8		12.0	12.0	9.2	9.2	18.8			
Actuated g/C Ratio		0.31	1.00		0.31	0.31	0.24	0.24	0.48			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		1094	1550		1094	478	398	401	1350			
v/s Ratio Prot		0.02			c0.11		0.07	c0.08	0.01			
v/s Ratio Perm			c0.02			0.01						
v/c Ratio		0.07	0.02		0.36	0.03	0.30	0.32	0.03			
Uniform Delay, d1		9.5	0.0		10.4	9.3	12.2	12.2	5.2			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.0	0.0		0.1	0.0	0.2	0.2	0.0			
Delay (s)		9.5	0.0		10.5	9.4	12.3	12.4	5.2			
Level of Service		A	A		B	A	B	B	A			
Approach Delay (s)		6.9			10.3			10.8			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			10.1									B
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			38.8									12.0
Intersection Capacity Utilization			24.4%									A
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection

Intersection Delay, s/veh 8.5

Intersection LOS A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	130	10	60	70	10	90
Future Vol, veh/h	130	10	60	70	10	90
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	10	60	70	10	90
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9.4	7.9	8.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	10%
Vol Thru, %	46%	0%	0%	90%
Vol Right, %	54%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	130	10	100
LT Vol	0	130	0	10
Through Vol	60	0	0	90
RT Vol	70	0	10	0
Lane Flow Rate	130	130	10	100
Geometry Grp	2	7	7	2
Degree of Util (X)	0.149	0.2	0.012	0.125
Departure Headway (Hd)	4.12	5.537	4.332	4.486
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	872	649	827	801
Service Time	2.134	3.261	2.056	2.501
HCM Lane V/C Ratio	0.149	0.2	0.012	0.125
HCM Control Delay	7.9	9.6	7.1	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.7	0	0.4

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection

Intersection Delay, s/veh 19.2

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	100	10	10	510	80	10	10	10	20	10	30
Future Vol, veh/h	10	100	10	10	510	80	10	10	10	20	10	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	100	10	10	510	80	10	10	10	20	10	30
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9	22.8	9.3	9.2
HCM LOS	A	C	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	50%	0%	91%	0%	86%	0%	25%
Vol Right, %	0%	50%	0%	9%	0%	14%	0%	75%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	20	10	110	10	590	20	40
LT Vol	10	0	10	0	10	0	20	0
Through Vol	0	10	0	100	0	510	0	10
RT Vol	0	10	0	10	0	80	0	30
Lane Flow Rate	10	20	10	110	10	590	20	40
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.019	0.033	0.016	0.16	0.015	0.788	0.038	0.064
Departure Headway (Hd)	6.879	6.017	5.795	5.228	5.405	4.808	6.822	5.784
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	518	591	616	684	662	755	523	616
Service Time	4.652	3.79	3.545	2.977	3.139	2.542	4.589	3.55
HCM Lane V/C Ratio	0.019	0.034	0.016	0.161	0.015	0.781	0.038	0.065
HCM Control Delay	9.8	9	8.6	9	8.2	23	9.9	8.9
HCM Lane LOS	A	A	A	A	A	C	A	A
HCM 95th-tile Q	0.1	0.1	0	0.6	0	7.9	0.1	0.2

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↑	↗				↘		↗
Traffic Vol, veh/h	0	110	150	0	530	790	0	0	0	110	0	30
Future Vol, veh/h	0	110	150	0	530	790	0	0	0	110	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	150	-	-	100	-	-	-	0	-	440
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	110	150	0	530	790	0	0	0	110	0	30
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	-	-	-	0	640			-	530	
Stage 1	-	-	-	-	-	-	530			-	-	
Stage 2	-	-	-	-	-	-	110			-	-	
Critical Hdwy	-	-	-	-	-	-	6.42			-	6.22	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42			-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42			-	-	
Follow-up Hdwy	-	-	-	-	-	-	3.518			-	3.318	
Pot Cap-1 Maneuver	0	-	0	0	-	0	440			0	549	
Stage 1	0	-	0	0	-	0	590			0	-	
Stage 2	0	-	0	0	-	0	915			0	-	
Platoon blocked, %	-			-								
Mov Cap-1 Maneuver	-	-	-	-	-	-	440			0	549	
Mov Cap-2 Maneuver	-	-	-	-	-	-	440			0	-	
Stage 1	-	-	-	-	-	-	590			0	-	
Stage 2	-	-	-	-	-	-	915			0	-	
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			15					
HCM LOS							C					
Minor Lane/Major Mvmt	EBT		WBT		SBLn1		SBLn2					
Capacity (veh/h)	-		-		440		549					
HCM Lane V/C Ratio	-		-		0.25		0.055					
HCM Control Delay (s)	-		-		15.9		11.9					
HCM Lane LOS	-		-		C		B					
HCM 95th %tile Q(veh)	-		-		1		0.2					

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	150	10	1090	120	230	550
v/c Ratio	0.11	0.01	0.83	0.08	0.71	0.35
Control Delay	4.3	0.0	16.6	0.1	38.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	0.0	16.6	0.1	38.7	0.6
Queue Length 50th (ft)	16	0	262	0	88	0
Queue Length 95th (ft)	43	0	#694	0	153	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	1309	1550	1309	1583	658	1563
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	0.11	0.01	0.83	0.08	0.35	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑	↑	↑		↑			
Traffic Volume (veh/h)	0	150	10	0	1090	120	230	0	550	0	0	0
Future Volume (veh/h)	0	150	10	0	1090	120	230	0	550	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	150	0	0	1090	0	230	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	1273		0	1291		274	0				
Arrive On Green	0.00	0.68	0.00	0.00	0.69	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	0	1870	1585	1781	0	1585			
Grp Volume(v), veh/h	0	150	0	0	1090	0	230	0	0			
Grp Sat Flow(s),veh/h/ln	0	1870	1585	0	1870	1585	1781	0	1585			
Q Serve(g_s), s	0.0	1.4	0.0	0.0	22.2	0.0	6.4	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	1.4	0.0	0.0	22.2	0.0	6.4	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1273		0	1291		274	0				
V/C Ratio(X)	0.00	0.12		0.00	0.84		0.84	0.00				
Avail Cap(c_a), veh/h	0	1676		0	1676		902	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	2.9	0.0	0.0	5.9	0.0	21.1	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	3.3	0.0	2.6	0.0	0.0			
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	0.0	0.3	0.0	0.0	5.2	0.0	2.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.9	0.0	0.0	9.2	0.0	23.7	0.0	0.0			
LnGrp LOS	A	A		A	A		C	A				
Approach Vol, veh/h		150	A		1090	A		230	A			
Approach Delay, s/veh		2.9			9.2			23.7				
Approach LOS		A			A			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		39.4				39.4		11.9				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		44.5				* 45		26.5				
Max Q Clear Time (g_c+I1), s		24.2				3.4		8.4				
Green Ext Time (p_c), s		9.7				0.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			10.8									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰		↱		↱	↰		↱↱	↱
Traffic Vol, veh/h	0	0	0	20	0	3060	0	730	100	0	2000	510
Future Vol, veh/h	0	0	0	20	0	3060	0	730	100	0	2000	510
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	-	-	Free	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	20	0	3060	0	730	100	0	2000	510
Major/Minor				Minor1		Major1			Major2			
Conflicting Flow All				1730		-			-		-	
Stage 1				730		-			-		-	
Stage 2				1000		-			-		-	
Critical Hdwy				6.63		-			-		-	
Critical Hdwy Stg 1				5.43		-			-		-	
Critical Hdwy Stg 2				5.83		-			-		-	
Follow-up Hdwy				3.519		-			-		-	
Pot Cap-1 Maneuver				88		0			0		0	
Stage 1				476		0			0		0	
Stage 2				317		0			0		0	
Platoon blocked, %							-			-		
Mov Cap-1 Maneuver				88		0			-		-	
Mov Cap-2 Maneuver				88		0			-		-	
Stage 1				476		0			-		-	
Stage 2				317		0			-		-	
Approach				WB		NB			SB			
HCM Control Delay, s				57.6		0			0			
HCM LOS				F								
Minor Lane/Major Mvmt		NBTWBLn1WBLn2		SBT								
Capacity (veh/h)		- 88		-								
HCM Lane V/C Ratio		- 0.227		-								
HCM Control Delay (s)		- 57.6		0								
HCM Lane LOS		- F		A								
HCM 95th %tile Q(veh)		- 0.8		-								

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	18.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	630	80	10	200	90	1940
Future Vol, veh/h	630	80	10	200	90	1940
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	630	80	10	200	90	1940

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	210	90	90	0	-	0
Stage 1	90	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	769	967	1504	-	-	0
Stage 1	933	-	-	-	-	0
Stage 2	893	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	764	967	1504	-	-	-
Mov Cap-2 Maneuver	764	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	893	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.6	0.4	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1504	-	764	967	-
HCM Lane V/C Ratio	0.007	-	0.825	0.083	-
HCM Control Delay (s)	7.4	0	27.7	9.1	-
HCM Lane LOS	A	A	D	A	-
HCM 95th %tile Q(veh)	0	-	9.1	0.3	-

Intersection

Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	10	50	10	10	70
Future Vol, veh/h	30	10	50	10	10	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	10	50	10	10	70
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8	7.5	8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	12%
Vol Thru, %	100%	0%	0%	0%	88%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	10	30	10	80
LT Vol	0	0	30	0	10
Through Vol	50	0	0	0	70
RT Vol	0	10	0	10	0
Lane Flow Rate	50	10	30	10	80
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.065	0.011	0.044	0.011	0.099
Departure Headway (Hd)	4.644	3.943	5.272	4.07	4.474
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	767	901	671	865	796
Service Time	2.398	1.697	3.068	1.865	2.53
HCM Lane V/C Ratio	0.065	0.011	0.045	0.012	0.101
HCM Control Delay	7.7	6.7	8.3	6.9	8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0	0.1	0	0.3

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Existing + MPU + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	80	10	30	70
Future Vol, veh/h	10	10	80	10	30	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	120	180	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	10	80	10	30	70
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	200	30	100	0	-	0
Stage 1	30	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	789	1044	1493	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	746	1044	1493	-	-	-
Mov Cap-2 Maneuver	746	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	6.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1493	-	746	1044	-	-
HCM Lane V/C Ratio	0.054	-	0.013	0.01	-	-
HCM Control Delay (s)	7.5	-	9.9	8.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0	0	-	-

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	20	40	40	10	20
Future Vol, veh/h	20	20	40	40	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	20	40	40	10	20
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	100	60	0	0	80	0
Stage 1	60	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	899	1005	-	-	1518	-
Stage 1	963	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	893	1005	-	-	1518	-
Mov Cap-2 Maneuver	893	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		2.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	946	1518	-	
HCM Lane V/C Ratio	-	-	0.042	0.007	-	
HCM Control Delay (s)	-	-	9	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	7.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	20	140	30	10	290
Future Vol, veh/h	30	20	140	30	10	290
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	4	2	2	4
Mvmt Flow	30	20	140	30	10	290
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	50	0	350	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	310	-
Critical Hdwy	-	-	4.14	-	6.42	6.24
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.336
Pot Cap-1 Maneuver	-	-	1544	-	647	1026
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	744	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1544	-	587	1026
Mov Cap-2 Maneuver	-	-	-	-	587	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	676	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		6.2		10.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1001	-	-	1544	-	
HCM Lane V/C Ratio	0.3	-	-	0.091	-	
HCM Control Delay (s)	10.1	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	1.3	-	-	0.3	-	

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	250	40	10	110	10	30	20	70	10	10	10
Future Vol, veh/h	10	250	40	10	110	10	30	20	70	10	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	250	40	10	110	10	30	20	70	10	10	10
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	8.5	8.5	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	3%	8%	33%
Vol Thru, %	17%	83%	85%	33%
Vol Right, %	58%	13%	8%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	300	130	30
LT Vol	30	10	10	10
Through Vol	20	250	110	10
RT Vol	70	40	10	10
Lane Flow Rate	120	300	130	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.155	0.364	0.166	0.041
Departure Headway (Hd)	4.638	4.365	4.585	4.925
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	772	825	781	725
Service Time	2.675	2.394	2.619	2.971
HCM Lane V/C Ratio	0.155	0.364	0.166	0.041
HCM Control Delay	8.5	9.9	8.5	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	1.7	0.6	0.1

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	300	10	10	120	10	70
Future Vol, veh/h	300	10	10	120	10	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	195	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	300	10	10	120	10	70
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	310	0	445	305
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1250	-	571	735
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	887	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1250	-	566	735
Mov Cap-2 Maneuver	-	-	-	-	566	-
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	880	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		10.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	709	-	-	1250	-	
HCM Lane V/C Ratio	0.113	-	-	0.008	-	
HCM Control Delay (s)	10.7	-	-	7.9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.4	-	-	0	-	

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing + MPU + Cargo Conditions
PM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	210	160	120	100	60	30
v/c Ratio	0.09	0.10	0.06	0.06	0.08	0.04
Control Delay	5.9	0.1	6.2	0.1	3.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	0.1	6.2	0.1	3.9	2.8
Queue Length 50th (ft)	0	0	0	0	0	0
Queue Length 95th (ft)	50	0	32	0	21	4
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3539	1550	3224	1550	1770	2586
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	0.06	0.10	0.04	0.06	0.03	0.01
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Existing + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑↑
Traffic Volume (vph)	0	210	160	10	110	100	0	0	0	60	0	30
Future Volume (vph)	0	210	160	10	110	100	0	0	0	60	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.0		4.0
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3525	1550				1770		2787
Flt Permitted		1.00	1.00		0.91	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3223	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	210	160	10	110	100	0	0	0	60	0	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	29
Lane Group Flow (vph)	0	210	160	0	120	100	0	0	0	60	0	1
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free	Perm	NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free	2		Free						
Actuated Green, G (s)		6.4	23.7		6.0	23.7				6.5		0.3
Effective Green, g (s)		8.8	23.7		8.8	23.7				6.9		0.7
Actuated g/C Ratio		0.37	1.00		0.37	1.00				0.29		0.03
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1314	1550		1196	1550				515		82
v/s Ratio Prot		c0.06								0.03		0.00
v/s Ratio Perm			c0.10		0.04	0.06						
v/c Ratio		0.16	0.10		0.10	0.06				0.12		0.01
Uniform Delay, d1		5.0	0.0		4.9	0.0				6.2		11.2
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		0.0	0.1		0.0	0.1				0.0		0.0
Delay (s)		5.0	0.1		4.9	0.1				6.2		11.2
Level of Service		A	A		A	A				A		B
Approach Delay (s)		2.9			2.7			0.0			7.9	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			3.5									
HCM 2000 Volume to Capacity ratio			0.22									
Actuated Cycle Length (s)			23.7							12.4		
Intersection Capacity Utilization			20.8%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing + MPU + Cargo Conditions
PM Peak Hour

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	200	70	120	60	40	50	620
v/c Ratio	0.24	0.05	0.14	0.15	0.13	0.16	0.35
Control Delay	13.1	0.1	12.8	5.8	19.0	19.1	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	0.1	12.8	5.8	19.0	19.1	1.3
Queue Length 50th (ft)	13	0	7	0	5	6	0
Queue Length 95th (ft)	55	0	36	23	45	52	21
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3478	1550	3478	1510	1512	1531	2753
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	0.06	0.05	0.03	0.04	0.03	0.03	0.23
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Existing + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↗	↗			
Traffic Volume (vph)	0	200	70	0	120	60	80	10	620	0	0	0
Future Volume (vph)	0	200	70	0	120	60	80	10	620	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1550		3539	1548	1681	1702	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1550		3539	1548	1681	1702	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	200	70	0	120	60	80	10	620	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	294	0	0	0
Lane Group Flow (vph)	0	200	70	0	120	15	40	50	326	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		7.8	35.2		6.9	6.9	5.2	5.2	17.0			
Effective Green, g (s)		8.7	35.2		8.7	8.7	6.7	6.7	18.5			
Actuated g/C Ratio		0.25	1.00		0.25	0.25	0.19	0.19	0.53			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		874	1550		874	382	319	323	1464			
v/s Ratio Prot		c0.06			0.03		0.02	0.03	c0.12			
v/s Ratio Perm			0.05			0.01						
v/c Ratio		0.23	0.05		0.14	0.04	0.13	0.15	0.22			
Uniform Delay, d1		10.6	0.0		10.3	10.1	11.8	11.9	4.5			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.0	0.1		0.0	0.0	0.1	0.1	0.0			
Delay (s)		10.6	0.1		10.4	10.1	11.9	12.0	4.5			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		7.9			10.3			5.5			0.0	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.8									
HCM 2000 Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			35.2									
Intersection Capacity Utilization			34.8%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection

Intersection Delay, s/veh 9.4

Intersection LOS A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	10	140	290	10	40
Future Vol, veh/h	40	10	140	290	10	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	10	140	290	10	40
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8.8	9.6	7.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	100%	0%	20%
Vol Thru, %	33%	0%	0%	80%
Vol Right, %	67%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	430	40	10	50
LT Vol	0	40	0	10
Through Vol	140	0	0	40
RT Vol	290	0	10	0
Lane Flow Rate	430	40	10	50
Geometry Grp	2	7	7	2
Degree of Util (X)	0.436	0.067	0.013	0.063
Departure Headway (Hd)	3.653	5.995	4.786	4.503
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	972	601	752	800
Service Time	1.737	3.699	2.489	2.507
HCM Lane V/C Ratio	0.442	0.067	0.013	0.063
HCM Control Delay	9.6	9.1	7.6	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	2.2	0.2	0	0.2

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection

Intersection Delay, s/veh 19.3

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	490	10	10	390	30	10	10	10	80	10	10
Future Vol, veh/h	30	490	10	10	390	30	10	10	10	80	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	490	10	10	390	30	10	10	10	80	10	10
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	22.6	17.7	10.2	11.4
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	50%	0%	98%	0%	93%	0%	50%
Vol Right, %	0%	50%	0%	2%	0%	7%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	20	30	500	10	420	80	20
LT Vol	10	0	30	0	10	0	80	0
Through Vol	0	10	0	490	0	390	0	10
RT Vol	0	10	0	10	0	30	0	10
Lane Flow Rate	10	20	30	500	10	420	80	20
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.022	0.038	0.05	0.76	0.017	0.647	0.168	0.037
Departure Headway (Hd)	7.778	6.907	5.989	5.47	6.098	5.543	7.548	6.679
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	518	599	665	588	651	475	536
Service Time	5.531	4.66	3.714	3.195	3.826	3.271	5.293	4.425
HCM Lane V/C Ratio	0.022	0.039	0.05	0.752	0.017	0.645	0.168	0.037
HCM Control Delay	10.7	9.9	9	23.4	8.9	17.9	11.8	9.7
HCM Lane LOS	B	A	A	C	A	C	B	A
HCM 95th-tile Q	0.1	0.1	0.2	7	0.1	4.7	0.6	0.1

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↑	↗				↘		↗
Traffic Vol, veh/h	0	260	320	0	410	360	0	0	0	120	0	30
Future Vol, veh/h	0	260	320	0	410	360	0	0	0	120	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	None
Storage Length	-	-	150	-	-	100	-	-	-	0	-	440
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	260	320	0	410	360	0	0	0	120	0	30
Major/Minor	Major1		Major2				Minor2					
Conflicting Flow All	-	0	-	-	-	0				670	-	410
Stage 1	-	-	-	-	-	-				410	-	-
Stage 2	-	-	-	-	-	-				260	-	-
Critical Hdwy	-	-	-	-	-	-				6.42	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-				5.42	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.42	-	-
Follow-up Hdwy	-	-	-	-	-	-				3.518	-	3.318
Pot Cap-1 Maneuver	0	-	0	0	-	0				422	0	642
Stage 1	0	-	0	0	-	0				670	0	-
Stage 2	0	-	0	0	-	0				783	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				422	0	642
Mov Cap-2 Maneuver	-	-	-	-	-	-				422	0	-
Stage 1	-	-	-	-	-	-				670	0	-
Stage 2	-	-	-	-	-	-				783	0	-
Approach	EB		WB				SB					
HCM Control Delay, s	0		0				15.7					
HCM LOS							C					
Minor Lane/Major Mvmt	EBT		WBT	SBLn1	SBLn2							
Capacity (veh/h)	-		-	422	642							
HCM Lane V/C Ratio	-		-	0.284	0.047							
HCM Control Delay (s)	-		-	16.9	10.9							
HCM Lane LOS	-		-	C	B							
HCM 95th %tile Q(veh)	-		-	1.2	0.1							

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing + MPU + Cargo Conditions
PM Peak Hour

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	350	60	490	140	260	950
v/c Ratio	0.36	0.04	0.50	0.09	0.56	0.61
Control Delay	7.2	0.1	8.7	0.1	17.8	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	0.1	8.7	0.1	17.8	1.8
Queue Length 50th (ft)	34	0	53	0	41	0
Queue Length 95th (ft)	96	0	144	0	118	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	1824	1550	1824	1583	1244	1563
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	0.19	0.04	0.27	0.09	0.21	0.61
Intersection Summary						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Existing + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑	↑	↑		↑			
Traffic Volume (veh/h)	0	350	60	0	490	140	260	0	950	0	0	0
Future Volume (veh/h)	0	350	60	0	490	140	260	0	950	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	350	0	0	490	0	260	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	839		0	876		380	0				
Arrive On Green	0.00	0.45	0.00	0.00	0.47	0.00	0.21	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	0	1870	1585	1781	0	1585			
Grp Volume(v), veh/h	0	350	0	0	490	0	260	0	0			
Grp Sat Flow(s),veh/h/ln	0	1870	1585	0	1870	1585	1781	0	1585			
Q Serve(g_s), s	0.0	3.2	0.0	0.0	4.7	0.0	3.4	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	3.2	0.0	0.0	4.7	0.0	3.4	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	839		0	876		380	0				
V/C Ratio(X)	0.00	0.42		0.00	0.56		0.68	0.00				
Avail Cap(c_a), veh/h	0	3425		0	3425		1843	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	4.7	0.0	0.0	4.8	0.0	9.1	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.6	0.0	0.8	0.0	0.0			
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	0.0	0.5	0.0	0.0	0.7	0.0	0.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.9	0.0	0.0	5.4	0.0	9.9	0.0	0.0			
LnGrp LOS	A	A		A	A		A	A				
Approach Vol, veh/h		350	A		490	A		260	A			
Approach Delay, s/veh		4.9			5.4			9.9				
Approach LOS		A			A			A				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		15.8				15.8		9.4				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		44.5				* 45		26.5				
Max Q Clear Time (g_c+I1), s		6.7				5.2		5.4				
Green Ext Time (p_c), s		3.5				1.9		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			6.3									
HCM 6th LOS			A									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU + Cargo Conditions
PM Peak Hour

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	0	0	0	20	0	1170	0	670	80	0	3170	750	
Future Vol, veh/h	0	0	0	20	0	1170	0	670	80	0	3170	750	
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	-	-	Free	-	-	Free	-	-	Free	
Storage Length	-	-	-	0	-	0	-	-	0	-	-	485	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	0	0	0	20	0	1170	0	670	80	0	3170	750	
Major/Minor				Minor1		Major1			Major2				
Conflicting Flow All				2255		-	-	-	0	-	-	-	0
Stage 1				670		-	-	-	-	-	-	-	
Stage 2				1585		-	-	-	-	-	-	-	
Critical Hdwy				6.63		-	-	-	-	-	-	-	
Critical Hdwy Stg 1				5.43		-	-	-	-	-	-	-	
Critical Hdwy Stg 2				5.83		-	-	-	-	-	-	-	
Follow-up Hdwy				3.519		-	-	-	-	-	-	-	
Pot Cap-1 Maneuver				40		0	0	0	-	0	0	-	0
Stage 1				508		0	0	0	-	0	0	-	0
Stage 2				155		0	0	0	-	0	0	-	0
Platoon blocked, %									-			-	
Mov Cap-1 Maneuver				40		0	-	-	-	-	-	-	
Mov Cap-2 Maneuver				40		0	-	-	-	-	-	-	
Stage 1				508		0	-	-	-	-	-	-	
Stage 2				155		0	-	-	-	-	-	-	
Approach				WB		NB			SB				
HCM Control Delay, s				163.9		0			0				
HCM LOS				F									
Minor Lane/Major Mvmt		NBTWBLn1WBLn2		SBT									
Capacity (veh/h)		- 40		-									
HCM Lane V/C Ratio		- 0.5		-									
HCM Control Delay (s)		- 163.9		0									
HCM Lane LOS		- F		A									
HCM 95th %tile Q(veh)		- 1.8		-									

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	44.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Vol, veh/h	570	600	10	190	370	2860
Future Vol, veh/h	570	600	10	190	370	2860
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	570	600	10	190	370	2860
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	485	370	370	0	-	0
Stage 1	370	-	-	-	-	-
Stage 2	115	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 526	675	1187	-	-	0
Stage 1	698	-	-	-	-	0
Stage 2	898	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	~ 521	675	1187	-	-	-
Mov Cap-2 Maneuver	~ 521	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	65.8	0.4		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	
Capacity (veh/h)	1187	-	521	675	-	
HCM Lane V/C Ratio	0.008	-	1.094	0.889	-	
HCM Control Delay (s)	8.1	0	95.1	37.9	-	
HCM Lane LOS	A	A	F	E	-	
HCM 95th %tile Q(veh)	0	-	18	11	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	10	120	30	10	40
Future Vol, veh/h	10	10	120	30	10	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	10	120	30	10	40
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.7	7.9	7.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	20%
Vol Thru, %	100%	0%	0%	0%	80%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	30	10	10	50
LT Vol	0	0	10	0	10
Through Vol	120	0	0	0	40
RT Vol	0	30	0	10	0
Lane Flow Rate	120	30	10	10	50
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.153	0.032	0.015	0.012	0.063
Departure Headway (Hd)	4.593	3.893	5.502	4.299	4.518
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	781	919	655	838	788
Service Time	2.322	1.621	3.202	1.999	2.577
HCM Lane V/C Ratio	0.154	0.033	0.015	0.012	0.063
HCM Control Delay	8.2	6.8	8.3	7.1	7.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0	0	0.2

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Existing + MPU + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	80	30	30	10	20
Future Vol, veh/h	50	80	30	30	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	120	180	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	80	30	30	10	20

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	100	10	30	0	-	0
Stage 1	10	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	899	1071	1583	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	882	1071	1583	-	-	-
Mov Cap-2 Maneuver	882	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	934	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	3.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1583	-	882	1071	-	-
HCM Lane V/C Ratio	0.019	-	0.057	0.075	-	-
HCM Control Delay (s)	7.3	-	9.3	8.6	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.2	-	-

Appendix C

Analysis Worksheets for Cumulative Conditions (Intersections)

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Cumulative Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	10	10	10	10	20
Future Vol, veh/h	30	10	10	10	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	10	10	10	10	20
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	55	15	0	0	20	0
Stage 1	15	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	953	1065	-	-	1596	-
Stage 1	1008	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	947	1065	-	-	1596	-
Mov Cap-2 Maneuver	947	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.9	0		2.4		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		974	1596	
HCM Lane V/C Ratio	-	-		0.041	0.006	
HCM Control Delay (s)	-	-		8.9	7.3	
HCM Lane LOS	-	-		A	A	
HCM 95th %tile Q(veh)	-	-		0.1	0	

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	10	10	40	20	10	10
v/c Ratio	0.02	0.03	0.01	0.01	0.02	0.00
Control Delay	12.6	8.2	13.8	4.5	12.6	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	8.2	13.8	4.5	12.6	3.5
Queue Length 50th (ft)	1	0	0	0	1	0
Queue Length 95th (ft)	13	10	22	14	13	3
Internal Link Dist (ft)	4683			3724	1647	
Turn Bay Length (ft)		175	300			175
Base Capacity (vph)	1641	1377	2899	1752	1542	2538
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	0.01	0.01	0.01	0.01	0.01	0.00
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Cumulative Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↖↗	↑	↖	↗↖
Traffic Volume (veh/h)	10	10	40	20	10	10
Future Volume (veh/h)	10	10	40	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	10	40	20	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	68	58	494	826	28	442
Arrive On Green	0.04	0.04	0.14	0.44	0.02	0.02
Sat Flow, veh/h	1870	1574	3456	1870	1781	2790
Grp Volume(v), veh/h	10	10	40	20	10	10
Grp Sat Flow(s),veh/h/ln	1870	1574	1728	1870	1781	1395
Q Serve(g_s), s	0.1	0.1	0.2	0.1	0.1	0.1
Cycle Q Clear(g_c), s	0.1	0.1	0.2	0.1	0.1	0.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	68	58	494	826	28	442
V/C Ratio(X)	0.15	0.17	0.08	0.02	0.36	0.02
Avail Cap(c_a), veh/h	2681	2256	2715	4640	2248	3919
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	9.8	9.8	7.8	3.3	10.2	7.5
Incr Delay (d2), s/veh	1.0	1.4	0.1	0.0	7.5	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	0.0	0.0	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.8	11.2	7.9	3.3	17.7	7.5
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	20			60	20	
Approach Delay, s/veh	11.0			6.4	12.6	
Approach LOS	B			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.5	6.7			15.2	5.8
Change Period (Y+Rc), s	5.5	5.9			5.9	5.5
Max Green Setting (Gmax), s	16.5	30.1			52.1	26.5
Max Q Clear Time (g_c+I1), s	2.2	2.1			2.1	2.1
Green Ext Time (p_c), s	0.1	0.0			0.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			8.5			
HCM 6th LOS			A			
Notes						
User approved pedestrian interval to be less than phase max green.						

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	10	10	230	50	10	10	10	30	10	10	10
v/c Ratio	0.06	0.02	0.02	0.45	0.03	0.01	0.04	0.03	0.06	0.06	0.03	0.02
Control Delay	28.2	18.7	0.1	23.3	9.3	0.0	25.0	17.5	0.2	28.2	18.8	0.1
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	28.2	18.7	0.1	23.3	9.3	0.0	25.0	17.5	0.2	28.2	18.8	0.1
Queue Length 50th (ft)	1	1	0	20	0	0	1	1	0	1	1	0
Queue Length 95th (ft)	21	16	0	#257	40	0	20	15	0	21	16	0
Internal Link Dist (ft)	3724			3503			1141			1439		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	156	1086	999	514	1533	1301	335	1362	1193	156	1180	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.01	0.01	0.45	0.03	0.01	0.03	0.01	0.03	0.06	0.01	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	10	230	50	10	10	10	30	10	10	10
Future Volume (veh/h)	10	10	10	230	50	10	10	10	30	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	10	10	230	50	10	10	10	30	10	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	184	154	300	485	409	14	100	84	14	100	84
Arrive On Green	0.01	0.10	0.10	0.17	0.26	0.26	0.01	0.05	0.05	0.01	0.05	0.05
Sat Flow, veh/h	1781	1870	1569	1781	1870	1579	1781	1870	1567	1781	1870	1567
Grp Volume(v), veh/h	10	10	10	230	50	10	10	10	30	10	10	10
Grp Sat Flow(s),veh/h/ln	1781	1870	1569	1781	1870	1579	1781	1870	1567	1781	1870	1567
Q Serve(g_s), s	0.2	0.2	0.2	4.2	0.7	0.2	0.2	0.2	0.6	0.2	0.2	0.2
Cycle Q Clear(g_c), s	0.2	0.2	0.2	4.2	0.7	0.2	0.2	0.2	0.6	0.2	0.2	0.2
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	14	184	154	300	485	409	14	100	84	14	100	84
V/C Ratio(X)	0.71	0.05	0.06	0.77	0.10	0.02	0.71	0.10	0.36	0.71	0.10	0.12
Avail Cap(c_a), veh/h	184	1272	1067	603	1713	1446	393	1603	1343	184	1382	1158
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	16.8	13.9	13.9	13.5	9.6	9.4	16.8	15.3	15.5	16.8	15.3	15.3
Incr Delay (d2), s/veh	48.3	0.1	0.2	4.1	0.1	0.0	48.3	0.4	2.5	48.3	0.4	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	0.2	0.1	0.1	1.3	0.2	0.0	0.2	0.1	0.2	0.2	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	14.0	14.1	17.6	9.7	9.4	65.1	15.7	18.0	65.1	15.7	15.9
LnGrp LOS	E	B	B	B	A	A	E	B	B	E	B	B
Approach Vol, veh/h		30			290			50			30	
Approach Delay, s/veh		31.1			15.9			27.0			32.2	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	7.7	11.2	9.2	5.8	7.7	5.8	14.7				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.5	29.1	11.5	23.1	7.5	25.1	3.5	31.1				
Max Q Clear Time (g_c+I1), s	2.2	2.6	6.2	2.2	2.2	2.2	2.2	2.7				
Green Ext Time (p_c), s	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			19.7									
HCM 6th LOS			B									

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative Conditions
AM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	80	10	1090	370	10	180
v/c Ratio	0.26	0.04	0.77	0.15	0.04	0.35
Control Delay	30.4	17.1	22.6	4.3	32.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	17.1	22.6	4.3	32.2	8.0
Queue Length 50th (ft)	24	0	145	17	3	0
Queue Length 95th (ft)	99	15	485	68	22	33
Internal Link Dist (ft)	3503			1595	3285	
Turn Bay Length (ft)		150	375			
Base Capacity (vph)	972	819	2926	3323	852	1402
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	0.08	0.01	0.37	0.11	0.01	0.13
Intersection Summary						

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘↙	↑↑	↙	↗↗
Traffic Volume (veh/h)	80	10	1090	370	10	180
Future Volume (veh/h)	80	10	1090	370	10	180
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	10	1090	370	10	180
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	187	157	1434	2264	194	303
Arrive On Green	0.10	0.10	0.41	0.64	0.11	0.11
Sat Flow, veh/h	1870	1569	3456	3647	1781	2790
Grp Volume(v), veh/h	80	10	1090	370	10	180
Grp Sat Flow(s),veh/h/ln	1870	1569	1728	1777	1781	1395
Q Serve(g_s), s	1.8	0.3	12.1	1.9	0.2	2.8
Cycle Q Clear(g_c), s	1.8	0.3	12.1	1.9	0.2	2.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	187	157	1434	2264	194	303
V/C Ratio(X)	0.43	0.06	0.76	0.16	0.05	0.59
Avail Cap(c_a), veh/h	1292	1084	4120	7127	1135	1778
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	19.0	18.3	11.2	3.3	17.9	19.1
Incr Delay (d2), s/veh	1.6	0.2	0.9	0.0	0.1	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	2.8	0.1	0.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.6	18.5	12.1	3.3	18.0	20.9
LnGrp LOS	C	B	B	A	B	C
Approach Vol, veh/h	90			1460	190	
Approach Delay, s/veh	20.3			9.9	20.7	
Approach LOS	C			A	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.4	24.1	10.4		34.5
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		28.6	53.5	31.0		90.0
Max Q Clear Time (g_c+I1), s		4.8	14.1	3.8		3.9
Green Ext Time (p_c), s		0.6	4.5	0.3		2.2
Intersection Summary						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	300	10	120	1590	10	30
v/c Ratio	0.16	0.01	0.81	0.57	0.03	0.11
Control Delay	9.1	5.9	72.6	7.7	24.0	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	5.9	72.6	7.7	24.0	11.1
Queue Length 50th (ft)	24	0	36	118	3	0
Queue Length 95th (ft)	80	8	#242	473	18	22
Internal Link Dist (ft)	1595			4369	10448	
Turn Bay Length (ft)		150	180			175
Base Capacity (vph)	3470	1511	148	3534	1157	1030
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	0.09	0.01	0.81	0.45	0.01	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
5: Lone Tree Rd & Elverta Rd

Cumulative Conditions
AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (veh/h)	300	10	120	1590	10	30
Future Volume (veh/h)	300	10	120	1590	10	30
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	300	10	120	1590	10	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1718	765	153	2490	47	42
Arrive On Green	0.48	0.48	0.09	0.70	0.03	0.03
Sat Flow, veh/h	3647	1582	1781	3647	1781	1585
Grp Volume(v), veh/h	300	10	120	1590	10	30
Grp Sat Flow(s),veh/h/ln	1777	1582	1781	1777	1781	1585
Q Serve(g_s), s	2.0	0.1	2.8	10.1	0.2	0.8
Cycle Q Clear(g_c), s	2.0	0.1	2.8	10.1	0.2	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1718	765	153	2490	47	42
V/C Ratio(X)	0.17	0.01	0.79	0.64	0.21	0.71
Avail Cap(c_a), veh/h	8252	3673	175	9068	1359	1209
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	6.1	5.6	18.7	3.4	19.9	20.2
Incr Delay (d2), s/veh	0.0	0.0	18.6	0.3	2.2	19.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.6	0.1	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.1	5.6	37.3	3.7	22.1	39.8
LnGrp LOS	A	A	D	A	C	D
Approach Vol, veh/h	310			1710	40	
Approach Delay, s/veh	6.1			6.0	35.4	
Approach LOS	A			A	D	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		6.6	9.1	26.1		35.2
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		31.9	4.1	97.1		106.7
Max Q Clear Time (g_c+I1), s		2.8	4.8	4.0		12.1
Green Ext Time (p_c), s		0.1	0.0	1.8		17.2
Intersection Summary						
HCM 6th Ctrl Delay			6.6			
HCM 6th LOS			A			

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative Conditions
AM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	210	80	520	300	80	700
v/c Ratio	0.19	0.05	0.50	0.19	0.16	0.66
Control Delay	10.7	0.1	12.7	0.3	7.7	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	0.1	12.7	0.3	7.7	5.6
Queue Length 50th (ft)	6	0	19	0	6	0
Queue Length 95th (ft)	60	0	141	0	28	47
Internal Link Dist (ft)	4369		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3523	1550	3518	1550	1740	2598
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	0.06	0.05	0.15	0.19	0.05	0.27
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘		↗↗
Traffic Volume (vph)	0	210	80	0	520	300	0	0	0	80	0	700
Future Volume (vph)	0	210	80	0	520	300	0	0	0	80	0	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0		6.8	4.0				4.4		4.4
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	210	80	0	520	300	0	0	0	80	0	700
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	585
Lane Group Flow (vph)	0	210	80	0	520	300	0	0	0	80	0	115
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free			Free						
Actuated Green, G (s)		9.6	32.4		9.2	32.4				12.0		5.3
Effective Green, g (s)		9.6	32.4		9.2	32.4				12.0		5.3
Actuated g/C Ratio		0.30	1.00		0.28	1.00				0.37		0.16
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1048	1550		1004	1550				655		455
v/s Ratio Prot		0.06			c0.15					0.05		0.04
v/s Ratio Perm			0.05			c0.19						
v/c Ratio		0.20	0.05		0.52	0.19				0.12		0.25
Uniform Delay, d1		8.5	0.0		9.7	0.0				6.7		11.8
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		0.0	0.1		0.2	0.3				0.0		0.1
Delay (s)		8.6	0.1		9.9	0.3				6.8		11.9
Level of Service		A	A		A	A				A		B
Approach Delay (s)		6.2			6.4			0.0			11.4	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			8.4									HCM 2000 Level of Service A
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			32.4									Sum of lost time (s) 15.6
Intersection Capacity Utilization			48.2%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	110	90	550	210	224	226	120
v/c Ratio	0.10	0.06	0.56	0.36	0.56	0.57	0.09
Control Delay	16.3	0.1	19.9	5.7	26.0	26.0	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	0.1	19.9	5.7	26.0	26.0	1.8
Queue Length 50th (ft)	10	0	63	0	53	53	0
Queue Length 95th (ft)	42	0	184	50	185	186	10
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3382	1550	3375	1473	1253	1258	2635
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	0.03	0.06	0.16	0.14	0.18	0.18	0.05
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (vph)	0	110	90	0	550	210	440	10	120	0	0	0
Future Volume (vph)	0	110	90	0	550	210	440	10	120	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		5.8	5.8	5.5	5.5	5.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3539	1550		3539	1546	1681	1689	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3539	1550		3539	1546	1681	1689	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	110	90	0	550	210	440	10	120	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	151	0	0	62	0	0	0
Lane Group Flow (vph)	0	110	90	0	550	59	224	226	58	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		14.6	48.7		13.7	13.7	11.6	11.6	23.7			
Effective Green, g (s)		14.6	48.7		13.7	13.7	11.6	11.6	23.7			
Actuated g/C Ratio		0.30	1.00		0.28	0.28	0.24	0.24	0.49			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		1060	1550		995	434	400	402	1356			
v/s Ratio Prot		0.03			c0.16		0.13	c0.13	0.02			
v/s Ratio Perm			c0.06			0.04						
v/c Ratio		0.10	0.06		0.55	0.14	0.56	0.56	0.04			
Uniform Delay, d1		12.3	0.0		14.9	13.1	16.3	16.3	6.6			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.0	0.1		0.4	0.1	1.1	1.1	0.0			
Delay (s)		12.3	0.1		15.3	13.1	17.4	17.4	6.6			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		6.8			14.7			15.1			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.8									
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			48.7									
Intersection Capacity Utilization			37.1%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	80	430	120	200	740	10	160	90	150	10	80	30
v/c Ratio	0.47	0.49	0.24	0.74	0.59	0.02	0.71	0.16	0.26	0.11	0.27	0.08
Control Delay	45.4	24.6	3.9	51.0	22.8	0.0	53.1	18.9	5.1	41.7	28.5	0.4
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	45.4	24.6	3.9	51.0	22.8	0.0	53.1	18.9	5.1	41.7	28.5	0.4
Queue Length 50th (ft)	30	76	0	76	134	0	62	24	0	4	29	0
Queue Length 95th (ft)	#126	156	25	#285	264	0	#239	74	40	24	73	0
Internal Link Dist (ft)	745		1992		1063		3284					
Turn Bay Length (ft)	250		250	250		250	250		250	250		250
Base Capacity (vph)	172	1787	855	271	1985	933	226	979	892	87	834	782
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.24	0.14	0.74	0.37	0.01	0.71	0.09	0.17	0.11	0.10	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (veh/h)	80	430	120	200	740	10	160	90	150	10	80	30
Future Volume (veh/h)	80	430	120	200	740	10	160	90	150	10	80	30
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		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	430	0	200	740	0	160	90	150	10	80	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	767		262	1087		203	381	322	14	182	153
Arrive On Green	0.06	0.22	0.00	0.15	0.31	0.00	0.11	0.20	0.20	0.01	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1580	1781	1870	1575
Grp Volume(v), veh/h	80	430	0	200	740	0	160	90	150	10	80	30
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1580	1781	1870	1575
Q Serve(g_s), s	2.4	5.8	0.0	5.8	9.8	0.0	4.7	2.2	4.5	0.3	2.2	0.9
Cycle Q Clear(g_c), s	2.4	5.8	0.0	5.8	9.8	0.0	4.7	2.2	4.5	0.3	2.2	0.9
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	102	767		262	1087		203	381	322	14	182	153
V/C Ratio(X)	0.79	0.56		0.76	0.68		0.79	0.24	0.47	0.73	0.44	0.20
Avail Cap(c_a), veh/h	203	2096		319	2329		266	1149	971	103	978	823
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	18.7	0.0	22.0	16.3	0.0	23.1	17.8	18.8	26.5	22.8	22.2
Incr Delay (d2), s/veh	12.5	0.6	0.0	8.5	0.8	0.0	11.0	0.3	1.0	52.3	1.7	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	1.2	1.9	0.0	2.6	3.1	0.0	2.2	0.8	1.4	0.3	0.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	19.4	0.0	30.5	17.1	0.0	34.1	18.2	19.8	78.8	24.5	22.9
LnGrp LOS	D	B		C	B		C	B	B	E	C	C
Approach Vol, veh/h		510	A		940	A		400			120	
Approach Delay, s/veh		22.2			19.9			25.2			28.6	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	16.8	13.4	17.5	11.6	11.1	8.6	22.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.1	32.9	9.6	31.6	8.0	28.0	6.1	35.1				
Max Q Clear Time (g_c+I1), s	2.3	6.5	7.8	7.8	6.7	4.2	4.4	11.8				
Green Ext Time (p_c), s	0.0	0.8	0.1	2.4	0.0	0.4	0.0	4.5				

Intersection Summary

HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

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

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	140	320	10	280	1150	280	10	1030	150	60	760	190
v/c Ratio	0.41	0.22	0.02	0.62	0.70	0.46	0.09	0.68	0.26	0.23	0.39	0.27
Control Delay	52.1	29.2	0.1	52.3	33.7	15.9	60.2	35.3	5.7	53.8	24.1	4.7
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	52.1	29.2	0.1	52.3	33.7	15.9	60.2	35.3	5.7	53.8	24.1	4.7
Queue Length 50th (ft)	46	60	0	91	244	60	3	223	0	20	125	0
Queue Length 95th (ft)	93	98	0	169	363	161	14	323	44	48	212	50
Internal Link Dist (ft)	1627			1756			1585			1050		
Turn Bay Length (ft)	450		450	400		400	400		400	400		400
Base Capacity (vph)	629	2372	812	540	2250	778	108	2303	792	341	2649	904
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.13	0.01	0.52	0.51	0.36	0.09	0.45	0.19	0.18	0.29	0.21
Intersection Summary												

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	320	10	280	1150	280	10	1030	150	60	760	190
Future Volume (veh/h)	140	320	10	280	1150	280	10	1030	150	60	760	190
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	320	10	280	1150	280	10	1030	150	60	760	190
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	1469	455	374	1693	524	26	1531	474	108	1653	512
Arrive On Green	0.06	0.29	0.29	0.11	0.33	0.33	0.01	0.30	0.30	0.03	0.32	0.32
Sat Flow, veh/h	3456	5106	1582	3456	5106	1582	3456	5106	1582	3456	5106	1582
Grp Volume(v), veh/h	140	320	10	280	1150	280	10	1030	150	60	760	190
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1728	1702	1582	1728	1702	1582	1728	1702	1582
Q Serve(g_s), s	3.3	4.0	0.4	6.6	16.2	12.0	0.2	14.8	6.1	1.4	9.9	7.7
Cycle Q Clear(g_c), s	3.3	4.0	0.4	6.6	16.2	12.0	0.2	14.8	6.1	1.4	9.9	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	222	1469	455	374	1693	524	26	1531	474	108	1653	512
V/C Ratio(X)	0.63	0.22	0.02	0.75	0.68	0.53	0.39	0.67	0.32	0.55	0.46	0.37
Avail Cap(c_a), veh/h	724	2721	843	621	2568	796	124	2641	818	393	3039	941
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	38.1	22.6	21.3	36.1	24.1	22.7	41.3	25.6	22.6	39.9	22.4	21.7
Incr Delay (d2), s/veh	2.9	0.1	0.0	3.0	0.5	0.8	9.3	0.5	0.4	4.4	0.2	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	1.4	1.4	0.1	2.7	5.8	4.0	0.1	5.3	2.1	0.6	3.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	22.7	21.3	39.2	24.6	23.5	50.6	26.2	23.0	44.3	22.6	22.1
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		470			1710			1190			1010	
Approach Delay, s/veh		28.1			26.8			26.0			23.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	30.9	14.5	29.9	6.1	32.9	10.9	33.6				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	9.5	43.2	15.0	44.5	3.0	49.7	17.5	42.0				
Max Q Clear Time (g_c+I1), s	3.4	16.8	8.6	6.0	2.2	11.9	5.3	18.2				
Green Ext Time (p_c), s	0.0	7.5	0.5	1.9	0.0	5.8	0.3	8.8				
Intersection Summary												
HCM 6th Ctrl Delay			26.0									
HCM 6th LOS			C									

SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	430	10	60	2050	520	10	30	30	130	10	60
v/c Ratio	0.57	0.17	0.01	1.02	0.92	0.58	0.08	0.14	0.10	0.56	0.02	0.12
Control Delay	59.3	16.1	0.0	172.8	34.4	9.3	48.2	36.7	0.6	49.0	23.3	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	59.3	16.1	0.0	172.8	34.4	9.3	48.2	36.7	0.6	49.0	23.3	1.2
Queue Length 50th (ft)	48	45	0	34	372	40	5	16	0	67	4	0
Queue Length 95th (ft)	#165	116	0	#155	#855	212	26	42	0	160	17	5
Internal Link Dist (ft)	760			4518			633			10448		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	158	2519	834	59	2235	899	259	753	718	801	1324	1139
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.17	0.01	1.02	0.92	0.58	0.04	0.04	0.04	0.16	0.01	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	90	430	10	60	2050	520	10	30	30	130	10	60
Future Volume (veh/h)	90	430	10	60	2050	520	10	30	30	130	10	60
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		0.99	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	430	10	60	2050	520	10	30	30	130	10	60
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	2589	802	70	2457	761	13	116	98	179	290	245
Arrive On Green	0.07	0.51	0.51	0.04	0.48	0.48	0.01	0.06	0.06	0.10	0.15	0.15
Sat Flow, veh/h	1781	5106	1582	1781	5106	1582	1781	1870	1570	1781	1870	1579
Grp Volume(v), veh/h	90	430	10	60	2050	520	10	30	30	130	10	60
Grp Sat Flow(s),veh/h/ln	1781	1702	1582	1781	1702	1582	1781	1870	1570	1781	1870	1579
Q Serve(g_s), s	3.8	3.5	0.2	2.6	26.5	19.4	0.4	1.2	1.4	5.4	0.3	2.5
Cycle Q Clear(g_c), s	3.8	3.5	0.2	2.6	26.5	19.4	0.4	1.2	1.4	5.4	0.3	2.5
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	116	2589	802	70	2457	761	13	116	98	179	290	245
V/C Ratio(X)	0.78	0.17	0.01	0.86	0.83	0.68	0.75	0.26	0.31	0.73	0.03	0.25
Avail Cap(c_a), veh/h	187	2887	895	70	2553	791	306	888	746	947	1561	1318
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	35.1	10.1	9.3	36.4	17.1	15.3	37.7	34.1	34.2	33.3	27.4	28.3
Incr Delay (d2), s/veh	10.6	0.0	0.0	60.8	2.5	2.3	57.2	1.2	1.8	5.6	0.0	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	1.8	1.0	0.1	2.2	8.5	5.9	0.4	0.5	0.5	2.4	0.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	10.1	9.3	97.2	19.6	17.6	95.0	35.2	35.9	38.8	27.4	28.8
LnGrp LOS	D	B	A	F	B	B	F	D	D	D	C	C
Approach Vol, veh/h		530			2630			70			200	
Approach Delay, s/veh		16.2			21.0			44.1			35.3	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	10.0	8.5	44.5	6.1	17.1	10.5	42.6				
Change Period (Y+Rc), s	5.5	5.3	5.5	5.9	5.5	5.3	5.5	5.9				
Max Green Setting (Gmax), s	40.5	36.2	3.0	43.1	13.1	63.6	8.0	38.1				
Max Q Clear Time (g_c+I1), s	7.4	3.4	4.6	5.5	2.4	4.5	5.8	28.5				
Green Ext Time (p_c), s	0.3	0.2	0.0	2.7	0.0	0.2	0.0	8.2				

Intersection Summary

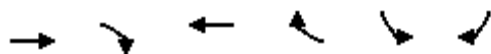
HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative Conditions
AM Peak Hour



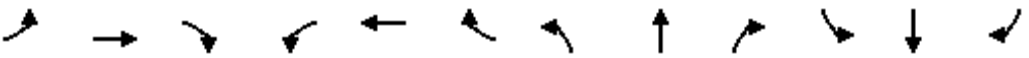
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	760	430	2180	780	150	600
v/c Ratio	0.31	0.44	0.89	0.82	0.22	0.95
Control Delay	14.7	3.1	27.0	18.6	18.9	52.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	3.1	27.0	18.6	18.9	52.6
Queue Length 50th (ft)	94	0	401	201	55	304
Queue Length 95th (ft)	121	48	477	#424	97	#526
Internal Link Dist (ft)	4518		937			
Turn Bay Length (ft)		400		100		440
Base Capacity (vph)	2452	967	2452	956	718	654
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	0.31	0.44	0.89	0.82	0.21	0.92

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗				↗		↗
Traffic Volume (veh/h)	0	760	430	0	2180	780	0	0	0	150	0	600
Future Volume (veh/h)	0	760	430	0	2180	780	0	0	0	150	0	600
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	0	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	760	0	0	2180	0				150	0	600
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2423		0	2423					706	0	628
Arrive On Green	0.00	0.47	0.00	0.00	0.47	0.00				0.40	0.00	0.40
Sat Flow, veh/h	0	5274	1585	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	760	0	0	2180	0				150	0	600
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	8.1	0.0	0.0	34.5	0.0				4.9	0.0	32.4
Cycle Q Clear(g_c), s	0.0	8.1	0.0	0.0	34.5	0.0				4.9	0.0	32.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2423		0	2423					706	0	628
V/C Ratio(X)	0.00	0.31		0.00	0.90					0.21	0.00	0.96
Avail Cap(c_a), veh/h	0	2472		0	2472					725	0	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.3	0.0	0.0	21.3	0.0				17.5	0.0	25.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	4.9	0.0				0.1	0.0	24.5
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	0.0	2.6	0.0	0.0	12.3	0.0				1.9	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.4	0.0	0.0	26.2	0.0				17.7	0.0	50.4
LnGrp LOS	A	B		A	C					B	A	D
Approach Vol, veh/h		760	A		2180	A					750	
Approach Delay, s/veh		14.4			26.2						43.9	
Approach LOS		B			C						D	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				47.7		40.4		47.7				
Change Period (Y+Rc), s				5.9		5.5		5.9				
Max Green Setting (Gmax), s				42.7		35.9		42.7				
Max Q Clear Time (g_c+I1), s				10.1		34.4		36.5				
Green Ext Time (p_c), s				4.9		0.5		5.3				
Intersection Summary												
HCM 6th Ctrl Delay			27.3									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

	→	↘	←	↖	↙	↗
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	400	170	2140	200	1000	530
v/c Ratio	0.19	0.11	1.04	0.13	1.09	0.34
Control Delay	23.1	0.1	66.9	0.2	84.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	0.1	66.9	0.2	84.7	0.6
Queue Length 50th (ft)	71	0	~656	0	~869	0
Queue Length 95th (ft)	96	0	#752	0	#1122	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	2076	1550	2055	1583	921	1563
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	0.19	0.11	1.04	0.13	1.09	0.34
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.						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑		↑			
Traffic Volume (veh/h)	0	400	170	0	2140	200	1000	0	530	0	0	0
Future Volume (veh/h)	0	400	170	0	2140	200	1000	0	530	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	400	0	0	2140	0	1000	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2064		0	2064		928	0				
Arrive On Green	0.00	0.40	0.00	0.00	0.40	0.00	0.52	0.00	0.00			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	1781	0	1585			
Grp Volume(v), veh/h	0	400	0	0	2140	0	1000	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.1	0.0	0.0	48.5	0.0	62.5	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	6.1	0.0	0.0	48.5	0.0	62.5	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2064		0	2064		928	0				
V/C Ratio(X)	0.00	0.19		0.00	1.04		1.08	0.00				
Avail Cap(c_a), veh/h	0	2085		0	2064		928	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	23.1	0.0	0.0	35.8	0.0	28.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	30.1	0.0	52.8	0.0	0.0			
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	0.0	2.3	0.0	0.0	24.0	0.0	38.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.1	0.0	0.0	65.9	0.0	81.6	0.0	0.0			
LnGrp LOS	A	C		A	F		F	A				
Approach Vol, veh/h		400	A		2140	A		1000	A			
Approach Delay, s/veh		23.1			65.9			81.6				
Approach LOS		C			E			F				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		54.0				54.0		66.0				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		48.5				* 49		62.5				
Max Q Clear Time (g_c+I1), s		50.5				8.1		64.5				
Green Ext Time (p_c), s		0.0				2.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	65.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative Conditions
AM Peak Hour

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	0	0	0	20	0	1260	0	500	190	0	980	260
Future Vol, veh/h	0	0	0	20	0	1260	0	500	190	0	980	260
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	-	-	Free	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	20	0	1260	0	500	190	0	980	260
Major/Minor				Minor1		Major1			Major2			
Conflicting Flow All				990	-	-	-	0	-	-	-	0
Stage 1				500	-	-	-	-	-	-	-	-
Stage 2				490	-	-	-	-	-	-	-	-
Critical Hdwy				6.63	-	-	-	-	-	-	-	-
Critical Hdwy Stg 1				5.43	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.83	-	-	-	-	-	-	-	-
Follow-up Hdwy				3.519	-	-	-	-	-	-	-	-
Pot Cap-1 Maneuver				258	0	0	0	-	0	0	-	0
Stage 1				608	0	0	0	-	0	0	-	0
Stage 2				582	0	0	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver				258	0	-	-	-	-	-	-	-
Mov Cap-2 Maneuver				258	0	-	-	-	-	-	-	-
Stage 1				608	0	-	-	-	-	-	-	-
Stage 2				582	0	-	-	-	-	-	-	-
Approach				WB		NB			SB			
HCM Control Delay, s				20.1		0			0			
HCM LOS				C								
Minor Lane/Major Mvmt		NBTWBLn1WBLn2		SBT								
Capacity (veh/h)		- 258		-								
HCM Lane V/C Ratio		- 0.078		-								
HCM Control Delay (s)		- 20.1		0								
HCM Lane LOS		- C		A								
HCM 95th %tile Q(veh)		- 0.2		-								

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	6.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	340	80	0	340	70	930
Future Vol, veh/h	340	80	0	340	70	930
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	340	80	0	340	70	930

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	240	70	70	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	738	992	1530	-	-	0
Stage 1	952	-	-	-	-	0
Stage 2	843	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	738	992	1530	-	-	-
Mov Cap-2 Maneuver	738	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	843	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1530	-	738	992	-
HCM Lane V/C Ratio	-	-	0.461	0.081	-
HCM Control Delay (s)	0	-	14	8.9	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0	-	2.4	0.3	-

SMF Master Plan Update
15: Power Line Rd & Road A

Cumulative Conditions
AM Peak Hour

Intersection

Int Delay, s/veh 5.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	40	20	20	100	20
Future Vol, veh/h	20	40	20	20	100	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	40	20	20	100	20

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	250	30	0
Stage 1	30	-	-
Stage 2	220	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	739	1044	-
Stage 1	993	-	-
Stage 2	817	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	692	1044	-
Mov Cap-2 Maneuver	692	-	-
Stage 1	993	-	-
Stage 2	765	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	6.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	893	1570
HCM Lane V/C Ratio	-	-	0.067	0.064
HCM Control Delay (s)	-	-	9.3	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.2

Intersection

Int Delay, s/veh 4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	10	30	40	0	30
Future Vol, veh/h	80	10	30	40	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	10	30	40	0	30

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	80	50	0
Stage 1	50	-	-
Stage 2	30	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	922	1018	-
Stage 1	972	-	-
Stage 2	993	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	922	1018	-
Mov Cap-2 Maneuver	922	-	-
Stage 1	972	-	-
Stage 2	993	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	932	1531
HCM Lane V/C Ratio	-	-	0.097	-
HCM Control Delay (s)	-	-	9.3	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

SMF Master Plan Update
17: Power Line Rd & Skyking Rd

Cumulative Conditions
AM Peak Hour

Intersection

Intersection Delay, s/veh 10.7
Intersection LOS B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	290	110	30	170	80
Future Vol, veh/h	40	290	110	30	170	80
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	290	110	30	170	80
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	10.5	9.2	11.9
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	68%
Vol Thru, %	100%	0%	0%	0%	32%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	30	40	290	250
LT Vol	0	0	40	0	170
Through Vol	110	0	0	0	80
RT Vol	0	30	0	290	0
Lane Flow Rate	110	30	40	290	250
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.172	0.041	0.067	0.391	0.379
Departure Headway (Hd)	5.634	4.926	6.063	4.855	5.456
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	630	718	588	737	655
Service Time	3.422	2.714	3.824	2.616	3.532
HCM Lane V/C Ratio	0.175	0.042	0.068	0.393	0.382
HCM Control Delay	9.6	7.9	9.3	10.7	11.9
HCM Lane LOS	A	A	A	B	B
HCM 95th-tile Q	0.6	0.1	0.2	1.9	1.8

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative Conditions
AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	30	180	20	150	50	190	270	90	890
v/c Ratio	0.19	0.07	0.35	0.18	0.39	0.11	0.59	0.14	0.37	0.64
Control Delay	36.6	18.2	5.4	39.5	25.2	0.5	38.4	17.5	33.9	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	18.2	5.4	39.5	25.2	0.5	38.4	17.5	33.9	23.1
Queue Length 50th (ft)	9	8	0	6	44	0	58	20	27	84
Queue Length 95th (ft)	45	29	41	35	106	0	#233	65	96	214
Internal Link Dist (ft)	3313			367			2142			3285
Turn Bay Length (ft)	175		175	175		175	400		400	
Base Capacity (vph)	161	1045	955	112	994	911	326	2013	310	1840
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.03	0.19	0.18	0.15	0.05	0.58	0.13	0.29	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	30	180	20	150	50	190	250	20	90	780	110
Future Volume (veh/h)	30	30	180	20	150	50	190	250	20	90	780	110
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	30	180	20	150	50	190	250	20	90	780	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	341	288	26	266	225	240	1616	127	116	1201	168
Arrive On Green	0.05	0.18	0.18	0.01	0.14	0.14	0.13	0.33	0.33	0.07	0.27	0.27
Sat Flow, veh/h	1781	1870	1580	1781	1870	1578	1781	4825	379	1781	4524	633
Grp Volume(v), veh/h	30	30	180	20	150	50	190	175	95	90	585	305
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1578	1781	1702	1801	1781	1702	1754
Q Serve(g_s), s	0.9	0.7	5.7	0.6	4.0	1.5	5.6	1.9	2.0	2.7	8.2	8.3
Cycle Q Clear(g_c), s	0.9	0.7	5.7	0.6	4.0	1.5	5.6	1.9	2.0	2.7	8.2	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		0.36
Lane Grp Cap(c), veh/h	97	341	288	26	266	225	240	1140	603	116	904	466
V/C Ratio(X)	0.31	0.09	0.62	0.78	0.56	0.22	0.79	0.15	0.16	0.77	0.65	0.65
Avail Cap(c_a), veh/h	175	1132	956	122	1077	909	354	1378	729	337	1346	694
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(l)	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	24.5	18.3	20.3	26.5	21.5	20.5	22.6	12.6	12.6	24.8	17.5	17.6
Incr Delay (d2), s/veh	1.8	0.1	2.2	38.6	1.9	0.5	7.3	0.1	0.1	10.4	0.8	1.6
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	0.4	0.3	2.0	0.5	1.7	0.5	2.4	0.6	0.6	1.3	2.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	18.4	22.5	65.0	23.4	21.0	29.8	12.6	12.7	35.2	18.3	19.1
LnGrp LOS	C	B	C	E	C	C	C	B	B	D	B	B
Approach Vol, veh/h		240			220			460			980	
Approach Delay, s/veh		22.5			26.6			19.7			20.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	23.9	6.3	14.6	12.8	20.2	8.4	12.5				
Change Period (Y+Rc), s	5.5	5.9	5.5	4.8	5.5	5.9	5.5	4.8				
Max Green Setting (Gmax), s	10.2	21.8	3.7	32.6	10.7	21.3	5.3	31.0				
Max Q Clear Time (g_c+I1), s	4.7	4.0	2.6	7.7	7.6	10.3	2.9	6.0				
Green Ext Time (p_c), s	0.1	1.2	0.0	0.7	0.1	3.8	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			21.1									
HCM 6th LOS			C									

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	30	10	10	580	1060
v/c Ratio	0.08	0.03	0.04	0.14	0.26
Control Delay	17.0	10.3	27.4	4.5	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	10.3	27.4	4.5	7.2
Queue Length 50th (ft)	4	0	1	0	0
Queue Length 95th (ft)	28	10	21	82	206
Internal Link Dist (ft)	2842			686	2142
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	1454	1285	300	4492	4055
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.03	0.13	0.26
Intersection Summary					

SMF Master Plan Update
19: Metro Air Parkway & Road D

Cumulative Conditions
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	10	10	580	990	70
Future Volume (veh/h)	30	10	10	580	990	70
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	10	10	580	990	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	50	45	14	3097	2056	145
Arrive On Green	0.03	0.03	0.01	0.61	0.42	0.42
Sat Flow, veh/h	1781	1585	1781	5274	5036	344
Grp Volume(v), veh/h	30	10	10	580	692	368
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1808
Q Serve(g_s), s	0.5	0.2	0.2	1.6	4.6	4.6
Cycle Q Clear(g_c), s	0.5	0.2	0.2	1.6	4.6	4.6
Prop In Lane	1.00	1.00	1.00			0.19
Lane Grp Cap(c), veh/h	50	45	14	3097	1437	763
V/C Ratio(X)	0.60	0.22	0.70	0.19	0.48	0.48
Avail Cap(c_a), veh/h	1969	1752	371	7216	3502	1859
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	15.0	14.8	15.4	2.7	6.5	6.5
Incr Delay (d2), s/veh	10.9	2.5	47.8	0.0	0.3	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	0.3	0.0	0.2	0.0	0.5	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.9	17.3	63.2	2.8	6.8	7.0
LnGrp LOS	C	B	E	A	A	A
Approach Vol, veh/h	40			590	1060	
Approach Delay, s/veh	23.7			3.8	6.9	
Approach LOS	C			A	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	24.8			6.4	5.7	19.1
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	44.1			34.5	6.5	32.1
Max Q Clear Time (g_c+I1), s	3.6			2.5	2.2	6.6
Green Ext Time (p_c), s	3.7			0.1	0.0	6.5
Intersection Summary						
HCM 6th Ctrl Delay			6.2			
HCM 6th LOS			A			

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	70	250	600	840	960
v/c Ratio	0.22	0.52	1.24	0.26	0.69
Control Delay	23.2	7.2	149.4	6.8	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	7.2	149.4	6.8	23.2
Queue Length 50th (ft)	23	0	~265	33	98
Queue Length 95th (ft)	52	45	#720	132	225
Internal Link Dist (ft)	1671			1050	4086
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	999	991	485	3578	1713
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.25	1.24	0.23	0.56
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.					

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Cumulative Conditions
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	  	
Traffic Volume (veh/h)	70	250	600	840	750	210
Future Volume (veh/h)	70	250	600	840	750	210
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	250	600	840	750	210
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	352	313	483	3170	1041	288
Arrive On Green	0.20	0.20	0.27	0.62	0.26	0.26
Sat Flow, veh/h	1781	1585	1781	5274	4140	1100
Grp Volume(v), veh/h	70	250	600	840	642	318
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1667
Q Serve(g_s), s	2.1	9.4	17.0	4.7	10.8	10.9
Cycle Q Clear(g_c), s	2.1	9.4	17.0	4.7	10.8	10.9
Prop In Lane	1.00	1.00	1.00			0.66
Lane Grp Cap(c), veh/h	352	313	483	3170	892	437
V/C Ratio(X)	0.20	0.80	1.24	0.26	0.72	0.73
Avail Cap(c_a), veh/h	994	884	483	3549	1145	561
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	21.0	24.0	22.9	5.4	21.0	21.1
Incr Delay (d2), s/veh	0.3	4.7	125.9	0.0	1.6	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	22.6	0.9	3.7	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.3	28.7	148.8	5.4	22.6	24.6
LnGrp LOS	C	C	F	A	C	C
Approach Vol, veh/h	320			1440	960	
Approach Delay, s/veh	27.1			65.2	23.3	
Approach LOS	C			E	C	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	44.8			17.9	22.5	22.3
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	43.6			35.0	17.0	21.1
Max Q Clear Time (g_c+I1), s	6.7			11.4	19.0	12.9
Green Ext Time (p_c), s	5.7			1.0	0.0	3.4
Intersection Summary						
HCM 6th Ctrl Delay			45.9			
HCM 6th LOS			D			

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative Conditions
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	100	150	450	260	340	60	1140	90	90	1150
v/c Ratio	0.11	0.25	0.41	0.78	0.45	0.49	0.46	0.80	0.16	0.65	0.75
Control Delay	54.4	41.3	4.1	51.8	29.7	5.8	64.0	38.6	0.6	72.8	35.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	41.3	4.1	51.8	29.7	5.8	64.0	38.6	0.6	72.8	35.8
Queue Length 50th (ft)	6	32	0	141	130	5	19	231	0	29	232
Queue Length 95th (ft)	27	55	8	#310	235	72	#56	#435	0	#90	#440
Internal Link Dist (ft)		450			475			2094			1585
Turn Bay Length (ft)	375		375	425		425	400		400	400	
Base Capacity (vph)	109	1190	660	580	825	858	130	1557	614	139	1580
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.08	0.23	0.78	0.32	0.40	0.46	0.73	0.15	0.65	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	100	150	450	260	340	60	1140	90	90	1140	10
Future Volume (vph)	10	100	150	450	260	340	60	1140	90	90	1140	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9	
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1593	3185	1406	3090	1676	1405	3090	4577	1405	3090	4570	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1593	3185	1406	3090	1676	1405	3090	4577	1405	3090	4570	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	100	150	450	260	340	60	1140	90	90	1140	10
RTOR Reduction (vph)	0	0	126	0	0	220	0	0	62	0	1	0
Lane Group Flow (vph)	10	100	24	450	260	120	60	1140	28	90	1149	0
Confl. Peds. (#/hr)			2			2			2			2
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	1.1	17.5	17.5	19.4	35.8	35.8	3.4	33.4	33.4	4.7	34.7	
Effective Green, g (s)	1.1	17.5	17.5	19.4	35.8	35.8	3.4	33.4	33.4	4.7	34.7	
Actuated g/C Ratio	0.01	0.16	0.16	0.18	0.33	0.33	0.03	0.31	0.31	0.04	0.32	
Clearance Time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	16	512	226	550	551	462	96	1405	431	133	1457	
v/s Ratio Prot	0.01	0.03		c0.15	c0.16		0.02	0.25		c0.03	c0.25	
v/s Ratio Perm			0.02			0.09			0.02			
v/c Ratio	0.62	0.20	0.11	0.82	0.47	0.26	0.62	0.81	0.06	0.68	0.79	
Uniform Delay, d1	53.6	39.5	39.0	43.0	29.0	26.8	52.1	34.8	26.7	51.3	33.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	57.6	0.2	0.2	9.2	0.6	0.3	12.0	3.7	0.1	12.8	2.9	
Delay (s)	111.2	39.7	39.2	52.2	29.6	27.1	64.1	38.5	26.7	64.1	36.6	
Level of Service	F	D	D	D	C	C	E	D	C	E	D	
Approach Delay (s)		42.2			38.5			38.8			38.6	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			38.9		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			108.8		Sum of lost time (s)					28.1		
Intersection Capacity Utilization			65.3%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative Conditions
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	10	1310	780	240	1240	770
v/c Ratio	0.01	0.94	0.56	0.15	0.62	0.72
Control Delay	13.7	34.8	21.7	0.2	22.1	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	34.8	21.7	0.2	22.1	5.8
Queue Length 50th (ft)	3	349	167	0	191	0
Queue Length 95th (ft)	12	#550	222	0	235	69
Internal Link Dist (ft)			551		2094	
Turn Bay Length (ft)						400
Base Capacity (vph)	851	1408	1601	1583	2300	1120
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	0.01	0.93	0.49	0.15	0.54	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	1310	0	780	240	0	1240	770
Future Volume (veh/h)	0	0	0	10	0	1310	0	780	240	0	1240	770
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				No
Adj Sat Flow, veh/h/ln				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				10	0	1310	0	780	0	0	1240	770
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				802	0	1255	0	1504		0	2162	669
Arrive On Green				0.45	0.00	0.45	0.00	0.42	0.00	0.00	0.42	0.42
Sat Flow, veh/h				1781	0	2790	0	3647	1585	0	5274	1581
Grp Volume(v), veh/h				10	0	1310	0	780	0	0	1240	770
Grp Sat Flow(s),veh/h/ln				1781	0	1395	0	1777	1585	0	1702	1581
Q Serve(g_s), s				0.3	0.0	40.5	0.0	14.6	0.0	0.0	16.6	38.1
Cycle Q Clear(g_c), s				0.3	0.0	40.5	0.0	14.6	0.0	0.0	16.6	38.1
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				802	0	1255	0	1504		0	2162	669
V/C Ratio(X)				0.01	0.00	1.04	0.00	0.52		0.00	0.57	1.15
Avail Cap(c_a), veh/h				802	0	1255	0	1504		0	2162	669
HCM Platoon Ratio				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	1.00	0.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.7	0.0	24.8	0.0	19.2	0.0	0.0	19.8	26.0
Incr Delay (d2), s/veh				0.0	0.0	37.5	0.0	0.3	0.0	0.0	0.4	84.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.1	0.0	18.7	0.0	5.3	0.0	0.0	5.7	27.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.7	0.0	62.3	0.0	19.5	0.0	0.0	20.1	110.1
LnGrp LOS				B	A	F	A	B		A	C	F
Approach Vol, veh/h					1320			780	A		2010	
Approach Delay, s/veh					61.9			19.5			54.6	
Approach LOS					E			B			D	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	44.0			44.0			46.0					
Change Period (Y+Rc), s	5.9			5.9			5.5					
Max Green Setting (Gmax), s	38.1			38.1			40.5					
Max Q Clear Time (g_c+I1), s	16.6			40.1			42.5					
Green Ext Time (p_c), s	4.6			0.0			0.0					
Intersection Summary												
HCM 6th Ctrl Delay	50.3											
HCM 6th LOS	D											

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative Conditions
AM Peak Hour

						
Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	480	70	540	90	60	1190
v/c Ratio	0.65	0.10	0.50	0.16	0.06	0.77
Control Delay	15.2	3.1	14.8	4.7	12.1	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	3.1	14.8	4.7	12.1	3.7
Queue Length 50th (ft)	84	0	52	0	5	0
Queue Length 95th (ft)	194	16	118	25	18	0
Internal Link Dist (ft)			529		551	
Turn Bay Length (ft)						
Base Capacity (vph)	1699	1501	2692	1225	2692	1550
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	0.28	0.05	0.20	0.07	0.02	0.77
Intersection Summary						

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	480	0	70	0	0	0	0	540	90	0	60	1190
Future Volume (veh/h)	480	0	70	0	0	0	0	540	90	0	60	1190
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	1870	0	1870				0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	480	0	70				0	540	90	0	60	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	630	0	561				0	1044	466	0	1044	
Arrive On Green	0.35	0.00	0.35				0.00	0.29	0.29	0.00	0.29	0.00
Sat Flow, veh/h	1781	0	1585				0	3647	1585	0	3647	1585
Grp Volume(v), veh/h	480	0	70				0	540	90	0	60	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1585	0	1777	1585
Q Serve(g_s), s	7.7	0.0	1.0				0.0	4.1	1.4	0.0	0.4	0.0
Cycle Q Clear(g_c), s	7.7	0.0	1.0				0.0	4.1	1.4	0.0	0.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	630	0	561				0	1044	466	0	1044	
V/C Ratio(X)	0.76	0.00	0.12				0.00	0.52	0.19	0.00	0.06	
Avail Cap(c_a), veh/h	2615	0	2327				0	3415	1523	0	3415	
HCM Platoon Ratio	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	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	9.2	0.0	7.1				0.0	9.5	8.6	0.0	8.2	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.1				0.0	0.4	0.2	0.0	0.0	0.0
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	2.1	0.0	0.2				0.0	0.8	0.2	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	0.0	7.2				0.0	9.9	8.8	0.0	8.2	0.0
LnGrp LOS	B	A	A				A	A	A	A	A	
Approach Vol, veh/h	550						630			60		
Approach Delay, s/veh	10.7						9.7			8.2		
Approach LOS	B						A			A		
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	15.4			16.9			15.4					
Change Period (Y+Rc), s	5.9			5.5			5.9					
Max Green Setting (Gmax), s	31.1			47.5			31.1					
Max Q Clear Time (g_c+I1), s	6.1			9.7			2.4					
Green Ext Time (p_c), s	3.4			1.8			0.2					
Intersection Summary												
HCM 6th Ctrl Delay	10.1											
HCM 6th LOS	B											

Notes

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

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Cumulative Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	20	30	20	10	10
Future Vol, veh/h	20	20	30	20	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	20	30	20	10	10
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	70	40	0	0	50	0
Stage 1	40	-	-	-	-	-
Stage 2	30	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	934	1031	-	-	1557	-
Stage 1	982	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	928	1031	-	-	1557	-
Mov Cap-2 Maneuver	928	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.8	0		3.7		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	977	1557	-	
HCM Lane V/C Ratio	-	-	0.041	0.006	-	
HCM Control Delay (s)	-	-	8.8	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	30	10	10	30	10	30
v/c Ratio	0.07	0.03	0.00	0.02	0.03	0.01
Control Delay	14.2	9.1	17.3	4.4	14.4	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	9.1	17.3	4.4	14.4	3.4
Queue Length 50th (ft)	3	0	0	0	1	0
Queue Length 95th (ft)	26	10	9	19	13	6
Internal Link Dist (ft)	4683			3724	1647	
Turn Bay Length (ft)		175	300			175
Base Capacity (vph)	1563	1311	2583	1756	1434	2288
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	0.02	0.01	0.00	0.02	0.01	0.01
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Cumulative Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↖↗	↑	↖	↗↖
Traffic Volume (veh/h)	30	10	10	30	10	30
Future Volume (veh/h)	30	10	10	30	10	30
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	10	10	30	10	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	102	86	477	833	53	468
Arrive On Green	0.05	0.05	0.14	0.45	0.03	0.03
Sat Flow, veh/h	1870	1574	3456	1870	1781	2790
Grp Volume(v), veh/h	30	10	10	30	10	30
Grp Sat Flow(s),veh/h/ln	1870	1574	1728	1870	1781	1395
Q Serve(g_s), s	0.3	0.1	0.1	0.2	0.1	0.2
Cycle Q Clear(g_c), s	0.3	0.1	0.1	0.2	0.1	0.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	102	86	477	833	53	468
V/C Ratio(X)	0.30	0.12	0.02	0.04	0.19	0.06
Avail Cap(c_a), veh/h	2591	2180	2625	4486	2173	3788
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	9.9	9.8	8.1	3.4	10.3	7.6
Incr Delay (d2), s/veh	1.6	0.6	0.0	0.0	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.5	10.4	8.1	3.4	12.0	7.7
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	40			40	40	
Approach Delay, s/veh	11.2			4.6	8.7	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.5	7.1			15.6	6.1
Change Period (Y+Rc), s	5.5	5.9			5.9	5.5
Max Green Setting (Gmax), s	16.5	30.1			52.1	26.5
Max Q Clear Time (g_c+I1), s	2.1	2.3			2.2	2.2
Green Ext Time (p_c), s	0.0	0.1			0.1	0.1
Intersection Summary						
HCM 6th Ctrl Delay			8.2			
HCM 6th LOS			A			
Notes						
User approved pedestrian interval to be less than phase max green.						

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	60	20	80	20	10	10	20	230	10	10	10
v/c Ratio	0.06	0.11	0.03	0.24	0.02	0.01	0.04	0.05	0.46	0.06	0.03	0.02
Control Delay	28.5	18.1	0.1	22.6	11.2	0.0	25.3	17.6	6.6	28.5	18.8	0.1
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	28.5	18.1	0.1	22.6	11.2	0.0	25.3	17.6	6.6	28.5	18.8	0.1
Queue Length 50th (ft)	2	10	0	14	2	0	2	4	0	2	2	0
Queue Length 95th (ft)	21	55	0	80	21	0	20	23	48	21	16	0
Internal Link Dist (ft)	3724			3503			1141			1439		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	162	1125	1026	532	1444	1235	347	1375	1202	162	1223	1095
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.05	0.02	0.15	0.01	0.01	0.03	0.01	0.19	0.06	0.01	0.01
Intersection Summary												

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	60	20	80	20	10	10	20	230	10	10	10
Future Volume (veh/h)	10	60	20	80	20	10	10	20	230	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	60	20	80	20	10	10	20	230	10	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	189	159	100	280	235	14	386	326	14	386	326
Arrive On Green	0.01	0.10	0.10	0.06	0.15	0.15	0.01	0.21	0.21	0.01	0.21	0.21
Sat Flow, veh/h	1781	1870	1569	1781	1870	1574	1781	1870	1577	1781	1870	1577
Grp Volume(v), veh/h	10	60	20	80	20	10	10	20	230	10	10	10
Grp Sat Flow(s),veh/h/ln	1781	1870	1569	1781	1870	1574	1781	1870	1577	1781	1870	1577
Q Serve(g_s), s	0.2	1.1	0.4	1.6	0.3	0.2	0.2	0.3	4.9	0.2	0.2	0.2
Cycle Q Clear(g_c), s	0.2	1.1	0.4	1.6	0.3	0.2	0.2	0.3	4.9	0.2	0.2	0.2
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	14	189	159	100	280	235	14	386	326	14	386	326
V/C Ratio(X)	0.71	0.32	0.13	0.80	0.07	0.04	0.71	0.05	0.71	0.71	0.03	0.03
Avail Cap(c_a), veh/h	172	1190	998	564	1602	1349	368	1499	1264	172	1293	1090
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	18.0	15.2	14.9	16.9	13.3	13.2	18.0	11.5	13.4	18.0	11.5	11.5
Incr Delay (d2), s/veh	48.7	1.0	0.4	13.3	0.1	0.1	48.7	0.1	2.8	48.7	0.0	0.0
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	0.3	0.4	0.1	0.8	0.1	0.1	0.3	0.1	1.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.7	16.1	15.2	30.3	13.4	13.3	66.7	11.6	16.2	66.7	11.5	11.5
LnGrp LOS	E	B	B	C	B	B	E	B	B	E	B	B
Approach Vol, veh/h		90			110			260			30	
Approach Delay, s/veh		21.5			25.7			17.8			29.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	13.4	7.5	9.6	5.8	13.4	5.8	11.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.5	29.1	11.5	23.1	7.5	25.1	3.5	31.1				
Max Q Clear Time (g_c+I1), s	2.2	6.9	3.6	3.1	2.2	2.2	2.2	2.3				
Green Ext Time (p_c), s	0.0	0.8	0.1	0.2	0.0	0.0	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	370	10	280	160	10	930
v/c Ratio	0.66	0.02	0.47	0.08	0.03	0.77
Control Delay	24.5	9.4	27.8	6.6	19.1	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	9.4	27.8	6.6	19.1	8.1
Queue Length 50th (ft)	98	0	38	8	3	15
Queue Length 95th (ft)	244	10	#120	35	15	74
Internal Link Dist (ft)	3503			1595	3285	
Turn Bay Length (ft)		150	375			
Base Capacity (vph)	1108	933	663	3004	1080	1982
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	0.33	0.01	0.42	0.05	0.01	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘↙	↑↑	↙	↗↗
Traffic Volume (veh/h)	370	10	280	160	10	930
Future Volume (veh/h)	370	10	280	160	10	930
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	370	10	280	160	10	930
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	461	389	388	1573	683	1070
Arrive On Green	0.25	0.25	0.11	0.44	0.38	0.38
Sat Flow, veh/h	1870	1579	3456	3647	1781	2790
Grp Volume(v), veh/h	370	10	280	160	10	930
Grp Sat Flow(s),veh/h/ln	1870	1579	1728	1777	1781	1395
Q Serve(g_s), s	12.2	0.3	5.1	1.7	0.2	20.2
Cycle Q Clear(g_c), s	12.2	0.3	5.1	1.7	0.2	20.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	461	389	388	1573	683	1070
V/C Ratio(X)	0.80	0.03	0.72	0.10	0.01	0.87
Avail Cap(c_a), veh/h	888	749	533	2533	867	1358
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	23.2	18.7	28.1	10.7	12.5	18.7
Incr Delay (d2), s/veh	3.3	0.0	3.0	0.0	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.1	2.0	0.5	0.1	5.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.5	18.8	31.1	10.7	12.5	23.9
LnGrp LOS	C	B	C	B	B	C
Approach Vol, veh/h	380			440	940	
Approach Delay, s/veh	26.3			23.7	23.8	
Approach LOS	C			C	C	
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	30.6		12.9	22.0	34.9	
Change Period (Y+Rc), s	5.5		5.5	5.9	5.9	
Max Green Setting (Gmax), s	31.9		10.1	31.1	46.7	
Max Q Clear Time (g_c+I1), s	22.2		7.1	14.2	3.7	
Green Ext Time (p_c), s	2.9		0.3	1.7	0.9	
Intersection Summary						
HCM 6th Ctrl Delay			24.3			
HCM 6th LOS			C			

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1410	10	30	500	10	90
v/c Ratio	0.59	0.01	0.25	0.19	0.04	0.30
Control Delay	11.9	6.9	44.5	4.7	28.1	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	6.9	44.5	4.7	28.1	9.9
Queue Length 50th (ft)	178	1	11	24	3	0
Queue Length 95th (ft)	481	9	#62	103	19	39
Internal Link Dist (ft)	1595			4369	10448	
Turn Bay Length (ft)		150	180			175
Base Capacity (vph)	3440	1498	120	3501	936	868
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	0.41	0.01	0.25	0.14	0.01	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
5: Lone Tree Rd & Elverta Rd

Cumulative Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	1410	10	30	500	10	90
Future Volume (veh/h)	1410	10	30	500	10	90
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1410	10	30	500	10	90
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2050	913	36	2500	135	120
Arrive On Green	0.58	0.58	0.02	0.70	0.08	0.08
Sat Flow, veh/h	3647	1582	1781	3647	1781	1585
Grp Volume(v), veh/h	1410	10	30	500	10	90
Grp Sat Flow(s),veh/h/ln	1777	1582	1781	1777	1781	1585
Q Serve(g_s), s	14.4	0.1	0.9	2.5	0.3	2.9
Cycle Q Clear(g_c), s	14.4	0.1	0.9	2.5	0.3	2.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2050	913	36	2500	135	120
V/C Ratio(X)	0.69	0.01	0.83	0.20	0.07	0.75
Avail Cap(c_a), veh/h	6678	2973	141	7338	1100	979
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	7.7	4.7	25.2	2.6	22.2	23.4
Incr Delay (d2), s/veh	0.4	0.0	35.6	0.0	0.2	9.0
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	0.7	0.1	0.1	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.1	4.7	60.9	2.7	22.4	32.4
LnGrp LOS	A	A	E	A	C	C
Approach Vol, veh/h	1420			530	100	
Approach Delay, s/veh	8.1			6.0	31.4	
Approach LOS	A			A	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.4	6.5	35.7		42.3
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		31.9	4.1	97.1		106.7
Max Q Clear Time (g_c+I1), s		4.9	2.9	16.4		4.5
Green Ext Time (p_c), s		0.3	0.0	13.4		3.1
Intersection Summary						
HCM 6th Ctrl Delay			8.7			
HCM 6th LOS			A			

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative Conditions
PM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1110	300	150	80	80	200
v/c Ratio	0.72	0.19	0.10	0.05	0.19	0.34
Control Delay	13.2	0.3	8.5	0.1	12.9	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	0.3	8.5	0.1	12.9	6.8
Queue Length 50th (ft)	62	0	6	0	11	0
Queue Length 95th (ft)	311	0	41	0	48	33
Internal Link Dist (ft)	4369		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3394	1550	3390	1550	1680	2500
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	0.33	0.19	0.04	0.05	0.05	0.08
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘		↗↗
Traffic Volume (vph)	0	1110	300	0	150	80	0	0	0	80	0	200
Future Volume (vph)	0	1110	300	0	150	80	0	0	0	80	0	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0		6.8	4.0				4.4		4.4
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1110	300	0	150	80	0	0	0	80	0	200
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	171
Lane Group Flow (vph)	0	1110	300	0	150	80	0	0	0	80	0	29
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free			Free						
Actuated Green, G (s)		16.9	40.3		16.5	40.3				12.6		5.9
Effective Green, g (s)		16.9	40.3		16.5	40.3				12.6		5.9
Actuated g/C Ratio		0.42	1.00		0.41	1.00				0.31		0.15
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1484	1550		1448	1550				553		408
v/s Ratio Prot		c0.31			0.04					0.05		0.01
v/s Ratio Perm			c0.19			0.05						
v/c Ratio		0.75	0.19		0.10	0.05				0.14		0.07
Uniform Delay, d1		9.9	0.0		7.3	0.0				10.0		14.8
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		1.8	0.3		0.0	0.1				0.0		0.0
Delay (s)		11.7	0.3		7.4	0.1				10.0		14.9
Level of Service		B	A		A	A				B		B
Approach Delay (s)		9.3			4.8			0.0			13.5	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			9.4									
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			40.3							15.6		
Intersection Capacity Utilization			43.8%									
Analysis Period (min)			15									
c Critical Lane Group												

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	450	700	270	210	79	81	580
v/c Ratio	0.53	0.45	0.35	0.42	0.33	0.33	0.36
Control Delay	17.2	1.0	16.2	6.1	24.1	24.1	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	1.0	16.2	6.1	24.1	24.1	2.1
Queue Length 50th (ft)	40	0	24	0	14	15	4
Queue Length 95th (ft)	125	0	78	45	76	77	33
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3452	1550	3444	1499	1451	1463	2730
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	0.13	0.45	0.08	0.14	0.05	0.06	0.21
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↗	↗			
Traffic Volume (vph)	0	450	700	0	270	210	150	10	580	0	0	0
Future Volume (vph)	0	450	700	0	270	210	150	10	580	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		5.8	5.8	5.5	5.5	5.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1550		3539	1547	1681	1695	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1550		3539	1547	1681	1695	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	450	700	0	270	210	150	10	580	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	162	0	0	248	0	0	0
Lane Group Flow (vph)	0	450	700	0	270	48	79	81	332	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		10.4	41.3		9.5	9.5	6.2	6.2	20.5			
Effective Green, g (s)		10.4	41.3		9.5	9.5	6.2	6.2	20.5			
Actuated g/C Ratio		0.25	1.00		0.23	0.23	0.15	0.15	0.50			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		891	1550		814	355	252	254	1383			
v/s Ratio Prot		0.13			0.08		0.05	0.05	0.12			
v/s Ratio Perm			c0.45			0.03						
v/c Ratio		0.51	0.45		0.33	0.14	0.31	0.32	0.24			
Uniform Delay, d1		13.2	0.0		13.3	12.6	15.7	15.7	5.9			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	1.0		0.1	0.1	0.3	0.3	0.1			
Delay (s)		13.4	1.0		13.3	12.7	15.9	15.9	6.0			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		5.8			13.1			8.2			0.0	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.0									
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			41.3									
Intersection Capacity Utilization			41.8%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	50	800	310	130	600	10	120	190	360	10	90	60
v/c Ratio	0.33	0.71	0.44	0.57	0.38	0.01	0.58	0.36	0.58	0.13	0.31	0.16
Control Delay	44.3	27.5	5.2	46.7	18.0	0.0	50.0	23.9	12.2	45.3	32.2	0.9
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	44.3	27.5	5.2	46.7	18.0	0.0	50.0	23.9	12.2	45.3	32.2	0.9
Queue Length 50th (ft)	22	164	0	56	105	0	53	66	39	5	38	0
Queue Length 95th (ft)	#70	305	59	#179	207	0	#179	148	138	24	84	0
Internal Link Dist (ft)		745			1992			1063			3284	
Turn Bay Length (ft)	250		250	250		250	250		250	250		250
Base Capacity (vph)	156	1624	876	246	1806	862	207	889	873	79	757	724
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.49	0.35	0.53	0.33	0.01	0.58	0.21	0.41	0.13	0.12	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	800	310	130	600	10	120	190	360	10	90	60
Future Volume (veh/h)	50	800	310	130	600	10	120	190	360	10	90	60
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	800	0	130	600	0	120	190	360	10	90	60
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	1043		179	1274		153	513	434	13	367	310
Arrive On Green	0.04	0.29	0.00	0.10	0.36	0.00	0.09	0.27	0.27	0.01	0.20	0.20
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1582	1781	1870	1580
Grp Volume(v), veh/h	50	800	0	130	600	0	120	190	360	10	90	60
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1582	1781	1870	1580
Q Serve(g_s), s	2.0	14.4	0.0	5.0	9.2	0.0	4.6	5.8	15.0	0.4	2.9	2.2
Cycle Q Clear(g_c), s	2.0	14.4	0.0	5.0	9.2	0.0	4.6	5.8	15.0	0.4	2.9	2.2
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	63	1043		179	1274		153	513	434	13	367	310
V/C Ratio(X)	0.80	0.77		0.73	0.47		0.78	0.37	0.83	0.74	0.25	0.19
Avail Cap(c_a), veh/h	155	1597		243	1774		203	875	740	79	745	629
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	22.6	0.0	30.7	17.4	0.0	31.5	20.6	24.0	34.8	23.9	23.6
Incr Delay (d2), s/veh	20.0	1.2	0.0	6.9	0.3	0.0	13.6	0.4	4.1	55.9	0.3	0.3
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	1.1	5.2	0.0	2.2	3.1	0.0	2.4	2.2	5.2	0.4	1.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.7	23.9	0.0	37.6	17.7	0.0	45.1	21.0	28.1	90.7	24.2	23.9
LnGrp LOS	D	C		D	B		D	C	C	F	C	C
Approach Vol, veh/h		850	A		730	A		670			160	
Approach Delay, s/veh		25.6			21.2			29.1			28.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.0	25.2	12.5	26.5	11.5	19.7	8.0	31.1				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.1	32.9	9.6	31.6	8.0	28.0	6.1	35.1				
Max Q Clear Time (g_c+I1), s	2.4	17.0	7.0	16.4	6.6	4.9	4.0	11.2				
Green Ext Time (p_c), s	0.0	1.9	0.1	4.2	0.0	0.5	0.0	3.5				

Intersection Summary

HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

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

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	280	980	20	220	820	120	10	820	200	270	1160	180
v/c Ratio	0.59	0.68	0.04	0.53	0.61	0.23	0.09	0.63	0.37	0.78	0.57	0.25
Control Delay	48.0	34.2	0.1	48.8	34.0	3.0	57.7	35.3	6.5	62.6	25.6	4.7
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	48.0	34.2	0.1	48.8	34.0	3.0	57.7	35.3	6.5	62.6	25.6	4.7
Queue Length 50th (ft)	81	190	0	64	157	0	3	160	0	82	189	0
Queue Length 95th (ft)	169	305	0	138	257	21	14	257	56	#229	354	49
Internal Link Dist (ft)	1627			1756			1585			1050		
Turn Bay Length (ft)	450		450	400		400	400		400	400		400
Base Capacity (vph)	636	2396	818	545	2262	781	109	2326	822	345	2676	906
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.41	0.02	0.40	0.36	0.15	0.09	0.35	0.24	0.78	0.43	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	980	20	220	820	120	10	820	200	270	1160	180
Future Volume (veh/h)	280	980	20	220	820	120	10	820	200	270	1160	180
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	280	980	20	220	820	120	10	820	200	270	1160	180
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	1450	449	311	1351	418	26	1287	399	350	1766	547
Arrive On Green	0.11	0.28	0.28	0.09	0.26	0.26	0.01	0.25	0.25	0.10	0.35	0.35
Sat Flow, veh/h	3456	5106	1582	3456	5106	1581	3456	5106	1581	3456	5106	1582
Grp Volume(v), veh/h	280	980	20	220	820	120	10	820	200	270	1160	180
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1728	1702	1581	1728	1702	1581	1728	1702	1582
Q Serve(g_s), s	6.6	14.2	0.8	5.2	11.8	5.0	0.2	12.0	9.1	6.4	16.1	7.0
Cycle Q Clear(g_c), s	6.6	14.2	0.8	5.2	11.8	5.0	0.2	12.0	9.1	6.4	16.1	7.0
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	378	1450	449	311	1351	418	26	1287	399	350	1766	547
V/C Ratio(X)	0.74	0.68	0.04	0.71	0.61	0.29	0.39	0.64	0.50	0.77	0.66	0.33
Avail Cap(c_a), veh/h	724	2719	842	620	2566	795	124	2639	817	393	3036	941
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	36.1	26.5	21.7	37.0	26.9	24.5	41.3	27.9	26.8	36.6	23.1	20.2
Incr Delay (d2), s/veh	2.9	0.6	0.0	3.0	0.4	0.4	9.3	0.5	1.0	8.2	0.4	0.3
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	2.7	5.2	0.3	2.1	4.3	1.7	0.1	4.4	3.2	2.9	5.7	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	27.1	21.7	39.9	27.4	24.8	50.6	28.4	27.7	44.9	23.6	20.5
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1280			1160			1030			1610	
Approach Delay, s/veh		29.6			29.5			28.5			26.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	27.0	13.0	29.6	6.1	34.8	14.6	28.0				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	9.5	43.2	15.0	44.5	3.0	49.7	17.5	42.0				
Max Q Clear Time (g_c+I1), s	8.4	14.0	7.2	16.2	2.2	18.1	8.6	13.8				
Green Ext Time (p_c), s	0.1	6.1	0.4	6.6	0.0	9.2	0.6	5.7				
Intersection Summary												
HCM 6th Ctrl Delay			28.5									
HCM 6th LOS			C									

SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	1650	20	30	1090	240	20	20	60	570	30	100
v/c Ratio	0.73	0.87	0.03	0.67	0.68	0.37	0.19	0.11	0.21	0.92	0.04	0.14
Control Delay	88.7	41.3	0.1	116.5	39.1	6.2	61.5	48.8	1.8	59.1	21.6	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	88.7	41.3	0.1	116.5	39.1	6.2	61.5	48.8	1.8	59.1	21.6	4.3
Queue Length 50th (ft)	67	412	0	23	252	0	14	14	0	403	12	0
Queue Length 95th (ft)	#198	#728	0	#96	409	68	47	37	0	#856	35	31
Internal Link Dist (ft)	760			4518			633			10448		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	123	1905	665	45	1684	670	201	585	590	622	1036	914
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.87	0.03	0.67	0.65	0.36	0.10	0.03	0.10	0.92	0.03	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

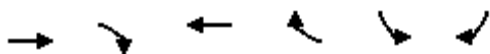
SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	90	1650	20	30	1090	240	20	20	60	570	30	100
Future Volume (veh/h)	90	1650	20	30	1090	240	20	20	60	570	30	100
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		0.99	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	1650	20	30	1090	240	20	20	60	570	30	100
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	1883	583	37	1665	515	24	136	114	601	741	627
Arrive On Green	0.06	0.37	0.37	0.02	0.33	0.33	0.01	0.07	0.07	0.34	0.40	0.40
Sat Flow, veh/h	1781	5106	1581	1781	5106	1580	1781	1870	1572	1781	1870	1583
Grp Volume(v), veh/h	90	1650	20	30	1090	240	20	20	60	570	30	100
Grp Sat Flow(s),veh/h/ln	1781	1702	1581	1781	1702	1580	1781	1870	1572	1781	1870	1583
Q Serve(g_s), s	5.5	33.4	0.9	1.9	20.3	13.4	1.2	1.1	4.1	34.6	1.1	4.5
Cycle Q Clear(g_c), s	5.5	33.4	0.9	1.9	20.3	13.4	1.2	1.1	4.1	34.6	1.1	4.5
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	113	1883	583	37	1665	515	24	136	114	601	741	627
V/C Ratio(X)	0.79	0.88	0.03	0.80	0.65	0.47	0.83	0.15	0.52	0.95	0.04	0.16
Avail Cap(c_a), veh/h	129	1986	615	48	1756	543	211	611	514	651	1074	909
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	32.6	22.4	54.0	32.0	29.7	54.5	48.1	49.5	35.8	20.5	21.5
Incr Delay (d2), s/veh	25.3	4.6	0.0	50.7	0.8	0.7	48.8	0.5	3.7	22.6	0.0	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	13.3	0.3	1.3	7.8	4.8	0.9	0.5	1.6	17.9	0.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.5	37.2	22.4	104.7	32.8	30.3	103.3	48.6	53.2	58.4	20.5	21.7
LnGrp LOS	E	D	C	F	C	C	F	D	D	E	C	C
Approach Vol, veh/h	1760			1360			100			700		
Approach Delay, s/veh	39.0			34.0			62.3			51.6		
Approach LOS	D			C			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	42.8	13.4	7.8	46.8	7.0	49.2	12.6	42.0				
Change Period (Y+Rc), s	5.5	5.3	5.5	5.9	5.5	5.3	5.5	5.9				
Max Green Setting (Gmax), s	40.5	36.2	3.0	43.1	13.1	63.6	8.0	38.1				
Max Q Clear Time (g_c+I1), s	36.6	6.1	3.9	35.4	3.2	6.5	7.5	22.3				
Green Ext Time (p_c), s	0.8	0.2	0.0	5.5	0.0	0.5	0.0	6.8				
Intersection Summary												
HCM 6th Ctrl Delay	40.1											
HCM 6th LOS	D											

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative Conditions
PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	2250	1210	1280	360	160	370
v/c Ratio	0.79	0.90	0.45	0.35	0.31	0.78
Control Delay	17.4	13.4	11.5	3.8	22.2	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	13.4	11.5	3.8	22.2	34.4
Queue Length 50th (ft)	275	24	116	13	59	145
Queue Length 95th (ft)	#508	#554	216	69	103	237
Internal Link Dist (ft)	4518		937			
Turn Bay Length (ft)		400		100		440
Base Capacity (vph)	2861	1346	2861	1018	836	756
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	0.79	0.90	0.45	0.35	0.19	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑				↑		↑
Traffic Volume (veh/h)	0	2250	1210	0	1280	360	0	0	0	160	0	370
Future Volume (veh/h)	0	2250	1210	0	1280	360	0	0	0	160	0	370
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	0	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	2250	0	0	1280	0				160	0	370
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2865		0	2865					489	0	435
Arrive On Green	0.00	0.56	0.00	0.00	0.56	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	5274	1585	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	2250	0	0	1280	0				160	0	370
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	23.9	0.0	0.0	10.2	0.0				5.0	0.0	15.3
Cycle Q Clear(g_c), s	0.0	23.9	0.0	0.0	10.2	0.0				5.0	0.0	15.3
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2865		0	2865					489	0	435
V/C Ratio(X)	0.00	0.79		0.00	0.45					0.33	0.00	0.85
Avail Cap(c_a), veh/h	0	3149		0	3149					924	0	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.9	0.0	0.0	8.9	0.0				20.0	0.0	23.8
Incr Delay (d2), s/veh	0.0	1.3	0.0	0.0	0.1	0.0				0.4	0.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.3	0.0	0.0	2.5	0.0				2.0	0.0	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.2	0.0	0.0	9.0	0.0				20.4	0.0	28.6
LnGrp LOS	A	B		A	A					C	A	C
Approach Vol, veh/h		2250	A		1280	A					530	
Approach Delay, s/veh		13.2			9.0						26.1	
Approach LOS		B			A						C	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				44.8		24.5		44.8				
Change Period (Y+Rc), s				5.9		5.5		5.9				
Max Green Setting (Gmax), s				42.7		35.9		42.7				
Max Q Clear Time (g_c+I1), s				25.9		17.3		12.2				
Green Ext Time (p_c), s				12.9		1.7		9.4				
Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative Conditions
PM Peak Hour

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1170	370	1180	230	650	890
v/c Ratio	0.58	0.24	0.60	0.15	0.79	0.57
Control Delay	18.0	0.4	18.6	0.2	23.5	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	0.4	18.6	0.2	23.5	1.5
Queue Length 50th (ft)	123	0	127	0	199	0
Queue Length 95th (ft)	247	0	252	0	431	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	3927	1550	3897	1583	1584	1563
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	0.30	0.24	0.30	0.15	0.41	0.57
Intersection Summary						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑		↑			
Traffic Volume (veh/h)	0	1170	370	0	1180	230	650	0	890	0	0	0
Future Volume (veh/h)	0	1170	370	0	1180	230	650	0	890	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	1170	0	0	1180	0	650	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2074		0	2074		722	0				
Arrive On Green	0.00	0.41	0.00	0.00	0.41	0.00	0.41	0.00	0.00			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	1781	0	1585			
Grp Volume(v), veh/h	0	1170	0	0	1180	0	650	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	8.4	0.0	0.0	8.5	0.0	16.3	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	8.4	0.0	0.0	8.5	0.0	16.3	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2074		0	2074		722	0				
V/C Ratio(X)	0.00	0.56		0.00	0.57		0.90	0.00				
Avail Cap(c_a), veh/h	0	5241		0	5188		2332	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	10.9	0.0	0.0	10.9	0.0	13.3	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0	1.7	0.0	0.0			
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	0.0	2.0	0.0	0.0	2.0	0.0	5.2	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.1	0.0	0.0	11.2	0.0	15.0	0.0	0.0			
LnGrp LOS	A	B		A	B		B	A				
Approach Vol, veh/h		1170	A		1180	A		650	A			
Approach Delay, s/veh		11.1			11.2			15.0				
Approach LOS		B			B			B				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		24.9				24.9		22.8				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		48.5				* 49		62.5				
Max Q Clear Time (g_c+I1), s		10.5				10.4		18.3				
Green Ext Time (p_c), s		8.9				6.9		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.0									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative Conditions
PM Peak Hour

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	0	0	0	20	0	1260	0	440	100	0	1820	410
Future Vol, veh/h	0	0	0	20	0	1260	0	440	100	0	1820	410
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	-	-	Free	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	20	0	1260	0	440	100	0	1820	410

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1350	-	-
Stage 1	440	-	-
Stage 2	910	-	-
Critical Hdwy	6.63	-	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	-	-
Pot Cap-1 Maneuver	153	0	0
Stage 1	648	0	0
Stage 2	354	0	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	153	0	-
Mov Cap-2 Maneuver	153	0	-
Stage 1	648	0	-
Stage 2	354	0	-

Approach	WB	NB	SB
HCM Control Delay, s	32	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 153	-
HCM Lane V/C Ratio	- 0.131	-
HCM Control Delay (s)	- 32	0
HCM Lane LOS	- D	A
HCM 95th %tile Q(veh)	- 0.4	-

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	56.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Vol, veh/h	300	690	10	240	490	1400
Future Vol, veh/h	300	690	10	240	490	1400
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	300	690	10	240	490	1400
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	630	490	490	0	-	0
Stage 1	490	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	429	~ 577	1071	-	-	0
Stage 1	615	-	-	-	-	0
Stage 2	873	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	424	~ 577	1071	-	-	-
Mov Cap-2 Maneuver	424	-	-	-	-	-
Stage 1	608	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	98.9	0.3		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	
Capacity (veh/h)	1071	-	424	577	-	
HCM Lane V/C Ratio	0.009	-	0.708	1.196	-	
HCM Control Delay (s)	8.4	0	31.6	128.1	-	
HCM Lane LOS	A	A	D	F	-	
HCM 95th %tile Q(veh)	0	-	5.4	24.6	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

SMF Master Plan Update
15: Power Line Rd & Road A

Cumulative Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	90	30	30	60	20
Future Vol, veh/h	30	90	30	30	60	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	90	30	30	60	20
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	185	45	0	0	60	0
Stage 1	45	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	804	1025	-	-	1544	-
Stage 1	977	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	773	1025	-	-	1544	-
Mov Cap-2 Maneuver	773	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.3	0		5.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		948	1544	
HCM Lane V/C Ratio	-	-		0.127	0.039	
HCM Control Delay (s)	-	-		9.3	7.4	
HCM Lane LOS	-	-		A	A	
HCM 95th %tile Q(veh)	-	-		0.4	0.1	

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	10	50	90	0	40
Future Vol, veh/h	50	10	50	90	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	10	50	90	0	40
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	135	95	0	0	140	0
Stage 1	95	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	859	962	-	-	1443	-
Stage 1	929	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	859	962	-	-	1443	-
Mov Cap-2 Maneuver	859	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.4	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	875	1443	-	
HCM Lane V/C Ratio	-	-	0.069	-	-	
HCM Control Delay (s)	-	-	9.4	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Intersection

Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	220	170	50	340	100
Future Vol, veh/h	20	220	170	50	340	100
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	220	170	50	340	100
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	11.1	10.1	19.3
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	77%
Vol Thru, %	100%	0%	0%	0%	23%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	170	50	20	220	440
LT Vol	0	0	20	0	340
Through Vol	170	0	0	0	100
RT Vol	0	50	0	220	0
Lane Flow Rate	170	50	20	220	440
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.273	0.07	0.038	0.342	0.676
Departure Headway (Hd)	5.78	5.07	6.811	5.596	5.534
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	622	707	526	642	656
Service Time	3.509	2.8	4.546	3.33	3.534
HCM Lane V/C Ratio	0.273	0.071	0.038	0.343	0.671
HCM Control Delay	10.7	8.2	9.8	11.2	19.3
HCM Lane LOS	B	A	A	B	C
HCM 95th-tile Q	1.1	0.2	0.1	1.5	5.2

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative Conditions
PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	160	210	30	60	90	200	840	90	390
v/c Ratio	0.55	0.32	0.37	0.27	0.18	0.22	0.62	0.51	0.37	0.34
Control Delay	48.2	21.7	5.5	41.5	23.8	1.2	39.8	22.0	34.3	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	21.7	5.5	41.5	23.8	1.2	39.8	22.0	34.3	20.9
Queue Length 50th (ft)	32	44	0	11	20	0	68	94	30	38
Queue Length 95th (ft)	#141	109	44	#50	50	1	#247	203	96	90
Internal Link Dist (ft)	3313			367			2142			3285
Turn Bay Length (ft)	175		175	175		175	400		400	
Base Capacity (vph)	165	1038	963	111	987	907	323	1925	308	1829
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.15	0.22	0.27	0.06	0.10	0.62	0.44	0.29	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	160	210	30	60	90	200	820	20	90	340	50
Future Volume (veh/h)	90	160	210	30	60	90	200	820	20	90	340	50
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		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	160	210	30	60	90	200	820	20	90	340	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	386	326	37	257	217	254	1354	33	116	841	121
Arrive On Green	0.09	0.21	0.21	0.02	0.14	0.14	0.14	0.26	0.26	0.07	0.19	0.19
Sat Flow, veh/h	1781	1870	1580	1781	1870	1578	1781	5127	125	1781	4508	646
Grp Volume(v), veh/h	90	160	210	30	60	90	200	544	296	90	254	136
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1578	1781	1702	1847	1781	1702	1750
Q Serve(g_s), s	2.4	3.6	5.9	0.8	1.4	2.6	5.3	6.8	6.9	2.4	3.2	3.3
Cycle Q Clear(g_c), s	2.4	3.6	5.9	0.8	1.4	2.6	5.3	6.8	6.9	2.4	3.2	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		0.37
Lane Grp Cap(c), veh/h	160	386	326	37	257	217	254	899	488	116	635	327
V/C Ratio(X)	0.56	0.41	0.64	0.82	0.23	0.42	0.79	0.61	0.61	0.78	0.40	0.41
Avail Cap(c_a), veh/h	193	1247	1054	135	1186	1001	390	1518	824	372	1483	763
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	21.3	16.8	17.8	23.9	18.8	19.3	20.2	15.8	15.8	22.5	17.5	17.5
Incr Delay (d2), s/veh	3.1	0.7	2.1	34.1	0.5	1.3	5.9	0.7	1.2	10.6	0.4	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	1.0	1.4	2.0	0.7	0.6	0.9	2.1	2.0	2.3	1.2	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	17.5	19.9	58.0	19.3	20.6	26.1	16.4	17.0	33.1	17.9	18.4
LnGrp LOS	C	B	B	E	B	C	C	B	B	C	B	B
Approach Vol, veh/h		460			180			1040			480	
Approach Delay, s/veh		20.0			26.4			18.4			20.9	
Approach LOS		B			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	18.8	6.5	14.9	12.5	15.0	9.9	11.5				
Change Period (Y+Rc), s	5.5	5.9	5.5	4.8	5.5	5.9	5.5	4.8				
Max Green Setting (Gmax), s	10.2	21.8	3.7	32.6	10.7	21.3	5.3	31.0				
Max Q Clear Time (g_c+I1), s	4.4	8.9	2.8	7.9	7.3	5.3	4.4	4.6				
Green Ext Time (p_c), s	0.1	3.8	0.0	1.6	0.2	1.8	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			20.0									
HCM 6th LOS			B									

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	80	20	10	1070	740
v/c Ratio	0.20	0.06	0.04	0.33	0.24
Control Delay	16.5	7.2	25.1	7.7	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	7.2	25.1	7.7	9.6
Queue Length 50th (ft)	20	0	3	45	28
Queue Length 95th (ft)	48	12	18	161	141
Internal Link Dist (ft)	2842			686	2142
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	1324	1174	261	4557	3573
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.02	0.04	0.23	0.21
Intersection Summary					

SMF Master Plan Update
19: Metro Air Parkway & Road D

Cumulative Conditions
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	  	
Traffic Volume (veh/h)	80	20	10	1070	690	50
Future Volume (veh/h)	80	20	10	1070	690	50
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	20	10	1070	690	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	120	107	14	2724	1618	117
Arrive On Green	0.07	0.07	0.01	0.53	0.33	0.33
Sat Flow, veh/h	1781	1585	1781	5274	5028	350
Grp Volume(v), veh/h	80	20	10	1070	482	258
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1806
Q Serve(g_s), s	1.3	0.3	0.2	3.5	3.1	3.2
Cycle Q Clear(g_c), s	1.3	0.3	0.2	3.5	3.1	3.2
Prop In Lane	1.00	1.00	1.00			0.19
Lane Grp Cap(c), veh/h	120	107	14	2724	1133	601
V/C Ratio(X)	0.67	0.19	0.70	0.39	0.43	0.43
Avail Cap(c_a), veh/h	2152	1915	405	7885	3826	2030
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	13.0	12.6	14.1	3.9	7.4	7.4
Incr Delay (d2), s/veh	6.2	0.8	47.2	0.1	0.3	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	0.6	0.3	0.2	0.0	0.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.2	13.4	61.4	4.0	7.7	7.9
LnGrp LOS	B	B	E	A	A	A
Approach Vol, veh/h	100			1080	740	
Approach Delay, s/veh	18.1			4.6	7.7	
Approach LOS	B			A	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	21.1			7.4	5.7	15.4
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	44.1			34.5	6.5	32.1
Max Q Clear Time (g_c+I1), s	5.5			3.3	2.2	5.2
Green Ext Time (p_c), s	7.8			0.3	0.0	4.3
Intersection Summary						
HCM 6th Ctrl Delay			6.5			
HCM 6th LOS			A			

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	190	640	350	860	1080
v/c Ratio	0.45	0.86	0.82	0.28	0.76
Control Delay	25.7	18.5	47.5	8.8	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	18.5	47.5	8.8	29.3
Queue Length 50th (ft)	73	57	145	56	149
Queue Length 95th (ft)	123	188	#387	135	#297
Internal Link Dist (ft)	1671			1050	4086
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	875	1019	425	3131	1501
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.63	0.82	0.27	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Cumulative Conditions
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	   	
Traffic Volume (veh/h)	190	640	350	860	960	120
Future Volume (veh/h)	190	640	350	860	960	120
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	640	350	860	960	120
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	695	619	338	2465	1065	133
Arrive On Green	0.39	0.39	0.19	0.48	0.23	0.23
Sat Flow, veh/h	1781	1585	1781	5274	4764	573
Grp Volume(v), veh/h	190	640	350	860	710	370
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1764
Q Serve(g_s), s	6.5	35.0	17.0	9.4	18.2	18.3
Cycle Q Clear(g_c), s	6.5	35.0	17.0	9.4	18.2	18.3
Prop In Lane	1.00	1.00	1.00			0.32
Lane Grp Cap(c), veh/h	695	619	338	2465	789	409
V/C Ratio(X)	0.27	1.03	1.04	0.35	0.90	0.90
Avail Cap(c_a), veh/h	695	619	338	2482	801	415
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	18.7	27.3	36.3	14.4	33.4	33.5
Incr Delay (d2), s/veh	0.2	45.4	58.8	0.1	13.1	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	32.6	12.3	3.1	8.2	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.9	72.8	95.1	14.5	46.6	56.0
LnGrp LOS	B	F	F	B	D	E
Approach Vol, veh/h	830			1210	1080	
Approach Delay, s/veh	60.4			37.8	49.8	
Approach LOS	E			D	D	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	49.2			40.5	22.5	26.7
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	43.6			35.0	17.0	21.1
Max Q Clear Time (g_c+I1), s	11.4			37.0	19.0	20.3
Green Ext Time (p_c), s	5.7			0.0	0.0	0.5
Intersection Summary						
HCM 6th Ctrl Delay			48.0			
HCM 6th LOS			D			

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative Conditions
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	340	80	120	180	120	90	1090	180	350	1380
v/c Ratio	0.21	0.57	0.18	0.74	0.43	0.23	0.51	0.83	0.32	0.82	0.77
Control Delay	54.9	40.7	0.8	75.7	36.1	1.0	59.8	41.4	3.5	60.3	32.3
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	54.9	40.7	0.8	75.7	36.1	1.0	59.8	41.4	3.5	60.3	32.3
Queue Length 50th (ft)	12	105	0	38	91	0	28	227	0	109	272
Queue Length 95th (ft)	42	147	0	#107	172	0	#70	#409	28	#239	#493
Internal Link Dist (ft)		450			475			2094			1585
Turn Bay Length (ft)	375		375	425		425	400		400	400	
Base Capacity (vph)	96	1204	677	162	620	668	175	1325	566	427	1795
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.28	0.12	0.74	0.29	0.18	0.51	0.82	0.32	0.82	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 			 	  		 	  	
Traffic Volume (vph)	20	340	80	120	180	120	90	1090	180	350	1360	20
Future Volume (vph)	20	340	80	120	180	120	90	1090	180	350	1360	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9	
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1593	3185	1406	3090	1676	1405	3090	4577	1405	3090	4566	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1593	3185	1406	3090	1676	1405	3090	4577	1405	3090	4566	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	340	80	120	180	120	90	1090	180	350	1360	20
RTOR Reduction (vph)	0	0	63	0	0	91	0	0	128	0	1	0
Lane Group Flow (vph)	20	340	17	120	180	29	90	1090	52	350	1379	0
Confl. Peds. (#/hr)			2			2			2			2
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.3	22.5	22.5	5.3	25.5	25.5	4.5	30.3	30.3	14.0	39.8	
Effective Green, g (s)	2.3	22.5	22.5	5.3	25.5	25.5	4.5	30.3	30.3	14.0	39.8	
Actuated g/C Ratio	0.02	0.21	0.21	0.05	0.24	0.24	0.04	0.29	0.29	0.13	0.38	
Clearance Time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	34	677	299	154	403	338	131	1310	402	408	1717	
v/s Ratio Prot	0.01	c0.11		c0.04	c0.11		0.03	0.24		c0.11	c0.30	
v/s Ratio Perm			0.01			0.02			0.04			
v/c Ratio	0.59	0.50	0.06	0.78	0.45	0.09	0.69	0.83	0.13	0.86	0.80	
Uniform Delay, d1	51.3	36.7	33.2	49.7	34.1	31.1	50.0	35.4	28.0	44.9	29.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.4	0.6	0.1	21.6	0.8	0.1	13.9	4.7	0.1	16.2	2.8	
Delay (s)	74.7	37.3	33.3	71.3	34.9	31.2	63.9	40.0	28.1	61.1	32.3	
Level of Service	E	D	C	E	C	C	E	D	C	E	C	
Approach Delay (s)		38.3			44.3			40.0			38.1	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			39.5				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			105.8				Sum of lost time (s)				28.1	
Intersection Capacity Utilization			68.2%				ICU Level of Service				C	
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative Conditions
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	10	1170	490	120	1630	620
v/c Ratio	0.01	0.87	0.30	0.08	0.70	0.60
Control Delay	14.1	21.8	15.2	0.1	20.1	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	21.8	15.2	0.1	20.1	4.2
Queue Length 50th (ft)	3	205	77	0	228	0
Queue Length 95th (ft)	12	305	133	0	338	61
Internal Link Dist (ft)			551		2094	
Turn Bay Length (ft)						400
Base Capacity (vph)	945	1666	1779	1583	2556	1085
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	0.01	0.70	0.28	0.08	0.64	0.57
Intersection Summary						

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	1170	0	490	120	0	1630	620
Future Volume (veh/h)	0	0	0	10	0	1170	0	490	120	0	1630	620
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				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				10	0	1170	0	490	0	0	1630	620
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				790	0	1238	0	1517		0	2180	675
Arrive On Green				0.44	0.00	0.44	0.00	0.43	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1781	0	2790	0	3647	1585	0	5274	1581
Grp Volume(v), veh/h				10	0	1170	0	490	0	0	1630	620
Grp Sat Flow(s),veh/h/ln				1781	0	1395	0	1777	1585	0	1702	1581
Q Serve(g_s), s				0.3	0.0	35.4	0.0	8.1	0.0	0.0	23.7	32.6
Cycle Q Clear(g_c), s				0.3	0.0	35.4	0.0	8.1	0.0	0.0	23.7	32.6
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				790	0	1238	0	1517		0	2180	675
V/C Ratio(X)				0.01	0.00	0.95	0.00	0.32		0.00	0.75	0.92
Avail Cap(c_a), veh/h				819	0	1282	0	1537		0	2208	684
HCM Platoon Ratio				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	1.00	0.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.7	0.0	23.5	0.0	16.8	0.0	0.0	21.3	23.8
Incr Delay (d2), s/veh				0.0	0.0	13.8	0.0	0.1	0.0	0.0	1.4	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				0.1	0.0	13.0	0.0	2.9	0.0	0.0	8.3	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.7	0.0	37.3	0.0	16.9	0.0	0.0	22.7	41.2
LnGrp LOS				B	A	D	A	B		A	C	D
Approach Vol, veh/h					1180			490	A		2250	
Approach Delay, s/veh					37.1			16.9			27.8	
Approach LOS					D			B			C	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	43.5			43.5			44.6					
Change Period (Y+Rc), s	5.9			5.9			5.5					
Max Green Setting (Gmax), s	38.1			38.1			40.5					
Max Q Clear Time (g_c+I1), s	10.1			34.6			37.4					
Green Ext Time (p_c), s	2.9			3.0			1.7					
Intersection Summary												
HCM 6th Ctrl Delay	29.2											
HCM 6th LOS	C											

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative Conditions
PM Peak Hour



Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	340	180	270	210	170	1470
v/c Ratio	0.51	0.26	0.28	0.36	0.18	0.95
Control Delay	11.6	2.8	11.4	4.4	11.0	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	2.8	11.4	4.4	11.0	17.0
Queue Length 50th (ft)	39	0	17	0	11	0
Queue Length 95th (ft)	122	26	55	36	37	#165
Internal Link Dist (ft)			529		551	
Turn Bay Length (ft)						
Base Capacity (vph)	1725	1526	3195	1449	3195	1550
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	0.20	0.12	0.08	0.14	0.05	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	0	180	0	0	0	0	270	210	0	170	1470
Future Volume (veh/h)	340	0	180	0	0	0	0	270	210	0	170	1470
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	1870	0	1870				0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	340	0	180				0	270	210	0	170	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	532	0	473				0	955	426	0	955	
Arrive On Green	0.30	0.00	0.30				0.00	0.27	0.27	0.00	0.27	0.00
Sat Flow, veh/h	1781	0	1585				0	3647	1585	0	3647	1585
Grp Volume(v), veh/h	340	0	180				0	270	210	0	170	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1585	0	1777	1585
Q Serve(g_s), s	4.4	0.0	2.4				0.0	1.6	2.9	0.0	1.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	2.4				0.0	1.6	2.9	0.0	1.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	532	0	473				0	955	426	0	955	
V/C Ratio(X)	0.64	0.00	0.38				0.00	0.28	0.49	0.00	0.18	
Avail Cap(c_a), veh/h	3213	0	2859				0	4196	1872	0	4196	
HCM Platoon Ratio	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	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	8.0	0.0	7.3				0.0	7.6	8.1	0.0	7.4	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.5				0.0	0.2	0.9	0.0	0.1	0.0
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	1.0	0.0	0.5				0.0	0.2	0.4	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	0.0	7.8				0.0	7.8	9.0	0.0	7.5	0.0
LnGrp LOS	A	A	A				A	A	A	A	A	
Approach Vol, veh/h	520						480			170		
Approach Delay, s/veh	8.8						8.3			7.5		
Approach LOS	A						A			A		
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	13.0			13.4			13.0					
Change Period (Y+Rc), s	5.9			5.5			5.9					
Max Green Setting (Gmax), s	31.1			47.5			31.1					
Max Q Clear Time (g_c+I1), s	4.9			6.4			3.0					
Green Ext Time (p_c), s	2.1			1.7			0.9					
Intersection Summary												
HCM 6th Ctrl Delay	8.4											
HCM 6th LOS	A											

Notes

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

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative + MPU Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	640	120	200	1300	50	170	120	150	10	80	40
v/c Ratio	0.67	0.46	0.17	0.95	0.84	0.07	0.97	0.25	0.29	0.15	0.31	0.12
Control Delay	66.0	21.7	2.9	90.4	29.0	0.2	101.9	25.0	5.7	47.8	34.6	0.7
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	66.0	21.7	2.9	90.4	29.0	0.2	101.9	25.0	5.7	47.8	34.6	0.7
Queue Length 50th (ft)	45	123	0	102	298	0	87	47	0	5	38	0
Queue Length 95th (ft)	#149	236	24	#295	#610	0	#264	98	42	24	75	0
Internal Link Dist (ft)		745			1992			1063			3284	
Turn Bay Length (ft)	250		250	250		250	250		250	250		250
Base Capacity (vph)	134	1392	699	211	1546	760	176	763	729	68	649	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.46	0.17	0.95	0.84	0.07	0.97	0.16	0.21	0.15	0.12	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative + MPU Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	640	120	200	1300	50	170	120	150	10	80	40
Future Volume (veh/h)	90	640	120	200	1300	50	170	120	150	10	80	40
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		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	640	0	200	1300	0	170	120	150	10	80	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	1284		234	1520		195	352	297	13	161	136
Arrive On Green	0.06	0.36	0.00	0.13	0.43	0.00	0.11	0.19	0.19	0.01	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1580	1781	1870	1574
Grp Volume(v), veh/h	90	640	0	200	1300	0	170	120	150	10	80	40
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1580	1781	1870	1574
Q Serve(g_s), s	3.6	10.3	0.0	8.0	24.1	0.0	6.9	4.1	6.2	0.4	3.0	1.7
Cycle Q Clear(g_c), s	3.6	10.3	0.0	8.0	24.1	0.0	6.9	4.1	6.2	0.4	3.0	1.7
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	115	1284		234	1520		195	352	297	13	161	136
V/C Ratio(X)	0.78	0.50		0.86	0.86		0.87	0.34	0.50	0.74	0.50	0.29
Avail Cap(c_a), veh/h	149	1536		234	1706		195	841	711	76	716	603
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	18.2	0.0	31.1	18.9	0.0	32.1	25.8	26.6	36.2	31.9	31.3
Incr Delay (d2), s/veh	17.9	0.3	0.0	25.3	4.1	0.0	32.3	0.6	1.3	56.5	2.3	1.2
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	2.0	3.6	0.0	4.7	8.7	0.0	4.4	1.7	2.2	0.4	1.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	18.5	0.0	56.4	23.0	0.0	64.4	26.3	28.0	92.7	34.2	32.5
LnGrp LOS	D	B		E	C		E	C	C	F	C	C
Approach Vol, veh/h		730	A		1500	A		440			130	
Approach Delay, s/veh		22.6			27.5			41.6			38.2	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	19.7	15.1	32.3	13.5	12.2	10.2	37.2				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.1	32.9	9.6	31.6	8.0	28.0	6.1	35.1				
Max Q Clear Time (g_c+I1), s	2.4	8.2	10.0	12.3	8.9	5.0	5.6	26.1				
Green Ext Time (p_c), s	0.0	1.0	0.0	3.6	0.0	0.4	0.0	5.1				

Intersection Summary

HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

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

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + MPU Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	160	510	10	280	1390	280	10	1030	150	70	760	510
v/c Ratio	0.47	0.31	0.02	0.65	0.77	0.43	0.10	0.71	0.27	0.28	0.41	0.67
Control Delay	54.7	29.4	0.0	56.3	36.5	15.5	62.2	38.5	5.7	56.8	26.5	16.0
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	54.7	29.4	0.0	56.3	36.5	15.5	62.2	38.5	5.7	56.8	26.5	16.0
Queue Length 50th (ft)	58	102	0	102	326	62	3	254	0	25	145	117
Queue Length 95th (ft)	103	153	0	169	465	163	14	323	44	55	212	276
Internal Link Dist (ft)	1627			1756			1585			1050		
Turn Bay Length (ft)	450		450	400		400	400		400	400		400
Base Capacity (vph)	579	2181	759	496	2062	726	99	2117	741	314	2436	906
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.23	0.01	0.56	0.67	0.39	0.10	0.49	0.20	0.22	0.31	0.56
Intersection Summary												

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + MPU Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	510	10	280	1390	280	10	1030	150	70	760	510
Future Volume (veh/h)	160	510	10	280	1390	280	10	1030	150	70	760	510
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	160	510	10	280	1390	280	10	1030	150	70	760	510
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	1564	485	350	1743	540	25	1764	547	118	1902	590
Arrive On Green	0.07	0.31	0.31	0.10	0.34	0.34	0.01	0.35	0.35	0.03	0.37	0.37
Sat Flow, veh/h	3456	5106	1582	3456	5106	1582	3456	5106	1582	3456	5106	1582
Grp Volume(v), veh/h	160	510	10	280	1390	280	10	1030	150	70	760	510
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1728	1702	1582	1728	1702	1582	1728	1702	1582
Q Serve(g_s), s	4.9	8.3	0.5	8.5	26.4	15.2	0.3	17.7	7.4	2.1	11.8	32.0
Cycle Q Clear(g_c), s	4.9	8.3	0.5	8.5	26.4	15.2	0.3	17.7	7.4	2.1	11.8	32.0
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	229	1564	485	350	1743	540	25	1764	547	118	1902	590
V/C Ratio(X)	0.70	0.33	0.02	0.80	0.80	0.52	0.40	0.58	0.27	0.59	0.40	0.87
Avail Cap(c_a), veh/h	564	2119	656	483	2000	620	97	2057	637	306	2366	733
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	49.0	28.7	26.0	47.1	32.0	28.3	53.0	28.8	25.4	51.0	24.8	31.2
Incr Delay (d2), s/veh	3.8	0.1	0.0	6.5	2.1	0.8	10.1	0.3	0.3	4.6	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.2	0.2	3.8	10.3	5.4	0.2	6.7	2.6	1.0	4.4	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	28.8	26.0	53.6	34.0	29.0	63.1	29.1	25.6	55.7	24.9	40.1
LnGrp LOS	D	C	C	D	C	C	E	C	C	E	C	D
Approach Vol, veh/h		680			1950			1190			1340	
Approach Delay, s/veh		34.4			36.1			28.9			32.3	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	43.0	16.4	38.8	6.3	45.9	12.6	42.5				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	9.5	43.2	15.0	44.5	3.0	49.7	17.5	42.0				
Max Q Clear Time (g_c+I1), s	4.1	19.7	10.5	10.3	2.3	34.0	6.9	28.4				
Green Ext Time (p_c), s	0.1	7.2	0.4	3.2	0.0	5.8	0.3	7.8				
Intersection Summary												
HCM 6th Ctrl Delay			33.3									
HCM 6th LOS			C									

SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative + MPU Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	620	10	60	2290	520	10	30	30	130	20	70
v/c Ratio	0.57	0.25	0.01	1.02	1.03	0.59	0.08	0.14	0.10	0.56	0.04	0.14
Control Delay	59.1	16.6	0.0	170.7	54.8	11.3	48.2	36.7	0.6	48.9	23.6	2.2
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	59.1	16.6	0.0	170.7	54.8	11.3	48.2	36.7	0.6	48.9	23.6	2.2
Queue Length 50th (ft)	48	67	0	34	~493	55	5	16	0	67	8	0
Queue Length 95th (ft)	#165	166	0	#155	#997	254	26	42	0	160	27	13
Internal Link Dist (ft)		760			4518			633			10448	
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	158	2512	832	59	2226	874	260	757	720	804	1330	1143
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.25	0.01	1.02	1.03	0.59	0.04	0.04	0.04	0.16	0.02	0.06

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.

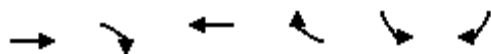
SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative + MPU Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	90	620	10	60	2290	520	10	30	30	130	20	70
Future Volume (veh/h)	90	620	10	60	2290	520	10	30	30	130	20	70
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		0.99	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	620	10	60	2290	520	10	30	30	130	20	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	2621	812	69	2486	770	13	117	98	178	290	245
Arrive On Green	0.07	0.51	0.51	0.04	0.49	0.49	0.01	0.06	0.06	0.10	0.16	0.16
Sat Flow, veh/h	1781	5106	1582	1781	5106	1582	1781	1870	1570	1781	1870	1579
Grp Volume(v), veh/h	90	620	10	60	2290	520	10	30	30	130	20	70
Grp Sat Flow(s),veh/h/ln	1781	1702	1582	1781	1702	1582	1781	1870	1570	1781	1870	1579
Q Serve(g_s), s	3.9	5.2	0.2	2.6	32.4	19.5	0.4	1.2	1.4	5.5	0.7	3.0
Cycle Q Clear(g_c), s	3.9	5.2	0.2	2.6	32.4	19.5	0.4	1.2	1.4	5.5	0.7	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	116	2621	812	69	2486	770	13	117	98	178	290	245
V/C Ratio(X)	0.78	0.24	0.01	0.87	0.92	0.68	0.75	0.26	0.31	0.73	0.07	0.29
Avail Cap(c_a), veh/h	183	2830	877	69	2501	775	300	871	731	928	1529	1291
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	35.8	10.5	9.3	37.2	18.6	15.2	38.5	34.7	34.8	34.0	28.1	29.0
Incr Delay (d2), s/veh	10.6	0.0	0.0	66.7	6.2	2.3	57.6	1.1	1.7	5.6	0.1	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	1.9	1.5	0.1	2.3	11.3	6.0	0.4	0.5	0.5	2.5	0.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	10.5	9.3	103.9	24.8	17.6	96.1	35.9	36.6	39.6	28.2	29.7
LnGrp LOS	D	B	A	F	C	B	F	D	D	D	C	C
Approach Vol, veh/h		720			2870			70			220	
Approach Delay, s/veh		15.0			25.1			44.8			35.4	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.3	10.2	8.5	45.8	6.1	17.4	10.6	43.8				
Change Period (Y+Rc), s	5.5	5.3	5.5	5.9	5.5	5.3	5.5	5.9				
Max Green Setting (Gmax), s	40.5	36.2	3.0	43.1	13.1	63.6	8.0	38.1				
Max Q Clear Time (g_c+I1), s	7.5	3.4	4.6	7.2	2.4	5.0	5.9	34.4				
Green Ext Time (p_c), s	0.3	0.2	0.0	4.0	0.0	0.3	0.0	3.4				
Intersection Summary												
HCM 6th Ctrl Delay			24.2									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative + MPU Conditions
AM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1020	470	2420	780	370	610
v/c Ratio	0.42	0.48	0.99	0.84	0.53	0.96
Control Delay	15.9	3.2	40.5	21.0	24.2	54.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	3.2	40.5	21.0	24.2	54.4
Queue Length 50th (ft)	134	0	~488	225	156	313
Queue Length 95th (ft)	168	50	#627	#489	241	#538
Internal Link Dist (ft)	4518		937			
Turn Bay Length (ft)		400		100		440
Base Capacity (vph)	2440	985	2440	934	714	651
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	0.42	0.48	0.99	0.84	0.52	0.94

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.

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative + MPU Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗				↘		↗
Traffic Volume (veh/h)	0	1020	470	0	2420	780	0	0	0	370	0	610
Future Volume (veh/h)	0	1020	470	0	2420	780	0	0	0	370	0	610
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	0	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	1020	0	0	2420	0				370	0	610
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2423		0	2423					710	0	632
Arrive On Green	0.00	0.47	0.00	0.00	0.47	0.00				0.40	0.00	0.40
Sat Flow, veh/h	0	5274	1585	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	1020	0	0	2420	0				370	0	610
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	11.8	0.0	0.0	42.6	0.0				14.2	0.0	33.8
Cycle Q Clear(g_c), s	0.0	11.8	0.0	0.0	42.6	0.0				14.2	0.0	33.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2423		0	2423					710	0	632
V/C Ratio(X)	0.00	0.42		0.00	1.00					0.52	0.00	0.97
Avail Cap(c_a), veh/h	0	2423		0	2423					711	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.5	0.0	0.0	23.6	0.0				20.5	0.0	26.4
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	17.9	0.0				0.7	0.0	27.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.9	0.0	0.0	18.0	0.0				5.7	0.0	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.6	0.0	0.0	41.6	0.0				21.2	0.0	53.7
LnGrp LOS	A	B		A	D					C	A	D
Approach Vol, veh/h		1020	A		2420	A					980	
Approach Delay, s/veh		15.6			41.6						41.4	
Approach LOS		B			D						D	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				48.6		41.4		48.6				
Change Period (Y+Rc), s				5.9		5.5		5.9				
Max Green Setting (Gmax), s				42.7		35.9		42.7				
Max Q Clear Time (g_c+I1), s				13.8		35.8		44.6				
Green Ext Time (p_c), s				6.9		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			35.5									
HCM 6th LOS			D									
Notes												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	430	370	2380	210	1010	540
v/c Ratio	0.21	0.24	1.16	0.13	1.10	0.35
Control Delay	23.3	0.4	110.8	0.2	88.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	0.4	110.8	0.2	88.5	0.6
Queue Length 50th (ft)	77	0	~798	0	~885	0
Queue Length 95th (ft)	102	0	#891	0	#1136	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	2076	1550	2055	1583	921	1563
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	0.21	0.24	1.16	0.13	1.10	0.35
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.						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + MPU Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑		↑			
Traffic Volume (veh/h)	0	430	370	0	2380	210	1010	0	540	0	0	0
Future Volume (veh/h)	0	430	370	0	2380	210	1010	0	540	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	430	0	0	2380	0	1010	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2064		0	2064		928	0				
Arrive On Green	0.00	0.40	0.00	0.00	0.40	0.00	0.52	0.00	0.00			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	1781	0	1585			
Grp Volume(v), veh/h	0	430	0	0	2380	0	1010	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.6	0.0	0.0	48.5	0.0	62.5	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	6.6	0.0	0.0	48.5	0.0	62.5	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2064		0	2064		928	0				
V/C Ratio(X)	0.00	0.21		0.00	1.15		1.09	0.00				
Avail Cap(c_a), veh/h	0	2085		0	2064		928	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	23.3	0.0	0.0	35.8	0.0	28.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	75.0	0.0	56.7	0.0	0.0			
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	0.0	2.5	0.0	0.0	32.6	0.0	39.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.3	0.0	0.0	110.8	0.0	85.4	0.0	0.0			
LnGrp LOS	A	C		A	F		F	A				
Approach Vol, veh/h		430	A		2380	A		1010	A			
Approach Delay, s/veh		23.3			110.8			85.4				
Approach LOS		C			F			F				
Timer - Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		54.0			54.0			66.0				
Change Period (Y+Rc), s		5.5			* 5.5			3.5				
Max Green Setting (Gmax), s		48.5			* 49			62.5				
Max Q Clear Time (g_c+I1), s		50.5			8.6			64.5				
Green Ext Time (p_c), s		0.0			2.1			0.0				
Intersection Summary												
HCM 6th Ctrl Delay			94.2									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + MPU Conditions
AM Peak Hour

Intersection												
Int Delay, s/veh	9.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↱		↱		↱	↱		↱↱	↱
Traffic Vol, veh/h	0	0	0	100	0	2450	0	890	190	0	1760	550
Future Vol, veh/h	0	0	0	100	0	2450	0	890	190	0	1760	550
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	-	-	Free	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	100	0	2450	0	890	190	0	1760	550

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1770	-	-
Stage 1	890	-	-
Stage 2	880	-	-
Critical Hdwy	6.63	-	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	-	-
Pot Cap-1 Maneuver	~ 83	0	0
Stage 1	400	0	0
Stage 2	367	0	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	~ 83	0	-
Mov Cap-2 Maneuver	~ 83	0	-
Stage 1	400	0	-
Stage 2	367	0	-

Approach	WB	NB	SB
HCM Control Delay, s	254.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 83	-
HCM Lane V/C Ratio	- 1.205	-
HCM Control Delay (s)	- 254.6	0
HCM Lane LOS	- F	A
HCM 95th %tile Q(veh)	- 7.3	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + MPU Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	47.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Vol, veh/h	760	80	0	340	100	1710
Future Vol, veh/h	760	80	0	340	100	1710
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	760	80	0	340	100	1710
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	270	100	100	0	-	0
Stage 1	100	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 708	955	1492	-	-	0
Stage 1	923	-	-	-	-	0
Stage 2	843	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	~ 708	955	1492	-	-	-
Mov Cap-2 Maneuver	~ 708	-	-	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	72.3	0		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	
Capacity (veh/h)	1492	-	708	955	-	
HCM Lane V/C Ratio	-	-	1.073	0.084	-	
HCM Control Delay (s)	0	-	78.9	9.1	-	
HCM Lane LOS	A	-	F	A	-	
HCM 95th %tile Q(veh)	0	-	20.4	0.3	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative + MPU Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	60	1150	310	130	860	40	130	210	360	10	90	70
v/c Ratio	0.46	0.83	0.39	0.65	0.52	0.05	0.71	0.43	0.63	0.15	0.34	0.20
Control Delay	52.2	31.0	5.0	54.0	20.1	0.1	61.9	27.8	15.3	47.9	35.0	1.3
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	52.2	31.0	5.0	54.0	20.1	0.1	61.9	27.8	15.3	47.9	35.0	1.3
Queue Length 50th (ft)	30	271	4	64	166	0	66	86	55	5	43	0
Queue Length 95th (ft)	#91	#546	67	#179	314	0	#198	163	153	24	84	0
Internal Link Dist (ft)	745				1992				1063			
Turn Bay Length (ft)	250		250	250		250	250		250	250		250
Base Capacity (vph)	134	1391	787	211	1651	801	182	762	770	68	648	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.83	0.39	0.62	0.52	0.05	0.71	0.28	0.47	0.15	0.14	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative + MPU Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1150	310	130	860	40	130	210	360	10	90	70
Future Volume (veh/h)	60	1150	310	130	860	40	130	210	360	10	90	70
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	1150	0	130	860	0	130	210	360	10	90	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	1276		170	1462		162	497	420	13	341	288
Arrive On Green	0.04	0.36	0.00	0.10	0.41	0.00	0.09	0.27	0.27	0.01	0.18	0.18
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1581	1781	1870	1580
Grp Volume(v), veh/h	60	1150	0	130	860	0	130	210	360	10	90	70
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1581	1781	1870	1580
Q Serve(g_s), s	2.8	25.7	0.0	6.0	15.7	0.0	6.0	7.8	18.1	0.5	3.5	3.2
Cycle Q Clear(g_c), s	2.8	25.7	0.0	6.0	15.7	0.0	6.0	7.8	18.1	0.5	3.5	3.2
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	77	1276		170	1462		162	497	420	13	341	288
V/C Ratio(X)	0.78	0.90		0.76	0.59		0.80	0.42	0.86	0.76	0.26	0.24
Avail Cap(c_a), veh/h	130	1341		204	1489		170	735	621	66	625	528
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	25.4	0.0	36.9	19.1	0.0	37.3	25.4	29.2	41.5	29.4	29.3
Incr Delay (d2), s/veh	15.6	8.4	0.0	13.1	0.6	0.0	22.8	0.6	7.8	59.0	0.4	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	1.5	10.8	0.0	3.0	5.6	0.0	3.4	3.2	7.0	0.4	1.5	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	33.9	0.0	50.0	19.7	0.0	60.1	26.0	37.0	100.5	29.8	29.7
LnGrp LOS	E	C		D	B		E	C	D	F	C	C
Approach Vol, veh/h	1210		A	990		A	700		170			
Approach Delay, s/veh	34.9			23.7			38.0		33.9			
Approach LOS	C			C			D		C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	28.2	13.5	36.0	13.1	21.2	9.1	40.4				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.1	32.9	9.6	31.6	8.0	28.0	6.1	35.1				
Max Q Clear Time (g_c+I1), s	2.5	20.1	8.0	27.7	8.0	5.5	4.8	17.7				
Green Ext Time (p_c), s	0.0	1.9	0.0	2.4	0.0	0.5	0.0	4.8				

Intersection Summary

HCM 6th Ctrl Delay	32.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

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

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + MPU Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	570	1040	20	220	1070	120	10	820	200	280	1160	180
v/c Ratio	1.01	0.60	0.03	0.57	0.73	0.21	0.10	0.66	0.38	0.91	0.61	0.26
Control Delay	85.9	32.2	0.1	53.8	38.4	2.9	60.9	39.7	6.7	84.0	30.0	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	85.9	32.2	0.1	53.8	38.4	2.9	60.9	39.7	6.7	84.0	30.0	4.9
Queue Length 50th (ft)	~201	212	0	73	237	0	3	184	0	98	226	0
Queue Length 95th (ft)	#439	327	0	138	347	21	14	257	56	#240	354	49
Internal Link Dist (ft)	1627			1756			1585			1050		
Turn Bay Length (ft)	450		450	400		400	400		400	400		400
Base Capacity (vph)	566	2133	745	485	2013	712	96	2071	754	307	2382	826
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.49	0.03	0.45	0.53	0.17	0.10	0.40	0.27	0.91	0.49	0.22

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.

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + MPU Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	570	1040	20	220	1070	120	10	820	200	280	1160	180
Future Volume (veh/h)	570	1040	20	220	1070	120	10	820	200	280	1160	180
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	570	1040	20	220	1070	120	10	820	200	280	1160	180
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	585	1883	584	293	1451	450	25	1194	370	318	1626	504
Arrive On Green	0.17	0.37	0.37	0.08	0.28	0.28	0.01	0.23	0.23	0.09	0.32	0.32
Sat Flow, veh/h	3456	5106	1582	3456	5106	1582	3456	5106	1581	3456	5106	1582
Grp Volume(v), veh/h	570	1040	20	220	1070	120	10	820	200	280	1160	180
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1728	1702	1582	1728	1702	1581	1728	1702	1582
Q Serve(g_s), s	17.0	16.7	0.8	6.4	19.6	6.1	0.3	15.1	11.5	8.3	20.7	9.0
Cycle Q Clear(g_c), s	17.0	16.7	0.8	6.4	19.6	6.1	0.3	15.1	11.5	8.3	20.7	9.0
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	585	1883	584	293	1451	450	25	1194	370	318	1626	504
V/C Ratio(X)	0.97	0.55	0.03	0.75	0.74	0.27	0.40	0.69	0.54	0.88	0.71	0.36
Avail Cap(c_a), veh/h	585	2199	681	502	2075	643	100	2134	661	318	2456	761
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	42.7	25.9	20.9	46.2	33.5	28.6	51.1	36.1	34.7	46.4	31.1	27.1
Incr Delay (d2), s/veh	30.6	0.3	0.0	3.9	0.8	0.3	10.0	0.7	1.2	23.7	0.6	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	9.3	6.2	0.3	2.8	7.6	2.2	0.2	5.9	4.2	4.4	7.9	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.3	26.1	20.9	50.1	34.3	29.0	61.0	36.8	36.0	70.1	31.6	27.5
LnGrp LOS	E	C	C	D	C	C	E	D	D	E	C	C
Approach Vol, veh/h		1630			1410			1030			1620	
Approach Delay, s/veh		42.5			36.3			36.9			37.8	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	30.1	14.3	44.0	6.2	38.8	23.0	35.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	9.5	43.2	15.0	44.5	3.0	49.7	17.5	42.0				
Max Q Clear Time (g_c+I1), s	10.3	17.1	8.4	18.7	2.3	22.7	19.0	21.6				
Green Ext Time (p_c), s	0.0	5.9	0.4	7.0	0.0	8.8	0.0	7.0				
Intersection Summary												
HCM 6th Ctrl Delay			38.6									
HCM 6th LOS			D									

SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative + MPU Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	1710	20	30	1340	240	20	20	60	570	60	110
v/c Ratio	0.75	0.88	0.03	0.67	0.81	0.36	0.19	0.11	0.22	0.93	0.08	0.15
Control Delay	91.0	41.9	0.1	119.3	42.8	6.1	61.6	48.9	1.8	62.3	21.9	4.6
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	91.0	41.9	0.1	119.3	42.8	6.1	61.6	48.9	1.8	62.3	21.9	4.6
Queue Length 50th (ft)	67	435	0	23	330	0	14	14	0	403	24	0
Queue Length 95th (ft)	#198	#770	0	#96	#571	68	47	37	0	#856	59	34
Internal Link Dist (ft)	760			4518			633			10448		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	120	1947	677	45	1653	663	197	575	582	611	1017	902
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.88	0.03	0.67	0.81	0.36	0.10	0.03	0.10	0.93	0.06	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

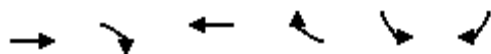
SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative + MPU Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1710	20	30	1340	240	20	20	60	570	60	110
Future Volume (veh/h)	90	1710	20	30	1340	240	20	20	60	570	60	110
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		0.99	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	1710	20	30	1340	240	20	20	60	570	60	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	1900	588	37	1683	521	24	136	114	599	740	626
Arrive On Green	0.06	0.37	0.37	0.02	0.33	0.33	0.01	0.07	0.07	0.34	0.40	0.40
Sat Flow, veh/h	1781	5106	1581	1781	5106	1580	1781	1870	1572	1781	1870	1583
Grp Volume(v), veh/h	90	1710	20	30	1340	240	20	20	60	570	60	110
Grp Sat Flow(s),veh/h/ln	1781	1702	1581	1781	1702	1580	1781	1870	1572	1781	1870	1583
Q Serve(g_s), s	5.6	35.5	0.9	1.9	26.8	13.5	1.3	1.1	4.1	35.0	2.2	5.1
Cycle Q Clear(g_c), s	5.6	35.5	0.9	1.9	26.8	13.5	1.3	1.1	4.1	35.0	2.2	5.1
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	113	1900	588	37	1683	521	24	136	114	599	740	626
V/C Ratio(X)	0.79	0.90	0.03	0.80	0.80	0.46	0.83	0.15	0.53	0.95	0.08	0.18
Avail Cap(c_a), veh/h	127	1962	607	48	1734	537	208	603	507	643	1060	897
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	33.2	22.4	54.7	34.2	29.7	55.2	48.8	50.2	36.3	21.2	22.0
Incr Delay (d2), s/veh	26.0	6.0	0.0	51.6	2.6	0.6	48.5	0.5	3.7	23.3	0.0	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	3.2	14.4	0.3	1.3	10.6	4.9	0.9	0.5	1.7	18.2	1.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.8	39.2	22.4	106.3	36.8	30.4	103.8	49.3	53.9	59.6	21.2	22.2
LnGrp LOS	E	D	C	F	D	C	F	D	D	E	C	C
Approach Vol, veh/h	1820			1610			100			740		
Approach Delay, s/veh	41.0			37.1			63.0			50.9		
Approach LOS	D			D			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	43.2	13.4	7.9	47.7	7.0	49.7	12.6	42.9				
Change Period (Y+Rc), s	5.5	5.3	5.5	5.9	5.5	5.3	5.5	5.9				
Max Green Setting (Gmax), s	40.5	36.2	3.0	43.1	13.1	63.6	8.0	38.1				
Max Q Clear Time (g_c+I1), s	37.0	6.1	3.9	37.5	3.3	7.1	7.6	28.8				
Green Ext Time (p_c), s	0.7	0.2	0.0	4.3	0.0	0.7	0.0	5.8				
Intersection Summary												
HCM 6th Ctrl Delay				41.8								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative + MPU Conditions
PM Peak Hour



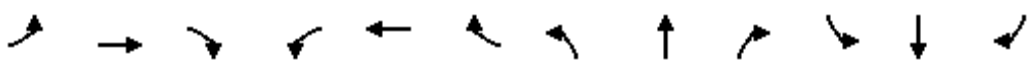
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	2350	1220	1310	360	270	600
v/c Ratio	0.96	0.93	0.53	0.40	0.39	0.95
Control Delay	34.0	17.5	17.3	4.9	21.5	52.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	17.5	17.3	4.9	21.5	52.6
Queue Length 50th (ft)	459	40	185	23	106	304
Queue Length 95th (ft)	#596	#568	227	74	171	#526
Internal Link Dist (ft)	4518		937			
Turn Bay Length (ft)		400		100		440
Base Capacity (vph)	2452	1309	2452	910	718	654
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	0.96	0.93	0.53	0.40	0.38	0.92

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative + MPU Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗				↘		↗
Traffic Volume (veh/h)	0	2350	1220	0	1310	360	0	0	0	270	0	600
Future Volume (veh/h)	0	2350	1220	0	1310	360	0	0	0	270	0	600
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	0	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	2350	0	0	1310	0				270	0	600
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2437		0	2437					704	0	627
Arrive On Green	0.00	0.48	0.00	0.00	0.48	0.00				0.40	0.00	0.40
Sat Flow, veh/h	0	5274	1585	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	2350	0	0	1310	0				270	0	600
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	39.8	0.0	0.0	16.1	0.0				9.7	0.0	32.9
Cycle Q Clear(g_c), s	0.0	39.8	0.0	0.0	16.1	0.0				9.7	0.0	32.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2437		0	2437					704	0	627
V/C Ratio(X)	0.00	0.96		0.00	0.54					0.38	0.00	0.96
Avail Cap(c_a), veh/h	0	2439		0	2439					715	0	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.6	0.0	0.0	16.4	0.0				19.3	0.0	26.3
Incr Delay (d2), s/veh	0.0	11.1	0.0	0.0	0.2	0.0				0.3	0.0	25.4
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	0.0	15.5	0.0	0.0	5.3	0.0				3.9	0.0	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	33.8	0.0	0.0	16.7	0.0				19.6	0.0	51.7
LnGrp LOS	A	C		A	B					B	A	D
Approach Vol, veh/h		2350	A		1310	A					870	
Approach Delay, s/veh		33.8			16.7						41.7	
Approach LOS		C			B						D	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				48.6		40.8		48.6				
Change Period (Y+Rc), s				5.9		5.5		5.9				
Max Green Setting (Gmax), s				42.7		35.9		42.7				
Max Q Clear Time (g_c+I1), s				41.8		34.9		18.1				
Green Ext Time (p_c), s				0.8		0.4		9.0				
Intersection Summary												
HCM 6th Ctrl Delay			30.3									
HCM 6th LOS			C									

Notes

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

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + MPU Conditions
PM Peak Hour

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1230	390	1210	250	650	900
v/c Ratio	0.61	0.25	0.61	0.16	0.79	0.58
Control Delay	18.6	0.4	18.9	0.2	23.9	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	0.4	18.9	0.2	23.9	1.6
Queue Length 50th (ft)	134	0	133	0	203	0
Queue Length 95th (ft)	267	0	264	0	438	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	3867	1550	3838	1583	1564	1563
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	0.32	0.25	0.32	0.16	0.42	0.58
Intersection Summary						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + MPU Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑		↑			
Traffic Volume (veh/h)	0	1230	390	0	1210	250	650	0	900	0	0	0
Future Volume (veh/h)	0	1230	390	0	1210	250	650	0	900	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	1230	0	0	1210	0	650	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2101		0	2101		720	0				
Arrive On Green	0.00	0.41	0.00	0.00	0.41	0.00	0.40	0.00	0.00			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	1781	0	1585			
Grp Volume(v), veh/h	0	1230	0	0	1210	0	650	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	9.1	0.0	0.0	8.9	0.0	16.7	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	9.1	0.0	0.0	8.9	0.0	16.7	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2101		0	2101		720	0				
V/C Ratio(X)	0.00	0.59		0.00	0.58		0.90	0.00				
Avail Cap(c_a), veh/h	0	5122		0	5069		2279	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	11.1	0.0	0.0	11.1	0.0	13.6	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.3	0.0	1.8	0.0	0.0			
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	0.0	2.2	0.0	0.0	2.1	0.0	5.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.3	0.0	0.0	11.3	0.0	15.4	0.0	0.0			
LnGrp LOS	A	B		A	B		B	A				
Approach Vol, veh/h		1230	A		1210	A		650	A			
Approach Delay, s/veh		11.3			11.3			15.4				
Approach LOS		B			B			B				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.6				25.6		23.3				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		48.5				* 49		62.5				
Max Q Clear Time (g_c+I1), s		10.9				11.1		18.7				
Green Ext Time (p_c), s		9.2				7.4		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + MPU Conditions
PM Peak Hour

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰		↰		↱	↱		↱↱	↰
Traffic Vol, veh/h	0	0	0	50	0	2130	0	790	100	0	2980	780
Future Vol, veh/h	0	0	0	50	0	2130	0	790	100	0	2980	780
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	-	-	Free	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	50	0	2130	0	790	100	0	2980	780

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2280	-	-
Stage 1	790	-	-
Stage 2	1490	-	-
Critical Hdwy	6.63	-	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	-	-
Pot Cap-1 Maneuver	~ 38	0	0
Stage 1	446	0	0
Stage 2	174	0	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	~ 38	0	-
Mov Cap-2 Maneuver	~ 38	0	-
Stage 1	446	0	-
Stage 2	174	0	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 418.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 38	-
HCM Lane V/C Ratio	- 1.316	-
HCM Control Delay (s)	\$ 418.1	0
HCM Lane LOS	- F	A
HCM 95th %tile Q(veh)	- 5.1	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + MPU Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	149.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Vol, veh/h	680	690	10	240	510	2560
Future Vol, veh/h	680	690	10	240	510	2560
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	680	690	10	240	510	2560
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	650	510	510	0	-	0
Stage 1	510	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 418	~ 562	1053	-	-	0
Stage 1	~ 602	-	-	-	-	0
Stage 2	873	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	~ 413	~ 562	1053	-	-	-
Mov Cap-2 Maneuver	~ 413	-	-	-	-	-
Stage 1	~ 595	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	232.6	0.3		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	
Capacity (veh/h)	1053	-	413	562	-	
HCM Lane V/C Ratio	0.009	-	1.646	1.228	-	
HCM Control Delay (s)	8.5	0\$	325.4	141.2	-	
HCM Lane LOS	A	A	F	F	-	
HCM 95th %tile Q(veh)	0	-	39.8	26	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Cumulative + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	10	10	10	10	30
Future Vol, veh/h	30	10	10	10	10	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	10	10	10	10	30
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	65	15	0	0	20	0
Stage 1	15	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	941	1065	-	-	1596	-
Stage 1	1008	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	935	1065	-	-	1596	-
Mov Cap-2 Maneuver	935	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.9	0		1.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 964		1596	-	
HCM Lane V/C Ratio	-	- 0.041		0.006	-	
HCM Control Delay (s)	-	- 8.9		7.3	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.1		0	-	

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	20	20	400	30	20	210
v/c Ratio	0.05	0.06	0.15	0.02	0.05	0.09
Control Delay	17.6	9.8	10.7	3.8	17.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	9.8	10.7	3.8	17.6	1.4
Queue Length 50th (ft)	2	0	0	0	2	0
Queue Length 95th (ft)	23	15	144	18	23	15
Internal Link Dist (ft)	4683			3724	1647	
Turn Bay Length (ft)		175	300			175
Base Capacity (vph)	1511	1269	2600	1723	1358	2313
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	0.01	0.02	0.15	0.02	0.01	0.09
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Cumulative + Cargo Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↖↗	↑	↖	↖↗
Traffic Volume (veh/h)	20	20	400	30	20	210
Future Volume (veh/h)	20	20	400	30	20	210
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	20	400	30	20	210
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	97	81	735	865	228	950
Arrive On Green	0.05	0.05	0.21	0.46	0.13	0.13
Sat Flow, veh/h	1870	1570	3456	1870	1781	2790
Grp Volume(v), veh/h	20	20	400	30	20	210
Grp Sat Flow(s),veh/h/ln	1870	1570	1728	1870	1781	1395
Q Serve(g_s), s	0.3	0.3	2.9	0.2	0.3	1.5
Cycle Q Clear(g_c), s	0.3	0.3	2.9	0.2	0.3	1.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	97	81	735	865	228	950
V/C Ratio(X)	0.21	0.25	0.54	0.03	0.09	0.22
Avail Cap(c_a), veh/h	2024	1699	2050	3503	1697	3251
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	12.6	12.7	9.7	4.1	10.7	6.5
Incr Delay (d2), s/veh	1.0	1.6	0.6	0.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.5	0.0	0.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.7	14.2	10.4	4.1	10.9	6.7
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	40			430	230	
Approach Delay, s/veh	14.0			9.9	7.0	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.4	7.3			18.8	9.1
Change Period (Y+Rc), s	5.5	5.9			5.9	5.5
Max Green Setting (Gmax), s	16.5	30.1			52.1	26.5
Max Q Clear Time (g_c+I1), s	4.9	2.3			2.2	3.5
Green Ext Time (p_c), s	1.1	0.1			0.1	0.8
Intersection Summary						
HCM 6th Ctrl Delay			9.2			
HCM 6th LOS			A			
Notes						
User approved pedestrian interval to be less than phase max green.						

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + Cargo Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	70	100	230	270	10	30	10	30	10	10	10
v/c Ratio	0.07	0.13	0.17	0.46	0.18	0.01	0.11	0.03	0.06	0.07	0.03	0.02
Control Delay	29.0	18.0	0.6	23.9	8.7	0.0	24.8	17.9	0.3	29.0	19.5	0.1
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	29.0	18.0	0.6	23.9	8.7	0.0	24.8	17.9	0.3	29.0	19.5	0.1
Queue Length 50th (ft)	1	9	0	23	0	0	4	1	0	1	1	0
Queue Length 95th (ft)	21	62	0	#259	174	0	41	15	0	21	16	0
Internal Link Dist (ft)	3724			3503			1141			1439		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	153	1069	987	505	1525	1295	330	1347	1182	153	1233	1102
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.07	0.10	0.46	0.18	0.01	0.09	0.01	0.03	0.07	0.01	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	70	100	230	270	10	30	10	30	10	10	10
Future Volume (veh/h)	10	70	100	230	270	10	30	10	30	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	70	100	230	270	10	30	10	30	10	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	255	215	298	554	468	38	124	104	14	98	82
Arrive On Green	0.01	0.14	0.14	0.17	0.30	0.30	0.02	0.07	0.07	0.01	0.05	0.05
Sat Flow, veh/h	1781	1870	1573	1781	1870	1580	1781	1870	1566	1781	1870	1566
Grp Volume(v), veh/h	10	70	100	230	270	10	30	10	30	10	10	10
Grp Sat Flow(s),veh/h/ln	1781	1870	1573	1781	1870	1580	1781	1870	1566	1781	1870	1566
Q Serve(g_s), s	0.2	1.2	2.1	4.5	4.4	0.2	0.6	0.2	0.7	0.2	0.2	0.2
Cycle Q Clear(g_c), s	0.2	1.2	2.1	4.5	4.4	0.2	0.6	0.2	0.7	0.2	0.2	0.2
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	14	255	215	298	554	468	38	124	104	14	98	82
V/C Ratio(X)	0.71	0.27	0.47	0.77	0.49	0.02	0.78	0.08	0.29	0.71	0.10	0.12
Avail Cap(c_a), veh/h	170	1179	991	559	1587	1340	364	1485	1243	170	1281	1072
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	18.1	14.2	14.6	14.6	10.6	9.1	17.8	16.1	16.3	18.1	16.5	16.6
Incr Delay (d2), s/veh	48.8	0.6	1.6	4.2	0.7	0.0	28.2	0.3	1.5	48.8	0.4	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	0.3	0.4	0.6	1.5	1.1	0.0	0.5	0.1	0.2	0.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.0	14.8	16.2	18.8	11.3	9.2	46.1	16.3	17.8	67.0	17.0	17.2
LnGrp LOS	E	B	B	B	B	A	D	B	B	E	B	B
Approach Vol, veh/h		180			510			70			30	
Approach Delay, s/veh		18.4			14.6			29.7			33.7	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	8.3	11.6	10.9	6.3	7.8	5.8	16.7				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.5	29.1	11.5	23.1	7.5	25.1	3.5	31.1				
Max Q Clear Time (g_c+I1), s	2.2	2.7	6.5	4.1	2.6	2.2	2.2	6.4				
Green Ext Time (p_c), s	0.0	0.1	0.3	0.5	0.0	0.0	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			17.6									
HCM 6th LOS			B									

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative + Cargo Conditions
AM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	130	10	1090	580	10	180
v/c Ratio	0.37	0.03	0.77	0.24	0.04	0.36
Control Delay	31.9	16.9	23.3	4.5	33.4	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	16.9	23.3	4.5	33.4	8.1
Queue Length 50th (ft)	41	0	157	28	3	0
Queue Length 95th (ft)	149	15	485	108	22	33
Internal Link Dist (ft)	3503			1595	3285	
Turn Bay Length (ft)		150	375			
Base Capacity (vph)	926	780	2842	3323	812	1343
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	0.14	0.01	0.38	0.17	0.01	0.13
Intersection Summary						

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative + Cargo Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘↙	↑↑	↙	↗↗
Traffic Volume (veh/h)	130	10	1090	580	10	180
Future Volume (veh/h)	130	10	1090	580	10	180
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	10	1090	580	10	180
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	237	199	1415	2317	191	300
Arrive On Green	0.13	0.13	0.41	0.65	0.11	0.11
Sat Flow, veh/h	1870	1573	3456	3647	1781	2790
Grp Volume(v), veh/h	130	10	1090	580	10	180
Grp Sat Flow(s),veh/h/ln	1870	1573	1728	1777	1781	1395
Q Serve(g_s), s	3.1	0.3	12.9	3.2	0.2	2.9
Cycle Q Clear(g_c), s	3.1	0.3	12.9	3.2	0.2	2.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	237	199	1415	2317	191	300
V/C Ratio(X)	0.55	0.05	0.77	0.25	0.05	0.60
Avail Cap(c_a), veh/h	1223	1028	3900	6747	1075	1683
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	19.4	18.2	12.1	3.4	19.0	20.2
Incr Delay (d2), s/veh	2.0	0.1	0.9	0.1	0.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.1	3.2	0.2	0.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.4	18.3	13.0	3.5	19.1	22.1
LnGrp LOS	C	B	B	A	B	C
Approach Vol, veh/h	140			1670	190	
Approach Delay, s/veh	21.2			9.7	22.0	
Approach LOS	C			A	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.6	24.9	11.9		36.8
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		28.6	53.5	31.0		90.0
Max Q Clear Time (g_c+I1), s		4.9	14.9	5.1		5.2
Green Ext Time (p_c), s		0.6	4.5	0.6		3.7
Intersection Summary						
HCM 6th Ctrl Delay			11.7			
HCM 6th LOS			B			

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	320	50	120	1590	20	30
v/c Ratio	0.17	0.06	0.85	0.58	0.07	0.11
Control Delay	9.1	3.8	79.6	7.8	24.2	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	3.8	79.6	7.8	24.2	11.0
Queue Length 50th (ft)	27	0	36	123	5	0
Queue Length 95th (ft)	84	18	#242	473	29	22
Internal Link Dist (ft)	1595			3525	10448	
Turn Bay Length (ft)		150	180			175
Base Capacity (vph)	3470	1512	142	3534	1110	979
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	0.09	0.03	0.85	0.45	0.02	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
5: Lone Tree Rd & Elverta Rd

Cumulative + Cargo Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗
Traffic Volume (veh/h)	320	50	120	1590	20	30
Future Volume (veh/h)	320	50	120	1590	20	30
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	320	50	120	1590	20	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1714	763	153	2482	56	50
Arrive On Green	0.48	0.48	0.09	0.70	0.03	0.03
Sat Flow, veh/h	3647	1582	1781	3647	1781	1585
Grp Volume(v), veh/h	320	50	120	1590	20	30
Grp Sat Flow(s),veh/h/ln	1777	1582	1781	1777	1781	1585
Q Serve(g_s), s	2.2	0.7	2.8	10.3	0.5	0.8
Cycle Q Clear(g_c), s	2.2	0.7	2.8	10.3	0.5	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1714	763	153	2482	56	50
V/C Ratio(X)	0.19	0.07	0.79	0.64	0.36	0.60
Avail Cap(c_a), veh/h	8176	3639	173	8984	1346	1198
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	6.2	5.8	18.9	3.5	20.0	20.2
Incr Delay (d2), s/veh	0.1	0.0	18.9	0.3	3.8	11.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	1.7	0.1	0.2	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.3	5.9	37.8	3.8	23.8	31.2
LnGrp LOS	A	A	D	A	C	C
Approach Vol, veh/h	370			1710	50	
Approach Delay, s/veh	6.2			6.1	28.2	
Approach LOS	A			A	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		6.8	9.1	26.3		35.4
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		31.9	4.1	97.1		106.7
Max Q Clear Time (g_c+I1), s		2.8	4.8	4.2		12.3
Green Ext Time (p_c), s		0.1	0.0	2.0		17.2
Intersection Summary						
HCM 6th Ctrl Delay			6.7			
HCM 6th LOS			A			

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative + Cargo Conditions
AM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	240	80	560	300	80	700
v/c Ratio	0.21	0.05	0.52	0.19	0.16	0.66
Control Delay	10.6	0.1	12.8	0.3	8.0	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	0.1	12.8	0.3	8.0	5.6
Queue Length 50th (ft)	7	0	21	0	7	0
Queue Length 95th (ft)	67	0	152	0	29	47
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3509	1550	3505	1550	1734	2593
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	0.07	0.05	0.16	0.19	0.05	0.27
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘		↗↗
Traffic Volume (vph)	0	240	80	0	560	300	0	0	0	80	0	700
Future Volume (vph)	0	240	80	0	560	300	0	0	0	80	0	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0		6.8	4.0				4.4		4.4
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	240	80	0	560	300	0	0	0	80	0	700
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	587
Lane Group Flow (vph)	0	240	80	0	560	300	0	0	0	80	0	113
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free			Free						
Actuated Green, G (s)		10.1	32.9		9.7	32.9				12.0		5.3
Effective Green, g (s)		10.1	32.9		9.7	32.9				12.0		5.3
Actuated g/C Ratio		0.31	1.00		0.29	1.00				0.36		0.16
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1086	1550		1043	1550				645		448
v/s Ratio Prot		0.07			c0.16					0.05		0.04
v/s Ratio Perm			0.05			c0.19						
v/c Ratio		0.22	0.05		0.54	0.19				0.12		0.25
Uniform Delay, d1		8.5	0.0		9.7	0.0				7.0		12.1
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		0.0	0.1		0.3	0.3				0.0		0.1
Delay (s)		8.5	0.1		10.0	0.3				7.0		12.2
Level of Service		A	A		A	A				A		B
Approach Delay (s)		6.4			6.6			0.0			11.6	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			8.6		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			32.9		Sum of lost time (s)					15.6		
Intersection Capacity Utilization			49.3%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	140	90	550	210	224	226	120
v/c Ratio	0.13	0.06	0.56	0.36	0.56	0.57	0.09
Control Delay	16.4	0.1	19.9	5.7	26.0	26.0	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	0.1	19.9	5.7	26.0	26.0	1.8
Queue Length 50th (ft)	13	0	63	0	53	53	0
Queue Length 95th (ft)	51	0	184	50	185	186	10
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3382	1550	3375	1473	1253	1258	2635
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	0.04	0.06	0.16	0.14	0.18	0.18	0.05
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Cumulative + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (vph)	0	140	90	0	550	210	440	10	120	0	0	0
Future Volume (vph)	0	140	90	0	550	210	440	10	120	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		5.8	5.8	5.5	5.5	5.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3539	1550		3539	1546	1681	1689	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3539	1550		3539	1546	1681	1689	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	140	90	0	550	210	440	10	120	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	151	0	0	62	0	0	0
Lane Group Flow (vph)	0	140	90	0	550	59	224	226	58	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		14.6	48.7		13.7	13.7	11.6	11.6	23.7			
Effective Green, g (s)		14.6	48.7		13.7	13.7	11.6	11.6	23.7			
Actuated g/C Ratio		0.30	1.00		0.28	0.28	0.24	0.24	0.49			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		1060	1550		995	434	400	402	1356			
v/s Ratio Prot		0.04			c0.16		0.13	c0.13	0.02			
v/s Ratio Perm			c0.06			0.04						
v/c Ratio		0.13	0.06		0.55	0.14	0.56	0.56	0.04			
Uniform Delay, d1		12.4	0.0		14.9	13.1	16.3	16.3	6.6			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.0	0.1		0.4	0.1	1.1	1.1	0.0			
Delay (s)		12.5	0.1		15.3	13.1	17.4	17.4	6.6			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		7.6			14.7			15.1			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.8									
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			48.7									
Intersection Capacity Utilization			37.1%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + Cargo Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	140	320	115	385	1150	280	10	1030	150	60	760	190
v/c Ratio	0.41	0.24	0.22	0.71	0.70	0.46	0.09	0.68	0.26	0.23	0.39	0.27
Control Delay	52.1	30.1	2.7	53.4	33.7	15.9	60.2	35.3	5.7	53.8	24.1	4.7
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	52.1	30.1	2.7	53.4	33.7	15.9	60.2	35.3	5.7	53.8	24.1	4.7
Queue Length 50th (ft)	46	60	0	129	244	60	3	223	0	20	125	0
Queue Length 95th (ft)	93	98	17	#276	363	161	14	323	44	48	212	50
Internal Link Dist (ft)	1627			1756			1585			1050		
Turn Bay Length (ft)	450		450	400		400	400		400	400		400
Base Capacity (vph)	629	2372	812	540	2250	778	108	2303	792	341	2649	904
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.13	0.14	0.71	0.51	0.36	0.09	0.45	0.19	0.18	0.29	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	320	115	385	1150	280	10	1030	150	60	760	190
Future Volume (veh/h)	140	320	115	385	1150	280	10	1030	150	60	760	190
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	320	115	385	1150	280	10	1030	150	60	760	190
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	1316	407	477	1693	524	26	1531	474	108	1653	512
Arrive On Green	0.06	0.26	0.26	0.14	0.33	0.33	0.01	0.30	0.30	0.03	0.32	0.32
Sat Flow, veh/h	3456	5106	1581	3456	5106	1582	3456	5106	1582	3456	5106	1582
Grp Volume(v), veh/h	140	320	115	385	1150	280	10	1030	150	60	760	190
Grp Sat Flow(s),veh/h/ln	1728	1702	1581	1728	1702	1582	1728	1702	1582	1728	1702	1582
Q Serve(g_s), s	3.3	4.1	4.9	9.0	16.2	12.0	0.2	14.8	6.1	1.4	9.9	7.7
Cycle Q Clear(g_c), s	3.3	4.1	4.9	9.0	16.2	12.0	0.2	14.8	6.1	1.4	9.9	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	222	1316	407	477	1693	524	26	1531	474	108	1653	512
V/C Ratio(X)	0.63	0.24	0.28	0.81	0.68	0.53	0.39	0.67	0.32	0.55	0.46	0.37
Avail Cap(c_a), veh/h	724	2721	843	621	2568	796	124	2641	818	393	3039	941
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	38.1	24.6	24.8	34.9	24.1	22.7	41.3	25.6	22.6	39.9	22.4	21.7
Incr Delay (d2), s/veh	2.9	0.1	0.4	6.0	0.5	0.8	9.3	0.5	0.4	4.4	0.2	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	1.4	1.5	1.7	3.9	5.8	4.0	0.1	5.3	2.1	0.6	3.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	24.6	25.2	40.9	24.6	23.5	50.6	26.2	23.0	44.3	22.6	22.1
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		575			1815			1190			1010	
Approach Delay, s/veh		28.7			27.9			26.0			23.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	30.9	17.0	27.4	6.1	32.9	10.9	33.6				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	9.5	43.2	15.0	44.5	3.0	49.7	17.5	42.0				
Max Q Clear Time (g_c+I1), s	3.4	16.8	11.0	6.9	2.2	11.9	5.3	18.2				
Green Ext Time (p_c), s	0.0	7.5	0.5	2.3	0.0	5.8	0.3	8.8				
Intersection Summary												
HCM 6th Ctrl Delay			26.6									
HCM 6th LOS			C									

SMF Master Plan Update
15: Power Line Rd & Road A

Cumulative + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	40	50	20	100	110
Future Vol, veh/h	20	40	50	20	100	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	40	50	20	100	110
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	370	60	0	0	70	0
Stage 1	60	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	630	1005	-	-	1531	-
Stage 1	963	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	586	1005	-	-	1531	-
Mov Cap-2 Maneuver	586	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.8	0		3.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	812	1531	-	
HCM Lane V/C Ratio	-	-	0.074	0.065	-	
HCM Control Delay (s)	-	-	9.8	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	10	60	40	0	120
Future Vol, veh/h	80	10	60	40	0	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	10	60	40	0	120
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	200	80	0	0	100	0
Stage 1	80	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	789	980	-	-	1493	-
Stage 1	943	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	789	980	-	-	1493	-
Mov Cap-2 Maneuver	789	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	806		1493	-	
HCM Lane V/C Ratio	-	0.112		-	-	
HCM Control Delay (s)	-	10		0	-	
HCM Lane LOS	-	B		A	-	
HCM 95th %tile Q(veh)	-	0.4		0	-	

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	290	140	30	170	180
Future Vol, veh/h	40	290	140	30	170	180
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	290	140	30	170	180
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	11.6	10	15.2
HCM LOS	B	A	C

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	49%
Vol Thru, %	100%	0%	0%	0%	51%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	30	40	290	350
LT Vol	0	0	40	0	170
Through Vol	140	0	0	0	180
RT Vol	0	30	0	290	0
Lane Flow Rate	140	30	40	290	350
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.23	0.043	0.072	0.427	0.545
Departure Headway (Hd)	5.921	5.212	6.517	5.305	5.604
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	608	687	553	684	644
Service Time	3.652	2.942	4.217	3.005	3.628
HCM Lane V/C Ratio	0.23	0.044	0.072	0.424	0.543
HCM Control Delay	10.4	8.2	9.7	11.9	15.2
HCM Lane LOS	B	A	A	B	C
HCM 95th-tile Q	0.9	0.1	0.2	2.1	3.3

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative + Cargo Conditions
AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	30	180	20	150	50	190	270	90	890
v/c Ratio	0.19	0.07	0.35	0.18	0.39	0.11	0.59	0.14	0.37	0.64
Control Delay	36.6	18.2	5.4	39.5	25.2	0.5	38.4	17.5	33.9	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	18.2	5.4	39.5	25.2	0.5	38.4	17.5	33.9	23.1
Queue Length 50th (ft)	9	8	0	6	44	0	58	20	27	84
Queue Length 95th (ft)	45	29	41	35	106	0	#233	65	96	214
Internal Link Dist (ft)	3313			367			2142			3285
Turn Bay Length (ft)	175		175	175		175	400		400	
Base Capacity (vph)	161	1045	955	112	994	911	326	2013	310	1840
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.03	0.19	0.18	0.15	0.05	0.58	0.13	0.29	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	30	180	20	150	50	190	250	20	90	780	110
Future Volume (veh/h)	30	30	180	20	150	50	190	250	20	90	780	110
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	30	180	20	150	50	190	250	20	90	780	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	341	288	26	266	225	240	1616	127	116	1201	168
Arrive On Green	0.05	0.18	0.18	0.01	0.14	0.14	0.13	0.33	0.33	0.07	0.27	0.27
Sat Flow, veh/h	1781	1870	1580	1781	1870	1578	1781	4825	379	1781	4524	633
Grp Volume(v), veh/h	30	30	180	20	150	50	190	175	95	90	585	305
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1578	1781	1702	1801	1781	1702	1754
Q Serve(g_s), s	0.9	0.7	5.7	0.6	4.0	1.5	5.6	1.9	2.0	2.7	8.2	8.3
Cycle Q Clear(g_c), s	0.9	0.7	5.7	0.6	4.0	1.5	5.6	1.9	2.0	2.7	8.2	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		0.36
Lane Grp Cap(c), veh/h	97	341	288	26	266	225	240	1140	603	116	904	466
V/C Ratio(X)	0.31	0.09	0.62	0.78	0.56	0.22	0.79	0.15	0.16	0.77	0.65	0.65
Avail Cap(c_a), veh/h	175	1132	956	122	1077	909	354	1378	729	337	1346	694
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	24.5	18.3	20.3	26.5	21.5	20.5	22.6	12.6	12.6	24.8	17.5	17.6
Incr Delay (d2), s/veh	1.8	0.1	2.2	38.6	1.9	0.5	7.3	0.1	0.1	10.4	0.8	1.6
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	0.4	0.3	2.0	0.5	1.7	0.5	2.4	0.6	0.6	1.3	2.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	18.4	22.5	65.0	23.4	21.0	29.8	12.6	12.7	35.2	18.3	19.1
LnGrp LOS	C	B	C	E	C	C	C	B	B	D	B	B
Approach Vol, veh/h		240			220			460			980	
Approach Delay, s/veh		22.5			26.6			19.7			20.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	23.9	6.3	14.6	12.8	20.2	8.4	12.5				
Change Period (Y+Rc), s	5.5	5.9	5.5	4.8	5.5	5.9	5.5	4.8				
Max Green Setting (Gmax), s	10.2	21.8	3.7	32.6	10.7	21.3	5.3	31.0				
Max Q Clear Time (g_c+I1), s	4.7	4.0	2.6	7.7	7.6	10.3	2.9	6.0				
Green Ext Time (p_c), s	0.1	1.2	0.0	0.7	0.1	3.8	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			21.1									
HCM 6th LOS			C									

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	30	10	10	580	1060
v/c Ratio	0.08	0.03	0.04	0.14	0.26
Control Delay	17.0	10.3	27.4	4.5	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	10.3	27.4	4.5	7.2
Queue Length 50th (ft)	4	0	1	0	0
Queue Length 95th (ft)	28	10	21	82	206
Internal Link Dist (ft)	2842			686	2142
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	1454	1285	300	4492	4055
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.03	0.13	0.26
Intersection Summary					

SMF Master Plan Update
19: Metro Air Parkway & Road D

Cumulative + Cargo Conditions
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	10	10	580	990	70
Future Volume (veh/h)	30	10	10	580	990	70
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	10	10	580	990	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	50	45	14	3097	2056	145
Arrive On Green	0.03	0.03	0.01	0.61	0.42	0.42
Sat Flow, veh/h	1781	1585	1781	5274	5036	344
Grp Volume(v), veh/h	30	10	10	580	692	368
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1808
Q Serve(g_s), s	0.5	0.2	0.2	1.6	4.6	4.6
Cycle Q Clear(g_c), s	0.5	0.2	0.2	1.6	4.6	4.6
Prop In Lane	1.00	1.00	1.00			0.19
Lane Grp Cap(c), veh/h	50	45	14	3097	1437	763
V/C Ratio(X)	0.60	0.22	0.70	0.19	0.48	0.48
Avail Cap(c_a), veh/h	1969	1752	371	7216	3502	1859
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	15.0	14.8	15.4	2.7	6.5	6.5
Incr Delay (d2), s/veh	10.9	2.5	47.8	0.0	0.3	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	0.3	0.0	0.2	0.0	0.5	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.9	17.3	63.2	2.8	6.8	7.0
LnGrp LOS	C	B	E	A	A	A
Approach Vol, veh/h	40			590	1060	
Approach Delay, s/veh	23.7			3.8	6.9	
Approach LOS	C			A	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	24.8			6.4	5.7	19.1
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	44.1			34.5	6.5	32.1
Max Q Clear Time (g_c+I1), s	3.6			2.5	2.2	6.6
Green Ext Time (p_c), s	3.7			0.1	0.0	6.5
Intersection Summary						
HCM 6th Ctrl Delay			6.2			
HCM 6th LOS			A			

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	70	250	600	840	960
v/c Ratio	0.22	0.52	1.24	0.26	0.69
Control Delay	23.2	7.2	149.4	6.8	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	7.2	149.4	6.8	23.2
Queue Length 50th (ft)	23	0	~265	33	98
Queue Length 95th (ft)	52	45	#720	132	225
Internal Link Dist (ft)	1671			1050	4086
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	999	991	485	3578	1713
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.25	1.24	0.23	0.56
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.					

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Cumulative + Cargo Conditions
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	250	600	840	750	210
Future Volume (veh/h)	70	250	600	840	750	210
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	250	600	840	750	210
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	352	313	483	3170	1041	288
Arrive On Green	0.20	0.20	0.27	0.62	0.26	0.26
Sat Flow, veh/h	1781	1585	1781	5274	4140	1100
Grp Volume(v), veh/h	70	250	600	840	642	318
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1667
Q Serve(g_s), s	2.1	9.4	17.0	4.7	10.8	10.9
Cycle Q Clear(g_c), s	2.1	9.4	17.0	4.7	10.8	10.9
Prop In Lane	1.00	1.00	1.00			0.66
Lane Grp Cap(c), veh/h	352	313	483	3170	892	437
V/C Ratio(X)	0.20	0.80	1.24	0.26	0.72	0.73
Avail Cap(c_a), veh/h	994	884	483	3549	1145	561
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	21.0	24.0	22.9	5.4	21.0	21.1
Incr Delay (d2), s/veh	0.3	4.7	125.9	0.0	1.6	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	22.6	0.9	3.7	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.3	28.7	148.8	5.4	22.6	24.6
LnGrp LOS	C	C	F	A	C	C
Approach Vol, veh/h	320			1440	960	
Approach Delay, s/veh	27.1			65.2	23.3	
Approach LOS	C			E	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		44.8		17.9	22.5	22.3
Change Period (Y+Rc), s		5.9		5.5	5.5	5.9
Max Green Setting (Gmax), s		43.6		35.0	17.0	21.1
Max Q Clear Time (g_c+I1), s		6.7		11.4	19.0	12.9
Green Ext Time (p_c), s		5.7		1.0	0.0	3.4
Intersection Summary						
HCM 6th Ctrl Delay			45.9			
HCM 6th LOS			D			

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative + Cargo Conditions
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	100	460	450	290	370	60	1150	90	90	1150
v/c Ratio	0.12	0.13	0.92	0.91	0.41	0.47	0.54	0.90	0.17	0.76	0.84
Control Delay	61.6	35.3	47.2	74.5	26.6	6.2	78.3	53.4	0.7	95.6	47.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	35.3	47.2	74.5	26.6	6.2	78.3	53.4	0.7	95.6	47.5
Queue Length 50th (ft)	8	32	202	187	150	19	24	326	0	37	325
Queue Length 95th (ft)	27	55	#385	#310	264	101	#56	#443	0	#90	#440
Internal Link Dist (ft)		450			475			2094			1585
Turn Bay Length (ft)	375		375	425		425	400		400	400	
Base Capacity (vph)	93	1015	595	494	754	812	111	1328	554	119	1373
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.10	0.77	0.91	0.38	0.46	0.54	0.87	0.16	0.76	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 			 	  		 	  	
Traffic Volume (vph)	10	100	460	450	290	370	60	1150	90	90	1140	10
Future Volume (vph)	10	100	460	450	290	370	60	1150	90	90	1140	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9	
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1593	3185	1405	3090	1676	1405	3090	4577	1404	3090	4570	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1593	3185	1405	3090	1676	1405	3090	4577	1404	3090	4570	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	100	460	450	290	370	60	1150	90	90	1140	10
RTOR Reduction (vph)	0	0	159	0	0	194	0	0	65	0	1	0
Lane Group Flow (vph)	10	100	301	450	290	176	60	1150	25	90	1149	0
Confl. Peds. (#/hr)			2			2			2			2
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	1.3	33.4	33.4	19.3	51.4	51.4	3.3	34.8	34.8	4.6	36.1	
Effective Green, g (s)	1.3	33.4	33.4	19.3	51.4	51.4	3.3	34.8	34.8	4.6	36.1	
Actuated g/C Ratio	0.01	0.27	0.27	0.15	0.41	0.41	0.03	0.28	0.28	0.04	0.29	
Clearance Time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	16	845	373	474	684	574	81	1266	388	112	1311	
v/s Ratio Prot	0.01	0.03		c0.15	0.17		0.02	0.25		c0.03	c0.25	
v/s Ratio Perm			c0.21			0.13			0.02			
v/c Ratio	0.62	0.12	0.81	0.95	0.42	0.31	0.74	0.91	0.06	0.80	0.88	
Uniform Delay, d1	62.0	35.0	43.2	52.8	26.6	25.2	60.8	44.0	33.5	60.2	42.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	57.6	0.1	12.0	28.6	0.4	0.3	30.1	9.6	0.1	32.6	6.9	
Delay (s)	119.6	35.1	55.2	81.3	27.0	25.5	90.9	53.6	33.6	92.8	49.6	
Level of Service	F	D	E	F	C	C	F	D	C	F	D	
Approach Delay (s)		52.8			48.5			53.9			52.7	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			52.0		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			125.8		Sum of lost time (s)					28.1		
Intersection Capacity Utilization			84.4%		ICU Level of Service					E		
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative + Cargo Conditions
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	10	1310	780	240	1350	770
v/c Ratio	0.01	0.96	0.55	0.15	0.66	0.71
Control Delay	13.8	37.9	21.3	0.2	22.7	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	37.9	21.3	0.2	22.7	5.6
Queue Length 50th (ft)	3	368	167	0	214	0
Queue Length 95th (ft)	12	#550	222	0	262	69
Internal Link Dist (ft)			551		2094	
Turn Bay Length (ft)						400
Base Capacity (vph)	829	1377	1561	1583	2242	1112
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	0.01	0.95	0.50	0.15	0.60	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	1310	0	780	240	0	1350	770
Future Volume (veh/h)	0	0	0	10	0	1310	0	780	240	0	1350	770
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			No	
Adj Sat Flow, veh/h/ln				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				10	0	1310	0	780	0	0	1350	770
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				802	0	1255	0	1504		0	2162	669
Arrive On Green				0.45	0.00	0.45	0.00	0.42	0.00	0.00	0.42	0.42
Sat Flow, veh/h				1781	0	2790	0	3647	1585	0	5274	1581
Grp Volume(v), veh/h				10	0	1310	0	780	0	0	1350	770
Grp Sat Flow(s),veh/h/ln				1781	0	1395	0	1777	1585	0	1702	1581
Q Serve(g_s), s				0.3	0.0	40.5	0.0	14.6	0.0	0.0	18.7	38.1
Cycle Q Clear(g_c), s				0.3	0.0	40.5	0.0	14.6	0.0	0.0	18.7	38.1
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				802	0	1255	0	1504		0	2162	669
V/C Ratio(X)				0.01	0.00	1.04	0.00	0.52		0.00	0.62	1.15
Avail Cap(c_a), veh/h				802	0	1255	0	1504		0	2162	669
HCM Platoon Ratio				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	1.00	0.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.7	0.0	24.8	0.0	19.2	0.0	0.0	20.3	26.0
Incr Delay (d2), s/veh				0.0	0.0	37.5	0.0	0.3	0.0	0.0	0.6	84.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.1	0.0	18.7	0.0	5.3	0.0	0.0	6.5	27.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.7	0.0	62.3	0.0	19.5	0.0	0.0	20.9	110.1
LnGrp LOS				B	A	F	A	B		A	C	F
Approach Vol, veh/h					1320			780	A		2120	
Approach Delay, s/veh					61.9			19.5			53.3	
Approach LOS					E			B			D	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	44.0			44.0			46.0					
Change Period (Y+Rc), s	5.9			5.9			5.5					
Max Green Setting (Gmax), s	38.1			38.1			40.5					
Max Q Clear Time (g_c+I1), s	16.6			40.1			42.5					
Green Ext Time (p_c), s	4.6			0.0			0.0					
Intersection Summary												
HCM 6th Ctrl Delay	49.7											
HCM 6th LOS	D											

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative + Cargo Conditions
AM Peak Hour



Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	490	70	540	90	60	1300
v/c Ratio	0.66	0.10	0.50	0.17	0.06	0.84
Control Delay	15.3	3.1	15.0	4.8	12.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	3.1	15.0	4.8	12.3	6.6
Queue Length 50th (ft)	87	0	53	0	5	0
Queue Length 95th (ft)	200	16	120	26	18	#25
Internal Link Dist (ft)			529		551	
Turn Bay Length (ft)						
Base Capacity (vph)	1695	1498	2672	1217	2672	1550
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	0.29	0.05	0.20	0.07	0.02	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	490	0	70	0	0	0	0	540	90	0	60	1300
Future Volume (veh/h)	490	0	70	0	0	0	0	540	90	0	60	1300
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	1870	0	1870				0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	490	0	70				0	540	90	0	60	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	639	0	569				0	1039	463	0	1039	
Arrive On Green	0.36	0.00	0.36				0.00	0.29	0.29	0.00	0.29	0.00
Sat Flow, veh/h	1781	0	1585				0	3647	1585	0	3647	1585
Grp Volume(v), veh/h	490	0	70				0	540	90	0	60	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1585	0	1777	1585
Q Serve(g_s), s	8.0	0.0	1.0				0.0	4.1	1.4	0.0	0.4	0.0
Cycle Q Clear(g_c), s	8.0	0.0	1.0				0.0	4.1	1.4	0.0	0.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	639	0	569				0	1039	463	0	1039	
V/C Ratio(X)	0.77	0.00	0.12				0.00	0.52	0.19	0.00	0.06	
Avail Cap(c_a), veh/h	2588	0	2302				0	3380	1507	0	3380	
HCM Platoon Ratio	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	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	9.3	0.0	7.0				0.0	9.7	8.7	0.0	8.3	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.1				0.0	0.4	0.2	0.0	0.0	0.0
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	2.2	0.0	0.2				0.0	0.8	0.3	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	0.0	7.1				0.0	10.1	8.9	0.0	8.3	0.0
LnGrp LOS	B	A	A				A	B	A	A	A	
Approach Vol, veh/h	560						630			60		
Approach Delay, s/veh	10.7						9.9			8.3		
Approach LOS	B						A			A		
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	15.5			17.2			15.5					
Change Period (Y+Rc), s	5.9			5.5			5.9					
Max Green Setting (Gmax), s	31.1			47.5			31.1					
Max Q Clear Time (g_c+I1), s	6.1			10.0			2.4					
Green Ext Time (p_c), s	3.4			1.9			0.2					
Intersection Summary												
HCM 6th Ctrl Delay	10.2											
HCM 6th LOS	B											

Notes

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

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

Intersection

Int Delay, s/veh 3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	20	30	20	10	10
Future Vol, veh/h	20	20	30	20	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	20	30	20	10	10

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	70	40	0
Stage 1	40	-	-
Stage 2	30	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	934	1031	-
Stage 1	982	-	-
Stage 2	993	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	928	1031	-
Mov Cap-2 Maneuver	928	-	-
Stage 1	982	-	-
Stage 2	987	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	977	1557
HCM Lane V/C Ratio	-	-	0.041	0.006
HCM Control Delay (s)	-	-	8.8	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	30	20	140	40	20	290
v/c Ratio	0.07	0.05	0.06	0.02	0.05	0.13
Control Delay	15.2	8.6	12.7	4.0	15.3	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	8.6	12.7	4.0	15.3	1.4
Queue Length 50th (ft)	3	0	0	0	2	0
Queue Length 95th (ft)	28	14	57	22	21	18
Internal Link Dist (ft)	4683			3724	1647	
Turn Bay Length (ft)		175	300			175
Base Capacity (vph)	1554	1306	2572	1741	1423	2318
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	0.02	0.02	0.05	0.02	0.01	0.13
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↖↗	↑	↖	↖↗
Traffic Volume (veh/h)	30	20	140	40	20	290
Future Volume (veh/h)	30	20	140	40	20	290
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	20	140	40	20	290
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	115	97	428	734	317	842
Arrive On Green	0.06	0.06	0.12	0.39	0.18	0.18
Sat Flow, veh/h	1870	1571	3456	1870	1781	2790
Grp Volume(v), veh/h	30	20	140	40	20	290
Grp Sat Flow(s),veh/h/ln	1870	1571	1728	1870	1781	1395
Q Serve(g_s), s	0.4	0.3	1.0	0.4	0.2	2.1
Cycle Q Clear(g_c), s	0.4	0.3	1.0	0.4	0.2	2.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	115	97	428	734	317	842
V/C Ratio(X)	0.26	0.21	0.33	0.05	0.06	0.34
Avail Cap(c_a), veh/h	2121	1782	2149	3672	1779	3131
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	11.9	11.8	10.6	5.0	9.1	7.2
Incr Delay (d2), s/veh	1.2	1.0	0.4	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.2	0.0	0.1	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.1	12.9	11.1	5.0	9.2	7.5
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	50			180	310	
Approach Delay, s/veh	13.0			9.7	7.6	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.8	7.5			16.3	10.2
Change Period (Y+Rc), s	5.5	5.9			5.9	5.5
Max Green Setting (Gmax), s	16.5	30.1			52.1	26.5
Max Q Clear Time (g_c+I1), s	3.0	2.4			2.4	4.1
Green Ext Time (p_c), s	0.3	0.1			0.2	1.1
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			
Notes						
User approved pedestrian interval to be less than phase max green.						

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	190	40	80	100	10	30	20	230	10	10	10
v/c Ratio	0.07	0.32	0.06	0.26	0.12	0.01	0.12	0.05	0.43	0.07	0.03	0.02
Control Delay	32.5	20.5	0.2	26.0	12.0	0.0	28.3	17.8	5.9	32.5	22.6	0.1
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	32.5	20.5	0.2	26.0	12.0	0.0	28.3	17.8	5.9	32.5	22.6	0.1
Queue Length 50th (ft)	2	36	0	15	9	0	6	4	0	2	2	0
Queue Length 95th (ft)	21	144	0	80	70	0	41	23	48	21	16	0
Internal Link Dist (ft)	3724			3503			1141			1439		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	146	1016	949	480	1318	1142	313	1257	1119	146	1104	1011
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.19	0.04	0.17	0.08	0.01	0.10	0.02	0.21	0.07	0.01	0.01
Intersection Summary												

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	190	40	80	100	10	30	20	230	10	10	10
Future Volume (veh/h)	10	190	40	80	100	10	30	20	230	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	190	40	80	100	10	30	20	230	10	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	321	271	101	413	348	38	381	322	14	357	301
Arrive On Green	0.01	0.17	0.17	0.06	0.22	0.22	0.02	0.20	0.20	0.01	0.19	0.19
Sat Flow, veh/h	1781	1870	1576	1781	1870	1578	1781	1870	1577	1781	1870	1577
Grp Volume(v), veh/h	10	190	40	80	100	10	30	20	230	10	10	10
Grp Sat Flow(s),veh/h/ln	1781	1870	1576	1781	1870	1578	1781	1870	1577	1781	1870	1577
Q Serve(g_s), s	0.2	3.8	0.9	1.8	1.8	0.2	0.7	0.4	5.5	0.2	0.2	0.2
Cycle Q Clear(g_c), s	0.2	3.8	0.9	1.8	1.8	0.2	0.7	0.4	5.5	0.2	0.2	0.2
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	14	321	271	101	413	348	38	381	322	14	357	301
V/C Ratio(X)	0.71	0.59	0.15	0.79	0.24	0.03	0.79	0.05	0.71	0.71	0.03	0.03
Avail Cap(c_a), veh/h	153	1060	893	503	1427	1204	328	1336	1126	153	1152	971
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	20.2	15.6	14.3	19.0	13.1	12.5	19.9	13.1	15.1	20.2	13.4	13.4
Incr Delay (d2), s/veh	49.6	1.7	0.2	12.8	0.3	0.0	30.1	0.1	3.0	49.6	0.0	0.0
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	0.3	1.3	0.2	0.9	0.5	0.1	0.5	0.1	1.6	0.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.8	17.3	14.6	31.8	13.4	12.5	49.9	13.1	18.1	69.8	13.4	13.5
LnGrp LOS	E	B	B	C	B	B	D	B	B	E	B	B
Approach Vol, veh/h		240			190			280			30	
Approach Delay, s/veh		19.0			21.1			21.1			32.2	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	14.2	7.8	12.9	6.4	13.7	5.8	14.9				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.5	29.1	11.5	23.1	7.5	25.1	3.5	31.1				
Max Q Clear Time (g_c+I1), s	2.2	7.5	3.8	5.8	2.7	2.2	2.2	3.8				
Green Ext Time (p_c), s	0.0	0.8	0.1	0.9	0.0	0.0	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			20.9									
HCM 6th LOS			C									

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	500	10	280	240	10	930
v/c Ratio	0.78	0.02	0.54	0.12	0.03	0.81
Control Delay	29.6	10.1	33.3	7.2	20.3	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	10.1	33.3	7.2	20.3	13.0
Queue Length 50th (ft)	169	0	52	18	3	46
Queue Length 95th (ft)	351	11	#120	49	15	128
Internal Link Dist (ft)	3503			1595	3285	
Turn Bay Length (ft)		150	375			
Base Capacity (vph)	950	801	568	2652	926	1750
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	0.53	0.01	0.49	0.09	0.01	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘↗	↑↑	↘	↗↗
Traffic Volume (veh/h)	500	10	280	240	10	930
Future Volume (veh/h)	500	10	280	240	10	930
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	500	10	280	240	10	930
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	572	483	369	1719	656	1028
Arrive On Green	0.31	0.31	0.11	0.48	0.37	0.37
Sat Flow, veh/h	1870	1580	3456	3647	1781	2790
Grp Volume(v), veh/h	500	10	280	240	10	930
Grp Sat Flow(s),veh/h/ln	1870	1580	1728	1777	1781	1395
Q Serve(g_s), s	19.5	0.3	6.1	2.9	0.3	24.4
Cycle Q Clear(g_c), s	19.5	0.3	6.1	2.9	0.3	24.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	572	483	369	1719	656	1028
V/C Ratio(X)	0.87	0.02	0.76	0.14	0.02	0.90
Avail Cap(c_a), veh/h	754	637	452	2151	736	1153
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	25.4	18.7	33.5	11.0	15.5	23.1
Incr Delay (d2), s/veh	8.9	0.0	5.8	0.0	0.0	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.1	2.6	0.9	0.1	8.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.3	18.7	39.3	11.1	15.5	32.6
LnGrp LOS	C	B	D	B	B	C
Approach Vol, veh/h	510			520	940	
Approach Delay, s/veh	34.0			26.3	32.4	
Approach LOS	C			C	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		33.9	13.7	29.5		43.2
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		31.9	10.1	31.1		46.7
Max Q Clear Time (g_c+I1), s		26.4	8.1	21.5		4.9
Green Ext Time (p_c), s		2.1	0.2	1.9		1.4
Intersection Summary						
HCM 6th Ctrl Delay			31.2			
HCM 6th LOS			C			

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2225	10	30	575	10	90
v/c Ratio	0.85	0.01	0.48	0.20	0.06	0.45
Control Delay	16.7	5.3	87.3	3.6	51.3	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	5.3	87.3	3.6	51.3	32.7
Queue Length 50th (ft)	515	1	23	35	7	28
Queue Length 95th (ft)	#1265	9	#86	114	25	81
Internal Link Dist (ft)	1595			4369	10448	
Turn Bay Length (ft)		150	180			175
Base Capacity (vph)	2865	1248	63	3079	490	470
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	0.78	0.01	0.48	0.19	0.02	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
5: Lone Tree Rd & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	2225	10	30	575	10	90
Future Volume (veh/h)	2225	10	30	575	10	90
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2225	10	30	575	10	90
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2634	1173	37	2899	130	116
Arrive On Green	0.74	0.74	0.02	0.82	0.07	0.07
Sat Flow, veh/h	3647	1583	1781	3647	1781	1585
Grp Volume(v), veh/h	2225	10	30	575	10	90
Grp Sat Flow(s),veh/h/ln	1777	1583	1781	1777	1781	1585
Q Serve(g_s), s	44.5	0.2	1.7	3.7	0.5	5.7
Cycle Q Clear(g_c), s	44.5	0.2	1.7	3.7	0.5	5.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2634	1173	37	2899	130	116
V/C Ratio(X)	0.84	0.01	0.81	0.20	0.08	0.78
Avail Cap(c_a), veh/h	3360	1497	71	3693	553	492
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	9.2	3.5	50.1	2.1	44.3	46.8
Incr Delay (d2), s/veh	1.7	0.0	32.1	0.0	0.2	10.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	1.1	0.4	0.2	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.9	3.5	82.2	2.1	44.6	57.2
LnGrp LOS	B	A	F	A	D	E
Approach Vol, veh/h	2235			605	100	
Approach Delay, s/veh	10.9			6.1	56.0	
Approach LOS	B			A	E	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.0	7.6	82.0		89.7
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		31.9	4.1	97.1		106.7
Max Q Clear Time (g_c+I1), s		7.7	3.7	46.5		5.7
Green Ext Time (p_c), s		0.3	0.0	29.6		3.6
Intersection Summary						
HCM 6th Ctrl Delay			11.4			
HCM 6th LOS			B			

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative + Cargo Conditions
PM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1110	300	170	80	80	200
v/c Ratio	0.72	0.19	0.11	0.05	0.19	0.34
Control Delay	13.2	0.3	8.5	0.1	12.9	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	0.3	8.5	0.1	12.9	6.8
Queue Length 50th (ft)	62	0	7	0	11	0
Queue Length 95th (ft)	311	0	45	0	48	33
Internal Link Dist (ft)	4369		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3394	1550	3390	1550	1680	2500
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	0.33	0.19	0.05	0.05	0.05	0.08
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘		↗↗
Traffic Volume (vph)	0	1110	300	0	170	80	0	0	0	80	0	200
Future Volume (vph)	0	1110	300	0	170	80	0	0	0	80	0	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0		6.8	4.0				4.4		4.4
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1110	300	0	170	80	0	0	0	80	0	200
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	171
Lane Group Flow (vph)	0	1110	300	0	170	80	0	0	0	80	0	29
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free			Free						
Actuated Green, G (s)		16.9	40.3		16.5	40.3				12.6		5.9
Effective Green, g (s)		16.9	40.3		16.5	40.3				12.6		5.9
Actuated g/C Ratio		0.42	1.00		0.41	1.00				0.31		0.15
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1484	1550		1448	1550				553		408
v/s Ratio Prot		c0.31			0.05					0.05		0.01
v/s Ratio Perm			c0.19			0.05						
v/c Ratio		0.75	0.19		0.12	0.05				0.14		0.07
Uniform Delay, d1		9.9	0.0		7.4	0.0				10.0		14.8
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		1.8	0.3		0.0	0.1				0.0		0.0
Delay (s)		11.7	0.3		7.4	0.1				10.0		14.9
Level of Service		B	A		A	A				B		B
Approach Delay (s)		9.3			5.0			0.0			13.5	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			9.4		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			40.3		Sum of lost time (s)					15.6		
Intersection Capacity Utilization			43.8%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	480	700	270	210	79	81	580
v/c Ratio	0.55	0.45	0.34	0.41	0.33	0.33	0.36
Control Delay	17.5	1.0	16.2	6.0	24.4	24.4	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	1.0	16.2	6.0	24.4	24.4	2.5
Queue Length 50th (ft)	45	0	24	0	15	15	7
Queue Length 95th (ft)	133	0	78	45	76	77	39
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3452	1550	3444	1499	1432	1444	2729
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	0.14	0.45	0.08	0.14	0.06	0.06	0.21
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Cumulative + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↗	↗↗			
Traffic Volume (vph)	0	480	700	0	270	210	150	10	580	0	0	0
Future Volume (vph)	0	480	700	0	270	210	150	10	580	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		5.8	5.8	5.5	5.5	5.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1550		3539	1547	1681	1695	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1550		3539	1547	1681	1695	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	480	700	0	270	210	150	10	580	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	161	0	0	226	0	0	0
Lane Group Flow (vph)	0	480	700	0	270	50	79	81	354	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		10.8	42.0		9.9	9.9	6.2	6.2	20.8			
Effective Green, g (s)		10.8	42.0		9.9	9.9	6.2	6.2	20.8			
Actuated g/C Ratio		0.26	1.00		0.24	0.24	0.15	0.15	0.50			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		910	1550		834	364	248	250	1380			
v/s Ratio Prot		0.14			0.08		0.05	0.05	0.13			
v/s Ratio Perm			c0.45			0.03						
v/c Ratio		0.53	0.45		0.32	0.14	0.32	0.32	0.26			
Uniform Delay, d1		13.4	0.0		13.3	12.7	16.0	16.0	6.1			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.3	1.0		0.1	0.1	0.3	0.3	0.1			
Delay (s)		13.7	1.0		13.4	12.7	16.3	16.3	6.2			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		6.1			13.1			8.4			0.0	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.2									
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			42.0									
Intersection Capacity Utilization			42.6%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + Cargo Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	280	980	27	227	820	120	10	820	200	270	1167	180
v/c Ratio	0.59	0.68	0.05	0.54	0.60	0.23	0.09	0.63	0.37	0.78	0.57	0.25
Control Delay	48.2	34.3	0.1	48.9	33.9	3.0	57.8	35.4	6.5	63.0	25.8	4.7
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	48.2	34.3	0.1	48.9	33.9	3.0	57.8	35.4	6.5	63.0	25.8	4.7
Queue Length 50th (ft)	81	191	0	66	158	0	3	161	0	82	191	0
Queue Length 95th (ft)	169	305	0	142	257	21	14	257	56	#229	356	49
Internal Link Dist (ft)	1627			1756			1585			1050		
Turn Bay Length (ft)	450		450	400		400	400		400	400		400
Base Capacity (vph)	634	2388	816	543	2254	779	108	2318	820	344	2667	904
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.41	0.03	0.42	0.36	0.15	0.09	0.35	0.24	0.78	0.44	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	980	27	227	820	120	10	820	200	270	1167	180
Future Volume (veh/h)	280	980	27	227	820	120	10	820	200	270	1167	180
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	280	980	27	227	820	120	10	820	200	270	1167	180
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	1449	449	318	1361	422	26	1285	398	349	1763	546
Arrive On Green	0.11	0.28	0.28	0.09	0.27	0.27	0.01	0.25	0.25	0.10	0.35	0.35
Sat Flow, veh/h	3456	5106	1582	3456	5106	1581	3456	5106	1581	3456	5106	1582
Grp Volume(v), veh/h	280	980	27	227	820	120	10	820	200	270	1167	180
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1728	1702	1581	1728	1702	1581	1728	1702	1582
Q Serve(g_s), s	6.6	14.3	1.0	5.4	11.8	5.1	0.2	12.0	9.1	6.4	16.3	7.1
Cycle Q Clear(g_c), s	6.6	14.3	1.0	5.4	11.8	5.1	0.2	12.0	9.1	6.4	16.3	7.1
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	378	1449	449	318	1361	422	26	1285	398	349	1763	546
V/C Ratio(X)	0.74	0.68	0.06	0.71	0.60	0.28	0.39	0.64	0.50	0.77	0.66	0.33
Avail Cap(c_a), veh/h	720	2706	838	617	2554	791	123	2627	814	391	3022	937
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	36.2	26.7	21.9	37.0	26.9	24.4	41.5	28.0	26.9	36.8	23.3	20.3
Incr Delay (d2), s/veh	2.9	0.6	0.1	3.0	0.4	0.4	9.3	0.5	1.0	8.4	0.4	0.3
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	2.7	5.2	0.4	2.2	4.3	1.7	0.1	4.4	3.2	2.9	5.7	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.1	27.2	22.0	40.0	27.3	24.8	50.8	28.5	27.9	45.2	23.8	20.7
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1287			1167			1030			1617	
Approach Delay, s/veh		29.7			29.5			28.6			27.0	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	27.0	13.2	29.7	6.1	34.9	14.7	28.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	9.5	43.2	15.0	44.5	3.0	49.7	17.5	42.0				
Max Q Clear Time (g_c+I1), s	8.4	14.0	7.4	16.3	2.2	18.3	8.6	13.8				
Green Ext Time (p_c), s	0.1	6.1	0.4	6.7	0.0	9.2	0.6	5.7				
Intersection Summary												
HCM 6th Ctrl Delay			28.6									
HCM 6th LOS			C									

SMF Master Plan Update
15: Power Line Rd & Road A

Cumulative + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	90	50	30	60	40
Future Vol, veh/h	30	90	50	30	60	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	90	50	30	60	40
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	225	65	0	0	80	0
Stage 1	65	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	763	999	-	-	1518	-
Stage 1	958	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	732	999	-	-	1518	-
Mov Cap-2 Maneuver	732	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.5	0		4.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	916	1518	-	
HCM Lane V/C Ratio	-	-	0.131	0.04	-	
HCM Control Delay (s)	-	-	9.5	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	10	70	90	0	60
Future Vol, veh/h	50	10	70	90	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	10	70	90	0	60
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	175	115	0	0	160	0
Stage 1	115	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	815	937	-	-	1419	-
Stage 1	910	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	815	937	-	-	1419	-
Mov Cap-2 Maneuver	815	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.7	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	833	1419	-	
HCM Lane V/C Ratio	-	-	0.072	-	-	
HCM Control Delay (s)	-	-	9.7	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

SMF Master Plan Update
17: Power Line Rd & Skyking Rd

Cumulative + Cargo Conditions
PM Peak Hour

Intersection

Intersection Delay, s/veh 16.3
Intersection LOS C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	220	190	50	340	130
Future Vol, veh/h	20	220	190	50	340	130
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	220	190	50	340	130
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	11.4	10.6	21.8
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	72%
Vol Thru, %	100%	0%	0%	0%	28%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	50	20	220	470
LT Vol	0	0	20	0	340
Through Vol	190	0	0	0	130
RT Vol	0	50	0	220	0
Lane Flow Rate	190	50	20	220	470
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.308	0.071	0.039	0.35	0.725
Departure Headway (Hd)	5.839	5.129	6.943	5.726	5.552
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	616	699	516	627	653
Service Time	3.57	2.86	4.681	3.463	3.575
HCM Lane V/C Ratio	0.308	0.072	0.039	0.351	0.72
HCM Control Delay	11.2	8.3	10	11.5	21.8
HCM Lane LOS	B	A	A	B	C
HCM 95th-tile Q	1.3	0.2	0.1	1.6	6.2

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative + Cargo Conditions
PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	160	210	30	60	90	200	840	90	390
v/c Ratio	0.55	0.32	0.37	0.27	0.18	0.22	0.62	0.51	0.37	0.34
Control Delay	48.2	21.7	5.5	41.5	23.8	1.2	39.8	22.0	34.3	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	21.7	5.5	41.5	23.8	1.2	39.8	22.0	34.3	20.9
Queue Length 50th (ft)	32	44	0	11	20	0	68	94	30	38
Queue Length 95th (ft)	#141	109	44	#50	50	1	#247	203	96	90
Internal Link Dist (ft)	3313			367			2142			3285
Turn Bay Length (ft)	175		175	175		175	400		400	
Base Capacity (vph)	165	1038	963	111	987	907	323	1925	308	1829
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.15	0.22	0.27	0.06	0.10	0.62	0.44	0.29	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	160	210	30	60	90	200	820	20	90	340	50
Future Volume (veh/h)	90	160	210	30	60	90	200	820	20	90	340	50
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		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	160	210	30	60	90	200	820	20	90	340	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	386	326	37	257	217	254	1354	33	116	841	121
Arrive On Green	0.09	0.21	0.21	0.02	0.14	0.14	0.14	0.26	0.26	0.07	0.19	0.19
Sat Flow, veh/h	1781	1870	1580	1781	1870	1578	1781	5127	125	1781	4508	646
Grp Volume(v), veh/h	90	160	210	30	60	90	200	544	296	90	254	136
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1578	1781	1702	1847	1781	1702	1750
Q Serve(g_s), s	2.4	3.6	5.9	0.8	1.4	2.6	5.3	6.8	6.9	2.4	3.2	3.3
Cycle Q Clear(g_c), s	2.4	3.6	5.9	0.8	1.4	2.6	5.3	6.8	6.9	2.4	3.2	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		0.37
Lane Grp Cap(c), veh/h	160	386	326	37	257	217	254	899	488	116	635	327
V/C Ratio(X)	0.56	0.41	0.64	0.82	0.23	0.42	0.79	0.61	0.61	0.78	0.40	0.41
Avail Cap(c_a), veh/h	193	1247	1054	135	1186	1001	390	1518	824	372	1483	763
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	21.3	16.8	17.8	23.9	18.8	19.3	20.2	15.8	15.8	22.5	17.5	17.5
Incr Delay (d2), s/veh	3.1	0.7	2.1	34.1	0.5	1.3	5.9	0.7	1.2	10.6	0.4	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	1.0	1.4	2.0	0.7	0.6	0.9	2.1	2.0	2.3	1.2	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	17.5	19.9	58.0	19.3	20.6	26.1	16.4	17.0	33.1	17.9	18.4
LnGrp LOS	C	B	B	E	B	C	C	B	B	C	B	B
Approach Vol, veh/h		460			180			1040			480	
Approach Delay, s/veh		20.0			26.4			18.4			20.9	
Approach LOS		B			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	18.8	6.5	14.9	12.5	15.0	9.9	11.5				
Change Period (Y+Rc), s	5.5	5.9	5.5	4.8	5.5	5.9	5.5	4.8				
Max Green Setting (Gmax), s	10.2	21.8	3.7	32.6	10.7	21.3	5.3	31.0				
Max Q Clear Time (g_c+I1), s	4.4	8.9	2.8	7.9	7.3	5.3	4.4	4.6				
Green Ext Time (p_c), s	0.1	3.8	0.0	1.6	0.2	1.8	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			20.0									
HCM 6th LOS			B									

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	80	20	10	1070	740
v/c Ratio	0.20	0.06	0.04	0.33	0.24
Control Delay	16.5	7.2	25.1	7.7	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	7.2	25.1	7.7	9.6
Queue Length 50th (ft)	20	0	3	45	28
Queue Length 95th (ft)	48	12	18	161	141
Internal Link Dist (ft)	2842			686	2142
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	1324	1174	261	4557	3573
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.02	0.04	0.23	0.21
Intersection Summary					

SMF Master Plan Update
19: Metro Air Parkway & Road D

Cumulative + Cargo Conditions
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	  	
Traffic Volume (veh/h)	80	20	10	1070	690	50
Future Volume (veh/h)	80	20	10	1070	690	50
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	20	10	1070	690	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	120	107	14	2724	1618	117
Arrive On Green	0.07	0.07	0.01	0.53	0.33	0.33
Sat Flow, veh/h	1781	1585	1781	5274	5028	350
Grp Volume(v), veh/h	80	20	10	1070	482	258
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1806
Q Serve(g_s), s	1.3	0.3	0.2	3.5	3.1	3.2
Cycle Q Clear(g_c), s	1.3	0.3	0.2	3.5	3.1	3.2
Prop In Lane	1.00	1.00	1.00			0.19
Lane Grp Cap(c), veh/h	120	107	14	2724	1133	601
V/C Ratio(X)	0.67	0.19	0.70	0.39	0.43	0.43
Avail Cap(c_a), veh/h	2152	1915	405	7885	3826	2030
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	13.0	12.6	14.1	3.9	7.4	7.4
Incr Delay (d2), s/veh	6.2	0.8	47.2	0.1	0.3	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	0.6	0.3	0.2	0.0	0.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.2	13.4	61.4	4.0	7.7	7.9
LnGrp LOS	B	B	E	A	A	A
Approach Vol, veh/h	100			1080	740	
Approach Delay, s/veh	18.1			4.6	7.7	
Approach LOS	B			A	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	21.1			7.4	5.7	15.4
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	44.1			34.5	6.5	32.1
Max Q Clear Time (g_c+I1), s	5.5			3.3	2.2	5.2
Green Ext Time (p_c), s	7.8			0.3	0.0	4.3
Intersection Summary						
HCM 6th Ctrl Delay			6.5			
HCM 6th LOS			A			

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	190	640	350	860	1080
v/c Ratio	0.45	0.86	0.82	0.28	0.76
Control Delay	25.7	18.5	47.5	8.8	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	18.5	47.5	8.8	29.3
Queue Length 50th (ft)	73	57	145	56	149
Queue Length 95th (ft)	123	188	#387	135	#297
Internal Link Dist (ft)	1671			1050	4086
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	875	1019	425	3131	1501
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.63	0.82	0.27	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Cumulative + Cargo Conditions
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	190	640	350	860	960	120
Future Volume (veh/h)	190	640	350	860	960	120
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	640	350	860	960	120
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	695	619	338	2465	1065	133
Arrive On Green	0.39	0.39	0.19	0.48	0.23	0.23
Sat Flow, veh/h	1781	1585	1781	5274	4764	573
Grp Volume(v), veh/h	190	640	350	860	710	370
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1764
Q Serve(g_s), s	6.5	35.0	17.0	9.4	18.2	18.3
Cycle Q Clear(g_c), s	6.5	35.0	17.0	9.4	18.2	18.3
Prop In Lane	1.00	1.00	1.00			0.32
Lane Grp Cap(c), veh/h	695	619	338	2465	789	409
V/C Ratio(X)	0.27	1.03	1.04	0.35	0.90	0.90
Avail Cap(c_a), veh/h	695	619	338	2482	801	415
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	18.7	27.3	36.3	14.4	33.4	33.5
Incr Delay (d2), s/veh	0.2	45.4	58.8	0.1	13.1	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	32.6	12.3	3.1	8.2	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.9	72.8	95.1	14.5	46.6	56.0
LnGrp LOS	B	F	F	B	D	E
Approach Vol, veh/h	830			1210	1080	
Approach Delay, s/veh	60.4			37.8	49.8	
Approach LOS	E			D	D	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	49.2			40.5	22.5	26.7
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	43.6			35.0	17.0	21.1
Max Q Clear Time (g_c+I1), s	11.4			37.0	19.0	20.3
Green Ext Time (p_c), s	5.7			0.0	0.0	0.5
Intersection Summary						
HCM 6th Ctrl Delay			48.0			
HCM 6th LOS			D			

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative + Cargo Conditions
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	340	130	120	180	120	110	1090	200	370	1380
v/c Ratio	0.21	0.57	0.29	0.74	0.43	0.23	0.63	0.83	0.36	0.87	0.82
Control Delay	54.9	40.7	1.6	75.7	36.1	1.0	65.4	41.4	5.0	65.0	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	40.7	1.6	75.7	36.1	1.0	65.4	41.4	5.0	65.0	35.0
Queue Length 50th (ft)	12	105	0	38	91	0	35	227	0	117	272
Queue Length 95th (ft)	42	147	0	#107	172	0	#91	#409	43	#257	#493
Internal Link Dist (ft)		450			475			2094			1585
Turn Bay Length (ft)	375		375	425		425	400		400	400	
Base Capacity (vph)	96	1204	677	162	620	668	175	1325	566	427	1696
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.28	0.19	0.74	0.29	0.18	0.63	0.82	0.35	0.87	0.81

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative + Cargo Conditions
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 		 			 	  		 	  		
Traffic Volume (vph)	20	340	130	120	180	120	110	1090	200	370	1360	20	
Future Volume (vph)	20	340	130	120	180	120	110	1090	200	370	1360	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91		
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1593	3185	1406	3090	1676	1405	3090	4577	1405	3090	4566		
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1593	3185	1406	3090	1676	1405	3090	4577	1405	3090	4566		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	20	340	130	120	180	120	110	1090	200	370	1360	20	
RTOR Reduction (vph)	0	0	102	0	0	91	0	0	144	0	1	0	
Lane Group Flow (vph)	20	340	28	120	180	29	110	1090	56	370	1379	0	
Confl. Peds. (#/hr)			2			2			2			2	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8			2				
Actuated Green, G (s)	2.3	22.5	22.5	5.3	25.5	25.5	5.7	29.1	29.1	14.0	37.4		
Effective Green, g (s)	2.3	22.5	22.5	5.3	25.5	25.5	5.7	29.1	29.1	14.0	37.4		
Actuated g/C Ratio	0.02	0.22	0.22	0.05	0.24	0.24	0.05	0.28	0.28	0.13	0.36		
Clearance Time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	35	685	302	156	408	342	168	1273	390	413	1632		
v/s Ratio Prot	0.01	c0.11		c0.04	c0.11		0.04	0.24		c0.12	c0.30		
v/s Ratio Perm			0.02			0.02			0.04				
v/c Ratio	0.57	0.50	0.09	0.77	0.44	0.09	0.65	0.86	0.14	0.90	0.84		
Uniform Delay, d1	50.7	36.1	32.9	49.0	33.5	30.5	48.5	35.8	28.4	44.6	30.9		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	20.6	0.6	0.1	20.1	0.8	0.1	8.8	5.9	0.2	21.3	4.2		
Delay (s)	71.2	36.6	33.0	69.2	34.3	30.7	57.3	41.6	28.5	65.8	35.1		
Level of Service	E	D	C	E	C	C	E	D	C	E	D		
Approach Delay (s)		37.1			43.2			41.0			41.6		
Approach LOS		D			D			D			D		
Intersection Summary													
HCM 2000 Control Delay			41.0									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.72										
Actuated Cycle Length (s)			104.6									Sum of lost time (s)	28.1
Intersection Capacity Utilization			68.8%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative + Cargo Conditions
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	10	1170	490	120	1650	660
v/c Ratio	0.01	0.88	0.30	0.08	0.71	0.62
Control Delay	14.1	22.1	15.2	0.1	20.2	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	22.1	15.2	0.1	20.2	4.4
Queue Length 50th (ft)	3	205	77	0	232	0
Queue Length 95th (ft)	12	305	133	0	343	63
Internal Link Dist (ft)			551		2094	
Turn Bay Length (ft)						400
Base Capacity (vph)	935	1653	1760	1583	2529	1100
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	0.01	0.71	0.28	0.08	0.65	0.60
Intersection Summary						

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	1170	0	490	120	0	1650	660
Future Volume (veh/h)	0	0	0	10	0	1170	0	490	120	0	1650	660
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				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				10	0	1170	0	490	0	0	1650	660
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				788	0	1234	0	1525		0	2191	679
Arrive On Green				0.44	0.00	0.44	0.00	0.43	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1781	0	2790	0	3647	1585	0	5274	1581
Grp Volume(v), veh/h				10	0	1170	0	490	0	0	1650	660
Grp Sat Flow(s),veh/h/ln				1781	0	1395	0	1777	1585	0	1702	1581
Q Serve(g_s), s				0.3	0.0	35.8	0.0	8.1	0.0	0.0	24.2	36.3
Cycle Q Clear(g_c), s				0.3	0.0	35.8	0.0	8.1	0.0	0.0	24.2	36.3
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				788	0	1234	0	1525		0	2191	679
V/C Ratio(X)				0.01	0.00	0.95	0.00	0.32		0.00	0.75	0.97
Avail Cap(c_a), veh/h				813	0	1273	0	1525		0	2191	679
HCM Platoon Ratio				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	1.00	0.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.9	0.0	23.8	0.0	16.8	0.0	0.0	21.4	24.8
Incr Delay (d2), s/veh				0.0	0.0	14.4	0.0	0.1	0.0	0.0	1.5	27.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.1	0.0	13.2	0.0	2.9	0.0	0.0	8.5	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.9	0.0	38.1	0.0	16.9	0.0	0.0	22.9	52.5
LnGrp LOS				B	A	D	A	B		A	C	D
Approach Vol, veh/h					1180			490	A		2310	
Approach Delay, s/veh					37.9			16.9			31.4	
Approach LOS					D			B			C	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	44.0			44.0			44.8					
Change Period (Y+Rc), s	5.9			5.9			5.5					
Max Green Setting (Gmax), s	38.1			38.1			40.5					
Max Q Clear Time (g_c+I1), s	10.1			38.3			37.8					
Green Ext Time (p_c), s	2.9			0.0			1.5					
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.

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative + Cargo Conditions
PM Peak Hour



Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	340	180	270	210	170	1480
v/c Ratio	0.51	0.26	0.28	0.36	0.18	0.95
Control Delay	11.6	2.8	11.4	4.4	11.0	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	2.8	11.4	4.4	11.0	18.1
Queue Length 50th (ft)	39	0	17	0	11	0
Queue Length 95th (ft)	122	26	55	36	37	#172
Internal Link Dist (ft)			529		551	
Turn Bay Length (ft)						
Base Capacity (vph)	1725	1526	3195	1449	3195	1550
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	0.20	0.12	0.08	0.14	0.05	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	0	180	0	0	0	0	270	210	0	170	1480
Future Volume (veh/h)	340	0	180	0	0	0	0	270	210	0	170	1480
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	1870	0	1870				0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	340	0	180				0	270	210	0	170	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	532	0	473				0	955	426	0	955	
Arrive On Green	0.30	0.00	0.30				0.00	0.27	0.27	0.00	0.27	0.00
Sat Flow, veh/h	1781	0	1585				0	3647	1585	0	3647	1585
Grp Volume(v), veh/h	340	0	180				0	270	210	0	170	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1585	0	1777	1585
Q Serve(g_s), s	4.4	0.0	2.4				0.0	1.6	2.9	0.0	1.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	2.4				0.0	1.6	2.9	0.0	1.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	532	0	473				0	955	426	0	955	
V/C Ratio(X)	0.64	0.00	0.38				0.00	0.28	0.49	0.00	0.18	
Avail Cap(c_a), veh/h	3213	0	2859				0	4196	1872	0	4196	
HCM Platoon Ratio	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	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	8.0	0.0	7.3				0.0	7.6	8.1	0.0	7.4	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.5				0.0	0.2	0.9	0.0	0.1	0.0
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	1.0	0.0	0.5				0.0	0.2	0.4	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	0.0	7.8				0.0	7.8	9.0	0.0	7.5	0.0
LnGrp LOS	A	A	A				A	A	A	A	A	
Approach Vol, veh/h	520						480			170		
Approach Delay, s/veh	8.8						8.3			7.5		
Approach LOS	A						A			A		
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	13.0			13.4			13.0					
Change Period (Y+Rc), s	5.9			5.5			5.9					
Max Green Setting (Gmax), s	31.1			47.5			31.1					
Max Q Clear Time (g_c+I1), s	4.9			6.4			3.0					
Green Ext Time (p_c), s	2.1			1.7			0.9					
Intersection Summary												
HCM 6th Ctrl Delay	8.4											
HCM 6th LOS	A											

Notes

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

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	20	20	10	20	60
Future Vol, veh/h	30	20	20	10	20	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	20	20	10	20	60
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	125	25	0	0	30	0
Stage 1	25	-	-	-	-	-
Stage 2	100	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	870	1051	-	-	1583	-
Stage 1	998	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	859	1051	-	-	1583	-
Mov Cap-2 Maneuver	859	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		1.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		927	1583	
HCM Lane V/C Ratio	-	-		0.054	0.013	
HCM Control Delay (s)	-	-		9.1	7.3	
HCM Lane LOS	-	-		A	A	
HCM 95th %tile Q(veh)	-	-		0.2	0	

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	30	20	410	40	20	220
v/c Ratio	0.07	0.06	0.16	0.02	0.05	0.10
Control Delay	17.1	9.7	10.8	3.7	17.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	9.7	10.8	3.7	17.4	1.4
Queue Length 50th (ft)	4	0	0	0	2	0
Queue Length 95th (ft)	30	15	147	22	23	15
Internal Link Dist (ft)	4683			3724	1647	
Turn Bay Length (ft)		175	300			175
Base Capacity (vph)	1518	1276	2587	1723	1363	2304
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	0.02	0.02	0.16	0.02	0.01	0.10
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↖↗	↑	↖	↖↗
Traffic Volume (veh/h)	30	20	410	40	20	220
Future Volume (veh/h)	30	20	410	40	20	220
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	20	410	40	20	220
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	113	95	740	874	235	965
Arrive On Green	0.06	0.06	0.21	0.47	0.13	0.13
Sat Flow, veh/h	1870	1570	3456	1870	1781	2790
Grp Volume(v), veh/h	30	20	410	40	20	220
Grp Sat Flow(s),veh/h/ln	1870	1570	1728	1870	1781	1395
Q Serve(g_s), s	0.4	0.3	3.0	0.3	0.3	1.6
Cycle Q Clear(g_c), s	0.4	0.3	3.0	0.3	0.3	1.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	113	95	740	874	235	965
V/C Ratio(X)	0.27	0.21	0.55	0.05	0.09	0.23
Avail Cap(c_a), veh/h	1978	1660	2003	3423	1658	3194
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	12.8	12.7	10.0	4.1	10.8	6.6
Incr Delay (d2), s/veh	1.2	1.1	0.7	0.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.6	0.0	0.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.0	13.8	10.6	4.1	11.0	6.7
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	50			450	240	
Approach Delay, s/veh	13.9			10.1	7.1	
Approach LOS	B			B	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.6	7.6			19.2	9.3
Change Period (Y+Rc), s	5.5	5.9			5.9	5.5
Max Green Setting (Gmax), s	16.5	30.1			52.1	26.5
Max Q Clear Time (g_c+I1), s	5.0	2.4			2.3	3.6
Green Ext Time (p_c), s	1.1	0.1			0.2	0.8
Intersection Summary						
HCM 6th Ctrl Delay			9.4			
HCM 6th LOS			A			
Notes						
User approved pedestrian interval to be less than phase max green.						

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	80	110	230	280	10	40	30	30	10	20	20
v/c Ratio	0.07	0.16	0.19	0.47	0.20	0.01	0.15	0.07	0.06	0.07	0.06	0.04
Control Delay	31.7	20.2	0.7	26.3	10.4	0.0	26.9	16.6	0.2	31.7	21.7	0.1
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	31.7	20.2	0.7	26.3	10.4	0.0	26.9	16.6	0.2	31.7	21.7	0.1
Queue Length 50th (ft)	2	10	0	24	0	0	5	4	0	2	3	0
Queue Length 95th (ft)	21	68	0	#259	180	0	50	31	0	21	25	0
Internal Link Dist (ft)	3724			3503			1141			1439		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	148	1031	960	487	1460	1247	318	1299	1148	148	1121	1023
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.08	0.11	0.47	0.19	0.01	0.13	0.02	0.03	0.07	0.02	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	80	110	230	280	10	40	30	30	10	20	20
Future Volume (veh/h)	10	80	110	230	280	10	40	30	30	10	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	80	110	230	280	10	40	30	30	10	20	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	265	223	297	562	475	48	157	132	14	121	101
Arrive On Green	0.01	0.14	0.14	0.17	0.30	0.30	0.03	0.08	0.08	0.01	0.06	0.06
Sat Flow, veh/h	1781	1870	1574	1781	1870	1580	1781	1870	1566	1781	1870	1565
Grp Volume(v), veh/h	10	80	110	230	280	10	40	30	30	10	20	20
Grp Sat Flow(s),veh/h/ln	1781	1870	1574	1781	1870	1580	1781	1870	1566	1781	1870	1565
Q Serve(g_s), s	0.2	1.5	2.5	4.7	4.7	0.2	0.8	0.6	0.7	0.2	0.4	0.5
Cycle Q Clear(g_c), s	0.2	1.5	2.5	4.7	4.7	0.2	0.8	0.6	0.7	0.2	0.4	0.5
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	14	265	223	297	562	475	48	157	132	14	121	101
V/C Ratio(X)	0.71	0.30	0.49	0.77	0.50	0.02	0.83	0.19	0.23	0.71	0.16	0.20
Avail Cap(c_a), veh/h	164	1136	956	539	1530	1292	351	1431	1199	164	1235	1033
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	18.8	14.6	15.1	15.2	10.9	9.4	18.4	16.2	16.3	18.8	16.8	16.8
Incr Delay (d2), s/veh	49.1	0.6	1.7	4.3	0.7	0.0	28.1	0.6	0.9	49.1	0.6	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	0.3	0.5	0.7	1.6	1.2	0.0	0.6	0.2	0.2	0.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.9	15.3	16.7	19.5	11.6	9.4	46.5	16.8	17.1	67.9	17.4	17.8
LnGrp LOS	E	B	B	B	B	A	D	B	B	E	B	B
Approach Vol, veh/h		200			520			100			50	
Approach Delay, s/veh		18.7			15.0			28.8			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	5.8	9.1	11.8	11.3	6.5	8.4	5.8	17.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.5	29.1	11.5	23.1	7.5	25.1	3.5	31.1				
Max Q Clear Time (g_c+I1), s	2.2	2.7	6.7	4.5	2.8	2.5	2.2	6.7				
Green Ext Time (p_c), s	0.0	0.2	0.3	0.6	0.0	0.1	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	130	10	1410	580	50	200
v/c Ratio	0.45	0.04	0.78	0.22	0.24	0.40
Control Delay	40.4	18.7	23.4	4.2	40.3	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	18.7	23.4	4.2	40.3	8.3
Queue Length 50th (ft)	62	0	261	34	24	0
Queue Length 95th (ft)	149	15	#765	108	70	35
Internal Link Dist (ft)	3503			1595	3285	
Turn Bay Length (ft)		150	375			
Base Capacity (vph)	687	581	2185	3323	602	1056
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	0.19	0.02	0.65	0.17	0.08	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘↗	↑↑	↘	↗↗
Traffic Volume (veh/h)	130	10	1410	580	50	200
Future Volume (veh/h)	130	10	1410	580	50	200
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	10	1410	580	50	200
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	216	181	1697	2479	202	316
Arrive On Green	0.12	0.12	0.49	0.70	0.11	0.11
Sat Flow, veh/h	1870	1571	3456	3647	1781	2790
Grp Volume(v), veh/h	130	10	1410	580	50	200
Grp Sat Flow(s),veh/h/ln	1870	1571	1728	1777	1781	1395
Q Serve(g_s), s	4.0	0.3	21.2	3.6	1.5	4.1
Cycle Q Clear(g_c), s	4.0	0.3	21.2	3.6	1.5	4.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	216	181	1697	2479	202	316
V/C Ratio(X)	0.60	0.06	0.83	0.23	0.25	0.63
Avail Cap(c_a), veh/h	962	808	3067	5305	845	1324
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	25.3	23.7	13.2	3.3	24.4	25.5
Incr Delay (d2), s/veh	2.7	0.1	1.1	0.0	0.6	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	1.7	0.1	5.6	0.4	0.6	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.0	23.9	14.3	3.3	25.0	27.6
LnGrp LOS	C	C	B	A	C	C
Approach Vol, veh/h	140			1990	250	
Approach Delay, s/veh	27.7			11.1	27.1	
Approach LOS	C			B	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		12.3	35.1	12.9		48.0
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		28.6	53.5	31.0		90.0
Max Q Clear Time (g_c+I1), s		6.1	23.2	6.0		5.6
Green Ext Time (p_c), s		0.8	6.4	0.6		3.7
Intersection Summary						
HCM 6th Ctrl Delay			13.8			
HCM 6th LOS			B			

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	340	60	120	1910	20	30
v/c Ratio	0.15	0.06	1.03	0.65	0.08	0.13
Control Delay	7.2	2.5	134.8	7.8	34.4	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	2.5	134.8	7.8	34.4	14.7
Queue Length 50th (ft)	29	0	~49	181	7	0
Queue Length 95th (ft)	85	18	#305	648	37	27
Internal Link Dist (ft)	1595			3525	10448	
Turn Bay Length (ft)		150	180			175
Base Capacity (vph)	3332	1454	116	3382	908	807
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	0.10	0.04	1.03	0.56	0.02	0.04
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.						

SMF Master Plan Update
5: Lone Tree Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	340	60	120	1910	20	30
Future Volume (veh/h)	340	60	120	1910	20	30
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	340	60	120	1910	20	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2124	946	129	2728	54	48
Arrive On Green	0.60	0.60	0.07	0.77	0.03	0.03
Sat Flow, veh/h	3647	1582	1781	3647	1781	1585
Grp Volume(v), veh/h	340	60	120	1910	20	30
Grp Sat Flow(s),veh/h/ln	1777	1582	1781	1777	1781	1585
Q Serve(g_s), s	2.4	0.9	3.8	15.2	0.6	1.1
Cycle Q Clear(g_c), s	2.4	0.9	3.8	15.2	0.6	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2124	946	129	2728	54	48
V/C Ratio(X)	0.16	0.06	0.93	0.70	0.37	0.62
Avail Cap(c_a), veh/h	6109	2720	129	6713	1006	895
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	5.1	4.7	26.0	3.3	26.9	27.1
Incr Delay (d2), s/veh	0.0	0.0	57.4	0.3	4.1	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	3.4	0.1	0.3	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.1	4.8	83.5	3.6	31.0	39.4
LnGrp LOS	A	A	F	A	C	D
Approach Vol, veh/h	400			2030	50	
Approach Delay, s/veh	5.0			8.3	36.1	
Approach LOS	A			A	D	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		7.2	9.6	39.7		49.3
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		31.9	4.1	97.1		106.7
Max Q Clear Time (g_c+I1), s		3.1	5.8	4.4		17.2
Green Ext Time (p_c), s		0.1	0.0	2.2		26.1
Intersection Summary						
HCM 6th Ctrl Delay			8.4			
HCM 6th LOS			A			

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative + MPU + Cargo Conditions
AM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	260	80	600	300	80	990
v/c Ratio	0.22	0.05	0.54	0.19	0.16	0.79
Control Delay	12.9	0.1	15.4	0.3	9.4	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	0.1	15.4	0.3	9.4	9.9
Queue Length 50th (ft)	13	0	35	0	11	17
Queue Length 95th (ft)	89	0	204	0	35	155
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3350	1550	3347	1550	1659	2544
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	0.08	0.05	0.18	0.19	0.05	0.39
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↗		↗↗
Traffic Volume (vph)	0	260	80	0	600	300	0	0	0	80	0	990
Future Volume (vph)	0	260	80	0	600	300	0	0	0	80	0	990
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0		6.8	4.0				4.4		4.4
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	260	80	0	600	300	0	0	0	80	0	990
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	547
Lane Group Flow (vph)	0	260	80	0	600	300	0	0	0	80	0	443
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free			Free						
Actuated Green, G (s)		13.0	40.5		12.6	40.5				16.7		10.1
Effective Green, g (s)		13.0	40.5		12.6	40.5				16.7		10.1
Actuated g/C Ratio		0.32	1.00		0.31	1.00				0.41		0.25
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1135	1550		1101	1550				729		695
v/s Ratio Prot		0.07			c0.17					0.05		c0.16
v/s Ratio Perm			0.05			c0.19						
v/c Ratio		0.23	0.05		0.54	0.19				0.11		0.64
Uniform Delay, d1		10.1	0.0		11.6	0.0				7.3		13.6
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		0.0	0.1		0.3	0.3				0.0		1.4
Delay (s)		10.1	0.1		11.9	0.3				7.3		15.0
Level of Service		B	A		B	A				A		B
Approach Delay (s)		7.7			8.0			0.0			14.4	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			10.9		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			40.5		Sum of lost time (s)					15.6		
Intersection Capacity Utilization			60.6%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	160	90	590	220	229	231	130
v/c Ratio	0.16	0.06	0.62	0.38	0.61	0.61	0.09
Control Delay	16.4	0.1	21.3	5.7	28.1	28.1	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	0.1	21.3	5.7	28.1	28.1	1.8
Queue Length 50th (ft)	15	0	70	0	56	56	0
Queue Length 95th (ft)	58	0	200	51	192	194	11
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3368	1550	3360	1468	1195	1200	2605
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	0.05	0.06	0.18	0.15	0.19	0.19	0.05
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Cumulative + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↗	↗↗			
Traffic Volume (vph)	0	160	90	0	590	220	450	10	130	0	0	0
Future Volume (vph)	0	160	90	0	590	220	450	10	130	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		5.8	5.8	5.5	5.5	5.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3539	1550		3539	1546	1681	1689	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3539	1550		3539	1546	1681	1689	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	160	90	0	590	220	450	10	130	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	159	0	0	65	0	0	0
Lane Group Flow (vph)	0	160	90	0	590	61	229	231	65	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		15.1	51.2		14.2	14.2	11.8	11.8	25.7			
Effective Green, g (s)		15.1	51.2		14.2	14.2	11.8	11.8	25.7			
Actuated g/C Ratio		0.29	1.00		0.28	0.28	0.23	0.23	0.50			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		1043	1550		981	428	387	389	1398			
v/s Ratio Prot		0.05			c0.17		0.14	c0.14	0.02			
v/s Ratio Perm			c0.06			0.04						
v/c Ratio		0.15	0.06		0.60	0.14	0.59	0.59	0.05			
Uniform Delay, d1		13.3	0.0		16.0	13.9	17.6	17.6	6.5			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.0	0.1		0.7	0.1	1.6	1.6	0.0			
Delay (s)		13.4	0.1		16.8	14.0	19.2	19.2	6.5			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		8.6			16.0			16.4			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.0		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			51.2		Sum of lost time (s)				16.8			
Intersection Capacity Utilization			38.5%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	640	120	200	1300	50	170	150	150	100	90	40
v/c Ratio	0.69	0.47	0.18	0.98	0.87	0.07	0.81	0.42	0.36	1.52	0.34	0.11
Control Delay	68.7	22.4	2.9	98.9	31.2	0.2	68.9	32.5	6.9	331.5	35.2	0.7
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	68.7	22.4	2.9	98.9	31.2	0.2	68.9	32.5	6.9	331.5	35.2	0.7
Queue Length 50th (ft)	46	124	0	103	301	0	88	69	0	~71	43	0
Queue Length 95th (ft)	#149	236	24	#295	#610	0	#264	119	42	#202	84	0
Internal Link Dist (ft)		745			1992			1063			3284	
Turn Bay Length (ft)	250		250	250		250	250		250	250		250
Base Capacity (vph)	130	1349	682	204	1498	741	211	739	711	66	629	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.47	0.18	0.98	0.87	0.07	0.81	0.20	0.21	1.52	0.14	0.06

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.

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	640	120	200	1300	50	170	150	150	100	90	40
Future Volume (veh/h)	90	640	120	200	1300	50	170	150	150	100	90	40
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		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	640	0	200	1300	0	170	150	150	100	90	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	1283		232	1515		193	295	249	75	171	144
Arrive On Green	0.06	0.36	0.00	0.13	0.43	0.00	0.11	0.16	0.16	0.04	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1579	1781	1870	1575
Grp Volume(v), veh/h	90	640	0	200	1300	0	170	150	150	100	90	40
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1579	1781	1870	1575
Q Serve(g_s), s	3.7	10.4	0.0	8.1	24.4	0.0	6.9	5.4	6.5	3.1	3.4	1.7
Cycle Q Clear(g_c), s	3.7	10.4	0.0	8.1	24.4	0.0	6.9	5.4	6.5	3.1	3.4	1.7
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	115	1283		232	1515		193	295	249	75	171	144
V/C Ratio(X)	0.78	0.50		0.86	0.86		0.88	0.51	0.60	1.34	0.53	0.28
Avail Cap(c_a), veh/h	147	1522		232	1691		193	834	704	75	710	598
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	18.4	0.0	31.4	19.1	0.0	32.4	28.4	28.9	35.3	32.0	31.2
Incr Delay (d2), s/veh	18.2	0.3	0.0	26.7	4.3	0.0	34.0	1.4	2.3	217.6	2.5	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	2.0	3.6	0.0	4.8	8.8	0.0	4.5	2.3	2.4	5.7	1.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	18.7	0.0	58.2	23.4	0.0	66.4	29.8	31.2	252.9	34.5	32.3
LnGrp LOS	D	B		E	C		E	C	C	F	C	C
Approach Vol, veh/h		730	A		1500	A		470			230	
Approach Delay, s/veh		22.8			28.1			43.5			129.1	
Approach LOS		C			C			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	17.5	15.1	32.5	13.5	12.6	10.3	37.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.1	32.9	9.6	31.6	8.0	28.0	6.1	35.1				
Max Q Clear Time (g_c+I1), s	5.1	8.5	10.1	12.4	8.9	5.4	5.7	26.4				
Green Ext Time (p_c), s	0.0	1.1	0.0	3.6	0.0	0.4	0.0	5.0				

Intersection Summary

HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

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

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	160	510	115	385	1390	280	10	1030	150	70	760	510
v/c Ratio	0.47	0.33	0.20	0.78	0.77	0.43	0.10	0.71	0.27	0.28	0.41	0.67
Control Delay	54.7	30.3	2.4	60.0	36.5	15.5	62.2	38.5	5.7	56.8	26.5	16.0
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	54.7	30.3	2.4	60.0	36.5	15.5	62.2	38.5	5.7	56.8	26.5	16.0
Queue Length 50th (ft)	58	102	0	145	326	62	3	254	0	25	145	117
Queue Length 95th (ft)	103	153	17	#276	465	163	14	323	44	55	212	276
Internal Link Dist (ft)	1627			1756			1585			1050		
Turn Bay Length (ft)	450		450	400		400	400		400	400		400
Base Capacity (vph)	579	2181	759	496	2062	726	99	2117	741	314	2436	906
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.23	0.15	0.78	0.67	0.39	0.10	0.49	0.20	0.22	0.31	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	510	115	385	1390	280	10	1030	150	70	760	510
Future Volume (veh/h)	160	510	115	385	1390	280	10	1030	150	70	760	510
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	160	510	115	385	1390	280	10	1030	150	70	760	510
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	1420	440	448	1743	540	25	1764	547	118	1902	590
Arrive On Green	0.07	0.28	0.28	0.13	0.34	0.34	0.01	0.35	0.35	0.03	0.37	0.37
Sat Flow, veh/h	3456	5106	1582	3456	5106	1582	3456	5106	1582	3456	5106	1582
Grp Volume(v), veh/h	160	510	115	385	1390	280	10	1030	150	70	760	510
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1728	1702	1582	1728	1702	1582	1728	1702	1582
Q Serve(g_s), s	4.9	8.6	6.1	11.7	26.4	15.2	0.3	17.7	7.4	2.1	11.8	32.0
Cycle Q Clear(g_c), s	4.9	8.6	6.1	11.7	26.4	15.2	0.3	17.7	7.4	2.1	11.8	32.0
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	229	1420	440	448	1743	540	25	1764	547	118	1902	590
V/C Ratio(X)	0.70	0.36	0.26	0.86	0.80	0.52	0.40	0.58	0.27	0.59	0.40	0.87
Avail Cap(c_a), veh/h	564	2119	656	483	2000	620	97	2057	637	306	2366	733
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	49.0	31.0	30.1	45.7	32.0	28.3	53.0	28.8	25.4	51.0	24.8	31.2
Incr Delay (d2), s/veh	3.8	0.2	0.3	13.8	2.1	0.8	10.1	0.3	0.3	4.6	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.3	2.2	5.6	10.3	5.4	0.2	6.7	2.6	1.0	4.4	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	31.2	30.5	59.5	34.0	29.0	63.1	29.1	25.6	55.7	24.9	40.1
LnGrp LOS	D	C	C	E	C	C	E	C	C	E	C	D
Approach Vol, veh/h		785			2055			1190			1340	
Approach Delay, s/veh		35.5			38.1			28.9			32.3	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	43.0	19.4	35.7	6.3	45.9	12.6	42.5				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	9.5	43.2	15.0	44.5	3.0	49.7	17.5	42.0				
Max Q Clear Time (g_c+I1), s	4.1	19.7	13.7	10.6	2.3	34.0	6.9	28.4				
Green Ext Time (p_c), s	0.1	7.2	0.2	3.5	0.0	5.8	0.3	7.8				
Intersection Summary												
HCM 6th Ctrl Delay			34.3									
HCM 6th LOS			C									

SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	630	10	180	2290	520	10	30	30	130	50	70
v/c Ratio	0.56	0.25	0.01	3.00	1.04	0.60	0.08	0.13	0.10	0.55	0.10	0.14
Control Delay	58.7	16.7	0.0	961.1	58.0	11.3	48.2	36.7	0.6	48.7	24.2	2.2
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	58.7	16.7	0.0	961.1	58.0	11.3	48.2	36.7	0.6	48.7	24.2	2.2
Queue Length 50th (ft)	48	68	0	~172	~493	55	5	16	0	67	20	0
Queue Length 95th (ft)	#165	169	0	#409	#997	254	26	42	0	160	52	13
Internal Link Dist (ft)		760			4518			633			10448	
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	161	2493	827	60	2204	869	263	767	728	815	1348	1157
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.25	0.01	3.00	1.04	0.60	0.04	0.04	0.04	0.16	0.04	0.06

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.

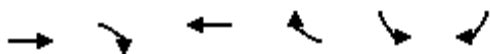
SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	630	10	180	2290	520	10	30	30	130	50	70
Future Volume (veh/h)	90	630	10	180	2290	520	10	30	30	130	50	70
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		0.99	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	630	10	180	2290	520	10	30	30	130	50	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	2619	811	69	2484	769	13	118	99	179	292	246
Arrive On Green	0.07	0.51	0.51	0.04	0.49	0.49	0.01	0.06	0.06	0.10	0.16	0.16
Sat Flow, veh/h	1781	5106	1582	1781	5106	1582	1781	1870	1570	1781	1870	1579
Grp Volume(v), veh/h	90	630	10	180	2290	520	10	30	30	130	50	70
Grp Sat Flow(s),veh/h/ln	1781	1702	1582	1781	1702	1582	1781	1870	1570	1781	1870	1579
Q Serve(g_s), s	3.9	5.3	0.2	3.0	32.5	19.6	0.4	1.2	1.4	5.5	1.8	3.0
Cycle Q Clear(g_c), s	3.9	5.3	0.2	3.0	32.5	19.6	0.4	1.2	1.4	5.5	1.8	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	116	2619	811	69	2484	769	13	118	99	179	292	246
V/C Ratio(X)	0.78	0.24	0.01	2.62	0.92	0.68	0.75	0.25	0.30	0.73	0.17	0.28
Avail Cap(c_a), veh/h	183	2826	876	69	2498	774	300	869	730	926	1527	1289
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	35.9	10.5	9.3	37.4	18.6	15.3	38.6	34.7	34.8	34.0	28.5	29.0
Incr Delay (d2), s/veh	10.6	0.0	0.0	770.6	6.3	2.3	57.6	1.1	1.7	5.5	0.3	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	1.9	1.6	0.1	15.9	11.3	6.0	0.4	0.5	0.5	2.5	0.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	10.6	9.3	808.0	24.9	17.6	96.2	35.9	36.5	39.5	28.8	29.6
LnGrp LOS	D	B	A	F	C	B	F	D	D	D	C	C
Approach Vol, veh/h		730			2990			70			250	
Approach Delay, s/veh		15.0			70.8			44.8			34.6	
Approach LOS		B			E			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.3	10.2	8.5	45.8	6.1	17.4	10.6	43.8				
Change Period (Y+Rc), s	5.5	5.3	5.5	5.9	5.5	5.3	5.5	5.9				
Max Green Setting (Gmax), s	40.5	36.2	3.0	43.1	13.1	63.6	8.0	38.1				
Max Q Clear Time (g_c+I1), s	7.5	3.4	5.0	7.3	2.4	5.0	5.9	34.5				
Green Ext Time (p_c), s	0.3	0.2	0.0	4.0	0.0	0.5	0.0	3.4				
Intersection Summary												
HCM 6th Ctrl Delay			58.0									
HCM 6th LOS			E									
Notes												
User approved pedestrian interval to be less than phase max green.												

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative + MPU + Cargo Conditions
AM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1020	470	2420	820	360	670
v/c Ratio	0.42	0.48	1.00	0.88	0.51	1.04
Control Delay	16.2	3.2	43.7	24.3	23.6	73.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	3.2	43.7	24.3	23.6	73.7
Queue Length 50th (ft)	134	0	~488	249	151	~403
Queue Length 95th (ft)	168	50	#627	#529	234	#617
Internal Link Dist (ft)	4518		937			
Turn Bay Length (ft)		400		100		440
Base Capacity (vph)	2412	979	2412	936	706	644
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	0.42	0.48	1.00	0.88	0.51	1.04

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.

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative + MPU + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗				↗		↗
Traffic Volume (veh/h)	0	1020	470	0	2420	820	0	0	0	360	0	670
Future Volume (veh/h)	0	1020	470	0	2420	820	0	0	0	360	0	670
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	0	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	1020	0	0	2420	0				360	0	670
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2423		0	2423					711	0	632
Arrive On Green	0.00	0.47	0.00	0.00	0.47	0.00				0.40	0.00	0.40
Sat Flow, veh/h	0	5274	1585	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	1020	0	0	2420	0				360	0	670
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	11.8	0.0	0.0	42.6	0.0				13.7	0.0	35.9
Cycle Q Clear(g_c), s	0.0	11.8	0.0	0.0	42.6	0.0				13.7	0.0	35.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2423		0	2423					711	0	632
V/C Ratio(X)	0.00	0.42		0.00	1.00					0.51	0.00	1.06
Avail Cap(c_a), veh/h	0	2423		0	2423					711	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.5	0.0	0.0	23.6	0.0				20.4	0.0	27.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	18.0	0.0				0.6	0.0	52.6
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	0.0	3.9	0.0	0.0	18.0	0.0				5.5	0.0	21.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.6	0.0	0.0	41.7	0.0				21.0	0.0	79.7
LnGrp LOS	A	B		A	D					C	A	F
Approach Vol, veh/h		1020	A		2420	A					1030	
Approach Delay, s/veh		15.6			41.7						59.2	
Approach LOS		B			D						E	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				48.6		41.4		48.6				
Change Period (Y+Rc), s				5.9		5.5		5.9				
Max Green Setting (Gmax), s				42.7		35.9		42.7				
Max Q Clear Time (g_c+I1), s				13.8		37.9		44.6				
Green Ext Time (p_c), s				6.9		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			39.8									
HCM 6th LOS			D									

Notes

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

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	430	370	2380	210	1010	540
v/c Ratio	0.21	0.24	1.16	0.13	1.10	0.35
Control Delay	23.3	0.4	110.8	0.2	88.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	0.4	110.8	0.2	88.5	0.6
Queue Length 50th (ft)	77	0	~798	0	~885	0
Queue Length 95th (ft)	102	0	#891	0	#1136	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	2076	1550	2055	1583	921	1563
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	0.21	0.24	1.16	0.13	1.10	0.35
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.						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑		↑			
Traffic Volume (veh/h)	0	430	370	0	2380	210	1010	0	540	0	0	0
Future Volume (veh/h)	0	430	370	0	2380	210	1010	0	540	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	430	0	0	2380	0	1010	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2064		0	2064		928	0				
Arrive On Green	0.00	0.40	0.00	0.00	0.40	0.00	0.52	0.00	0.00			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	1781	0	1585			
Grp Volume(v), veh/h	0	430	0	0	2380	0	1010	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.6	0.0	0.0	48.5	0.0	62.5	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	6.6	0.0	0.0	48.5	0.0	62.5	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2064		0	2064		928	0				
V/C Ratio(X)	0.00	0.21		0.00	1.15		1.09	0.00				
Avail Cap(c_a), veh/h	0	2085		0	2064		928	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	23.3	0.0	0.0	35.8	0.0	28.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	75.0	0.0	56.7	0.0	0.0			
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	0.0	2.5	0.0	0.0	32.6	0.0	39.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.3	0.0	0.0	110.8	0.0	85.4	0.0	0.0			
LnGrp LOS	A	C		A	F		F	A				
Approach Vol, veh/h		430	A		2380	A		1010	A			
Approach Delay, s/veh		23.3			110.8			85.4				
Approach LOS		C			F			F				
Timer - Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		54.0			54.0			66.0				
Change Period (Y+Rc), s		5.5			* 5.5			3.5				
Max Green Setting (Gmax), s		48.5			* 49			62.5				
Max Q Clear Time (g_c+I1), s		50.5			8.6			64.5				
Green Ext Time (p_c), s		0.0			2.1			0.0				
Intersection Summary												
HCM 6th Ctrl Delay			94.2									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + MPU + Cargo Conditions
AM Peak Hour

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	90	0	2450	0	890	190	0	1760	550
Future Vol, veh/h	0	0	0	90	0	2450	0	890	190	0	1760	550
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	-	-	Free	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	90	0	2450	0	890	190	0	1760	550
Major/Minor				Minor1		Major1			Major2			
Conflicting Flow All				1770	-	-	-	0	-	-	-	0
Stage 1				890	-	-	-	-	-	-	-	
Stage 2				880	-	-	-	-	-	-	-	
Critical Hdwy				6.63	-	-	-	-	-	-	-	
Critical Hdwy Stg 1				5.43	-	-	-	-	-	-	-	
Critical Hdwy Stg 2				5.83	-	-	-	-	-	-	-	
Follow-up Hdwy				3.519	-	-	-	-	-	-	-	
Pot Cap-1 Maneuver				~ 83	0	0	0	-	0	0	-	0
Stage 1				400	0	0	0	-	0	0	-	0
Stage 2				367	0	0	0	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver				~ 83	0	-	-	-	-	-	-	-
Mov Cap-2 Maneuver				~ 83	0	-	-	-	-	-	-	-
Stage 1				400	0	-	-	-	-	-	-	-
Stage 2				367	0	-	-	-	-	-	-	-
Approach				WB		NB			SB			
HCM Control Delay, s				214.1		0			0			
HCM LOS				F								
Minor Lane/Major Mvmt		NBTWBLn1WBLn2			SBT							
Capacity (veh/h)		- 83			-							
HCM Lane V/C Ratio		- 1.084			-							
HCM Control Delay (s)		- 214.1			0							
HCM Lane LOS		- F			A							
HCM 95th %tile Q(veh)		- 6.3			-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + MPU + Cargo Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	50.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Vol, veh/h	760	100	0	350	110	1710
Future Vol, veh/h	760	100	0	350	110	1710
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	760	100	0	350	110	1710
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	285	110	110	0	-	0
Stage 1	110	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 693	943	1479	-	-	0
Stage 1	914	-	-	-	-	0
Stage 2	838	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	~ 693	943	1479	-	-	-
Mov Cap-2 Maneuver	~ 693	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	78.1	0		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	
Capacity (veh/h)	1479	-	693	943	-	
HCM Lane V/C Ratio	-	-	1.097	0.106	-	
HCM Control Delay (s)	0	-	87.1	9.3	-	
HCM Lane LOS	A	-	F	A	-	
HCM 95th %tile Q(veh)	0	-	21.6	0.4	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	40	50	20	100	110
Future Vol, veh/h	20	40	50	20	100	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	40	50	20	100	110
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	370	60	0	0	70	0
Stage 1	60	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	630	1005	-	-	1531	-
Stage 1	963	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	586	1005	-	-	1531	-
Mov Cap-2 Maneuver	586	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.8	0		3.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	812	1531	-	
HCM Lane V/C Ratio	-	-	0.074	0.065	-	
HCM Control Delay (s)	-	-	9.8	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	10	60	40	0	120
Future Vol, veh/h	80	10	60	40	0	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	10	60	40	0	120
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	200	80	0	0	100	0
Stage 1	80	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	789	980	-	-	1493	-
Stage 1	943	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	789	980	-	-	1493	-
Mov Cap-2 Maneuver	789	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	806		1493	-	
HCM Lane V/C Ratio	-	0.112		-	-	
HCM Control Delay (s)	-	10		0	-	
HCM Lane LOS	-	B		A	-	
HCM 95th %tile Q(veh)	-	0.4		0	-	

Intersection

Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	290	150	30	170	190
Future Vol, veh/h	40	290	150	30	170	190
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	290	150	30	170	190
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	11.8	10.2	15.7
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	47%
Vol Thru, %	100%	0%	0%	0%	53%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	30	40	290	360
LT Vol	0	0	40	0	170
Through Vol	150	0	0	0	190
RT Vol	0	30	0	290	0
Lane Flow Rate	150	30	40	290	360
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.248	0.044	0.073	0.43	0.563
Departure Headway (Hd)	5.947	5.237	6.548	5.336	5.628
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	605	684	548	676	641
Service Time	3.676	2.966	4.278	3.065	3.651
HCM Lane V/C Ratio	0.248	0.044	0.073	0.429	0.562
HCM Control Delay	10.6	8.2	9.8	12.1	15.7
HCM Lane LOS	B	A	A	B	C
HCM 95th-tile Q	1	0.1	0.2	2.2	3.5

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative + MPU + Cargo Conditions
AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	30	180	20	150	50	190	270	90	890
v/c Ratio	0.19	0.07	0.35	0.18	0.39	0.11	0.59	0.14	0.37	0.64
Control Delay	36.6	18.2	5.4	39.5	25.2	0.5	38.4	17.5	33.9	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	18.2	5.4	39.5	25.2	0.5	38.4	17.5	33.9	23.1
Queue Length 50th (ft)	9	8	0	6	44	0	58	20	27	84
Queue Length 95th (ft)	45	29	41	35	106	0	#233	65	96	214
Internal Link Dist (ft)	3313			367			2142			3285
Turn Bay Length (ft)	175		175	175		175	400		400	
Base Capacity (vph)	161	1045	955	112	994	911	326	2013	310	1840
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.03	0.19	0.18	0.15	0.05	0.58	0.13	0.29	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	30	180	20	150	50	190	250	20	90	780	110
Future Volume (veh/h)	30	30	180	20	150	50	190	250	20	90	780	110
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	30	180	20	150	50	190	250	20	90	780	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	341	288	26	266	225	240	1616	127	116	1201	168
Arrive On Green	0.05	0.18	0.18	0.01	0.14	0.14	0.13	0.33	0.33	0.07	0.27	0.27
Sat Flow, veh/h	1781	1870	1580	1781	1870	1578	1781	4825	379	1781	4524	633
Grp Volume(v), veh/h	30	30	180	20	150	50	190	175	95	90	585	305
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1578	1781	1702	1801	1781	1702	1754
Q Serve(g_s), s	0.9	0.7	5.7	0.6	4.0	1.5	5.6	1.9	2.0	2.7	8.2	8.3
Cycle Q Clear(g_c), s	0.9	0.7	5.7	0.6	4.0	1.5	5.6	1.9	2.0	2.7	8.2	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		0.36
Lane Grp Cap(c), veh/h	97	341	288	26	266	225	240	1140	603	116	904	466
V/C Ratio(X)	0.31	0.09	0.62	0.78	0.56	0.22	0.79	0.15	0.16	0.77	0.65	0.65
Avail Cap(c_a), veh/h	175	1132	956	122	1077	909	354	1378	729	337	1346	694
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	24.5	18.3	20.3	26.5	21.5	20.5	22.6	12.6	12.6	24.8	17.5	17.6
Incr Delay (d2), s/veh	1.8	0.1	2.2	38.6	1.9	0.5	7.3	0.1	0.1	10.4	0.8	1.6
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	0.4	0.3	2.0	0.5	1.7	0.5	2.4	0.6	0.6	1.3	2.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	18.4	22.5	65.0	23.4	21.0	29.8	12.6	12.7	35.2	18.3	19.1
LnGrp LOS	C	B	C	E	C	C	C	B	B	D	B	B
Approach Vol, veh/h		240			220			460			980	
Approach Delay, s/veh		22.5			26.6			19.7			20.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	23.9	6.3	14.6	12.8	20.2	8.4	12.5				
Change Period (Y+Rc), s	5.5	5.9	5.5	4.8	5.5	5.9	5.5	4.8				
Max Green Setting (Gmax), s	10.2	21.8	3.7	32.6	10.7	21.3	5.3	31.0				
Max Q Clear Time (g_c+I1), s	4.7	4.0	2.6	7.7	7.6	10.3	2.9	6.0				
Green Ext Time (p_c), s	0.1	1.2	0.0	0.7	0.1	3.8	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			21.1									
HCM 6th LOS			C									

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	30	10	10	580	1060
v/c Ratio	0.08	0.03	0.04	0.14	0.26
Control Delay	17.0	10.3	27.4	4.5	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	10.3	27.4	4.5	7.2
Queue Length 50th (ft)	4	0	1	0	0
Queue Length 95th (ft)	28	10	21	82	206
Internal Link Dist (ft)	2842			686	2142
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	1454	1285	300	4492	4055
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.03	0.13	0.26
Intersection Summary					

SMF Master Plan Update
19: Metro Air Parkway & Road D

Cumulative + MPU + Cargo Conditions
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	  	
Traffic Volume (veh/h)	30	10	10	580	990	70
Future Volume (veh/h)	30	10	10	580	990	70
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	10	10	580	990	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	50	45	14	3097	2056	145
Arrive On Green	0.03	0.03	0.01	0.61	0.42	0.42
Sat Flow, veh/h	1781	1585	1781	5274	5036	344
Grp Volume(v), veh/h	30	10	10	580	692	368
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1808
Q Serve(g_s), s	0.5	0.2	0.2	1.6	4.6	4.6
Cycle Q Clear(g_c), s	0.5	0.2	0.2	1.6	4.6	4.6
Prop In Lane	1.00	1.00	1.00			0.19
Lane Grp Cap(c), veh/h	50	45	14	3097	1437	763
V/C Ratio(X)	0.60	0.22	0.70	0.19	0.48	0.48
Avail Cap(c_a), veh/h	1969	1752	371	7216	3502	1859
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	15.0	14.8	15.4	2.7	6.5	6.5
Incr Delay (d2), s/veh	10.9	2.5	47.8	0.0	0.3	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	0.3	0.0	0.2	0.0	0.5	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.9	17.3	63.2	2.8	6.8	7.0
LnGrp LOS	C	B	E	A	A	A
Approach Vol, veh/h	40			590	1060	
Approach Delay, s/veh	23.7			3.8	6.9	
Approach LOS	C			A	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	24.8			6.4	5.7	19.1
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	44.1			34.5	6.5	32.1
Max Q Clear Time (g_c+I1), s	3.6			2.5	2.2	6.6
Green Ext Time (p_c), s	3.7			0.1	0.0	6.5
Intersection Summary						
HCM 6th Ctrl Delay			6.2			
HCM 6th LOS			A			

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	70	250	600	840	960
v/c Ratio	0.22	0.52	1.24	0.26	0.69
Control Delay	23.2	7.2	149.4	6.8	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	7.2	149.4	6.8	23.2
Queue Length 50th (ft)	23	0	~265	33	98
Queue Length 95th (ft)	52	45	#720	132	225
Internal Link Dist (ft)	1671			1050	4086
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	999	991	485	3578	1713
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.25	1.24	0.23	0.56
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.					

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Cumulative + MPU + Cargo Conditions
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	  	
Traffic Volume (veh/h)	70	250	600	840	750	210
Future Volume (veh/h)	70	250	600	840	750	210
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	250	600	840	750	210
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	352	313	483	3170	1041	288
Arrive On Green	0.20	0.20	0.27	0.62	0.26	0.26
Sat Flow, veh/h	1781	1585	1781	5274	4140	1100
Grp Volume(v), veh/h	70	250	600	840	642	318
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1667
Q Serve(g_s), s	2.1	9.4	17.0	4.7	10.8	10.9
Cycle Q Clear(g_c), s	2.1	9.4	17.0	4.7	10.8	10.9
Prop In Lane	1.00	1.00	1.00			0.66
Lane Grp Cap(c), veh/h	352	313	483	3170	892	437
V/C Ratio(X)	0.20	0.80	1.24	0.26	0.72	0.73
Avail Cap(c_a), veh/h	994	884	483	3549	1145	561
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	21.0	24.0	22.9	5.4	21.0	21.1
Incr Delay (d2), s/veh	0.3	4.7	125.9	0.0	1.6	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	22.6	0.9	3.7	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.3	28.7	148.8	5.4	22.6	24.6
LnGrp LOS	C	C	F	A	C	C
Approach Vol, veh/h	320			1440	960	
Approach Delay, s/veh	27.1			65.2	23.3	
Approach LOS	C			E	C	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	44.8			17.9	22.5	22.3
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	43.6			35.0	17.0	21.1
Max Q Clear Time (g_c+I1), s	6.7			11.4	19.0	12.9
Green Ext Time (p_c), s	5.7			1.0	0.0	3.4
Intersection Summary						
HCM 6th Ctrl Delay			45.9			
HCM 6th LOS			D			

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative + MPU + Cargo Conditions
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	30	130	470	450	310	380	80	1190	100	90	1230
v/c Ratio	0.35	0.17	0.93	0.93	0.48	0.53	0.73	0.92	0.18	0.78	0.94
Control Delay	70.3	35.8	48.9	78.9	31.8	10.6	96.2	55.1	0.7	99.1	57.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	35.8	48.9	78.9	31.8	10.6	96.2	55.1	0.7	99.1	57.7
Queue Length 50th (ft)	24	42	213	189	195	53	34	348	0	38	363
Queue Length 95th (ft)	59	69	#405	#310	284	149	#80	#468	0	#90	#493
Internal Link Dist (ft)		450			475			2094			1585
Turn Bay Length (ft)	375		375	425		425	400		400	400	
Base Capacity (vph)	91	992	587	483	691	745	109	1298	546	116	1309
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.13	0.80	0.93	0.45	0.51	0.73	0.92	0.18	0.78	0.94

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	130	470	450	310	380	80	1190	100	90	1220	10
Future Volume (vph)	30	130	470	450	310	380	80	1190	100	90	1220	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9	
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1593	3185	1405	3090	1676	1405	3090	4577	1404	3090	4571	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1593	3185	1405	3090	1676	1405	3090	4577	1404	3090	4571	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	130	470	450	310	380	80	1190	100	90	1220	10
RTOR Reduction (vph)	0	0	160	0	0	175	0	0	72	0	1	0
Lane Group Flow (vph)	30	130	310	450	310	205	80	1190	28	90	1229	0
Confl. Peds. (#/hr)			2			2			2			2
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	4.0	32.5	32.5	19.2	47.7	47.7	4.3	34.8	34.8	4.6	35.1	
Effective Green, g (s)	4.0	32.5	32.5	19.2	47.7	47.7	4.3	34.8	34.8	4.6	35.1	
Actuated g/C Ratio	0.03	0.26	0.26	0.15	0.38	0.38	0.03	0.28	0.28	0.04	0.28	
Clearance Time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	51	829	365	475	640	537	106	1276	391	113	1285	
v/s Ratio Prot	0.02	0.04		c0.15	0.18		0.03	0.26		c0.03	c0.27	
v/s Ratio Perm			c0.22			0.15			0.02			
v/c Ratio	0.59	0.16	0.85	0.95	0.48	0.38	0.75	0.93	0.07	0.80	0.96	
Uniform Delay, d1	59.6	35.6	43.8	52.3	29.2	27.9	59.7	43.9	33.1	59.6	44.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.1	0.1	16.5	28.2	0.6	0.5	25.8	12.3	0.1	31.0	15.7	
Delay (s)	75.7	35.7	60.3	80.5	29.8	28.3	85.6	56.2	33.2	90.6	59.8	
Level of Service	E	D	E	F	C	C	F	E	C	F	E	
Approach Delay (s)		55.9			49.3			56.2			61.9	
Approach LOS		E			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			56.1									
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			124.8									
Intersection Capacity Utilization			86.8%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative + MPU + Cargo Conditions
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	10	1310	780	250	1360	790
v/c Ratio	0.01	0.96	0.54	0.16	0.66	0.72
Control Delay	13.8	38.3	21.3	0.2	22.7	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	38.3	21.3	0.2	22.7	5.8
Queue Length 50th (ft)	3	368	167	0	216	0
Queue Length 95th (ft)	12	#550	222	0	265	71
Internal Link Dist (ft)			551		2094	
Turn Bay Length (ft)						400
Base Capacity (vph)	825	1370	1552	1583	2230	1121
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	0.01	0.96	0.50	0.16	0.61	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	1310	0	780	250	0	1360	790
Future Volume (veh/h)	0	0	0	10	0	1310	0	780	250	0	1360	790
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				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				10	0	1310	0	780	0	0	1360	790
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				802	0	1255	0	1504		0	2162	669
Arrive On Green				0.45	0.00	0.45	0.00	0.42	0.00	0.00	0.42	0.42
Sat Flow, veh/h				1781	0	2790	0	3647	1585	0	5274	1581
Grp Volume(v), veh/h				10	0	1310	0	780	0	0	1360	790
Grp Sat Flow(s),veh/h/ln				1781	0	1395	0	1777	1585	0	1702	1581
Q Serve(g_s), s				0.3	0.0	40.5	0.0	14.6	0.0	0.0	18.8	38.1
Cycle Q Clear(g_c), s				0.3	0.0	40.5	0.0	14.6	0.0	0.0	18.8	38.1
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				802	0	1255	0	1504		0	2162	669
V/C Ratio(X)				0.01	0.00	1.04	0.00	0.52		0.00	0.63	1.18
Avail Cap(c_a), veh/h				802	0	1255	0	1504		0	2162	669
HCM Platoon Ratio				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	1.00	0.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.7	0.0	24.8	0.0	19.2	0.0	0.0	20.4	26.0
Incr Delay (d2), s/veh				0.0	0.0	37.5	0.0	0.3	0.0	0.0	0.6	95.9
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				0.1	0.0	18.7	0.0	5.3	0.0	0.0	6.5	29.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.7	0.0	62.3	0.0	19.5	0.0	0.0	21.0	121.9
LnGrp LOS				B	A	F	A	B		A	C	F
Approach Vol, veh/h					1320			780	A		2150	
Approach Delay, s/veh					61.9			19.5			58.1	
Approach LOS					E			B			E	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	44.0			44.0			46.0					
Change Period (Y+Rc), s	5.9			5.9			5.5					
Max Green Setting (Gmax), s	38.1			38.1			40.5					
Max Q Clear Time (g_c+I1), s	16.6			40.1			42.5					
Green Ext Time (p_c), s	4.6			0.0			0.0					
Intersection Summary												
HCM 6th Ctrl Delay	52.2											
HCM 6th LOS	D											

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative + MPU + Cargo Conditions
AM Peak Hour



Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	530	80	550	90	100	1310
v/c Ratio	0.69	0.11	0.51	0.17	0.09	0.85
Control Delay	16.2	2.9	15.9	5.0	13.2	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	2.9	15.9	5.0	13.2	6.8
Queue Length 50th (ft)	100	0	57	0	8	0
Queue Length 95th (ft)	228	18	131	27	29	#25
Internal Link Dist (ft)			529		551	
Turn Bay Length (ft)						
Base Capacity (vph)	1659	1468	2553	1167	2553	1550
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	0.32	0.05	0.22	0.08	0.04	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative + MPU + Cargo Conditions

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	530	0	80	0	0	0	0	550	90	0	100	1310
Future Volume (veh/h)	530	0	80	0	0	0	0	550	90	0	100	1310
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	1870	0	1870				0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	530	0	80				0	550	90	0	100	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	676	0	602				0	1028	458	0	1028	
Arrive On Green	0.38	0.00	0.38				0.00	0.29	0.29	0.00	0.29	0.00
Sat Flow, veh/h	1781	0	1585				0	3647	1585	0	3647	1585
Grp Volume(v), veh/h	530	0	80				0	550	90	0	100	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1585	0	1777	1585
Q Serve(g_s), s	9.0	0.0	1.1				0.0	4.5	1.5	0.0	0.7	0.0
Cycle Q Clear(g_c), s	9.0	0.0	1.1				0.0	4.5	1.5	0.0	0.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	676	0	602				0	1028	458	0	1028	
V/C Ratio(X)	0.78	0.00	0.13				0.00	0.54	0.20	0.00	0.10	
Avail Cap(c_a), veh/h	2458	0	2187				0	3211	1432	0	3211	
HCM Platoon Ratio	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	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	9.4	0.0	7.0				0.0	10.3	9.2	0.0	8.9	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.1				0.0	0.4	0.2	0.0	0.0	0.0
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	2.5	0.0	0.3				0.0	1.0	0.3	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.5	0.0	7.1				0.0	10.7	9.4	0.0	9.0	0.0
LnGrp LOS	B	A	A				A	B	A	A	A	
Approach Vol, veh/h	610						640			100		
Approach Delay, s/veh	10.9						10.5			9.0		
Approach LOS	B						B			A		
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	15.9			18.6			15.9					
Change Period (Y+Rc), s	5.9			5.5			5.9					
Max Green Setting (Gmax), s	31.1			47.5			31.1					
Max Q Clear Time (g_c+I1), s	6.5			11.0			2.7					
Green Ext Time (p_c), s	3.5			2.1			0.5					
Intersection Summary												
HCM 6th Ctrl Delay	10.6											
HCM 6th LOS	B											

Notes

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

SMF Master Plan Update
1: Garden Hwy & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	30	50	40	20	10
Future Vol, veh/h	20	30	50	40	20	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	30	50	40	20	10
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	120	70	0	0	90	0
Stage 1	70	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	876	993	-	-	1505	-
Stage 1	953	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	865	993	-	-	1505	-
Mov Cap-2 Maneuver	865	-	-	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		4.9		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		938	1505	
HCM Lane V/C Ratio	-	-		0.053	0.013	
HCM Control Delay (s)	-	-		9.1	7.4	
HCM Lane LOS	-	-		A	A	
HCM 95th %tile Q(veh)	-	-		0.2	0	

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	40	20	150	50	20	300
v/c Ratio	0.09	0.05	0.06	0.03	0.05	0.13
Control Delay	14.8	8.4	12.8	3.9	15.1	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	8.4	12.8	3.9	15.1	1.4
Queue Length 50th (ft)	4	0	0	0	2	0
Queue Length 95th (ft)	34	14	60	26	21	18
Internal Link Dist (ft)	4683			1755	1647	
Turn Bay Length (ft)		175	300			175
Base Capacity (vph)	1570	1319	2550	1740	1435	2303
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	0.03	0.02	0.06	0.03	0.01	0.13
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			 			 
Traffic Volume (veh/h)	40	20	150	50	20	300
Future Volume (veh/h)	40	20	150	50	20	300
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	20	150	50	20	300
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	129	108	434	744	324	857
Arrive On Green	0.07	0.07	0.13	0.40	0.18	0.18
Sat Flow, veh/h	1870	1571	3456	1870	1781	2790
Grp Volume(v), veh/h	40	20	150	50	20	300
Grp Sat Flow(s),veh/h/ln	1870	1571	1728	1870	1781	1395
Q Serve(g_s), s	0.6	0.3	1.1	0.4	0.3	2.3
Cycle Q Clear(g_c), s	0.6	0.3	1.1	0.4	0.3	2.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	129	108	434	744	324	857
V/C Ratio(X)	0.31	0.18	0.35	0.07	0.06	0.35
Avail Cap(c_a), veh/h	2078	1745	2104	3596	1742	3079
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	12.0	11.9	10.8	5.1	9.2	7.3
Incr Delay (d2), s/veh	1.4	0.8	0.5	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.2	0.0	0.1	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.4	12.7	11.3	5.1	9.3	7.5
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	60			200	320	
Approach Delay, s/veh	13.1			9.7	7.6	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.9	7.8			16.7	10.4
Change Period (Y+Rc), s	5.5	5.9			5.9	5.5
Max Green Setting (Gmax), s	16.5	30.1			52.1	26.5
Max Q Clear Time (g_c+I1), s	3.1	2.6			2.4	4.3
Green Ext Time (p_c), s	0.3	0.2			0.2	1.1
Intersection Summary						
HCM 6th Ctrl Delay			8.9			
HCM 6th LOS			A			
Notes						
User approved pedestrian interval to be less than phase max green.						

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	200	50	80	110	10	40	30	230	10	10	20
v/c Ratio	0.07	0.34	0.08	0.26	0.13	0.01	0.15	0.07	0.43	0.07	0.03	0.04
Control Delay	32.7	20.7	0.2	26.1	12.1	0.0	28.1	17.8	5.8	32.7	22.8	0.2
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	32.7	20.7	0.2	26.1	12.1	0.0	28.1	17.8	5.8	32.7	22.8	0.2
Queue Length 50th (ft)	2	39	0	16	10	0	8	6	0	2	2	0
Queue Length 95th (ft)	21	151	0	80	76	0	50	31	48	21	16	0
Internal Link Dist (ft)	1889			3503			1141			1439		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	146	1017	950	481	1309	1135	314	1249	1113	146	1106	1012
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.20	0.05	0.17	0.08	0.01	0.13	0.02	0.21	0.07	0.01	0.02
Intersection Summary												

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	200	50	80	110	10	40	30	230	10	10	20
Future Volume (veh/h)	10	200	50	80	110	10	40	30	230	10	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	200	50	80	110	10	40	30	230	10	10	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	14	332	280	101	423	357	48	385	325	14	350	295
Arrive On Green	0.01	0.18	0.18	0.06	0.23	0.23	0.03	0.21	0.21	0.01	0.19	0.19
Sat Flow, veh/h	1781	1870	1576	1781	1870	1578	1781	1870	1577	1781	1870	1577
Grp Volume(v), veh/h	10	200	50	80	110	10	40	30	230	10	10	20
Grp Sat Flow(s),veh/h/ln	1781	1870	1576	1781	1870	1578	1781	1870	1577	1781	1870	1577
Q Serve(g_s), s	0.2	4.1	1.1	1.8	2.0	0.2	0.9	0.5	5.6	0.2	0.2	0.4
Cycle Q Clear(g_c), s	0.2	4.1	1.1	1.8	2.0	0.2	0.9	0.5	5.6	0.2	0.2	0.4
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	14	332	280	101	423	357	48	385	325	14	350	295
V/C Ratio(X)	0.71	0.60	0.18	0.79	0.26	0.03	0.84	0.08	0.71	0.71	0.03	0.07
Avail Cap(c_a), veh/h	151	1046	881	496	1408	1188	323	1318	1111	151	1137	958
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	20.4	15.6	14.4	19.2	13.1	12.4	20.0	13.2	15.2	20.4	13.7	13.8
Incr Delay (d2), s/veh	49.7	1.8	0.3	12.7	0.3	0.0	30.2	0.1	2.8	49.7	0.0	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	0.3	1.4	0.3	0.9	0.6	0.1	0.7	0.2	1.6	0.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.2	17.4	14.7	32.0	13.5	12.5	50.2	13.3	18.1	70.2	13.8	13.9
LnGrp LOS	E	B	B	C	B	B	D	B	B	E	B	B
Approach Vol, veh/h		260			200			300			40	
Approach Delay, s/veh		18.9			20.8			21.9			27.9	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	14.4	7.8	13.2	6.6	13.6	5.8	15.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.5	29.1	11.5	23.1	7.5	25.1	3.5	31.1				
Max Q Clear Time (g_c+I1), s	2.2	7.6	3.8	6.1	2.9	2.4	2.2	4.0				
Green Ext Time (p_c), s	0.0	0.8	0.1	0.9	0.0	0.1	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	500	10	280	240	10	1210
v/c Ratio	0.83	0.02	0.64	0.13	0.02	0.90
Control Delay	38.8	11.6	43.0	10.6	19.0	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	11.6	43.0	10.6	19.0	21.1
Queue Length 50th (ft)	237	0	74	32	3	153
Queue Length 95th (ft)	#404	11	#133	54	14	#287
Internal Link Dist (ft)	3503			1595	3285	
Turn Bay Length (ft)		150	375			
Base Capacity (vph)	772	652	462	2203	752	1550
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	0.65	0.02	0.61	0.11	0.01	0.78

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
4: Metro Air Parkway & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↖↗	↑↑	↖	↖↗
Traffic Volume (veh/h)	500	10	280	240	10	1210
Future Volume (veh/h)	500	10	280	240	10	1210
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	500	10	280	240	10	1210
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	564	477	363	1683	691	1082
Arrive On Green	0.30	0.30	0.10	0.47	0.39	0.39
Sat Flow, veh/h	1870	1580	3456	3647	1781	2790
Grp Volume(v), veh/h	500	10	280	240	10	1210
Grp Sat Flow(s),veh/h/ln	1870	1580	1728	1777	1781	1395
Q Serve(g_s), s	21.0	0.4	6.5	3.1	0.3	31.9
Cycle Q Clear(g_c), s	21.0	0.4	6.5	3.1	0.3	31.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	564	477	363	1683	691	1082
V/C Ratio(X)	0.89	0.02	0.77	0.14	0.01	1.12
Avail Cap(c_a), veh/h	707	597	424	2018	691	1082
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	27.4	20.2	35.8	12.2	15.5	25.2
Incr Delay (d2), s/veh	11.0	0.0	7.3	0.0	0.0	65.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.1	2.9	1.0	0.1	18.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.4	20.2	43.2	12.3	15.5	91.1
LnGrp LOS	D	C	D	B	B	F
Approach Vol, veh/h	510			520	1220	
Approach Delay, s/veh	38.1			28.9	90.4	
Approach LOS	D			C	F	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		37.4	14.1	30.7		44.8
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		31.9	10.1	31.1		46.7
Max Q Clear Time (g_c+I1), s		33.9	8.5	23.0		5.1
Green Ext Time (p_c), s		0.0	0.2	1.7		1.4
Intersection Summary						
HCM 6th Ctrl Delay			64.3			
HCM 6th LOS			E			

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2505	20	40	575	10	90
v/c Ratio	0.93	0.02	0.71	0.20	0.06	0.48
Control Delay	22.5	5.0	120.3	3.5	51.9	35.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	5.0	120.3	3.5	51.9	35.7
Queue Length 50th (ft)	750	2	33	35	8	33
Queue Length 95th (ft)	#1556	14	#116	114	25	85
Internal Link Dist (ft)	1595			3525	10448	
Turn Bay Length (ft)		150	180			175
Base Capacity (vph)	2693	1174	56	2920	436	417
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	0.93	0.02	0.71	0.20	0.02	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
5: Lone Tree Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	2505	20	40	575	10	90
Future Volume (veh/h)	2505	20	40	575	10	90
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2505	20	40	575	10	90
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2703	1204	51	2966	128	114
Arrive On Green	0.76	0.76	0.03	0.83	0.07	0.07
Sat Flow, veh/h	3647	1583	1781	3647	1781	1585
Grp Volume(v), veh/h	2505	20	40	575	10	90
Grp Sat Flow(s),veh/h/ln	1777	1583	1781	1777	1781	1585
Q Serve(g_s), s	69.6	0.4	2.7	3.9	0.6	6.8
Cycle Q Clear(g_c), s	69.6	0.4	2.7	3.9	0.6	6.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2703	1204	51	2966	128	114
V/C Ratio(X)	0.93	0.02	0.78	0.19	0.08	0.79
Avail Cap(c_a), veh/h	2833	1262	60	3113	467	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	3.5	58.8	2.0	52.8	55.6
Incr Delay (d2), s/veh	5.8	0.0	42.2	0.0	0.3	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.6	0.1	1.8	0.6	0.3	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.7	3.5	100.9	2.0	53.0	67.1
LnGrp LOS	B	A	F	A	D	E
Approach Vol, veh/h	2525			615	100	
Approach Delay, s/veh	17.6			8.5	65.7	
Approach LOS	B			A	E	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		14.2	9.0	98.6		107.6
Change Period (Y+Rc), s		5.5	5.5	5.9		5.9
Max Green Setting (Gmax), s		31.9	4.1	97.1		106.7
Max Q Clear Time (g_c+l1), s		8.8	4.7	71.6		5.9
Green Ext Time (p_c), s		0.2	0.0	21.0		3.6
Intersection Summary						
HCM 6th Ctrl Delay			17.3			
HCM 6th LOS			B			

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour

	→	↘	←	↖	↘	↖
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1400	300	170	80	80	210
v/c Ratio	0.78	0.19	0.10	0.05	0.21	0.35
Control Delay	14.1	0.3	7.5	0.1	17.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	0.3	7.5	0.1	17.0	7.4
Queue Length 50th (ft)	96	0	7	0	14	0
Queue Length 95th (ft)	435	0	44	0	62	37
Internal Link Dist (ft)	764		1208			
Turn Bay Length (ft)		425		240		650
Base Capacity (vph)	3305	1550	3302	1550	1638	2402
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	0.42	0.19	0.05	0.05	0.05	0.09
Intersection Summary						

SMF Master Plan Update
6: Elverta Rd & SR-99 SB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘		↗↗
Traffic Volume (vph)	0	1400	300	0	170	80	0	0	0	80	0	210
Future Volume (vph)	0	1400	300	0	170	80	0	0	0	80	0	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0		6.8	4.0				4.4		4.4
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3539	1550		3539	1550				1770		2787
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3539	1550		3539	1550				1770		2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1400	300	0	170	80	0	0	0	80	0	210
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	179
Lane Group Flow (vph)	0	1400	300	0	170	80	0	0	0	80	0	31
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Free				Prot		Prot
Protected Phases		6			2					8		4
Permitted Phases			Free			Free						
Actuated Green, G (s)		23.2	47.7		22.8	47.7				13.7		7.0
Effective Green, g (s)		23.2	47.7		22.8	47.7				13.7		7.0
Actuated g/C Ratio		0.49	1.00		0.48	1.00				0.29		0.15
Clearance Time (s)		6.4			6.8					4.4		4.4
Vehicle Extension (s)		1.0			1.0					1.0		1.0
Lane Grp Cap (vph)		1721	1550		1691	1550				508		408
v/s Ratio Prot		c0.40			0.05					0.05		0.01
v/s Ratio Perm			c0.19			0.05						
v/c Ratio		0.81	0.19		0.10	0.05				0.16		0.08
Uniform Delay, d1		10.4	0.0		6.8	0.0				12.7		17.6
Progression Factor		1.00	1.00		1.00	1.00				1.00		1.00
Incremental Delay, d2		2.9	0.3		0.0	0.1				0.1		0.0
Delay (s)		13.3	0.3		6.8	0.1				12.7		17.6
Level of Service		B	A		A	A				B		B
Approach Delay (s)		11.0			4.7			0.0			16.3	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			47.7		Sum of lost time (s)					15.6		
Intersection Capacity Utilization			51.8%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

							
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	510	960	290	240	85	85	590
v/c Ratio	0.57	0.62	0.35	0.44	0.34	0.34	0.37
Control Delay	18.0	1.9	16.5	6.0	24.8	24.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	1.9	16.5	6.0	24.8	24.7	3.0
Queue Length 50th (ft)	49	0	27	0	17	17	10
Queue Length 95th (ft)	142	0	84	48	81	80	46
Internal Link Dist (ft)	1208		511			1333	
Turn Bay Length (ft)		210		290	495		495
Base Capacity (vph)	3450	1550	3441	1499	1390	1401	2726
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	0.15	0.62	0.08	0.16	0.06	0.06	0.22
Intersection Summary							

SMF Master Plan Update
7: SR-99 NB Ramps & Elverta Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (vph)	0	510	960	0	290	240	160	10	590	0	0	0
Future Volume (vph)	0	510	960	0	290	240	160	10	590	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		5.8	5.8	5.5	5.5	5.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.95	0.88			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		3539	1550		3539	1547	1681	1695	2787			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		3539	1550		3539	1547	1681	1695	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	510	960	0	290	240	160	10	590	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	182	0	0	205	0	0	0
Lane Group Flow (vph)	0	510	960	0	290	58	85	85	385	0	0	0
Confl. Peds. (#/hr)			2			2						
Turn Type		NA	Free		NA	Perm	Split	NA	custom			
Protected Phases		6			2		8	8	7 8			
Permitted Phases			Free			2						
Actuated Green, G (s)		11.4	43.4		10.5	10.5	6.6	6.6	21.6			
Effective Green, g (s)		11.4	43.4		10.5	10.5	6.6	6.6	21.6			
Actuated g/C Ratio		0.26	1.00		0.24	0.24	0.15	0.15	0.50			
Clearance Time (s)		4.9			5.8	5.8	5.5	5.5				
Vehicle Extension (s)		1.0			1.0	1.0	1.0	1.0				
Lane Grp Cap (vph)		929	1550		856	374	255	257	1387			
v/s Ratio Prot		0.14			0.08		0.05	0.05	0.14			
v/s Ratio Perm			c0.62			0.04						
v/c Ratio		0.55	0.62		0.34	0.16	0.33	0.33	0.28			
Uniform Delay, d1		13.8	0.0		13.6	13.0	16.4	16.4	6.4			
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.4	1.9		0.1	0.1	0.3	0.3	0.1			
Delay (s)		14.1	1.9		13.7	13.0	16.7	16.7	6.5			
Level of Service		B	A		B	B	B	B	A			
Approach Delay (s)		6.1			13.4			8.8			0.0	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.2									
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			43.4									
Intersection Capacity Utilization			43.7%									
Analysis Period (min)			15									
c Critical Lane Group												

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	60	1140	310	160	860	40	130	310	580	30	100	70
v/c Ratio	0.53	0.94	0.43	0.87	0.59	0.06	0.62	0.53	0.93	0.51	0.25	0.15
Control Delay	62.4	47.2	5.6	84.9	26.2	0.1	59.0	30.3	44.7	77.5	30.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	47.2	5.6	84.9	26.2	0.1	59.0	30.3	44.7	77.5	30.0	0.7
Queue Length 50th (ft)	38	~394	5	103	244	0	84	158	249	19	48	0
Queue Length 95th (ft)	#91	#538	66	#230	314	0	#198	242	#466	#65	91	0
Internal Link Dist (ft)		745			1992			1063			3284	
Turn Bay Length (ft)	250		250	250		250	250		250	250		250
Base Capacity (vph)	116	1212	725	183	1451	722	209	664	680	59	565	579
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.94	0.43	0.87	0.59	0.06	0.62	0.47	0.85	0.51	0.18	0.12

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.

SMF Master Plan Update
8: Power Line Rd & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1140	310	160	860	40	130	310	580	30	100	70
Future Volume (veh/h)	60	1140	310	160	860	40	130	310	580	30	100	70
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	1140	0	160	860	0	130	310	580	30	100	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	1135		173	1326		144	622	526	37	509	431
Arrive On Green	0.04	0.32	0.00	0.10	0.37	0.00	0.08	0.33	0.33	0.02	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1582	1781	1870	1582
Grp Volume(v), veh/h	60	1140	0	160	860	0	130	310	580	30	100	70
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1582	1781	1870	1582
Q Serve(g_s), s	3.3	31.6	0.0	8.8	19.8	0.0	7.2	13.1	32.9	1.7	4.1	3.3
Cycle Q Clear(g_c), s	3.3	31.6	0.0	8.8	19.8	0.0	7.2	13.1	32.9	1.7	4.1	3.3
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	77	1135		173	1326		144	622	526	37	509	431
V/C Ratio(X)	0.78	1.00		0.93	0.65		0.90	0.50	1.10	0.81	0.20	0.16
Avail Cap(c_a), veh/h	110	1135		173	1326		144	622	526	56	529	448
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	33.7	0.0	44.3	25.7	0.0	45.1	26.4	33.0	48.3	27.7	27.4
Incr Delay (d2), s/veh	19.7	27.8	0.0	47.5	1.1	0.0	47.3	0.6	70.3	39.2	0.2	0.2
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	1.8	16.6	0.0	5.9	7.7	0.0	4.9	5.4	21.6	1.1	1.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.6	61.5	0.0	91.8	26.8	0.0	92.4	27.0	103.3	87.5	27.9	27.6
LnGrp LOS	E	F		F	C		F	C	F	F	C	C
Approach Vol, veh/h		1200	A		1020	A		1020			200	
Approach Delay, s/veh		61.8			37.0			78.8			36.7	
Approach LOS		E			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	38.8	15.1	37.5	13.5	32.9	9.8	42.8				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.1	32.9	9.6	31.6	8.0	28.0	6.1	35.1				
Max Q Clear Time (g_c+I1), s	3.7	34.9	10.8	33.6	9.2	6.1	5.3	21.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.6	0.0	4.3				

Intersection Summary

HCM 6th Ctrl Delay	58.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

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

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	560	1040	27	227	1070	120	10	820	200	280	1167	180
v/c Ratio	0.99	0.61	0.04	0.58	0.73	0.21	0.10	0.66	0.38	0.91	0.62	0.26
Control Delay	82.0	32.4	0.1	53.9	38.4	2.9	60.9	39.7	6.7	84.0	30.1	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	82.0	32.4	0.1	53.9	38.4	2.9	60.9	39.7	6.7	84.0	30.1	4.9
Queue Length 50th (ft)	196	212	0	75	237	0	3	184	0	98	228	0
Queue Length 95th (ft)	#428	327	0	142	347	21	14	257	56	#240	356	49
Internal Link Dist (ft)	1627			1756			1585			1050		
Turn Bay Length (ft)	450		450	400		400	400		400	400		400
Base Capacity (vph)	566	2133	745	485	2013	712	96	2070	754	307	2382	826
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.49	0.04	0.47	0.53	0.17	0.10	0.40	0.27	0.91	0.49	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
9: Metro Air Parkway & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	560	1040	27	227	1070	120	10	820	200	280	1167	180
Future Volume (veh/h)	560	1040	27	227	1070	120	10	820	200	280	1167	180
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	560	1040	27	227	1070	120	10	820	200	280	1167	180
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	585	1872	580	300	1451	450	25	1194	370	318	1626	504
Arrive On Green	0.17	0.37	0.37	0.09	0.28	0.28	0.01	0.23	0.23	0.09	0.32	0.32
Sat Flow, veh/h	3456	5106	1582	3456	5106	1582	3456	5106	1581	3456	5106	1582
Grp Volume(v), veh/h	560	1040	27	227	1070	120	10	820	200	280	1167	180
Grp Sat Flow(s),veh/h/ln	1728	1702	1582	1728	1702	1582	1728	1702	1581	1728	1702	1582
Q Serve(g_s), s	16.6	16.7	1.1	6.6	19.6	6.1	0.3	15.1	11.5	8.3	20.9	9.0
Cycle Q Clear(g_c), s	16.6	16.7	1.1	6.6	19.6	6.1	0.3	15.1	11.5	8.3	20.9	9.0
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	585	1872	580	300	1451	450	25	1194	370	318	1626	504
V/C Ratio(X)	0.96	0.56	0.05	0.76	0.74	0.27	0.40	0.69	0.54	0.88	0.72	0.36
Avail Cap(c_a), veh/h	585	2199	681	502	2075	643	100	2134	661	318	2456	761
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	42.5	26.0	21.1	46.1	33.5	28.6	51.1	36.1	34.7	46.4	31.1	27.1
Incr Delay (d2), s/veh	26.8	0.3	0.0	3.9	0.8	0.3	10.0	0.7	1.2	23.7	0.6	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	8.8	6.2	0.4	2.9	7.6	2.2	0.2	5.9	4.2	4.4	7.9	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.3	26.3	21.1	50.0	34.3	29.0	61.0	36.8	36.0	70.1	31.7	27.5
LnGrp LOS	E	C	C	D	C	C	E	D	D	E	C	C
Approach Vol, veh/h		1627			1417			1030			1627	
Approach Delay, s/veh		41.0			36.4			36.9			37.9	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	30.1	14.5	43.8	6.2	38.8	23.0	35.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	9.5	43.2	15.0	44.5	3.0	49.7	17.5	42.0				
Max Q Clear Time (g_c+I1), s	10.3	17.1	8.6	18.7	2.3	22.9	18.6	21.6				
Green Ext Time (p_c), s	0.0	5.9	0.4	7.0	0.0	8.8	0.0	7.0				
Intersection Summary												
HCM 6th Ctrl Delay			38.2									
HCM 6th LOS			D									

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	1710	20	30	1340	240	80	20	60	570	70	110
v/c Ratio	0.75	0.88	0.03	0.67	0.81	0.36	0.53	0.11	0.22	0.93	0.11	0.18
Control Delay	91.0	41.9	0.1	119.3	42.8	6.1	67.4	48.9	1.8	62.3	27.1	5.3
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	91.0	41.9	0.1	119.3	42.8	6.1	67.4	48.9	1.8	62.3	27.1	5.3
Queue Length 50th (ft)	67	435	0	23	330	0	58	14	0	403	37	0
Queue Length 95th (ft)	#198	#770	0	#96	#571	68	131	37	0	#856	70	36
Internal Link Dist (ft)		760			4518			633			10448	
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	120	1947	677	45	1653	663	197	575	582	611	1010	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.88	0.03	0.67	0.81	0.36	0.41	0.03	0.10	0.93	0.07	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

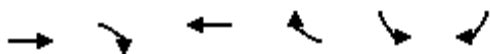
SMF Master Plan Update
10: W Elkhorn Blvd & Lone Tree Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	90	1710	20	30	1340	240	80	20	60	570	70	110
Future Volume (veh/h)	90	1710	20	30	1340	240	80	20	60	570	70	110
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		0.99	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	1710	20	30	1340	240	80	20	60	570	70	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	1900	588	37	1683	521	103	136	114	599	657	556
Arrive On Green	0.06	0.37	0.37	0.02	0.33	0.33	0.06	0.07	0.07	0.34	0.35	0.35
Sat Flow, veh/h	1781	5106	1581	1781	5106	1580	1781	1870	1572	1781	1870	1582
Grp Volume(v), veh/h	90	1710	20	30	1340	240	80	20	60	570	70	110
Grp Sat Flow(s),veh/h/ln	1781	1702	1581	1781	1702	1580	1781	1870	1572	1781	1870	1582
Q Serve(g_s), s	5.6	35.5	0.9	1.9	26.8	13.5	5.0	1.1	4.1	35.0	2.8	5.4
Cycle Q Clear(g_c), s	5.6	35.5	0.9	1.9	26.8	13.5	5.0	1.1	4.1	35.0	2.8	5.4
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	113	1900	588	37	1683	521	103	136	114	599	657	556
V/C Ratio(X)	0.79	0.90	0.03	0.80	0.80	0.46	0.78	0.15	0.53	0.95	0.11	0.20
Avail Cap(c_a), veh/h	127	1962	607	48	1734	537	208	603	507	643	1060	897
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	33.2	22.4	54.7	34.2	29.7	52.2	48.8	50.2	36.3	24.5	25.4
Incr Delay (d2), s/veh	26.0	6.0	0.0	51.6	2.6	0.6	12.0	0.5	3.7	23.3	0.1	0.2
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	3.2	14.4	0.3	1.3	10.6	4.9	2.5	0.5	1.7	18.2	1.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.8	39.2	22.4	106.3	36.8	30.4	64.2	49.3	53.9	59.6	24.6	25.5
LnGrp LOS	E	D	C	F	D	C	E	D	D	E	C	C
Approach Vol, veh/h		1820			1610			160			750	
Approach Delay, s/veh		41.0			37.1			58.5			51.4	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	43.2	13.4	7.9	47.7	12.0	44.7	12.6	42.9				
Change Period (Y+Rc), s	5.5	5.3	5.5	5.9	5.5	5.3	5.5	5.9				
Max Green Setting (Gmax), s	40.5	36.2	3.0	43.1	13.1	63.6	8.0	38.1				
Max Q Clear Time (g_c+I1), s	37.0	6.1	3.9	37.5	7.0	7.4	7.6	28.8				
Green Ext Time (p_c), s	0.7	0.2	0.0	4.3	0.1	0.7	0.0	5.8				
Intersection Summary												
HCM 6th Ctrl Delay			42.0									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	2350	1220	1310	360	270	600
v/c Ratio	0.96	0.93	0.53	0.40	0.39	0.95
Control Delay	34.0	17.5	17.3	4.9	21.5	52.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	17.5	17.3	4.9	21.5	52.6
Queue Length 50th (ft)	459	40	185	23	106	304
Queue Length 95th (ft)	#596	#568	227	74	171	#526
Internal Link Dist (ft)	4518		937			
Turn Bay Length (ft)		400		100		440
Base Capacity (vph)	2452	1309	2452	910	718	654
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	0.96	0.93	0.53	0.40	0.38	0.92

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
11: W Elkhorn Blvd & SR-99 SB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑				↑		↑
Traffic Volume (veh/h)	0	2350	1220	0	1310	360	0	0	0	270	0	600
Future Volume (veh/h)	0	2350	1220	0	1310	360	0	0	0	270	0	600
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	0	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	2350	0	0	1310	0				270	0	600
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2437		0	2437					704	0	627
Arrive On Green	0.00	0.48	0.00	0.00	0.48	0.00				0.40	0.00	0.40
Sat Flow, veh/h	0	5274	1585	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	2350	0	0	1310	0				270	0	600
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	39.8	0.0	0.0	16.1	0.0				9.7	0.0	32.9
Cycle Q Clear(g_c), s	0.0	39.8	0.0	0.0	16.1	0.0				9.7	0.0	32.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2437		0	2437					704	0	627
V/C Ratio(X)	0.00	0.96		0.00	0.54					0.38	0.00	0.96
Avail Cap(c_a), veh/h	0	2439		0	2439					715	0	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.6	0.0	0.0	16.4	0.0				19.3	0.0	26.3
Incr Delay (d2), s/veh	0.0	11.1	0.0	0.0	0.2	0.0				0.3	0.0	25.4
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	0.0	15.5	0.0	0.0	5.3	0.0				3.9	0.0	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	33.8	0.0	0.0	16.7	0.0				19.6	0.0	51.7
LnGrp LOS	A	C		A	B					B	A	D
Approach Vol, veh/h		2350	A		1310	A					870	
Approach Delay, s/veh		33.8			16.7						41.7	
Approach LOS		C			B						D	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				48.6		40.8		48.6				
Change Period (Y+Rc), s				5.9		5.5		5.9				
Max Green Setting (Gmax), s				42.7		35.9		42.7				
Max Q Clear Time (g_c+I1), s				41.8		34.9		18.1				
Green Ext Time (p_c), s				0.8		0.4		9.0				
Intersection Summary												
HCM 6th Ctrl Delay			30.3									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1230	390	1210	250	650	900
v/c Ratio	0.61	0.25	0.61	0.16	0.79	0.58
Control Delay	18.6	0.4	18.9	0.2	23.9	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	0.4	18.9	0.2	23.9	1.6
Queue Length 50th (ft)	134	0	133	0	203	0
Queue Length 95th (ft)	267	0	264	0	438	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	3867	1550	3838	1583	1564	1563
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	0.32	0.25	0.32	0.16	0.42	0.58
Intersection Summary						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑		↑			
Traffic Volume (veh/h)	0	1230	390	0	1210	250	650	0	900	0	0	0
Future Volume (veh/h)	0	1230	390	0	1210	250	650	0	900	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	1230	0	0	1210	0	650	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2101		0	2101		720	0				
Arrive On Green	0.00	0.41	0.00	0.00	0.41	0.00	0.40	0.00	0.00			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	1781	0	1585			
Grp Volume(v), veh/h	0	1230	0	0	1210	0	650	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	9.1	0.0	0.0	8.9	0.0	16.7	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	9.1	0.0	0.0	8.9	0.0	16.7	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2101		0	2101		720	0				
V/C Ratio(X)	0.00	0.59		0.00	0.58		0.90	0.00				
Avail Cap(c_a), veh/h	0	5122		0	5069		2279	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	11.1	0.0	0.0	11.1	0.0	13.6	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.3	0.0	1.8	0.0	0.0			
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	0.0	2.2	0.0	0.0	2.1	0.0	5.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.3	0.0	0.0	11.3	0.0	15.4	0.0	0.0			
LnGrp LOS	A	B		A	B		B	A				
Approach Vol, veh/h		1230	A		1210	A		650	A			
Approach Delay, s/veh		11.3			11.3			15.4				
Approach LOS		B			B			B				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.6				25.6		23.3				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		48.5				* 49		62.5				
Max Q Clear Time (g_c+I1), s		10.9				11.1		18.7				
Green Ext Time (p_c), s		9.2				7.4		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰		↰		↱	↱		↱↱	↰
Traffic Vol, veh/h	0	0	0	50	0	2130	0	790	110	0	3000	780
Future Vol, veh/h	0	0	0	50	0	2130	0	790	110	0	3000	780
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	-	-	Free	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	0	-	-	485
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	50	0	2130	0	790	110	0	3000	780

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2290	-	-
Stage 1	790	-	-
Stage 2	1500	-	-
Critical Hdwy	6.63	-	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	-	-
Pot Cap-1 Maneuver	~ 38	0	0
Stage 1	446	0	0
Stage 2	172	0	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	~ 38	0	-
Mov Cap-2 Maneuver	~ 38	0	-
Stage 1	446	0	-
Stage 2	172	0	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 418.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 38	-
HCM Lane V/C Ratio	- 1.316	-
HCM Control Delay (s)	\$ 418.1	0
HCM Lane LOS	- F	A
HCM 95th %tile Q(veh)	- 5.1	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	157.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	690	700	10	250	510	2570
Future Vol, veh/h	690	700	10	250	510	2570
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	30	-	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	690	700	10	250	510	2570
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	655	510	510	0	-	0
Stage 1	510	-	-	-	-	-
Stage 2	145	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 415	~ 562	1053	-	-	0
Stage 1	~ 602	-	-	-	-	0
Stage 2	868	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	~ 410	~ 562	1053	-	-	-
Mov Cap-2 Maneuver	~ 410	-	-	-	-	-
Stage 1	~ 595	-	-	-	-	-
Stage 2	868	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	244.1	0.3	0			
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	
Capacity (veh/h)	1053	-	410	562	-	
HCM Lane V/C Ratio	0.009	-	1.683	1.246	-	
HCM Control Delay (s)	8.5	0\$	341.4	148.2	-	
HCM Lane LOS	A	A	F	F	-	
HCM 95th %tile Q(veh)	0	-	41.3	27	-	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

SMF Master Plan Update
15: Power Line Rd & Road A

Cumulative + MPU + Cargo Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	90	50	30	60	40
Future Vol, veh/h	30	90	50	30	60	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	90	50	30	60	40
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	225	65	0	0	80	0
Stage 1	65	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	763	999	-	-	1518	-
Stage 1	958	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	732	999	-	-	1518	-
Mov Cap-2 Maneuver	732	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.5	0		4.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 916		1518	-	
HCM Lane V/C Ratio	-	- 0.131		0.04	-	
HCM Control Delay (s)	-	- 9.5		7.5	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.5		0.1	-	

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	10	70	90	0	60
Future Vol, veh/h	50	10	70	90	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	10	70	90	0	60

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	175	115	0
Stage 1	115	-	-
Stage 2	60	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	815	937	-
Stage 1	910	-	-
Stage 2	963	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	815	937	-
Mov Cap-2 Maneuver	815	-	-
Stage 1	910	-	-
Stage 2	963	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	833	1419
HCM Lane V/C Ratio	-	-	0.072	-
HCM Control Delay (s)	-	-	9.7	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

SMF Master Plan Update
17: Power Line Rd & Skyking Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

Intersection

Intersection Delay, s/veh 17
Intersection LOS C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	220	200	50	340	140
Future Vol, veh/h	20	220	200	50	340	140
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	220	200	50	340	140
Number of Lanes	1	1	1	1	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	11.6	10.8	23
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	0%	29%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	50	20	220	480
LT Vol	0	0	20	0	340
Through Vol	200	0	0	0	140
RT Vol	0	50	0	220	0
Lane Flow Rate	200	50	20	220	480
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.326	0.072	0.039	0.353	0.743
Departure Headway (Hd)	5.859	5.149	6.999	5.781	5.569
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	614	696	512	623	653
Service Time	3.592	2.882	4.738	3.52	3.596
HCM Lane V/C Ratio	0.326	0.072	0.039	0.353	0.735
HCM Control Delay	11.4	8.3	10	11.7	23
HCM Lane LOS	B	A	A	B	C
HCM 95th-tile Q	1.4	0.2	0.1	1.6	6.6

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative + MPU + Cargo Conditions
PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	160	210	30	60	90	200	840	90	390
v/c Ratio	0.55	0.32	0.37	0.27	0.18	0.22	0.62	0.51	0.37	0.34
Control Delay	48.2	21.7	5.5	41.5	23.8	1.2	39.8	22.0	34.3	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	21.7	5.5	41.5	23.8	1.2	39.8	22.0	34.3	20.9
Queue Length 50th (ft)	32	44	0	11	20	0	68	94	30	38
Queue Length 95th (ft)	#141	109	44	#50	50	1	#247	203	96	90
Internal Link Dist (ft)	3313			367			2142			3285
Turn Bay Length (ft)	175		175	175		175	400		400	
Base Capacity (vph)	165	1038	963	111	987	907	323	1925	308	1829
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.15	0.22	0.27	0.06	0.10	0.62	0.44	0.29	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
18: Metro Air Parkway & Road A

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	160	210	30	60	90	200	820	20	90	340	50
Future Volume (veh/h)	90	160	210	30	60	90	200	820	20	90	340	50
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		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	160	210	30	60	90	200	820	20	90	340	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	386	326	37	257	217	254	1354	33	116	841	121
Arrive On Green	0.09	0.21	0.21	0.02	0.14	0.14	0.14	0.26	0.26	0.07	0.19	0.19
Sat Flow, veh/h	1781	1870	1580	1781	1870	1578	1781	5127	125	1781	4508	646
Grp Volume(v), veh/h	90	160	210	30	60	90	200	544	296	90	254	136
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1578	1781	1702	1847	1781	1702	1750
Q Serve(g_s), s	2.4	3.6	5.9	0.8	1.4	2.6	5.3	6.8	6.9	2.4	3.2	3.3
Cycle Q Clear(g_c), s	2.4	3.6	5.9	0.8	1.4	2.6	5.3	6.8	6.9	2.4	3.2	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		0.37
Lane Grp Cap(c), veh/h	160	386	326	37	257	217	254	899	488	116	635	327
V/C Ratio(X)	0.56	0.41	0.64	0.82	0.23	0.42	0.79	0.61	0.61	0.78	0.40	0.41
Avail Cap(c_a), veh/h	193	1247	1054	135	1186	1001	390	1518	824	372	1483	763
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	21.3	16.8	17.8	23.9	18.8	19.3	20.2	15.8	15.8	22.5	17.5	17.5
Incr Delay (d2), s/veh	3.1	0.7	2.1	34.1	0.5	1.3	5.9	0.7	1.2	10.6	0.4	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	1.0	1.4	2.0	0.7	0.6	0.9	2.1	2.0	2.3	1.2	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	17.5	19.9	58.0	19.3	20.6	26.1	16.4	17.0	33.1	17.9	18.4
LnGrp LOS	C	B	B	E	B	C	C	B	B	C	B	B
Approach Vol, veh/h		460			180			1040			480	
Approach Delay, s/veh		20.0			26.4			18.4			20.9	
Approach LOS		B			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	18.8	6.5	14.9	12.5	15.0	9.9	11.5				
Change Period (Y+Rc), s	5.5	5.9	5.5	4.8	5.5	5.9	5.5	4.8				
Max Green Setting (Gmax), s	10.2	21.8	3.7	32.6	10.7	21.3	5.3	31.0				
Max Q Clear Time (g_c+I1), s	4.4	8.9	2.8	7.9	7.3	5.3	4.4	4.6				
Green Ext Time (p_c), s	0.1	3.8	0.0	1.6	0.2	1.8	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			20.0									
HCM 6th LOS			B									

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	80	20	10	1070	740
v/c Ratio	0.20	0.06	0.04	0.33	0.24
Control Delay	16.5	7.2	25.1	7.7	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	7.2	25.1	7.7	9.6
Queue Length 50th (ft)	20	0	3	45	28
Queue Length 95th (ft)	48	12	18	161	141
Internal Link Dist (ft)	2842			686	2142
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	1324	1174	261	4557	3573
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.02	0.04	0.23	0.21
Intersection Summary					

SMF Master Plan Update
19: Metro Air Parkway & Road D

Cumulative + MPU + Cargo Conditions
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations					 	
Traffic Volume (veh/h)	80	20	10	1070	690	50
Future Volume (veh/h)	80	20	10	1070	690	50
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	20	10	1070	690	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	120	107	14	2724	1618	117
Arrive On Green	0.07	0.07	0.01	0.53	0.33	0.33
Sat Flow, veh/h	1781	1585	1781	5274	5028	350
Grp Volume(v), veh/h	80	20	10	1070	482	258
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1806
Q Serve(g_s), s	1.3	0.3	0.2	3.5	3.1	3.2
Cycle Q Clear(g_c), s	1.3	0.3	0.2	3.5	3.1	3.2
Prop In Lane	1.00	1.00	1.00			0.19
Lane Grp Cap(c), veh/h	120	107	14	2724	1133	601
V/C Ratio(X)	0.67	0.19	0.70	0.39	0.43	0.43
Avail Cap(c_a), veh/h	2152	1915	405	7885	3826	2030
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	13.0	12.6	14.1	3.9	7.4	7.4
Incr Delay (d2), s/veh	6.2	0.8	47.2	0.1	0.3	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	0.6	0.3	0.2	0.0	0.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.2	13.4	61.4	4.0	7.7	7.9
LnGrp LOS	B	B	E	A	A	A
Approach Vol, veh/h	100			1080	740	
Approach Delay, s/veh	18.1			4.6	7.7	
Approach LOS	B			A	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	21.1			7.4	5.7	15.4
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	44.1			34.5	6.5	32.1
Max Q Clear Time (g_c+I1), s	5.5			3.3	2.2	5.2
Green Ext Time (p_c), s	7.8			0.3	0.0	4.3
Intersection Summary						
HCM 6th Ctrl Delay			6.5			
HCM 6th LOS			A			

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	190	640	350	860	1080
v/c Ratio	0.45	0.86	0.82	0.28	0.76
Control Delay	25.7	18.5	47.5	8.8	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	18.5	47.5	8.8	29.3
Queue Length 50th (ft)	73	57	145	56	149
Queue Length 95th (ft)	123	188	#387	135	#297
Internal Link Dist (ft)	1671			1050	4086
Turn Bay Length (ft)		175	400		
Base Capacity (vph)	875	1019	425	3131	1501
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.63	0.82	0.27	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
20: Metro Air Parkway & Skyking Rd

Cumulative + MPU + Cargo Conditions
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	  	
Traffic Volume (veh/h)	190	640	350	860	960	120
Future Volume (veh/h)	190	640	350	860	960	120
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	640	350	860	960	120
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	695	619	338	2465	1065	133
Arrive On Green	0.39	0.39	0.19	0.48	0.23	0.23
Sat Flow, veh/h	1781	1585	1781	5274	4764	573
Grp Volume(v), veh/h	190	640	350	860	710	370
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1702	1702	1764
Q Serve(g_s), s	6.5	35.0	17.0	9.4	18.2	18.3
Cycle Q Clear(g_c), s	6.5	35.0	17.0	9.4	18.2	18.3
Prop In Lane	1.00	1.00	1.00			0.32
Lane Grp Cap(c), veh/h	695	619	338	2465	789	409
V/C Ratio(X)	0.27	1.03	1.04	0.35	0.90	0.90
Avail Cap(c_a), veh/h	695	619	338	2482	801	415
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	18.7	27.3	36.3	14.4	33.4	33.5
Incr Delay (d2), s/veh	0.2	45.4	58.8	0.1	13.1	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	32.6	12.3	3.1	8.2	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.9	72.8	95.1	14.5	46.6	56.0
LnGrp LOS	B	F	F	B	D	E
Approach Vol, veh/h	830			1210	1080	
Approach Delay, s/veh	60.4			37.8	49.8	
Approach LOS	E			D	D	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	49.2			40.5	22.5	26.7
Change Period (Y+Rc), s	5.9			5.5	5.5	5.9
Max Green Setting (Gmax), s	43.6			35.0	17.0	21.1
Max Q Clear Time (g_c+I1), s	11.4			37.0	19.0	20.3
Green Ext Time (p_c), s	5.7			0.0	0.0	0.5
Intersection Summary						
HCM 6th Ctrl Delay			48.0			
HCM 6th LOS			D			

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative + MPU + Cargo Conditions
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	50	350	140	120	190	130	130	1100	210	370	1420
v/c Ratio	0.53	0.57	0.31	0.75	0.54	0.27	0.75	0.84	0.37	0.88	0.85
Control Delay	70.3	40.5	1.7	76.9	42.6	1.4	75.5	42.2	5.8	66.6	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	40.5	1.7	76.9	42.6	1.4	75.5	42.2	5.8	66.6	36.5
Queue Length 50th (ft)	31	109	0	39	114	0	42	235	0	119	292
Queue Length 95th (ft)	#101	152	0	#107	182	0	#113	#415	51	#257	#516
Internal Link Dist (ft)		450			475			2094			1585
Turn Bay Length (ft)	375		375	425		425	400		400	400	
Base Capacity (vph)	95	1192	673	161	614	663	173	1312	563	422	1679
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.29	0.21	0.75	0.31	0.20	0.75	0.84	0.37	0.88	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
21: Metro Air Parkway & Meister Way

Cumulative + MPU + Cargo Conditions
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	50	350	140	120	190	130	130	1100	210	370	1400	20	
Future Volume (vph)	50	350	140	120	190	130	130	1100	210	370	1400	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	0.97	0.91	1.00	0.97	0.91		
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1593	3185	1406	3090	1676	1405	3090	4577	1405	3090	4566		
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1593	3185	1406	3090	1676	1405	3090	4577	1405	3090	4566		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	50	350	140	120	190	130	130	1100	210	370	1400	20	
RTOR Reduction (vph)	0	0	112	0	0	103	0	0	150	0	1	0	
Lane Group Flow (vph)	50	350	28	120	190	27	130	1100	60	370	1419	0	
Confl. Peds. (#/hr)			2			2			2			2	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8			2				
Actuated Green, G (s)	4.8	20.9	20.9	5.3	21.4	21.4	5.7	29.3	29.3	14.0	37.6		
Effective Green, g (s)	4.8	20.9	20.9	5.3	21.4	21.4	5.7	29.3	29.3	14.0	37.6		
Actuated g/C Ratio	0.05	0.20	0.20	0.05	0.21	0.21	0.06	0.28	0.28	0.14	0.36		
Clearance Time (s)	5.5	4.8	4.8	5.5	4.8	4.8	5.5	5.9	5.9	5.5	5.9		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	74	645	284	158	347	291	170	1299	398	419	1663		
v/s Ratio Prot	0.03	0.11		c0.04	c0.11		0.04	0.24		c0.12	c0.31		
v/s Ratio Perm			0.02			0.02			0.04				
v/c Ratio	0.68	0.54	0.10	0.76	0.55	0.09	0.76	0.85	0.15	0.88	0.85		
Uniform Delay, d1	48.4	36.9	33.5	48.3	36.6	33.1	48.1	34.8	27.6	43.8	30.3		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	21.7	0.9	0.2	18.7	1.8	0.1	18.3	5.3	0.2	19.2	4.5		
Delay (s)	70.1	37.8	33.6	67.0	38.3	33.2	66.4	40.1	27.8	63.0	34.7		
Level of Service	E	D	C	E	D	C	E	D	C	E	C		
Approach Delay (s)		39.7			44.6			40.7			40.6		
Approach LOS		D			D			D			D		
Intersection Summary													
HCM 2000 Control Delay			40.9									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.74										
Actuated Cycle Length (s)			103.2									Sum of lost time (s)	28.1
Intersection Capacity Utilization			69.3%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	10	1180	490	130	1660	670
v/c Ratio	0.01	0.88	0.30	0.08	0.71	0.63
Control Delay	14.1	22.5	15.3	0.1	20.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	22.5	15.3	0.1	20.5	4.5
Queue Length 50th (ft)	3	209	78	0	237	0
Queue Length 95th (ft)	12	311	133	0	347	63
Internal Link Dist (ft)			551		2094	
Turn Bay Length (ft)						400
Base Capacity (vph)	930	1645	1749	1583	2513	1102
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	0.01	0.72	0.28	0.08	0.66	0.61
Intersection Summary						

SMF Master Plan Update
22: Metro Air Parkway & I-5 WB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	1180	0	490	130	0	1660	670
Future Volume (veh/h)	0	0	0	10	0	1180	0	490	130	0	1660	670
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				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				10	0	1180	0	490	0	0	1660	670
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				791	0	1239	0	1520		0	2184	677
Arrive On Green				0.44	0.00	0.44	0.00	0.43	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1781	0	2790	0	3647	1585	0	5274	1581
Grp Volume(v), veh/h				10	0	1180	0	490	0	0	1660	670
Grp Sat Flow(s),veh/h/ln				1781	0	1395	0	1777	1585	0	1702	1581
Q Serve(g_s), s				0.3	0.0	36.3	0.0	8.2	0.0	0.0	24.5	37.5
Cycle Q Clear(g_c), s				0.3	0.0	36.3	0.0	8.2	0.0	0.0	24.5	37.5
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				791	0	1239	0	1520		0	2184	677
V/C Ratio(X)				0.01	0.00	0.95	0.00	0.32		0.00	0.76	0.99
Avail Cap(c_a), veh/h				810	0	1269	0	1520		0	2184	677
HCM Platoon Ratio				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	1.00	0.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.8	0.0	23.8	0.0	16.9	0.0	0.0	21.6	25.3
Incr Delay (d2), s/veh				0.0	0.0	15.1	0.0	0.1	0.0	0.0	1.6	32.1
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				0.1	0.0	13.5	0.0	2.9	0.0	0.0	8.6	17.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.8	0.0	39.0	0.0	17.0	0.0	0.0	23.2	57.4
LnGrp LOS				B	A	D	A	B		A	C	E
Approach Vol, veh/h					1190			490	A		2330	
Approach Delay, s/veh					38.8			17.0			33.0	
Approach LOS					D			B			C	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	44.0			44.0			45.1					
Change Period (Y+Rc), s	5.9			5.9			5.5					
Max Green Setting (Gmax), s	38.1			38.1			40.5					
Max Q Clear Time (g_c+I1), s	10.2			39.5			38.3					
Green Ext Time (p_c), s	2.9			0.0			1.3					
Intersection Summary												
HCM 6th Ctrl Delay	32.8											
HCM 6th LOS	C											

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative + MPU + Cargo Conditions
PM Peak Hour



Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	370	190	300	210	190	1490
v/c Ratio	0.55	0.27	0.31	0.36	0.19	0.96
Control Delay	12.3	2.8	11.8	4.4	11.2	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	2.8	11.8	4.4	11.2	19.2
Queue Length 50th (ft)	45	0	21	0	13	0
Queue Length 95th (ft)	135	26	61	36	41	#179
Internal Link Dist (ft)			529		551	
Turn Bay Length (ft)						
Base Capacity (vph)	1725	1526	3124	1422	3124	1550
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	0.21	0.12	0.10	0.15	0.06	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SMF Master Plan Update
23: Metro Air Parkway & I-5 EB Ramps

Cumulative + MPU + Cargo Conditions

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	370	0	190	0	0	0	0	300	210	0	190	1490
Future Volume (veh/h)	370	0	190	0	0	0	0	300	210	0	190	1490
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	1870	0	1870				0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	370	0	190				0	300	210	0	190	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	2				0	2	2	0	2	2
Cap, veh/h	561	0	499				0	956	426	0	956	
Arrive On Green	0.31	0.00	0.31				0.00	0.27	0.27	0.00	0.27	0.00
Sat Flow, veh/h	1781	0	1585				0	3647	1585	0	3647	1585
Grp Volume(v), veh/h	370	0	190				0	300	210	0	190	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1585	0	1777	1585
Q Serve(g_s), s	4.9	0.0	2.6				0.0	1.8	3.1	0.0	1.1	0.0
Cycle Q Clear(g_c), s	4.9	0.0	2.6				0.0	1.8	3.1	0.0	1.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	561	0	499				0	956	426	0	956	
V/C Ratio(X)	0.66	0.00	0.38				0.00	0.31	0.49	0.00	0.20	
Avail Cap(c_a), veh/h	3088	0	2748				0	4033	1799	0	4033	
HCM Platoon Ratio	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	1.00				0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	8.1	0.0	7.3				0.0	8.0	8.4	0.0	7.7	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.5				0.0	0.2	0.9	0.0	0.1	0.0
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	1.2	0.0	0.5				0.0	0.3	0.5	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.4	0.0	7.8				0.0	8.2	9.3	0.0	7.8	0.0
LnGrp LOS	A	A	A				A	A	A	A	A	
Approach Vol, veh/h	560						510			190		
Approach Delay, s/veh	8.9						8.7			7.8		
Approach LOS	A						A			A		
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	13.3			14.1			13.3					
Change Period (Y+Rc), s	5.9			5.5			5.9					
Max Green Setting (Gmax), s	31.1			47.5			31.1					
Max Q Clear Time (g_c+I1), s	5.1			6.9			3.1					
Green Ext Time (p_c), s	2.3			1.8			1.0					
Intersection Summary												
HCM 6th Ctrl Delay	8.6											
HCM 6th LOS	A											

Notes

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

Appendix D

Cargo Facility Shift Change Scenario Analysis

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	14	14	1500	29	14	1500
v/c Ratio	0.07	0.08	0.54	0.02	0.07	0.57
Control Delay	39.0	19.6	11.9	3.1	39.1	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	19.6	11.9	3.1	39.1	1.2
Queue Length 50th (ft)	6	0	0	0	6	0
Queue Length 95th (ft)	21	12	277	12	21	0
Internal Link Dist (ft)	2187			3724	1647	
Turn Bay Length (ft)		175	300			175
Base Capacity (vph)	614	531	2780	1697	569	2612
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	0.02	0.03	0.54	0.02	0.02	0.57
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Existing + MPU + Cargo Conditions Shift Change
AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	10	10	750	20	10	750
Future Volume (veh/h)	10	10	750	20	10	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	1870	1870	1841	1870	1870	1841
Adj Flow Rate, veh/h	14	14	1500	29	14	1500
Peak Hour Factor	0.70	0.70	0.50	0.70	0.70	0.50
Percent Heavy Veh, %	2	2	4	2	2	4
Cap, veh/h	48	41	1671	1086	513	2140
Arrive On Green	0.03	0.03	0.49	0.58	0.29	0.29
Sat Flow, veh/h	1870	1585	3401	1870	1781	2745
Grp Volume(v), veh/h	14	14	1500	29	14	1500
Grp Sat Flow(s),veh/h/ln	1870	1585	1700	1870	1781	1373
Q Serve(g_s), s	0.6	0.8	34.8	0.6	0.5	23.1
Cycle Q Clear(g_c), s	0.6	0.8	34.8	0.6	0.5	23.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	48	41	1671	1086	513	2140
V/C Ratio(X)	0.29	0.34	0.90	0.03	0.03	0.70
Avail Cap(c_a), veh/h	552	467	2057	1801	513	2140
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	41.5	41.6	20.1	7.8	22.2	4.7
Incr Delay (d2), s/veh	3.3	4.9	4.9	0.0	0.0	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	0.3	0.3	12.2	0.2	0.2	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.8	46.4	25.0	7.8	22.2	5.7
LnGrp LOS	D	D	C	A	C	A
Approach Vol, veh/h	28			1529	1514	
Approach Delay, s/veh	45.6			24.7	5.8	
Approach LOS	D			C	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	48.2	8.1			56.3	30.5
Change Period (Y+Rc), s	5.5	5.9			5.9	5.5
Max Green Setting (Gmax), s	52.5	25.6			83.6	25.0
Max Q Clear Time (g_c+I1), s	36.8	2.8			2.6	25.1
Green Ext Time (p_c), s	5.8	0.1			0.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			15.6			
HCM 6th LOS			B			
Notes						
User approved pedestrian interval to be less than phase max green.						

Intersection	
Intersection Delay, s/veh	538.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	710	40	40	710	10	40	10	10	10	10	10
Future Vol, veh/h	10	710	40	40	710	10	40	10	10	10	10	10
Peak Hour Factor	0.70	0.50	0.70	0.70	0.50	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles, %	2	4	2	2	4	2	2	2	2	2	2	2
Mvmt Flow	14	1420	57	57	1420	14	57	14	14	14	14	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	558.1	564	15	14.3
HCM LOS	F	F	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	67%	1%	5%	33%
Vol Thru, %	17%	93%	93%	33%
Vol Right, %	17%	5%	1%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	760	760	30
LT Vol	40	10	40	10
Through Vol	10	710	710	10
RT Vol	10	40	10	10
Lane Flow Rate	86	1491	1491	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.173	2.193	2.206	0.087
Departure Headway (Hd)	9.899	6.523	6.543	10.354
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	365	582	567	348
Service Time	7.899	4.523	4.543	8.354
HCM Lane V/C Ratio	0.236	2.562	2.63	0.124
HCM Control Delay	15	558.1	564	14.3
HCM Lane LOS	B	F	F	B
HCM 95th-tile Q	0.6	87.5	88.1	0.3

								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	14	1420	57	57	1440	14	85	42
v/c Ratio	0.33	0.65	0.06	0.46	1.13	0.01	0.50	0.29
Control Delay	85.0	21.2	0.1	71.2	92.1	0.0	61.2	46.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.0	21.2	0.1	71.2	92.1	0.0	61.2	46.1
Queue Length 50th (ft)	11	383	0	42	~1241	0	57	20
Queue Length 95th (ft)	31	290	0	80	711	0	95	46
Internal Link Dist (ft)		3724			4351		531	1439
Turn Bay Length (ft)	400		400	400		400		
Base Capacity (vph)	43	2252	1059	149	1273	1115	315	309
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	0.33	0.63	0.05	0.38	1.13	0.01	0.27	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Existing + MPU + Cargo Conditions Shift Change

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	710	40	40	720	10	40	10	10	10	10	10
Future Volume (veh/h)	10	710	40	40	720	10	40	10	10	10	10	10
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	1420	57	57	1440	14	57	14	14	14	14	14
Peak Hour Factor	0.70	0.50	0.70	0.70	0.50	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	2365	1055	74	1304	1105	74	18	18	18	18	18
Arrive On Green	0.01	0.67	0.67	0.04	0.70	0.70	0.06	0.06	0.06	0.03	0.03	0.03
Sat Flow, veh/h	1781	3554	1585	1781	1870	1585	1180	290	290	579	579	579
Grp Volume(v), veh/h	14	1420	57	57	1440	14	85	0	0	42	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1585	1759	0	0	1737	0	0
Q Serve(g_s), s	0.9	25.9	1.5	3.7	81.1	0.3	5.5	0.0	0.0	2.8	0.0	0.0
Cycle Q Clear(g_c), s	0.9	25.9	1.5	3.7	81.1	0.3	5.5	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.67		0.16	0.33		0.33
Lane Grp Cap(c), veh/h	17	2365	1055	74	1304	1105	110	0	0	54	0	0
V/C Ratio(X)	0.84	0.60	0.05	0.77	1.10	0.01	0.77	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	46	2365	1055	159	1304	1105	328	0	0	314	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.5	10.8	6.8	55.2	17.6	5.4	53.7	0.0	0.0	55.9	0.0	0.0
Incr Delay (d2), s/veh	63.9	0.4	0.0	15.7	58.5	0.0	10.9	0.0	0.0	20.6	0.0	0.0
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	0.7	8.2	0.4	1.9	46.1	0.1	2.7	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	121.5	11.3	6.8	70.9	76.1	5.4	64.6	0.0	0.0	76.5	0.0	0.0
LnGrp LOS	F	B	A	E	F	A	E	A	A	E	A	A
Approach Vol, veh/h		1491			1511			85			42	
Approach Delay, s/veh		12.1			75.3			64.6			76.5	
Approach LOS		B			E			E			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.2	10.3	83.3		9.5	6.6	87.0				
Change Period (Y+Rc), s		5.9	5.5	5.9		5.9	5.5	5.9				
Max Green Setting (Gmax), s		21.7	10.4	73.7		21.0	3.0	81.1				
Max Q Clear Time (g_c+I1), s		7.5	5.7	27.9		4.8	2.9	83.1				
Green Ext Time (p_c), s		0.2	0.0	13.1		0.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			44.9									
HCM 6th LOS			D									

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	43	29	1500	43	14	1500
v/c Ratio	0.21	0.15	0.63	0.03	0.08	0.61
Control Delay	39.7	15.1	15.6	3.2	38.3	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	15.1	15.6	3.2	38.3	1.5
Queue Length 50th (ft)	22	0	142	0	7	1
Queue Length 95th (ft)	46	16	292	16	21	0
Internal Link Dist (ft)	2187			3724	1647	
Turn Bay Length (ft)		175	250			175
Base Capacity (vph)	543	482	2373	1714	510	2470
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	0.08	0.06	0.63	0.03	0.03	0.61
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Existing + MPU + Cargo Signal Conditions
PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	30	20	750	30	10	750
Future Volume (veh/h)	30	20	750	30	10	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	1870	1870	1841	1870	1870	1841
Adj Flow Rate, veh/h	43	29	1500	43	14	1500
Peak Hour Factor	0.70	0.70	0.50	0.70	0.70	0.50
Percent Heavy Veh, %	2	2	4	2	2	4
Cap, veh/h	81	69	1626	1122	472	2041
Arrive On Green	0.04	0.04	0.48	0.60	0.27	0.27
Sat Flow, veh/h	1870	1585	3401	1870	1781	2745
Grp Volume(v), veh/h	43	29	1500	43	14	1500
Grp Sat Flow(s),veh/h/ln	1870	1585	1700	1870	1781	1373
Q Serve(g_s), s	2.1	1.7	38.8	0.9	0.5	25.0
Cycle Q Clear(g_c), s	2.1	1.7	38.8	0.9	0.5	25.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	81	69	1626	1122	472	2041
V/C Ratio(X)	0.53	0.42	0.92	0.04	0.03	0.74
Avail Cap(c_a), veh/h	502	425	1789	1633	472	2041
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	43.9	23.0	7.7	25.7	6.8
Incr Delay (d2), s/veh	5.2	4.0	8.0	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.7	14.8	0.3	0.2	5.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.4	48.0	31.0	7.7	25.7	8.3
LnGrp LOS	D	D	C	A	C	A
Approach Vol, veh/h	72			1543	1514	
Approach Delay, s/veh	48.8			30.3	8.4	
Approach LOS	D			C	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	52.5	10.0			62.5	31.8
Change Period (Y+Rc), s	7.4	5.9			5.9	6.8
Max Green Setting (Gmax), s	49.6	25.3			82.3	25.0
Max Q Clear Time (g_c+I1), s	40.8	4.1			2.9	27.0
Green Ext Time (p_c), s	4.2	0.2			0.2	0.0
Intersection Summary						
HCM 6th Ctrl Delay			20.2			
HCM 6th LOS			C			

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	608.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	730	40	10	740	10	30	20	70	10	10	10
Future Vol, veh/h	10	730	40	10	740	10	30	20	70	10	10	10
Peak Hour Factor	0.70	0.50	0.70	0.70	0.50	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	1460	57	14	1480	14	43	29	100	14	14	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	655.9	644.4	17.6	16.2
HCM LOS	F	F	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	1%	1%	33%
Vol Thru, %	17%	94%	97%	33%
Vol Right, %	58%	5%	1%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	780	760	30
LT Vol	30	10	10	10
Through Vol	20	730	740	10
RT Vol	70	40	10	10
Lane Flow Rate	171	1531	1509	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.331	2.408	2.382	0.092
Departure Headway (Hd)	9.819	7.207	7.258	12.005
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	369	521	513	300
Service Time	7.819	5.207	5.258	10.005
HCM Lane V/C Ratio	0.463	2.939	2.942	0.143
HCM Control Delay	17.6	655.9	644.4	16.2
HCM Lane LOS	C	F	F	C
HCM 95th-tile Q	1.4	92.8	90.6	0.3

								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	14	1460	57	14	1480	14	172	42
v/c Ratio	0.32	0.64	0.05	0.28	1.23	0.01	0.72	0.29
Control Delay	82.6	18.4	0.1	77.9	134.8	0.0	57.1	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.6	18.4	0.1	77.9	134.8	0.0	57.1	44.8
Queue Length 50th (ft)	10	301	0	10	~1323	0	92	20
Queue Length 95th (ft)	31	282	0	31	782	0	140	45
Internal Link Dist (ft)		3724			4351		531	1439
Turn Bay Length (ft)	400		400	400		400		
Base Capacity (vph)	44	2281	1063	50	1203	1065	342	318
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	0.32	0.64	0.05	0.28	1.23	0.01	0.50	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Existing + MPU + Cargo Signal Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	730	40	10	740	10	30	20	70	10	10	10
Future Volume (veh/h)	10	730	40	10	740	10	30	20	70	10	10	10
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	1460	57	14	1480	14	43	29	100	14	14	14
Peak Hour Factor	0.70	0.50	0.70	0.70	0.50	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	2226	993	17	1172	993	51	34	118	18	18	18
Arrive On Green	0.01	0.63	0.63	0.01	0.63	0.63	0.12	0.12	0.12	0.03	0.03	0.03
Sat Flow, veh/h	1781	3554	1585	1781	1870	1585	419	282	973	579	579	579
Grp Volume(v), veh/h	14	1460	57	14	1480	14	172	0	0	42	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1585	1674	0	0	1737	0	0
Q Serve(g_s), s	0.9	30.8	1.6	0.9	74.1	0.4	11.9	0.0	0.0	2.8	0.0	0.0
Cycle Q Clear(g_c), s	0.9	30.8	1.6	0.9	74.1	0.4	11.9	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.25		0.58	0.33		0.33
Lane Grp Cap(c), veh/h	17	2226	993	17	1172	993	202	0	0	54	0	0
V/C Ratio(X)	0.84	0.66	0.06	0.84	1.26	0.01	0.85	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	45	2226	993	51	1172	993	309	0	0	308	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.5	14.0	8.6	58.5	22.1	8.3	50.9	0.0	0.0	56.9	0.0	0.0
Incr Delay (d2), s/veh	64.7	0.7	0.0	64.7	125.4	0.0	12.9	0.0	0.0	20.5	0.0	0.0
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	0.7	10.5	0.5	0.7	66.8	0.1	5.5	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	123.2	14.7	8.6	123.2	147.5	8.3	63.9	0.0	0.0	77.4	0.0	0.0
LnGrp LOS	F	B	A	F	F	A	E	A	A	E	A	A
Approach Vol, veh/h		1531			1508			172			42	
Approach Delay, s/veh		15.5			146.0			63.9			77.4	
Approach LOS		B			F			E			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.2	8.5	80.0		9.6	8.5	80.0				
Change Period (Y+Rc), s		5.9	7.4	5.9		5.9	7.4	5.9				
Max Green Setting (Gmax), s		21.8	3.4	73.7		21.0	3.0	74.1				
Max Q Clear Time (g_c+I1), s		13.9	2.9	32.8		4.8	2.9	76.1				
Green Ext Time (p_c), s		0.4	0.0	13.3		0.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			79.4									
HCM 6th LOS			E									

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	43	29	1500	57	29	1500
v/c Ratio	0.20	0.14	0.63	0.04	0.15	0.61
Control Delay	39.8	15.1	15.5	3.4	39.4	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	15.1	15.5	3.4	39.4	1.5
Queue Length 50th (ft)	23	0	241	5	16	2
Queue Length 95th (ft)	45	16	275	20	35	0
Internal Link Dist (ft)	2187			1755	1647	
Turn Bay Length (ft)		175	300			175
Base Capacity (vph)	586	511	2343	1718	544	2457
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	0.07	0.06	0.64	0.03	0.05	0.61
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Cumulative + MPU + Cargo Conditions Shift Change
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↖↗	↑	↖	↗↖
Traffic Volume (veh/h)	30	20	750	40	20	750
Future Volume (veh/h)	30	20	750	40	20	750
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	29	1500	57	29	1500
Peak Hour Factor	0.70	0.70	0.50	0.70	0.70	0.50
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	95	79	1667	1112	496	2123
Arrive On Green	0.05	0.05	0.48	0.59	0.28	0.28
Sat Flow, veh/h	1870	1554	3456	1870	1781	2790
Grp Volume(v), veh/h	43	29	1500	57	29	1500
Grp Sat Flow(s),veh/h/ln	1870	1554	1728	1870	1781	1395
Q Serve(g_s), s	2.0	1.6	35.6	1.1	1.1	25.0
Cycle Q Clear(g_c), s	2.0	1.6	35.6	1.1	1.1	25.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	95	79	1667	1112	496	2123
V/C Ratio(X)	0.45	0.37	0.90	0.05	0.06	0.71
Avail Cap(c_a), veh/h	533	443	2021	1742	496	2123
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	41.4	41.2	21.2	7.6	23.8	5.5
Incr Delay (d2), s/veh	3.3	2.8	5.2	0.0	0.0	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	1.0	0.7	13.0	0.4	0.4	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.7	44.0	26.4	7.6	23.8	6.6
LnGrp LOS	D	D	C	A	C	A
Approach Vol, veh/h	72			1557	1529	
Approach Delay, s/veh	44.5			25.7	7.0	
Approach LOS	D			C	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	48.8	10.5			59.3	30.5
Change Period (Y+Rc), s	5.5	5.9			5.9	5.5
Max Green Setting (Gmax), s	52.5	25.6			83.6	25.0
Max Q Clear Time (g_c+I1), s	37.6	4.0			3.1	27.0
Green Ext Time (p_c), s	5.7	0.2			0.3	0.0
Intersection Summary						
HCM 6th Ctrl Delay			17.1			
HCM 6th LOS			B			
Notes						
User approved pedestrian interval to be less than phase max green.						

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions Shift Change

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	14	1320	157	329	1460	14	57	43	43	14	29	29
v/c Ratio	0.35	0.72	0.18	0.87	1.04	0.01	0.88	0.22	0.08	0.30	0.22	0.12
Control Delay	90.1	29.0	3.7	73.2	53.8	0.0	142.8	57.9	3.1	84.7	62.1	1.0
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	90.1	29.0	3.7	73.2	53.8	0.0	142.8	57.9	3.1	84.7	62.1	1.0
Queue Length 50th (ft)	12	446	0	258	~1271	0	48	32	0	12	23	0
Queue Length 95th (ft)	31	289	13	313	531	0	#114	59	3	31	44	0
Internal Link Dist (ft)	1889			4351			531			1439		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	40	1873	889	453	1404	1186	65	324	613	46	308	373
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.70	0.18	0.73	1.04	0.01	0.88	0.13	0.07	0.30	0.09	0.08

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.

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions Shift Change

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	660	110	230	730	10	40	30	30	10	20	20
Future Volume (veh/h)	10	660	110	230	730	10	40	30	30	10	20	20
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		0.99	1.00		0.98
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	1320	157	329	1460	14	57	43	43	14	29	29
Peak Hour Factor	0.70	0.50	0.70	0.70	0.50	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	1955	870	357	1386	1173	61	127	424	16	81	67
Arrive On Green	0.01	0.55	0.55	0.20	0.74	0.74	0.03	0.07	0.07	0.01	0.04	0.04
Sat Flow, veh/h	1781	3554	1582	1781	1870	1583	1781	1870	1562	1781	1870	1548
Grp Volume(v), veh/h	14	1320	157	329	1460	14	57	43	43	14	29	29
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1583	1781	1870	1562	1781	1870	1548
Q Serve(g_s), s	1.0	35.2	6.6	24.0	98.1	0.3	4.2	2.9	2.7	1.0	2.0	2.4
Cycle Q Clear(g_c), s	1.0	35.2	6.6	24.0	98.1	0.3	4.2	2.9	2.7	1.0	2.0	2.4
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	16	1955	870	357	1386	1173	61	127	424	16	81	67
V/C Ratio(X)	0.85	0.68	0.18	0.92	1.05	0.01	0.94	0.34	0.10	0.85	0.36	0.43
Avail Cap(c_a), veh/h	40	1955	870	450	1386	1173	61	321	586	46	305	253
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	65.5	21.3	14.9	51.9	17.1	4.5	63.8	58.8	36.4	65.5	61.5	61.7
Incr Delay (d2), s/veh	67.3	0.9	0.1	21.3	39.5	0.0	94.4	1.6	0.1	67.3	2.7	4.4
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	0.8	13.4	2.2	12.4	44.8	0.1	3.4	1.4	1.0	0.8	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.8	22.3	15.0	73.2	56.6	4.5	158.2	60.4	36.5	132.8	64.2	66.1
LnGrp LOS	F	C	B	E	F	A	F	E	D	F	E	E
Approach Vol, veh/h	1491			1803			143			72		
Approach Delay, s/veh	22.5			59.2			92.2			78.3		
Approach LOS	C			E			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	14.9	32.0	78.7	10.0	11.6	6.7	104.0				
Change Period (Y+Rc), s	5.5	5.9	5.5	5.9	5.5	5.9	5.5	5.9				
Max Green Setting (Gmax), s	3.4	22.7	33.4	67.7	4.5	21.6	3.0	98.1				
Max Q Clear Time (g_c+I1), s	3.0	4.9	26.0	37.2	6.2	4.4	3.0	100.1				
Green Ext Time (p_c), s	0.0	0.2	0.6	11.0	0.0	0.1	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	45.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	43	14	1500	29	14	1500
v/c Ratio	0.21	0.08	0.59	0.02	0.08	0.60
Control Delay	39.4	18.7	14.6	3.4	38.6	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	18.7	14.6	3.4	38.6	1.6
Queue Length 50th (ft)	22	0	142	0	7	2
Queue Length 95th (ft)	46	13	292	13	21	0
Internal Link Dist (ft)	2187			1755	1647	
Turn Bay Length (ft)		175	250			175
Base Capacity (vph)	560	479	2537	1716	526	2483
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	0.08	0.03	0.59	0.02	0.03	0.60
Intersection Summary						

SMF Master Plan Update
2: Earhart Dr & Elverta Rd

Cumulative + MPU + Cargo Conditions Shift Change
PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			 			 
Traffic Volume (veh/h)	30	10	750	20	10	750
Future Volume (veh/h)	30	10	750	20	10	750
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	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	1870	1870	1841	1870	1870	1841
Adj Flow Rate, veh/h	43	14	1500	29	14	1500
Peak Hour Factor	0.70	0.70	0.50	0.70	0.70	0.50
Percent Heavy Veh, %	2	2	4	2	2	4
Cap, veh/h	87	72	1624	1126	470	2036
Arrive On Green	0.05	0.05	0.48	0.60	0.26	0.26
Sat Flow, veh/h	1870	1551	3401	1870	1781	2745
Grp Volume(v), veh/h	43	14	1500	29	14	1500
Grp Sat Flow(s),veh/h/ln	1870	1551	1700	1870	1781	1373
Q Serve(g_s), s	2.1	0.8	39.1	0.6	0.6	25.0
Cycle Q Clear(g_c), s	2.1	0.8	39.1	0.6	0.6	25.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	87	72	1624	1126	470	2036
V/C Ratio(X)	0.50	0.19	0.92	0.03	0.03	0.74
Avail Cap(c_a), veh/h	500	414	1781	1625	470	2036
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	43.5	23.1	7.6	25.9	7.0
Incr Delay (d2), s/veh	4.3	1.3	8.2	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.3	14.9	0.2	0.2	5.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.4	44.8	31.3	7.6	25.9	8.4
LnGrp LOS	D	D	C	A	C	A
Approach Vol, veh/h	57			1529	1514	
Approach Delay, s/veh	47.5			30.8	8.6	
Approach LOS	D			C	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	52.6	10.3			62.9	31.8
Change Period (Y+Rc), s	7.4	5.9			5.9	6.8
Max Green Setting (Gmax), s	49.6	25.3			82.3	25.0
Max Q Clear Time (g_c+I1), s	41.1	4.1			2.6	27.0
Green Ext Time (p_c), s	4.2	0.2			0.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			20.3			
HCM 6th LOS			C			
Notes						
User approved pedestrian interval to be less than phase max green.						

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions Shift Change

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	14	1440	71	114	1420	14	57	43	329	14	14	29
v/c Ratio	0.33	0.62	0.07	1.07	1.02	0.01	0.85	0.24	1.13	0.33	0.11	0.13
Control Delay	87.2	15.2	0.1	162.1	47.5	0.0	134.9	57.7	126.6	87.2	59.0	1.1
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	87.2	15.2	0.1	162.1	47.5	0.0	134.9	57.7	126.6	87.2	59.0	1.1
Queue Length 50th (ft)	11	348	0	~99	~1040	0	46	30	188	11	11	0
Queue Length 95th (ft)	31	228	0	#191	549	0	#112	58	239	31	27	0
Internal Link Dist (ft)	1889			4351			531			1439		
Turn Bay Length (ft)	400		400	400		400	175		175	175		175
Base Capacity (vph)	42	2521	1135	107	1396	1187	67	353	292	42	329	378
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.57	0.06	1.07	1.02	0.01	0.85	0.12	1.13	0.33	0.04	0.08

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.

SMF Master Plan Update
3: Power Line Rd & Elverta Rd

Cumulative + MPU + Cargo Conditions Shift Change

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	720	50	80	710	10	40	30	230	10	10	20
Future Volume (veh/h)	10	720	50	80	710	10	40	30	230	10	10	20
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		0.99	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	1440	71	114	1420	14	57	43	329	14	14	29
Peak Hour Factor	0.70	0.50	0.70	0.70	0.50	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	2118	943	92	1194	1011	56	302	337	17	261	220
Arrive On Green	0.01	0.60	0.60	0.05	0.64	0.64	0.03	0.16	0.16	0.01	0.14	0.14
Sat Flow, veh/h	1781	3554	1582	1781	1870	1583	1781	1870	1575	1781	1870	1574
Grp Volume(v), veh/h	14	1440	71	114	1420	14	57	43	329	14	14	29
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1583	1781	1870	1575	1781	1870	1574
Q Serve(g_s), s	1.2	40.4	2.8	7.6	93.7	0.5	4.6	2.9	23.7	1.2	1.0	2.4
Cycle Q Clear(g_c), s	1.2	40.4	2.8	7.6	93.7	0.5	4.6	2.9	23.7	1.2	1.0	2.4
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	17	2118	943	92	1194	1011	56	302	337	17	261	220
V/C Ratio(X)	0.84	0.68	0.08	1.24	1.19	0.01	1.02	0.14	0.98	0.84	0.05	0.13
Avail Cap(c_a), veh/h	36	2158	961	92	1194	1011	56	302	337	36	282	237
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	72.6	20.1	12.5	69.6	26.5	9.7	71.1	52.8	57.4	72.6	54.7	55.3
Incr Delay (d2), s/veh	65.0	0.9	0.0	169.9	93.7	0.0	126.4	0.2	42.9	65.0	0.1	0.3
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	0.8	15.3	0.9	7.7	66.5	0.2	4.0	1.3	15.7	0.8	0.4	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	137.5	21.0	12.6	239.5	120.2	9.7	197.5	53.0	100.3	137.5	54.8	55.6
LnGrp LOS	F	C	B	F	F	A	F	D	F	F	D	E
Approach Vol, veh/h		1525			1548			429			57	
Approach Delay, s/veh		21.7			128.0			108.5			75.5	
Approach LOS		C			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	29.6	15.0	93.4	12.0	26.4	8.8	99.6				
Change Period (Y+Rc), s	7.4	5.9	7.4	5.9	7.4	5.9	7.4	5.9				
Max Green Setting (Gmax), s	3.0	23.7	7.6	89.1	4.6	22.1	3.0	93.7				
Max Q Clear Time (g_c+I1), s	3.2	25.7	9.6	42.4	6.6	4.4	3.2	95.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	13.5	0.0	0.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			79.2									
HCM 6th LOS			E									

Appendix E

Freeway Analysis Worksheets

Segment Inputs				Existing Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
			Number of	Interchange Density	PM													
	Length	Lanes			AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
	(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)				
Southbound	North of Airport Blvd Off-Ramp	600	2	0.83	2,439	2,750	1431.59	72.64	75	72.938	19.627	C	1614.13	72.64	75	70.8249	22.79	C
	North of SR-99 Northbound Off-Ramp	7700	2	1.83	1,788	3,336	1049.48	70.04	70	69.7372	15.049	B	1958.087	70.04	70	63.3335	30.917	D
	North of SR-99 Southbound On-Ramp	2100	2	1.83	1,436	2,398	842.87	70.04	70	68.5205	12.301	B	1407.522	70.04	70	69.5004	20.252	C
Northbound	North of Airport Blvd Diagonal On-Ramp	8100	2	0.50	2,301	1,963	1350.59	73.6	75	73.6394	18.341	C	1152.196	73.6	75	74.7436	15.415	B
	North of SR-99 Southbound Diagonal On-Ramp	8600	2	1.50	3,294	2,753	1933.43	70.87	70	63.7601	30.324	D	1615.891	70.87	70	67.9936	23.765	C
	North of SR-99 Northbound Off-Ramp	0	2	1.50	2,421	2,404	1421.02	70.87	70	69.4333	20.466	C	1411.043	70.87	70	69.4833	20.308	C
Universal Inputs:																		
PHF	0.92																	
(P _T)	16%																	
f _{HV}	0.925925926																	

Segment Inputs				Existing Conditions																																
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures														
		Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	Capac													
																							v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	ity	v ₃	v _{12a}	v/c	D	LOS		
N.B	Airport Blvd Loop On-Ramp	2	1	1238	2709	1788	921	3180	2099	1081	60	1	2099	4800	0	1574	2099	0.663	22.02	C	3336	1944	1392	3916	2282	1634	65	1	2282	4800	0	1712	2282	0.816	27.51	C
	Airport Blvd Diagonal On-Ramp	2	1	210	2301	2093	208	2701	2457	244	70	1	2457	4800	0	1843	2457	0.563	25.12	C	1963	1630	333	2304	1913	391	55	1	1913	4800	0	1435	1913	0.48	21.95	C
	Airport Blvd Loop On-Ramp	2	1	235	2093	2020	73	2457	2371	86	68	1	2371	4800	0	1778	2371	0.512	23.13	C	1630	1570	60	1913	1843	70	53	1	1843	4800	0	1382	1843	0.399	18.89	B
Universal Inputs:																																				
Length		1500		(ft)																																
S _{IF}		70		(mi/h)																																
S _{FR}		35		(mi/h)																																
PHF		0.92																																		
(P ₁)		16%																																		
t _{HV}		0.925925926																																		

Segment Inputs					Existing Conditions																													
					AM Flow Inputs													PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS		
			L _{EQ}	L _D																													(veh/h)	(veh/h)
	(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)								
1 Airport Blvd Off-Ramp	2	1	-	315	2439	2709	270	-	3180	317	1	3180	4800	0	2385	3180	0.663	28.77	D	1944	2750	806	-	3228	946.2	1	3228	4800	0	2421	3228	0.673	29.18	D
2 Airport Blvd Off-Ramp	2	1		1770	2020	3294	1274	-	3867	1496	1	3867	4800	0	2900	3867	0.806	21.58	C	1570	2753	1183	-	3232	1389	1	3232	4800	0	2424	3232	0.673	16.12	B
Universal Inputs:																																		
Leng 1500 (ft)																																		
S _{FF} 70 (mi/h)																																		
S _{FR} 35 (mi/h)																																		
PHF 0.92																																		
(P-) 16%																																		
P _{HV} 0.925925926																																		

Segment Inputs					Existing Plus Cargo Conditions														
					Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
			Number of		Interchange Density	PM													
			Length	Lanes		AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
			(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Airport Blvd Off-Ramp		600	2	0.83	2,418	2,750	1419.26	72.64	75	73.0541	19.428	C	1614.13	72.64	75	70.8249	22.79	C
	North of SR-99 Northbound Off-Ramp		7700	2	1.83	1,788	3,320	1049.48	70.04	70	69.7372	15.049	B	1948.696	70.04	70	63.4977	30.689	D
	North of SR-99 Southbound On-Ramp		2100	2	1.83	1,436	2,382	842.87	70.04	70	68.5205	12.301	B	1398.13	70.04	70	69.5446	20.104	C
Northbound	North of Airport Blvd Diagonal On-Ramp		8100	2	0.50	2,314	1,983	1358.22	73.6	75	73.5795	18.459	C	1163.935	73.6	75	74.7025	15.581	B
	North of SR-99 Southbound Diagonal On-Ramp		8600	2	1.50	3,294	2,753	1933.43	70.87	70	63.7601	30.324	D	1615.891	70.87	70	67.9936	23.765	C
	North of SR-99 Northbound Off-Ramp		0	2	1.50	2,421	2,404	1421.02	70.87	70	69.4333	20.466	C	1411.043	70.87	70	69.4833	20.308	C
Universal Inputs:																			
PHF		0.92																	
(P _T)		16%																	
f _{HV}		0.925925926																	

Segment Inputs				Existing Plus Cargo Conditions																																
				AM Flow Inputs			AM LOS Performance Measures													PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _R /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _R /S _{FR}	P _{FM}	v ₁₂	Capac ity	v ₃	v _{12a}	v/c	D	LOS			
N.B	Airport Blvd Loop On-Ramp	2	1	1238	2718	1788	930	3191	2099	1092	60	1	2099	4800	0	1574	2099	0.665	22.1	C	3320	1920	1400	3897	2254	1643	64	1	2254	4800	0	1690	2254	0.812	27.36	C
	Airport Blvd Diagonal On-Ramp	2	1	210	2314	2104	210	2716	2470	247	71	1	2470	4800	0	1852	2470	0.566	25.23	C	1983	1643	340	2328	1929	399	55	1	1929	4800	0	1447	1929	0.485	22.13	C
	Airport Blvd Loop On-Ramp	2	1	235	2104	2004	100	2470	2353	117	67	1	2353	4800	0	1764	2353	0.515	23.21	C	1643	1563	80	1929	1835	94	52	1	1835	4800	0	1376	1835	0.402	19	B
Universal Inputs:																																				
Length		1500		(ft)																																
S _{IF}		70		(mi/h)																																
S _{FR}		35		(mi/h)																																
PHF		0.92																																		
(P ₁)		16%																																		
I _{HV}		0.925925926																																		

Segment Inputs					Existing Plus Cargo Conditions																													
					AM Flow Inputs												PM Flow Inputs			PM LOS Performance Measures														
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS		
			L _{EQ}	L _D																													(pc/h/ln)	(veh/h)
	(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	
Airport Blvd Off-Ramp	2	1	-	315	2418	2718	300	-	3191	352.2	1	3191	4800	0	2393	3191	0.665	28.86	D	1920	2750	830	-	3228	974.3	1	3228	4800	0	2421	3228	0.673	29.18	D
Airport Blvd Off-Ramp	2	1		1770	2004	3294	1290	-	3867	1514	1	3867	4800	0	2900	3867	0.806	21.58	C	1563	2753	1190	-	3232	1397	1	3232	4800	0	2424	3232	0.673	16.12	B
Universal Inputs:																																		
Leng 1500 (ft)																																		
S _{FF} 70 (mi/h)																																		
S _{FR} 35 (mi/h)																																		
PHF 0.92																																		
(P-) 16%																																		
P _{HV} 0.925925926																																		

Segment Inputs				Existing Plus MPU Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
			Number of	Interchange	PM													
	Length	Lanes	Density	AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS			
	(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)				
Southbound	North of Airport Blvd Off-Ramp	600	2	0.83	3,049	2,750	1789.63	72.64	75	68.0977	26.28	D	1614.13	72.64	75	70.8249	22.79	C
	North of SR-99 Northbound Off-Ramp	7700	2	1.83	1,788	4,476	1049.48	70.04	70	69.7372	15.049	B	2627.217	70.04	70	46.3714	56.656	F
	North of SR-99 Southbound On-Ramp	2100	2	1.83	1,436	3,538	842.87	70.04	70	68.5205	12.301	B	2076.652	70.04	70	61.0852	33.996	D
Northbound	North of Airport Blvd Diagonal On-Ramp	8100	2	0.50	821	1,303	481.891	73.6	75	72.0284	6.6903	A	764.8043	73.6	75	74.3876	10.281	A
	North of SR-99 Southbound Diagonal On-Ramp	8600	2	1.50	3,294	2,753	1933.43	70.87	70	63.7601	30.324	D	1615.891	70.87	70	67.9936	23.765	C
	North of SR-99 Northbound Off-Ramp	0	2	1.50	2,421	2,404	1421.02	70.87	70	69.4333	20.466	C	1411.043	70.87	70	69.4833	20.308	C
Universal Inputs:																		
PHF	0.92																	
(P _T)	16%																	
f _{HV}	0.925925926																	

Segment Inputs				Existing Plus MPU Conditions																																		
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures																
		Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS				
No	1	Airport Blvd Loop On-Ramp		2	1	1238	3729	1788	1941	4378	2099	2279	60	1	2099	4800	0	1574	2099	0.912	30.81	D	4476	1604	2872	5254	1883	3371	54	1	1883	4800	0	1412	1883	1.095	37.15	F
	2	Airport Blvd Diagonal On-Ramp		2	1	210	821	313	508	964	367	596	10	1	367.4	4800	0	276	367	0.201	11.4	B	1303	570	733	1530	669	860	19	1	669.1	4800	0	502	669	0.319	15.69	B
	3	Airport Blvd Loop On-Ramp		2	1	235	313	240	73	367	282	86	8	1	281.7	4800	0	211	282	0.077	6.828	A	570	510	60	669	599	70	17	1	598.7	4800	0	449	599	0.139	9.188	A
Universal Inputs:																																						
Length		1500	(ft)																																			
S _{FF}		70	(mi/h)																																			
S _{RL}		35	(mi/h)																																			
PHF		0.92																																				
P ₁		16%																																				
k _{ov}		0.925925926																																				

Segment Inputs					Existing Plus MPU Conditions																													
					AM Flow Inputs													PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS		
	(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)					(pc/mi/ln)			
Airport Blvd Off-Ramp	2	1	-	315	3049	3729	680	-	4378	798.3	1	4378	4800	0	3283	4378	0.912	39.06	E	1604	2750	1146	-	3228	1345	1	3228	4800	0	2421	3228	0.673	29.18	D
Airport Blvd Off-Ramp	2	1		1770	240	3294	3054	-	3867	3585	1	3867	4800	0	2900	3867	0.806	21.58	C	510	2753	2243	-	3232	2633	1	3232	4800	0	2424	3232	0.673	16.12	B
Universal Inputs:																																		
Leng 1500 (ft)																																		
S _{FF} 70 (mi/h)																																		
S _{FR} 35 (mi/h)																																		
PHF 0.92																																		
(P _i) 16%																																		
K _{HV} 0.925925926																																		

Segment Inputs				Existing Plus Cargo and MPU Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
			Number of	Interchange Density	PM		V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
Length	Lanes	AM Peak	Peak															
	(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Airport Blvd Off-Ramp	600	2	0.83	3,018	2,750	1771.43	72.64	75	68.4121	25.894	C	1614.13	72.64	75	70.8249	22.79	C
	North of SR-99 Northbound Off-Ramp	7700	2	1.83	1,788	4,440	1049.48	70.04	70	69.7372	15.049	B	2606.087	70.04	70	47.0659	55.371	F
	North of SR-99 Southbound On-Ramp	2100	2	1.83	1,436	3,502	842.87	70.04	70	68.5205	12.301	B	2055.522	70.04	70	61.5098	33.418	D
Northbound	North of Airport Blvd Diagonal On-Ramp	8100	2	0.50	824	1,333	483.652	73.6	75	72.0486	6.7129	A	782.413	73.6	75	74.4759	10.506	A
	North of SR-99 Southbound Diagonal On-Ramp	8600	2	1.50	3,294	2,753	1933.43	70.87	70	63.7601	30.324	D	1615.891	70.87	70	67.9936	23.765	C
	North of SR-99 Northbound Off-Ramp	0	2	1.50	2,421	2,404	1421.02	70.87	70	69.4333	20.466	C	1411.043	70.87	70	69.4833	20.308	C
Universal Inputs:																		
PHF	0.92																	
(P _T)	16%																	
f _{HV}	0.925925926																	

Segment Inputs				Existing Plus Cargo and MPU Conditions																																	
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures															
		Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS			
No	1	Airport Blvd Loop On-Ramp	2	1	1238	3728	1788	1940	4376	2099	2277	60	1	2099	4800	0	1574	2099	0.912	30.8	D	4440	1580	2860	5212	1855	3357	53	1	1855	4800	0	1391	1855	1.086	36.82	F
	2	Airport Blvd Diagonal On-Ramp	2	1	210	824	314	510	967	369	599	11	1	368.6	4800	0	276	369	0.202	11.43	B	1333	583	750	1565	684	880	20	1	684.4	4800	0	513	684	0.326	15.96	B
	3	Airport Blvd Loop On-Ramp	2	1	235	314	214	100	369	251	117	7	1	251.2	4800	0	188	251	0.077	6.823	A	583	503	80	684	590	94	17	1	590.5	4800	0	443	590	0.143	9.297	A
Universal Inputs:																																					
Length		1500		(ft)																																	
S _{FF}		70		(mi/h)																																	
S _{RL}		35		(mi/h)																																	
PHF		0.92																																			
P ₁		16%																																			
P ₂		0.925925926																																			

Segment Inputs					Existing Plus Cargo and MPU Conditions																													
					AM Flow Inputs													PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS		
			L _{EQ}	L _D																													(pc/h/ln)	(pc/h/ln)
	(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)							(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)								
Airport Blvd Off-Ramp	2	1	-	315	3018	3728	710	-	4376	833.5	1	4376	4800	0	3282	4376	0.912	39.05	E	1580	2750	1170	-	3228	1373	1	3228	4800	0	2421	3228	0.673	29.18	D
Airport Blvd Off-Ramp	2	1		1770	214	3294	3080	-	3867	3616	1	3867	4800	0	2900	3867	0.806	21.58	C	503	2753	2250	-	3232	2641	1	3232	4800	0	2424	3232	0.673	16.12	B
Universal inputs: Leng 1500 (ft) SFF 70 (mi/h) STR 35 (mi/h) PHF 0.92 (P-) 16% PIV 0.925925926																																		

Segment Inputs							Cumulative Conditions													
							Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures						
				PM																
				AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS					
				(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)						
Southbound	North of Airport Blvd Off-Ramp			600	2	1.50	2,592	3,543	1521.3	70.87	70	68.8025	22.111	C	2079.391	70.87	70	61.0294	34.072	D
	North of Metro Parkway Off-Ramp			3300	2	2.00	2,082	3,133	1221.95	69.64	70	69.9944	17.458	B	1838.739	69.64	70	65.2673	28.172	D
	North of SR-99 Northbound Off-Ramp			Analyzed as a weaving segment																
	North of SR-99 Southbound On-Ramp			2100	2	2.17	2,367	3,355	1389.35	69.24	70	69.5841	19.966	C	1969.043	69.24	70	63.1394	31.186	D
Northbound	North of Airport Blvd Diagonal On-Ramp			8100	2	1.33	2,619	2,772	1537.52	71.3	70	68.6785	22.387	C	1626.779	71.3	70	67.8872	23.963	C
	North of Metro Parkway Diagonal On-Ramp			1700	2	2.00	3,449	3,542	2024.7	69.64	70	62.1106	32.598	D	2078.736	69.64	70	61.0427	34.054	D
	North of SR-99 Southbound On-Ramp			2400	2	2.33	3,489	3,042	2048.18	68.84	70	61.655	33.22	D	1785.258	68.84	70	66.0267	27.038	D
	North of SR-99 Northbound Off-Ramp			0	2	2.33	2,616	2,693	1535.76	68.84	70	68.6923	22.357	C	1580.41	68.84	70	68.3213	23.132	C
Universal Inputs:																				
PHF		0.92																		
(P _T)		16%																		
f _{HV}		0.925925926																		

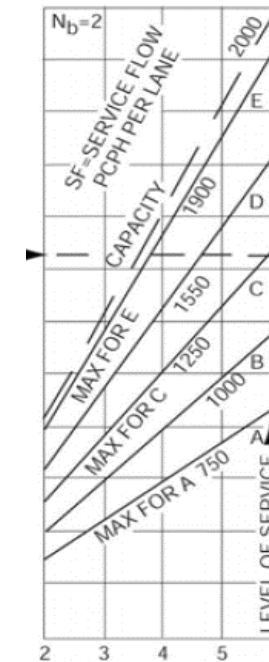
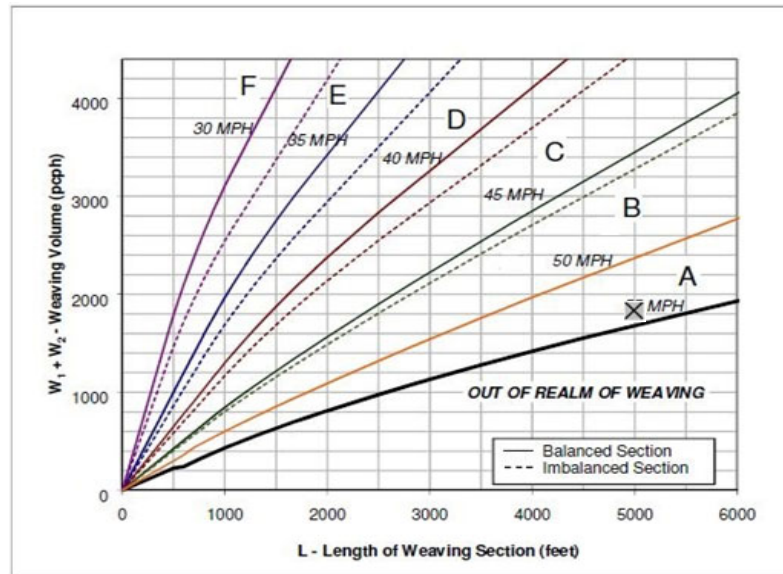
Segment Inputs				Cumulative Conditions																																	
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures															
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _a)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	ity	v ₃	v _{12a}	v/c	D	LOS				
S	Airport Blvd Loop On-Ramp	2	1	1238	3942	3012	930	4627	3536	1092	101	1	3536	4800	0	2652	3536	0.964	33.3	D	5933	4533	1400	6964	5321	1643	152	1	5321	4800	0	3991	5321	1.451	51.28	F	
	Metro Pkwy Loop On-Ramp	2	1	900	2722	1532	1190	3195	1798	1397	51	1	1798	4800	0	1349	1798	0.666	24.11	C	4083	2613	1470	4793	3067	1726	88	1	3067	4800	0	2300	3067	0.998	36.42	E	
	Metro Pkwy Diagonal On-Ramp	2	1	1200	2812	2722	90	3301	3195	106	91	1	3195	4800	0	2396	3195	0.688	23.65	C	4293	4083	210	5039	4793	247	137	1	4793	4800	0	3595	4793	1.05	37.14	F	
ND	Airport Blvd Diagonal On-Ramp	2	1	210	2619	2359	260	3075	2770	305	79	1	2770	4800	0	2077	2770	0.641	28	C	2772	2362	410	3254	2772	481	79	1	2772	4800	0	2079	2772	0.678	29.31	D	
	Airport Blvd Loop On-Ramp	2	1	235	2359	2169	190	2770	2547	223	73	1	2547	4800	0	1910	2547	0.577	25.5	C	2362	2262	100	2772	2655	117	76	1	2655	4800	0	1991	2655	0.578	25.57	C	
	Metro Pkwy Diagonal On-Ramp	2	1	800	3449	2259	1190	4049	2652	1397	76	1	2652	4800	0	1989	2652	0.844	31.4	D	3542	2072	1470	4157	2432	1726	69	1	2432	4800	0	1824	2432	0.866	32.09	D	
	Metro Pkwy Loop On-Ramp	2	1	600	2259	2169	90	2652	2547	106	73	1	2547	4800	0	1910	2547	0.553	22.35	C	2072	1862	210	2432	2185	247	62	1	2185	4800	0	1639	2185	0.507	20.57	C	
Universal Inputs:																																					
Length		1500		(ft)																																	
S _{IF}		70		(mi/h)																																	
S _{FR}		35		(mi/h)																																	
PHF		0.92																																			
P ₁		16%																																			
f _{HV}		0.925925926																																			

I-5 Southbound, North of SR-99 Northbound Off-Ramp Cumulative (AM)

Number of Entering Mainline Lanes	Nb	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	5025

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	2,692	Volume (vph)	1,280	Volume (vph)	445
Truck Percentage	16%	Truck Percentage	16%	Truck Percentage	16%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	2,907	Volume (pcph)	1,382	Volume (pcph)	481

W1 + W2	1,863
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	54.0
Weaving Intensity Factor (k)	1.00
Service Volume ((SV, pcph)	
$SV = (1/N) * [V + (k-1) * \min(W1, W2)]$	969
Level of Service (LOS)	B

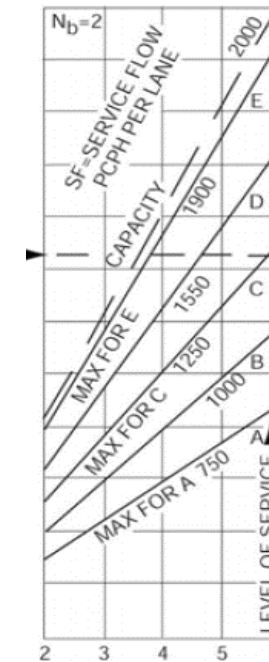
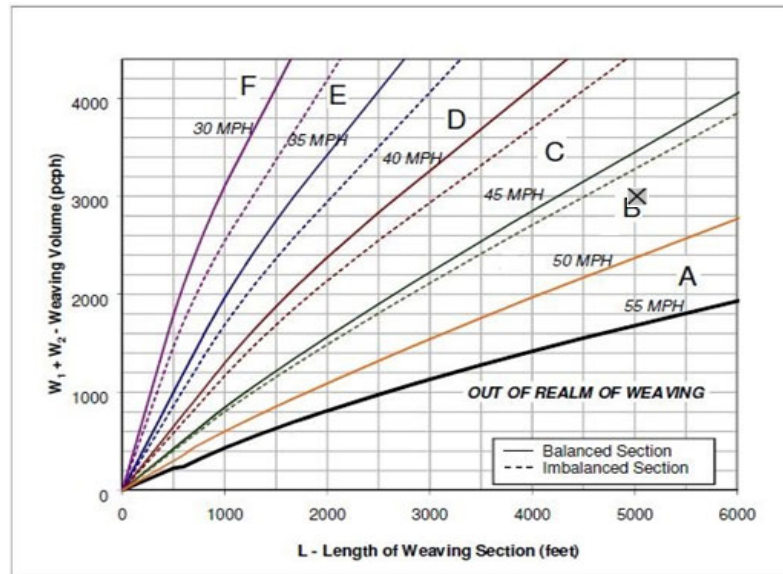


I-5 Southbound, North of SR-99 Northbound Off-Ramp Cumulative (PM)

Number of Entering Mainline Lanes	Nb	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	5025

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	4,293	Volume (vph)	1,680	Volume (vph)	938
Truck Percentage	16%	Truck Percentage	16%	Truck Percentage	16%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	4,636	Volume (pcph)	1,814	Volume (pcph)	1,013

W1 + W2	2,827
In between	
Speed 1	45
Speed 2	50
Interpolated Weaving Speed (Sw, mph)	46.0
Weaving Intensity Factor (k)	1.60
Service Volume ((SV, pcph)	
SV = $(1/N) * [V + (k-1) * \min(W1, W2)]$	1,748
Level of Service (LOS)	E



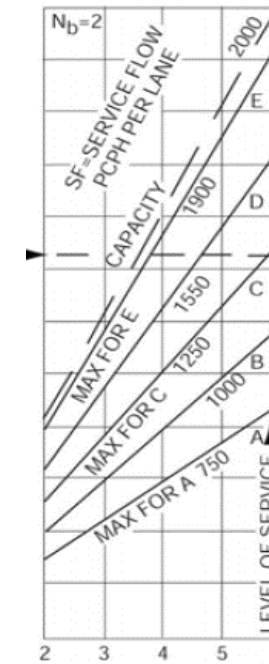
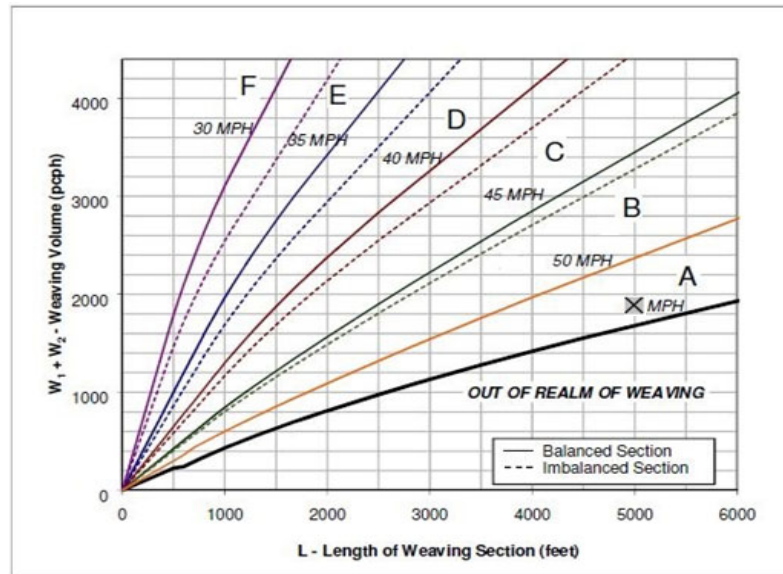
Segment Inputs						Cumulative Plus Cargo Conditions														
						Flow Inputs		AM LOS Performance Measures						PM LOS Performance Measures						
				PM																
				Length	Number of Lanes	Interchange Density	AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
				(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Airport Blvd Off-Ramp			600	2	1.50	2,572	3,533	1509.56	70.87	70	68.8884	21.913	C	2073.522	70.87	70	61.1487	33.909	D
	North of Metro Parkway Off-Ramp			3300	2	2.00	2,082	3,133	1221.95	69.64	70	69.9944	17.458	B	1838.739	69.64	70	65.2673	28.172	D
	North of SR-99 Northbound Off-Ramp			Analyzed as a weaving segment																
	North of SR-99 Southbound On-Ramp			2100	2	2.17	2,467	3,365	1448.04	69.24	70	69.2863	20.899	C	1974.913	69.24	70	63.0343	31.331	D
Northbound	North of Airport Blvd Diagonal On-Ramp			8100	2	1.33	2,729	2,792	1602.09	71.3	70	68.1246	23.517	C	1638.518	71.3	70	67.7693	24.178	C
	North of Metro Parkway Diagonal On-Ramp			1700	2	2.00	3,559	3,552	2089.26	69.64	70	60.8269	34.348	D	2084.605	69.64	70	60.9227	34.217	D
	North of SR-99 Southbound On-Ramp			2400	2	2.33	3,489	3,042	2048.18	68.84	70	61.655	33.22	D	1785.258	68.84	70	66.0267	27.038	D
	North of SR-99 Northbound Off-Ramp			0	2	2.33	2,616	2,693	1535.76	68.84	70	68.6923	22.357	C	1580.41	68.84	70	68.3213	23.132	C
Universal Inputs:																				
PHF		0.92																		
(P _T)		16%																		
f _{HV}		0.925925926																		

I-5 Southbound, North of SR-99 Northbound Off-Ramp Cumulative Plus Cargo (AM)

Number of Entering Mainline Lanes	Nb	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	5025

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	2,692	Volume (vph)	1,390	Volume (vph)	445
Truck Percentage	16%	Truck Percentage	16%	Truck Percentage	16%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	2,907	Volume (pcph)	1,501	Volume (pcph)	481

W1 + W2	1,982
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	54.0
Weaving Intensity Factor (k)	1.00
Service Volume ((SV, pcph)	
$SV = (1/N) * [V + (k-1) * \min(W1, W2)]$	969
Level of Service (LOS)	B



I-5 Southbound, North of SR-99 Northbound Off-Ramp Cumulative Plus Cargo (PM)

Number of Entering Mainline Lanes	Nb	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	5025

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	4,303	Volume (vph)	1,690	Volume (vph)	938
Truck Percentage	16%	Truck Percentage	16%	Truck Percentage	16%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	4,647	Volume (pcph)	1,825	Volume (pcph)	1,013

W1 + W2 2,838

In between

Speed 1 45

Speed 2 50

Interpolated Weaving Speed (Sw, mph) 46.0

Weaving Intensity Factor (k) 1.60

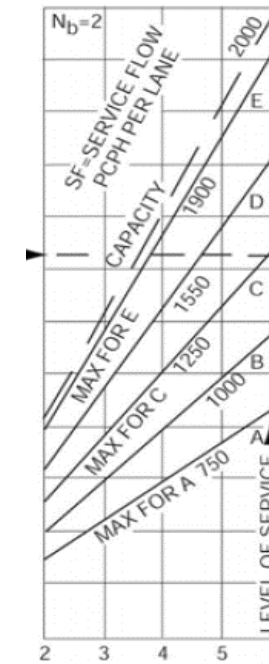
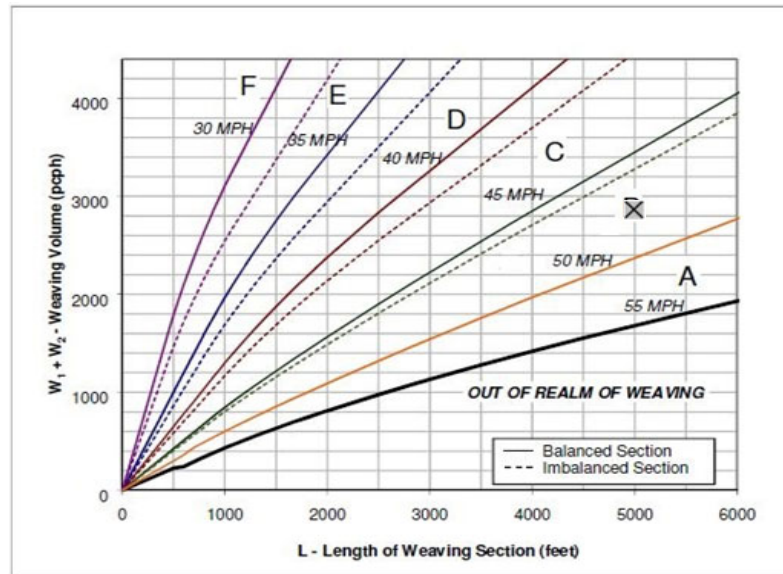
Service Volume ((SV, pcph)

$$SV = (1/N) * [V + (k-1) * \min(W1, W2)]$$

1,752

Level of Service (LOS) E

OUT OF REALM



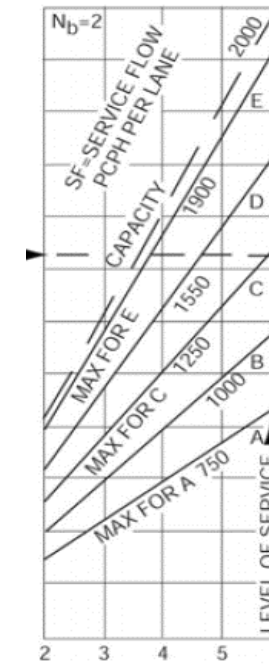
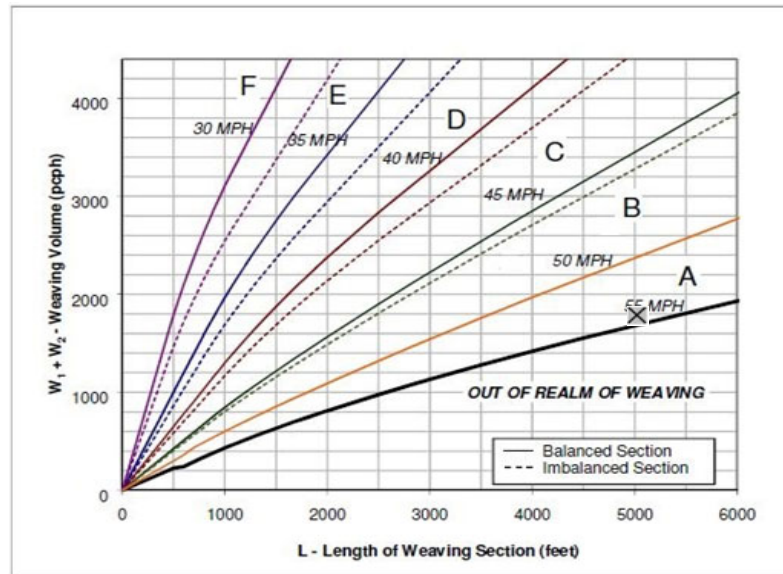
Segment Inputs							Cumulative Plus MPU Conditions													
							Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures						
				PM																
				AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS					
				(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)						
Southbound	North of Airport Blvd Off-Ramp			600	2	1.50	2,952	4,323	1732.6	70.87	70	66.7095	25.972	C	2537.217	70.87	70	49.2575	51.509	F
	North of Metro Parkway Off-Ramp			3300	2	2.00	2,082	3,133	1221.95	69.64	70	69.9944	17.458	B	1838.739	69.64	70	65.2673	28.172	D
	North of SR-99 Northbound Off-Ramp			Analyzed as a weaving segment																
	North of SR-99 Southbound On-Ramp			2100	2	2.17	2,327	3,325	1365.87	69.24	70	69.6809	19.602	C	1951.435	69.24	70	63.45	30.755	D
Northbound	North of Airport Blvd Diagonal On-Ramp			8100	2	1.33	1,639	2,242	962.305	71.3	70	69.3446	13.877	B	1315.692	71.3	70	69.8447	18.837	C
	North of Metro Parkway Diagonal On-Ramp			1700	2	2.00	3,449	3,542	2024.7	69.64	70	62.1106	32.598	D	2078.736	69.64	70	61.0427	34.054	D
	North of SR-99 Southbound On-Ramp			2400	2	2.33	3,489	3,042	2048.18	68.84	70	61.655	33.22	D	1785.258	68.84	70	66.0267	27.038	D
	North of SR-99 Northbound Off-Ramp			0	2	2.33	2,616	2,693	1535.76	68.84	70	68.6923	22.357	C	1580.41	68.84	70	68.3213	23.132	C
Universal Inputs:																				
PHF		0.92																		
(P _T)		16%																		
f _{HV}		0.925925926																		

I-5 Southbound, North of SR-99 Northbound Off-Ramp Cumulative Plus MPU (AM)

Number of Entering Mainline Lanes	Nb	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	5025

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	2,692	Volume (vph)	1,290	Volume (vph)	445
Truck Percentage	16%	Truck Percentage	16%	Truck Percentage	16%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	2,907	Volume (pcph)	1,393	Volume (pcph)	481

W1 + W2	1,874
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	55.0
Weaving Intensity Factor (k)	1.60
Service Volume ((SV, pcph)	
$SV = (1/N) * [V + (k-1) * \min(W1, W2)]$	1,065
Level of Service (LOS)	C

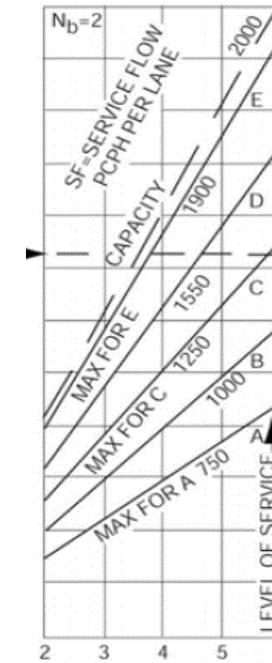
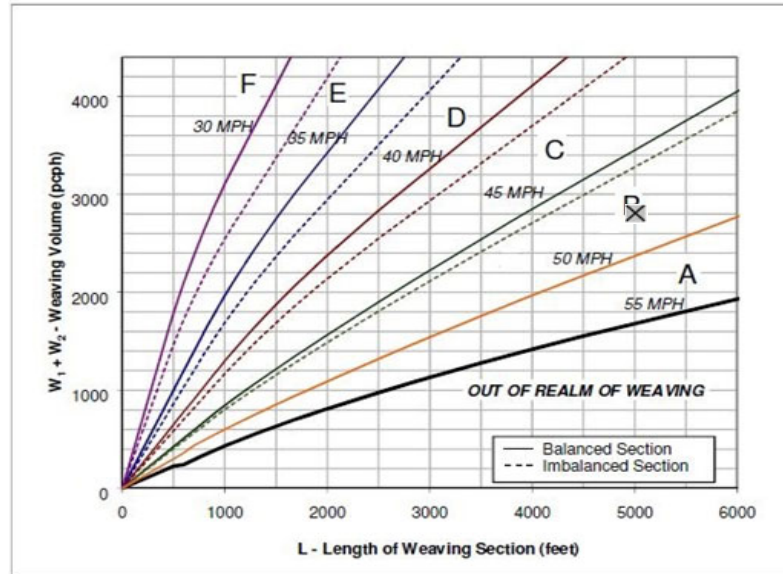


I-5 Southbound, North of SR-99 Northbound Off-Ramp Cumulative Plus MPU (PM)

Number of Entering Mainline Lanes	Nb	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	5025

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	4,263	Volume (vph)	1,690	Volume (vph)	938
Truck Percentage	16%	Truck Percentage	16%	Truck Percentage	16%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	4,604	Volume (pcph)	1,825	Volume (pcph)	1,013

W1 + W2	2,838
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	46.0
Weaving Intensity Factor (k)	1.60
Service Volume ((SV, pcph)	
$SV = (1/N) * [V + (k-1) * \min(W1, W2)]$	1,737
Level of Service (LOS)	E
OUT OF REALM	



Segment Inputs						Cumulative Plus Cargo Plus MPU Conditions														
						Flow Inputs		AM LOS Performance Measures						PM LOS Performance Measures						
				Length	Number of Lanes	Interchange Density	PM Peak		V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
				(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Airport Blvd Off-Ramp			600	2	1.50	2,932	4,313	1720.86	70.87	70	66.8529	25.741	C	2531.348	70.87	70	49.4392	51.201	F
	North of Metro Parkway Off-Ramp			3300	2	2.00	2,082	3,133	1221.95	69.64	70	69.9944	17.458	B	1838.739	69.64	70	65.2673	28.172	D
	North of SR-99 Northbound Off-Ramp			Analyzed as a weaving segment																
	North of SR-99 Southbound On-Ramp			2100	2	2.17	2,427	3,335	1424.56	69.24	70	69.415	20.522	C	1957.304	69.24	70	63.3473	30.898	D
Northbound	North of Airport Blvd Diagonal On-Ramp			8100	2	1.33	1,769	2,262	1038.61	71.3	70	69.6979	14.902	B	1327.432	71.3	70	69.8116	19.014	C
	North of Metro Parkway Diagonal On-Ramp			1700	2	2.00	3,569	3,552	2095.13	69.64	70	60.7054	34.513	D	2084.605	69.64	70	60.9227	34.217	D
	North of SR-99 Southbound On-Ramp			2400	2	2.33	3,489	3,042	2048.18	68.84	70	61.655	33.22	D	1785.258	68.84	70	66.0267	27.038	D
	North of SR-99 Northbound Off-Ramp			0	2	2.33	2,616	2,693	1535.76	68.84	70	68.6923	22.357	C	1580.41	68.84	70	68.3213	23.132	C
Universal Inputs:																				
PHF		0.92																		
(P _T)		16%																		
f _{HV}		0.925925926																		

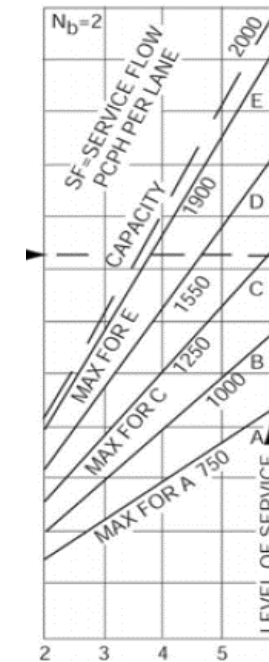
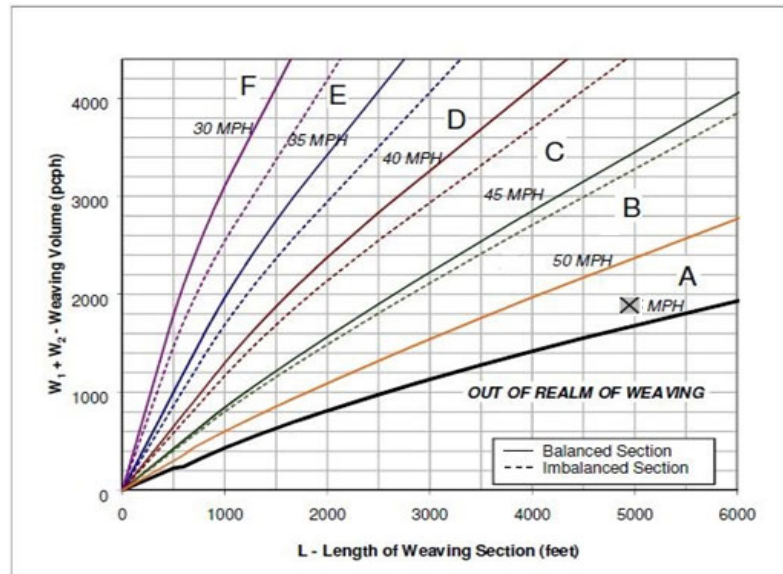
Segment Inputs				Cumulative Plus Cargo Plus MPU Conditions																																
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures														
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS			
SB	Airport Blvd Loop On-Ramp	2	1	1238	5502	3792	1710	6459	4451	2007	127	1	4451	4800	0	3338	4451	1.346	47.17	F	8273	5703	2570	9711	6694	3017	191	1	6694	4800	0	5021	6694	2.023	72.07	F
	Metro Pkwy Loop On-Ramp	2	1	900	2782	1472	1310	3266	1728	1538	49	1	1728	4800	0	1296	1728	0.68	24.6	C	4063	2573	1490	4769	3020	1749	86	1	3020	4800	0	2265	3020	0.994	36.23	E
	Metro Pkwy Diagonal On-Ramp	2	1	1200	2872	2782	90	3371	3266	106	93	1	3266	4800	0	2449	3266	0.702	24.2	C	4273	4063	210	5016	4769	247	136	1	4769	4800	0	3577	4769	1.045	36.96	F
NB	Airport Blvd Diagonal On-Ramp	2	1	210	1769	1219	550	2077	1432	646	41	1	1432	4800	0	1074	1432	0.433	20.06	C	2262	1482	780	2655	1739	916	50	1	1739	4800	0	1304	1739	0.553	24.45	C
	Airport Blvd Loop On-Ramp	2	1	235	1219	1029	190	1432	1209	223	35	1	1209	4800	0	906	1209	0.298	15.07	B	1482	1372	110	1739	1610	129	46	1	1610	4800	0	1208	1610	0.362	17.51	B
	Metro Pkwy Diagonal On-Ramp	2	1	800	3569	2259	1310	4190	2652	1538	76	1	2652	4800	0	1989	2652	0.873	32.44	D	3552	2062	1490	4169	2420	1749	69	1	2420	4800	0	1815	2420	0.869	32.17	D
	Metro Pkwy Loop On-Ramp	2	1	600	2259	2169	90	2652	2547	106	73	1	2547	4800	0	1910	2547	0.553	22.35	C	2062	1852	210	2420	2174	247	62	1	2174	4800	0	1630	2174	0.504	20.48	C
Universal Inputs:																																				
Length		1500		(ft)																																
S _{FF}		70		(mi/h)																																
S _{FR}		35		(mi/h)																																
PHF		0.92																																		
P _T		16%																																		
P _{av}		0.925925926																																		

I-5 Southbound, North of SR-99 Northbound Off-Ramp Cumulative Plus Cargo and MPU (AM)

Number of Entering Mainline Lanes	Nb	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	5025

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	2,692	Volume (vph)	1,400	Volume (vph)	445
Truck Percentage	16%	Truck Percentage	16%	Truck Percentage	16%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	2,907	Volume (pcph)	1,512	Volume (pcph)	481

W1 + W2	1,993
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	54.0
Weaving Intensity Factor (k)	1.60
Service Volume ((SV, pcph)	
$SV = (1/N) * [V + (k-1) * \min(W1, W2)]$	1,065
Level of Service (LOS)	C

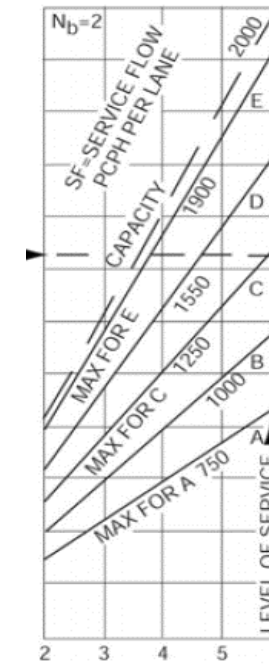
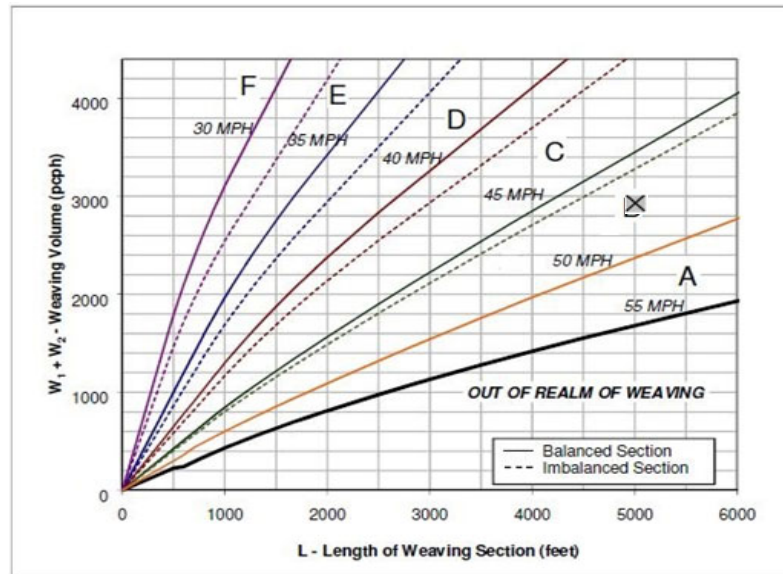


I-5 Southbound, North of SR-99 Northbound Off-Ramp Cumulative Plus Cargo and MPU (AM)

Number of Entering Mainline Lanes	Nb	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	5025

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	4,273	Volume (vph)	1,700	Volume (vph)	938
Truck Percentage	16%	Truck Percentage	16%	Truck Percentage	16%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	4,614	Volume (pcph)	1,836	Volume (pcph)	1,013

W1 + W2	2,849
In between	
Speed 1	45
Speed 2	50
Interpolated Weaving Speed (Sw, mph)	46.0
Weaving Intensity Factor (k)	1.60
Service Volume ((SV, pcph)	
$SV = (1/N) * [V + (k-1) * \min(W1, W2)]$	1,741
Level of Service (LOS)	E



Segment Inputs				Existing Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
		Number of Length	Interchange Lanes	Density	AM Peak	PM Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
		(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Elverta Road Off-Ramp	2900	2	1.00	2,027	1,598	1156.71	72.18	70	69.9783	16.53	B	911.9022	72.18	70	69.0372	13.209	B
	North of Elkhorn Rd Off-Ramp	3500	2	1.33	2,180	1,628	1244.02	71.3	70	69.9775	17.777	B	929.0217	71.3	70	69.1482	13.435	B
	North of I-5 Northbound Off-Ramp	0	2	1.63	2,910	2,171	1660.6	70.56	70	67.5391	24.587	C	1238.886	70.56	70	69.9825	17.703	B
	South of I-5 Northbound Off-Ramp	1300	2	1.63	2,037	1,822	1162.42	70.56	70	69.9836	16.61	B	1039.728	70.56	70	69.702	14.917	B
Northbound	North of Elverta Road Diagonal On-Ramp	5900	2	1.00	1,279	2,869	729.864	72.18	70	67.4361	10.823	A	1637.201	72.18	70	67.7827	24.154	C
	North of Elkhorn Rd Diagonal On-Ramp	4000	2	1.33	1,328	3,360	757.826	71.3	70	67.732	11.189	B	1917.391	71.3	70	64.0301	29.945	D
	North of I-5 Southbound On-Ramp	-700	2	1.63	1,967	4,313	1122.47	70.56	70	69.9303	16.051	B	2461.223	70.56	70	51.5481	47.746	F
	South of I-5 Southbound On-Ramp	700	2	1.63	1,615	3,375	921.603	70.56	70	69.1009	13.337	B	1925.951	70.56	70	63.8867	30.146	D
Univeral Inputs: PHF 0.92 (P _r) 10% f _{HV} 0.952380952																		

Segment Inputs				Existing Conditions																																
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures														
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)													Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)															
							V _D	V _F	V _R	V _F /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	V/C	D	LOS				V _D	V _F	V _R	V _F /S _{FR}	P _{FM}	V ₁₂	ity	V ₃	V _{12a}	V/C	D	LOS			
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)	(pc/h/in)			(pc/mi/in)						(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)	(pc/h/in)			(pc/mi/in)								
Σ	Elverta Road Loop On-Ramp	2	1	280	2169	1872	297	2475	2137	339	61	1	2137	4800	0	1602	2137	0.516	22.87	C	1605	1526	79	1832	1742	90	50	1	1742	4800	0	1306	1742	0.382	17.97	B
	Elverta Rd Diagonal On-Ramp	2	2	265	2180	2169	11	2488	2475	13	71	1	2475	4800	0	1857	2475	0.518	23.21	C	1628	1605	23	1858	1832	26	52	1	1832	4800	0	1374	1832	0.387	18.29	B
	Elkhorn Boulevard Loop On-Ramp	2	1	235	2822	2047	775	3221	2336	885	67	1	2336	4800	0	1752	2336	0.671	28.72	D	1857	1502	355	2119	1714	405	49	1	1714	4800	0	1286	1714	0.442	20.35	C
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	2910	2822	88	3321	3221	100	92	1	3221	4800	0	2416	3221	0.692	30.46	D	2171	1857	314	2478	2119	358	61	1	2119	4800	0	1590	2119	0.516	23.76	C
Σ	Elverta Rd Diagonal On-Ramp	2	1	260	1279	1231	48	1460	1405	55	40	1	1405	4800	0	1054	1405	0.304	15.21	B	2869	2817	52	3274	3215	59	92	1	3215	4800	0	2411	3215	0.682	29.36	D
	Elverta Road Loop On-Ramp	2	1	290	1231	1221	10	1405	1394	11	40	1	1394	4800	0	1045	1394	0.293	14.61	B	2817	2763	54	3215	3153	62	90	1	3153	4800	0	2365	3153	0.67	28.71	D
	Elkhorn Boulevard Diagonal On-Ramp	2	1	240	1328	1222	106	1516	1395	121	40	1	1395	4800	0	1046	1395	0.316	15.74	B	3360	3223	137	3835	3678	156	105	1	3678	4800	0	2759	3678	0.799	33.81	D
	Elkhorn Boulevard Loop On-Ramp	2	1	255	1222	1218	4	1395	1390	5	40	1	1390	4800	0	1043	1390	0.291	14.75	B	3223	3173	50	3678	3621	57	103	1	3621	4800	0	2716	3621	0.766	32.54	D
	I-5 Southbound On-Ramp	2	1	100	1967	1615	352	2245	1843	402	53	1	1843	4800	0	1382	1843	0.468	22.17	C	4313	3375	938	4922	3852	1071	110	1	3852	4800	0	2889	3852	1.026	42.75	F
Universal Inputs:																																				
Length		1500	(ft)																																	
S _{FF}		70	(mi/h)																																	
S _{FR}		35	(mi/h)																																	
PHF		0.92																																		
P ₁		10%																																		
F _{HV}		0.952380952																																		

Segment Inputs					Existing Conditions																													
					AM Flow Inputs													PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	V _D	V _F	V _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS		
			L _{EQ}	Lane (L _D)																														
	(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)								
SB	Elverta Road Off-Ramp	2	1	540	1872	2027	155	-	2313	176.9	1	2313	4800	0	1735	2313	0.482	19.29	B	1526	1598	72	-	1824	82.17	1	1824	4800	0	1368	1824	0.38	15.08	B
	Elkhorn Rd Off-Ramp	2	1	220	2047	2180	133	-	2488	151.8	1	2488	4800	0	1866	2488	0.518	23.67	C	1502	1628	126	-	1858	143.8	1	1858	4800	0	1394	1858	0.387	18.25	B
	I-5 Northbound Off-Ramp	2	1	440	2037	2910	873	-	3321	996.4	1	3321	4800	0	2491	3321	0.692	28.85	D	1822	2171	349	-	2478	398.3	1	2478	4800	0	1858	2478	0.516	21.6	C
NB	Elverta Road Off-Ramp	2	1	1445	1221	1328	107	-	1516	122.1	1	1516	4800	0	1137	1516	0.316	4.282	A	2763	3360	597	-	3835	681.4	1	3835	4800	0	2876	3835	0.799	24.23	C
	Elkhorn Rd Off-Ramp	2	2	255	1218	1967	749	-	2245	854.8	1	2245	4800	0	1684	2245	0.468	21.26	C	3173	4313	1140	-	4922	1301	1	4922	4800	0	3692	4922	1.026	44.29	F
Universal Inputs:																																		
Leng 1500																																		
S _{FF} 70																																		
S _{FR} 35																																		
PHF 0.92																																		
(P _r) 10%																																		
P _{RV} 0.952380952																																		

Segment Inputs				Existing+Cargo Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
		Number of Interchange		PM														
	Length	Lanes	Density	AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS			
	(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)				
Southbound	North of Elverta Road Off-Ramp	2900	2	1.00	2,027	1,598	1156.71	72.18	70	69.9783	16.53	B	911.9022	72.18	70	69.0372	13.209	B
	North of Elkhorn Rd Off-Ramp	3500	2	1.33	2,197	1,748	1253.72	71.3	70	69.9665	17.919	B	997.5	71.3	70	69.5243	14.347	B
	North of I-5 Northbound Off-Ramp	0	2	1.63	2,997	2,278	1710.24	70.56	70	66.9799	25.534	C	1299.946	70.56	70	69.8841	18.601	C
	South of I-5 Northbound Off-Ramp	1300	2	1.63	2,124	1,929	1212.07	70.56	70	69.9983	17.316	B	1100.788	70.56	70	69.8858	15.751	B
Northbound	North of Elverta Road Diagonal On-Ramp	5900	2	1.00	1,107	2,833	631.712	72.18	70	66.2538	9.5347	A	1616.658	72.18	70	67.9862	23.779	C
	North of Elkhorn Rd Diagonal On-Ramp	4000	2	1.33	1,337	3,363	762.962	71.3	70	67.7844	11.256	B	1919.103	71.3	70	64.0015	29.985	D
	North of I-5 Southbound On-Ramp	-700	2	1.63	1,967	4,313	1122.47	70.56	70	69.9303	16.051	B	2461.223	70.56	70	51.5481	47.746	F
	South of I-5 Southbound On-Ramp	700	2	1.63	1,615	3,375	921.603	70.56	70	69.1009	13.337	B	1925.951	70.56	70	63.8867	30.146	D
Universal Inputs: PHF 0.92 (P _r) 10% f _{RV} 0.952380952																		

Segment Inputs				Existing+Cargo Conditions																																
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures														
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	V _I /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	V/C	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	V _I /S _{FR}	P _{FM}	V ₁₂	ity	V ₃	V _{12a}	V/C	D	LOS			
S	Elverta Road Loop On-Ramp	2	1	280	2147	1847	300	2450	2108	342	60	1	2108	4800	0	1581	2108	0.51	22.67	C	1588	1508	80	1812	1721	91	49	1	1721	4800	0	1291	1721	0.378	17.81	B
	Elverta Rd Diagonal On-Ramp	2	2	265	2197	2147	50	2507	2450	57	70	1	2450	4800	0	1838	2450	0.522	23.35	C	1748	1588	160	1995	1812	183	52	1	1812	4800	0	1359	1812	0.416	19.29	B
	Elkhorn Boulevard Loop On-Ramp	2	1	235	2847	2057	790	3249	2348	902	67	1	2348	4800	0	1761	2348	0.677	28.93	D	1958	1598	360	2235	1824	411	52	1	1824	4800	0	1368	1824	0.466	21.24	C
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	2997	2847	150	3420	3249	171	93	1	3249	4800	0	2437	3249	0.713	31.2	D	2278	1958	320	2600	2235	365	64	1	2235	4800	0	1676	2235	0.542	24.71	C
D	Elverta Rd Diagonal On-Ramp	2	1	260	1107	1047	60	1263	1195	68	34	1	1195	4800	0	896	1195	0.263	13.67	B	2833	2763	70	3233	3153	80	90	1	3153	4800	0	2365	3153	0.674	29.03	D
	Elverta Road Loop On-Ramp	2	1	290	1047	1017	30	1195	1161	34	33	1	1161	4800	0	871	1161	0.249	12.96	B	2763	2693	70	3153	3074	80	88	1	3074	4800	0	2305	3074	0.657	28.22	D
	Elkhorn Boulevard Diagonal On-Ramp	2	1	240	1337	1217	120	1526	1389	137	40	1	1389	4800	0	1042	1389	0.318	15.81	B	3363	3223	140	3838	3678	160	105	1	3678	4800	0	2759	3678	0.8	33.83	D
	Elkhorn Boulevard Loop On-Ramp	2	1	255	1217	1207	10	1389	1378	11	39	1	1378	4800	0	1033	1378	0.289	14.7	B	3223	3163	60	3678	3610	68	103	1	3610	4800	0	2707	3610	0.766	32.54	D
	I-5 Southbound On-Ramp	2	1	100	1967	1615	352	2245	1843	402	53	1	1843	4800	0	1382	1843	0.468	22.17	C	4313	3375	938	4922	3852	1071	110	1	3852	4800	0	2889	3852	1.026	42.75	F
Universal Inputs:																																				
Length		1500	(ft)																																	
S _{IF}		70	(mi/h)																																	
S _{IR}		35	(mi/h)																																	
PHF		0.92																																		
P ₁		10%																																		
P _{HV}		0.952380952																																		

Segment Inputs				Existing+Cargo Conditions																														
				AM Flow Inputs														PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)	Downstream Volume	Upstream Volume	Ramp Volume	V _D	V _F	V _R	P _{FD}	V ₁₂	Capacity	V ₃	V _{12a}	V/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	P _{FD}	V ₁₂	Capacity	V ₃	V _{12a}	V/c	D	LOS			
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)					
SB	Elverta Road Off-Ramp	2	1	540	1847	2027	180	-	2313	205.4	1	2313	4800	0	1735	2313	0.482	19.29	B	1508	1598	90	-	1824	102.7	1	1824	4800	0	1368	1824	0.38	15.08	B
	Elkhorn Rd Off-Ramp	2	1	220	2057	2197	140	-	2507	159.8	1	2507	4800	0	1881	2507	0.522	23.84	C	1598	1748	150	-	1995	171.2	1	1995	4800	0	1496	1995	0.416	19.43	B
	I-5 Northbound Off-Ramp	2	1	440	2124	2997	873	-	3420	996.4	1	3420	4800	0	2565	3420	0.713	29.71	D	1929	2278	349	-	2600	398.3	1	2600	4800	0	1950	2600	0.542	22.65	C
NB	Elverta Road Off-Ramp	2	1	1445	1017	1337	320	-	1526	365.2	1	1526	4800	0	1144	1526	0.318	4.37	A	2693	3363	670	-	3838	764.7	1	3838	4800	0	2879	3838	0.8	24.26	C
	Elkhorn Rd Off-Ramp	2	2	255	1207	1967	760	-	2245	867.4	1	2245	4800	0	1684	2245	0.468	21.26	C	3163	4313	1150	-	4922	1313	1	4922	4800	0	3692	4922	1.026	44.29	F
Universal Inputs:																																		
Leng 1500		(ft)																																
S _{FF} 70		(mi/h)																																
S _{FR} 35		(mi/h)																																
PHF 0.92																																		
P _I 10%																																		
F _{HV} 0.952380952																																		

Segment Inputs				Existing+MPU Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
	Length	Number of Lanes	Interchange Density	AM Peak	PM Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS			
	(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)				
Southbound	North of Elverta Road Off-Ramp	2900	2	1.00	2,027	1,598	1156.71	72.18	70	69.9783	16.53	B	911.9022	72.18	70	69.0372	13.209	B
	North of Elkhorn Rd Off-Ramp	3500	2	1.33	2,250	1,648	1283.97	71.3	70	69.9182	18.364	C	940.4348	71.3	70	69.2185	13.586	B
	North of I-5 Northbound Off-Ramp	0	2	1.63	2,980	2,191	1700.54	70.56	70	67.0937	25.346	C	1250.299	70.56	70	69.9707	17.869	B
	South of I-5 Northbound Off-Ramp	1300	2	1.63	2,107	1,842	1202.36	70.56	70	69.9999	17.177	B	1051.141	70.56	70	69.743	15.072	B
Northbound	North of Elverta Road Diagonal On-Ramp	5900	2	1.00	1,219	2,769	695.625	72.18	70	67.049	10.375	A	1580.136	72.18	70	68.3238	23.127	C
	North of Elkhorn Rd Diagonal On-Ramp	4000	2	1.33	1,298	3,310	740.707	71.3	70	67.553	10.965	A	1888.859	71.3	70	64.4955	29.287	D
	North of I-5 Southbound On-Ramp	-700	2	1.63	1,967	4,313	1122.47	70.56	70	69.9303	16.051	B	2461.223	70.56	70	51.5481	47.746	F
	South of I-5 Southbound On-Ramp	700	2	1.63	1,615	3,375	921.603	70.56	70	69.1009	13.337	B	1925.951	70.56	70	63.8867	30.146	D
Universal Inputs: PHF 0.92 (P _r) 10% f _{RV} 0.952380952																		

Segment Inputs				Existing+MPU Conditions																																
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures														
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)													Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)															
							V _D	V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	V/c	D	LOS				V _D	V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	ity	V ₃	V _{12a}	V/c	D	LOS			
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)		(pc/h/in)					(pc/mi/in)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)		(pc/h/in)					(pc/mi/in)							
Σ	Elverta Road Loop On-Ramp	2	1	280	2239	1872	367	2555	2137	419	61	1	2137	4800	0	1602	2137	0.532	23.46	C	1625	1526	99	1855	1742	113	50	1	1742	4800	0	1306	1742	0.386	18.13	B
	Elverta Rd Diagonal On-Ramp	2	2	265	2250	2239	11	2568	2555	13	73	1	2555	4800	0	1917	2555	0.535	23.84	C	1648	1625	23	1881	1855	26	53	1	1855	4800	0	1391	1855	0.392	18.47	B
	Elkhorn Boulevard Loop On-Ramp	2	1	235	2892	2117	775	3301	2416	885	69	1	2416	4800	0	1812	2416	0.688	29.34	D	1877	1522	355	2142	1737	405	50	1	1737	4800	0	1303	1737	0.446	20.52	C
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	2980	2892	88	3401	3301	100	94	1	3301	4800	0	2475	3301	0.709	31.08	D	2191	1877	314	2501	2142	358	61	1	2142	4800	0	1607	2142	0.521	23.94	C
Σ	Elverta Rd Diagonal On-Ramp	2	1	260	1219	1161	58	1391	1325	66	38	1	1325	4800	0	994	1325	0.29	14.67	B	2769	2717	52	3160	3101	59	89	1	3101	4800	0	2326	3101	0.658	28.47	D
	Elverta Road Loop On-Ramp	2	1	290	1161	1151	10	1325	1314	11	38	1	1314	4800	0	985	1314	0.276	13.99	B	2717	2663	54	3101	3039	62	87	1	3039	4800	0	2279	3039	0.646	27.82	C
	Elkhorn Boulevard Diagonal On-Ramp	2	1	240	1298	1192	106	1481	1360	121	39	1	1360	4800	0	1020	1360	0.309	15.47	B	3310	3173	137	3778	3621	156	103	1	3621	4800	0	2716	3621	0.787	33.36	D
	Elkhorn Boulevard Loop On-Ramp	2	1	255	1192	1188	4	1360	1356	5	39	1	1356	4800	0	1017	1356	0.283	14.49	B	3173	3123	50	3621	3564	57	102	1	3564	4800	0	2673	3564	0.754	32.1	D
	I-5 Southbound On-Ramp	2	1	100	1967	1615	352	2245	1843	402	53	1	1843	4800	0	1382	1843	0.468	22.17	C	4313	3375	938	4922	3852	1071	110	1	3852	4800	0	2889	3852	1.026	42.75	F
Universal Inputs:																																				
Length		1500	(ft)																																	
S _{FF}		70	(mi/h)																																	
S _{FR}		35	(mi/h)																																	
PHF		0.92																																		
P ₁		10%																																		
P _{HV}		0.952380952																																		

Segment Inputs				Existing+MPU Conditions																														
				AM Flow Inputs														PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)	Downstream Volume	Upstream Volume	Ramp Volume	V _D	V _F	V _R	P _{FD}	V ₁₂	Capacity	V ₃	V _{12a}	V/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	P _{FD}	V ₁₂	Capacity	V ₃	V _{12a}	V/c	D	LOS			
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)				(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)				
SB	Elverta Road Off-Ramp	2	1	540	1872	2027	155	-	2313	176.9	1	2313	4800	0	1735	2313	0.482	19.29	B	1526	1598	72	-	1824	82.17	1	1824	4800	0	1368	1824	0.38	15.08	B
	Elkhorn Rd Off-Ramp	2	1	220	2117	2250	133	-	2568	151.8	1	2568	4800	0	1926	2568	0.535	24.36	C	1522	1648	126	-	1881	143.8	1	1881	4800	0	1411	1881	0.392	18.45	B
	I-5 Northbound Off-Ramp	2	1	440	2107	2980	873	-	3401	996.4	1	3401	4800	0	2551	3401	0.709	29.54	D	1842	2191	349	-	2501	398.3	1	2501	4800	0	1875	2501	0.521	21.8	C
NB	Elverta Road Off-Ramp	2	1	1445	1151	1298	147	-	1481	167.8	1	1481	4800	0	1111	1481	0.309	3.987	A	2663	3310	647	-	3778	738.4	1	3778	4800	0	2833	3778	0.787	23.74	C
	Elkhorn Rd Off-Ramp	2	2	255	1188	1967	779	-	2245	889.1	1	2245	4800	0	1684	2245	0.468	21.26	C	3123	4313	1190	-	4922	1358	1	4922	4800	0	3692	4922	1.026	44.29	F
Universal Inputs:																																		
Leng 1500		(ft)																																
S _{FF} 70		(mi/h)																																
S _{FR} 35		(mi/h)																																
PHF 0.92																																		
P _I 10%																																		
F _{HV} 0.952380952																																		

Segment Inputs				Existing+Cargo+MPU Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
		Number of		Interchange Density	PM													
		Length	Lanes		AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
		(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Elverta Road Off-Ramp	2900	2	1.00	2,027	1,598	1156.71	72.18	70	69.9783	16.53	B	911.9022	72.18	70	69.0372	13.209	B
	North of Elkhorn Rd Off-Ramp	3500	2	1.33	2,197	1,768	1253.72	71.3	70	69.9665	17.919	B	1008.913	71.3	70	69.5764	14.501	B
	North of I-5 Northbound Off-Ramp	0	2	1.63	2,997	2,298	1710.24	70.56	70	66.9799	25.534	C	1311.359	70.56	70	69.8562	18.772	C
	South of I-5 Northbound Off-Ramp	1300	2	1.63	2,124	1,949	1212.07	70.56	70	69.9983	17.316	B	1112.201	70.56	70	69.9106	15.909	B
Northbound	North of Elverta Road Diagonal On-Ramp	5900	2	1.00	1,107	2,733	631.712	72.18	70	66.2538	9.5347	A	1559.592	72.18	70	68.5	22.768	C
	North of Elkhorn Rd Diagonal On-Ramp	4000	2	1.33	1,337	3,303	762.962	71.3	70	67.7844	11.256	B	1884.864	71.3	70	64.5591	29.196	D
	North of I-5 Southbound On-Ramp	-700	2	1.63	1,967	4,313	1122.47	70.56	70	69.9303	16.051	B	2461.223	70.56	70	51.5481	47.746	F
	South of I-5 Southbound On-Ramp	700	2	1.63	1,615	3,375	921.603	70.56	70	69.1009	13.337	B	1925.951	70.56	70	63.8867	30.146	D
Universal Inputs:																		
PHF		0.92																
(P _r)		10%																
f _{RV}		0.952380952																

Segment Inputs				Existing+Cargo+MPU Conditions																																	
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures															
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	V/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	ity	V ₃	V _{12a}	V/c	D	LOS				
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)			(pc/h/in)				(pc/mi/in)				(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)		(pc/h/in)				(pc/mi/in)						
Σ	Elverta Road Loop On-Ramp	2	1	280	2147	1847	300	2450	2108	342	60	1	2108	4800	0	1581	2108	0.51	22.67	C	1608	1508	100	1835	1721	114	49	1	1721	4800	0	1291	1721	0.382	17.98	B	
	Elverta Rd Diagonal On-Ramp	2	2	265	2197	2147	50	2507	2450	57	70	1	2450	4800	0	1838	2450	0.522	23.35	C	1768	1608	160	2018	1835	183	52	1	1835	4800	0	1376	1835	0.42	19.47	B	
	Elkhorn Boulevard Loop On-Ramp	2	1	235	2847	2057	790	3249	2348	902	67	1	2348	4800	0	1761	2348	0.677	28.93	D	1978	1618	360	2258	1847	411	53	1	1847	4800	0	1385	1847	0.47	21.42	C	
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	2997	2847	150	3420	3249	171	93	1	3249	4800	0	2437	3249	0.713	31.2	D	2298	1978	320	2623	2258	365	65	1	2258	4800	0	1693	2258	0.546	24.89	C	
Σ	Elverta Rd Diagonal On-Ramp	2	1	260	1107	1047	60	1263	1195	68	34	1	1195	4800	0	896	1195	0.263	13.67	B	2733	2663	70	3119	3039	80	87	1	3039	4800	0	2279	3039	0.65	28.14	D	
	Elverta Road Loop On-Ramp	2	1	290	1047	1017	30	1195	1161	34	33	1	1161	4800	0	871	1161	0.249	12.96	B	2663	2593	70	3039	2959	80	85	1	2959	4800	0	2220	2959	0.633	27.33	C	
	Elkhorn Boulevard Diagonal On-Ramp	2	1	240	1337	1217	120	1526	1389	137	40	1	1389	4800	0	1042	1389	0.318	15.81	B	3303	3163	140	3770	3610	160	103	1	3610	4800	0	2707	3610	0.785	33.3	D	
	Elkhorn Boulevard Loop On-Ramp	2	1	255	1217	1207	10	1389	1378	11	39	1	1378	4800	0	1033	1378	0.289	14.7	B	3163	3103	60	3610	3541	68	101	1	3541	4800	0	2656	3541	0.752	32	D	
	I-5 Southbound On-Ramp	2	1	100	1967	1615	352	2245	1843	402	53	1	1843	4800	0	1382	1843	0.468	22.17	C	4313	3375	938	4922	3852	1071	110	1	3852	4800	0	2889	3852	1.026	42.75	F	
Universal Inputs:																																					
Length		1500				(ft)																															
S _{FF}		70				(mi/h)																															
S _{FR}		35				(mi/h)																															
PHF		0.92																																			
P ₁		10%																																			
F _{HV}		0.952380952																																			

Segment Inputs					Existing+Cargo+MPU Conditions																														
					AM Flow Inputs														PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	V _D	V _F	V _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS			
			L _{EQ}	Lane (L _D)																													(veh/h)	(veh/h)	(veh/h)
	(N)		(ft)	(ft)				(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)					(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)									
SB	Elverta Road Off-Ramp	2	1	-	540	1847	2027	180	-	2313	205.4	1	2313	4800	0	1735	2313	0.482	19.29	B	1508	1598	90	-	1824	102.7	1	1824	4800	0	1368	1824	0.38	15.08	B
	Elkhorn Rd Off-Ramp	2	1		220	2057	2197	140	-	2507	159.8	1	2507	4800	0	1881	2507	0.522	23.84	C	1618	1768	150	-	2018	171.2	1	2018	4800	0	1513	2018	0.42	19.63	B
	I-5 Northbound Off-Ramp	2	1		440	2124	2997	873	-	3420	996.4	1	3420	4800	0	2565	3420	0.713	29.71	D	1949	2298	349	-	2623	398.3	1	2623	4800	0	1967	2623	0.546	22.85	C
NB	Elverta Road Off-Ramp	2	1		1445	1017	1337	320	-	1526	365.2	1	1526	4800	0	1144	1526	0.318	4.37	A	2593	3303	710	-	3770	810.3	1	3770	4800	0	2827	3770	0.785	23.67	C
	Elkhorn Rd Off-Ramp	2	2		255	1207	1967	760	-	2245	867.4	1	2245	4800	0	1684	2245	0.468	21.26	C	3103	4313	1210	-	4922	1381	1	4922	4800	0	3692	4922	1.026	44.29	F
Universal Inputs:																																			
Leng 1500																																			
S _{FF} 70																																			
S _{FR} 35																																			
PHF 0.92																																			
(P _r) 10%																																			
P _{HW} 0.952380952																																			

Segment Inputs				Cumulative Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
				PM														
	Length	Number of Lanes	Interchange Density	AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS			
	(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)				
Southbound	North of Elverta Road Off-Ramp	2900	2	1.00	3,757	2,094	2144.15	72.18	70	59.6595	35.94	E	1195.174	72.18	70	69.9997	17.074	B
	North of Elkhorn Rd Off-Ramp	3500	2	1.33	3,357	2,194	1915.89	71.3	70	64.055	29.91	D	1252.239	71.3	70	69.9683	17.897	B
	North of I-5 Northbound Off-Ramp	0	2	1.63	3,817	3,234	2178.39	70.56	70	58.896	36.987	E	1845.717	70.56	70	65.1634	28.324	D
	South of I-5 Northbound Off-Ramp	1300	2	1.63	2,944	2,885	1680.21	70.56	70	67.325	24.957	C	1646.56	70.56	70	67.6868	24.326	C
Northbound	North of Elverta Road Diagonal On-Ramp	5900	2	1.00	932	4,520	531.734	72.18	70	64.8197	8.2033	A	2579.519	72.18	70	47.9244	53.825	F
	North of Elkhorn Rd Diagonal On-Ramp	4000	2	1.33	1,192	4,340	680.103	71.3	70	66.8646	10.171	A	2476.802	71.3	70	51.0894	48.48	F
	North of I-5 Southbound On-Ramp	-700	2	1.63	2,352	5,280	1342.06	70.56	70	69.7659	19.237	C	3013.215	70.56	70	31.8621	94.57	F
	South of I-5 Southbound On-Ramp	700	2	1.63	2,000	4,342	1141.19	70.56	70	69.9599	16.312	B	2477.943	70.56	70	51.0556	48.534	F
Universal Inputs:																		
PHF		0.92																
(P _r)		10%																
f _{HV}		0.952380952																

Segment Inputs				Cumulative Conditions																																
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures														
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)													Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)															
							V _D	V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	V/c	D	LOS				V _D	V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	ity	V ₃	V _{12a}	V/c	D	LOS			
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)		(pc/h/in)					(pc/mi/in)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)		(pc/h/in)					(pc/mi/in)							
Σ	Elverta Road Loop On-Ramp	2	1	280	3277	2977	300	3740	3398	342	97	1	3398	4800	0	2549	3398	0.779	32.74	D	1894.4	1814	80	2162	2071	91	59	1	2071	4800	0	1553	2071	0.45	20.54	C
	Elverta Rd Diagonal On-Ramp	2	2	265	3357	3277	80	3832	3740	91	107	1	3740	4800	0	2805	3740	0.798	33.66	D	2194.4	1894	300	2504	2162	342	62	1	2162	4800	0	1622	2162	0.522	23.19	C
	Elkhorn Boulevard Loop On-Ramp	2	1	235	3387	2607	780	3866	2976	890	85	1	2976	4800	0	2232	2976	0.805	33.75	D	2024.4	1664	360	2310	1900	411	54	1	1900	4800	0	1425	1900	0.481	21.83	C
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	3817	3387	430	4357	3866	491	110	1	3866	4800	0	2900	3866	0.908	38.35	E	3234.4	2024	1210	3691	2310	1381	66	1	2310	4800	0	1733	2310	0.769	32.76	D
Σ	Elverta Rd Diagonal On-Ramp	2	1	260	932	712	220	1063	812	251	23	1	812.4	4800	0	609	812	0.222	12.02	B	4520.3	4300	220	5159	4908	251	140	1	4908	4800	0	3681	4908	1.075	43.97	F
	Elverta Road Loop On-Ramp	2	1	290	712	622	90	812	710	103	20	1	709.7	4800	0	532	710	0.169	9.946	A	4300.3	3600	700	4908	4109	799	117	1	4109	4800	0	3082	4109	1.022	41.57	F
	Elkhorn Boulevard Diagonal On-Ramp	2	1	240	1192	992	200	1360	1132	228	32	1	1132	4800	0	849	1132	0.283	14.47	B	4340.3	4110	230	4954	4691	263	134	1	4691	4800	0	3518	4691	1.032	42.49	F
	Elkhorn Boulevard Loop On-Ramp	2	1	255	992	822	170	1132	938	194	27	1	937.9	4800	0	703	938	0.236	12.62	B	4110.3	3740	370	4691	4269	422	122	1	4269	4800	0	3202	4269	0.977	40.27	E
	I-5 Southbound On-Ramp	2	1	100	2352	2000	352	2684	2282	402	65	1	2282	4800	0	1712	2282	0.559	25.6	C	5280.3	4342	938	6026	4956	1071	142	1	4956	4800	0	3717	4956	1.256	51.36	F
Universal Inputs:																																				
Length		1500	(ft)																																	
S _{FF}		70	(mi/h)																																	
S _{FR}		35	(mi/h)																																	
PHF		0.92																																		
P ₁		10%																																		
F _{HV}		0.952380952																																		

Segment Inputs					Cumulative Conditions																														
					AM Flow Inputs														PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS			
			L _{EQ}																														(veh/h)	(veh/h)	(veh/h)
	(N)		(ft)	(ft)																															
S	Elverta Road Off-Ramp	2	1	-	540	2977	3757	780	-	4288	890.2	1	4288	4800	0	3216	4288	0.893	36.27	E	1814	2094	280	-	2390	319.6	1	2390	4800	0	1793	2390	0.498	19.95	B
	Elkhorn Rd Off-Ramp	2	1		220	2607	3357	750	-	3832	856	1	3832	4800	0	2874	3832	0.798	35.23	E	1664	2194	530	-	2504	604.9	1	2504	4800	0	1878	2504	0.522	23.81	C
	I-5 Northbound Off-Ramp	2	1		440	2944	3817	873	-	4357	996.4	1	4357	4800	0	3268	4357	0.908	37.76	E	2885	3234	349	-	3691	398.3	1	3691	4800	0	2769	3691	0.769	32.04	D
No	Elverta Road Off-Ramp	2	1		1445	622	1192	570	-	1360	650.5	1	1360	4800	0	1020	1360	0.283	2.945	A	3600	4340	740	-	4954	844.6	1	4954	4800	0	3715	4954	1.032	33.85	F
	Elkhorn Rd Off-Ramp	2	2		255	822	2352	1530	-	2684	1746	1	2684	4800	0	2013	2684	0.559	25.04	C	3740	5280	1540	-	6026	1758	1	6026	4800	0	4520	6026	1.256	53.78	F
Universal Inputs:																																			
Leng 1500 (ft)																																			
S _{FF} 70 (mi/h)																																			
S _{FR} 35 (mi/h)																																			
PHF 0.92																																			
(P _r) 10%																																			
P _{RV} 0.952380952																																			

Segment Inputs				Cumulative+Cargo Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
	Length	Number of Lanes	Interchange Density	PM		V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS			
				AM Peak	Peak													
	(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)				
Southbound	North of Elverta Road Off-Ramp	2900	2	1.00	3,757	2,094	2144.15	72.18	70	59.6595	35.94	E	1195.174	72.18	70	69.9997	17.074	B
	North of Elkhorn Rd Off-Ramp	3500	2	1.33	3,357	2,194	1915.89	71.3	70	64.055	29.91	D	1252.239	71.3	70	69.9683	17.897	B
	North of I-5 Northbound Off-Ramp	0	2	1.63	3,797	3,234	2166.98	70.56	70	59.1535	36.633	E	1845.717	70.56	70	65.1634	28.324	D
	South of I-5 Northbound Off-Ramp	1300	2	1.63	2,924	2,885	1668.8	70.56	70	67.4507	24.741	C	1646.56	70.56	70	67.6868	24.326	C
Northbound	North of Elverta Road Diagonal On-Ramp	5900	2	1.00	932	4,520	531.734	72.18	70	64.8197	8.2033	A	2579.519	72.18	70	47.9244	53.825	F
	North of Elkhorn Rd Diagonal On-Ramp	4000	2	1.33	1,192	4,340	680.103	71.3	70	66.8646	10.171	A	2476.802	71.3	70	51.0894	48.48	F
	North of I-5 Southbound On-Ramp	-700	2	1.63	2,352	5,280	1342.06	70.56	70	69.7659	19.237	C	3013.215	70.56	70	31.8621	94.57	F
	South of I-5 Southbound On-Ramp	700	2	1.63	2,000	4,342	1141.19	70.56	70	69.9599	16.312	B	2477.943	70.56	70	51.0556	48.534	F
Universal Inputs: PHF 0.92 (P _r) 10% f _{RV} 0.952380952																		

Segment Inputs				Cumulative+Cargo Conditions																																
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures														
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)													Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)															
							V _D	V _F	V _R	V _F /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	V/C	D	LOS				V _D	V _F	V _R	V _F /S _{FR}	P _{FM}	V ₁₂	ity	V ₃	V _{12a}	V/C	D	LOS			
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)		(pc/h/in)					(pc/mi/in)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)		(pc/h/in)					(pc/mi/in)							
Σ	Elverta Road Loop On-Ramp	2	1	280	3277	2977	300	3740	3398	342	97	1	3398	4800	0	2549	3398	0.779	32.74	D	1894.4	1814	80	2162	2071	91	59	1	2071	4800	0	1553	2071	0.45	20.54	C
	Elverta Rd Diagonal On-Ramp	2	2	265	3357	3277	80	3832	3740	91	107	1	3740	4800	0	2805	3740	0.798	33.66	D	2194.4	1894	300	2504	2162	342	62	1	2162	4800	0	1622	2162	0.522	23.19	C
	Elkhorn Boulevard Loop On-Ramp	2	1	235	3367	2547	820	3843	2907	936	83	1	2907	4800	0	2180	2907	0.801	33.55	D	2024.4	1664	360	2310	1900	411	54	1	1900	4800	0	1425	1900	0.481	21.83	C
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	3797	3367	430	4334	3843	491	110	1	3843	4800	0	2882	3843	0.903	38.18	E	3234.4	2024	1210	3691	2310	1381	66	1	2310	4800	0	1733	2310	0.769	32.76	D
Σ	Elverta Rd Diagonal On-Ramp	2	1	260	932	712	220	1063	812	251	23	1	812.4	4800	0	609	812	0.222	12.02	B	4520.3	4300	220	5159	4908	251	140	1	4908	4800	0	3681	4908	1.075	43.97	F
	Elverta Road Loop On-Ramp	2	1	290	712	622	90	812	710	103	20	1	709.7	4800	0	532	710	0.169	9.946	A	4300.3	3600	700	4908	4109	799	117	1	4109	4800	0	3082	4109	1.022	41.57	F
	Elkhorn Boulevard Diagonal On-Ramp	2	1	240	1192	992	200	1360	1132	228	32	1	1132	4800	0	849	1132	0.283	14.47	B	4340.3	4110	230	4954	4691	263	134	1	4691	4800	0	3518	4691	1.032	42.49	F
	Elkhorn Boulevard Loop On-Ramp	2	1	255	992	822	170	1132	938	194	27	1	937.9	4800	0	703	938	0.236	12.62	B	4110.3	3740	370	4691	4269	422	122	1	4269	4800	0	3202	4269	0.977	40.27	E
	I-5 Southbound On-Ramp	2	1	100	2352	2000	352	2684	2282	402	65	1	2282	4800	0	1712	2282	0.559	25.6	C	5280.3	4342	938	6026	4956	1071	142	1	4956	4800	0	3717	4956	1.256	51.36	F
Universal Inputs:																																				
Length		1500	(ft)																																	
S _{FF}		70	(mi/h)																																	
S _{FR}		35	(mi/h)																																	
PHF		0.92																																		
P ₁		10%																																		
P _{HV}		0.952380952																																		

Segment Inputs					Cumulative+Cargo Conditions																																
					AM Flow Inputs													PM Flow Inputs			PM LOS Performance Measures																
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	V _D	V _F	V _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS					
			L _{EQ}	Lane (L _D)																																	
	(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)						(pc/mi/ln)					
SB	Elverta Road Off-Ramp	2	1	-	540	2977	3757	780	-	4288	890.2	1	4288	4800	0	3216	4288	0.893	36.27	E	1814	2094	280	-	2390	319.6	1	2390	4800	0	1793	2390	0.498	19.95	B		
	Elkhorn Rd Off-Ramp	2	1		220	2547	3357	810	-	3832	924.5	1	3832	4800	0	2874	3832	0.798	35.23	E	1664	2194	530	-	2504	604.9	1	2504	4800	0	1878	2504	0.522	23.81	C		
	I-5 Northbound Off-Ramp	2	1		440	2924	3797	873	-	4334	996.4	1	4334	4800	0	3250	4334	0.903	37.56	E	2885	3234	349	-	3691	398.3	1	3691	4800	0	2769	3691	0.769	32.04	D		
NB	Elverta Road Off-Ramp	2	1		1445	622	1192	570	-	1360	650.5	1	1360	4800	0	1020	1360	0.283	2.945	A	3600	4340	740	-	4954	844.6	1	4954	4800	0	3715	4954	1.032	33.85	F		
	Elkhorn Rd Off-Ramp	2	2		255	822	2352	1530	-	2684	1746	1	2684	4800	0	2013	2684	0.559	25.04	C	3740	5280	1540	-	6026	1758	1	6026	4800	0	4520	6026	1.256	53.78	F		
Universal Inputs:																																					
Leng 1500																																					
S _{FF} 70																																					
S _{FR} 35																																					
PHF 0.92																																					
(P _r) 10%																																					
P _{HW} 0.952380952																																					

Segment Inputs				Cumulative+MPU Conditions														
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures							
	Length	Number of Lanes	Interchange Density	PM		V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS			
				AM Peak	Peak													
	(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)				
Southbound	North of Elverta Road Off-Ramp	2900	2	1.00	3,757	2,094	2144.15	72.18	70	59.6595	35.94	E	1195.174	72.18	70	69.9997	17.074	B
	North of Elkhorn Rd Off-Ramp	3500	2	1.33	3,057	2,184	1744.69	71.3	70	66.5584	26.213	D	1246.533	71.3	70	69.9749	17.814	B
	North of I-5 Northbound Off-Ramp	0	2	1.63	3,327	2,894	1898.77	70.56	70	64.336	29.513	D	1651.696	70.56	70	67.6333	24.421	C
	South of I-5 Northbound Off-Ramp	1300	2	1.63	2,454	2,545	1400.59	70.56	70	69.5333	20.143	C	1452.538	70.56	70	69.2602	20.972	C
Northbound	North of Elverta Road Diagonal On-Ramp	5900	2	1.00	1,122	4,830	640.158	72.18	70	66.3643	9.6461	A	2756.421	72.18	70	41.8996	65.786	F
	North of Elkhorn Rd Diagonal On-Ramp	4000	2	1.33	1,382	4,370	788.527	71.3	70	68.036	11.59	B	2493.921	71.3	70	50.5789	49.308	F
	North of I-5 Southbound On-Ramp	-700	2	1.63	2,352	5,280	1342.06	70.56	70	69.7659	19.237	C	3013.215	70.56	70	31.8621	94.57	F
	South of I-5 Southbound On-Ramp	700	2	1.63	2,000	4,342	1141.19	70.56	70	69.9599	16.312	B	2477.943	70.56	70	51.0556	48.534	F
Universal Inputs:																		
PHF		0.92																
(P _r)		10%																
f _{RV}		0.952380952																

Segment Inputs				Cumulative+MPU Conditions																																
				AM Flow Inputs			AM LOS Performance Measures											PM Flow Inputs			PM LOS Performance Measures															
		Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _a)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	V _F /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	V _F /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	v/c	D	LOS		
		(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)			(pc/h/ln)				(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)			(pc/h/ln)				(pc/mi/ln)				
SR	Elverta Road Loop On-Ramp	2	1	280	2977	2677	300	3398	3056	342	87	1	3056	4800	0	2292	3056	0.708	30.07	D	1884.4	1804	80	2151	2059	91	59	1	2059	4800	0	1545	2059	0.448	20.45	C
	Elverta Rd Diagonal On-Ramp	2	2	265	3057	2977	80	3489	3398	91	97	1	3398	4800	0	2549	3398	0.727	30.99	D	2184.4	1884	300	2493	2151	342	61	1	2151	4800	0	1613	2151	0.519	23.1	C
	Elkhorn Boulevard Loop On-Ramp	2	1	235	2857	2077	780	3261	2371	890	68	1	2371	4800	0	1778	2371	0.679	29.03	D	1674.4	1314	360	1911	1500	411	43	1	1500	4800	0	1125	1500	0.398	18.72	B
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	3327	2857	470	3798	3261	536	93	1	3261	4800	0	2446	3261	0.791	33.97	D	2894.4	1674	1220	3303	1911	1392	55	1	1911	4800	0	1433	1911	0.688	29.72	D
NB	Elverta Rd Diagonal On-Ramp	2	1	260	1122	892	230	1280	1018	263	29	1	1018	4800	0	763	1018	0.267	13.71	B	4830.3	4580	250	5513	5228	285	149	1	5228	4800	0	3921	5228	1.149	46.71	F
	Elverta Road Loop On-Ramp	2	1	290	892	802	90	1018	915	103	26	1	915.1	4800	0	686	915	0.212	11.55	B	4580.3	3620	960	5228	4132	1096	118	1	4132	4800	0	3099	4132	1.089	43.93	F
	Elkhorn Boulevard Diagonal On-Ramp	2	1	240	1382	1172	210	1577	1337	240	38	1	1337	4800	0	1003	1337	0.329	16.16	B	4370.3	4120	250	4988	4703	285	134	1	4703	4800	0	3527	4703	1.039	42.74	F
	Elkhorn Boulevard Loop On-Ramp	2	1	255	1172	802	370	1337	915	422	26	1	915.1	4800	0	686	915	0.279	14.11	B	4120.3	3730	390	4703	4257	445	122	1	4257	4800	0	3193	4257	0.98	40.35	E
	I-5 Southbound On-Ramp	2	1	100	2352	2000	352	2684	2282	402	65	1	2282	4800	0	1712	2282	0.559	25.6	C	5280.3	4342	938	6026	4956	1071	142	1	4956	4800	0	3717	4956	1.256	51.36	F
Universal Inputs:																																				
Length		1500	(ft)																																	
S _{FF}		70	(mi/h)																																	
S _{FR}		35	(mi/h)																																	
PHF		0.92																																		
(P _r)		10%																																		
K _{AV}		0.952380952																																		

Segment Inputs					Cumulative+MPU Conditions																																
					AM Flow Inputs													PM Flow Inputs			PM LOS Performance Measures																
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	V _D	V _F	V _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS					
			L _{EQ}	Lane (L _D)																																	
	(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)											
SB	Elverta Road Off-Ramp	2	1	-	540	2677	3757	1080	-	4288	1233	1	4288	4800	0	3216	4288	0.893	36.27	E	1804	2094	290	-	2390	331	1	2390	4800	0	1793	2390	0.498	19.95	B		
	Elkhorn Rd Off-Ramp	2	1		220	2077	3057	980	-	3489	1118	1	3489	4800	0	2617	3489	0.727	32.28	D	1314	2184	870	-	2493	992.9	1	2493	4800	0	1870	2493	0.519	23.71	C		
	I-5 Northbound Off-Ramp	2	1		440	2454	3327	873	-	3798	996.4	1	3798	4800	0	2848	3798	0.791	32.95	D	2545	2894	349	-	3303	398.3	1	3303	4800	0	2478	3303	0.688	28.7	D		
NB	Elverta Road Off-Ramp	2	1		1445	802	1382	580	-	1577	662	1	1577	4800	0	1183	1577	0.329	4.81	A	3620	4370	750	-	4988	856	1	4988	4800	0	3741	4988	1.039	34.14	F		
	Elkhorn Rd Off-Ramp	2	2		255	802	2352	1550	-	2684	1769	1	2684	4800	0	2013	2684	0.559	25.04	C	3730	5280	1550	-	6026	1769	1	6026	4800	0	4520	6026	1.256	53.78	F		
Universal Inputs:																																					
Leng 1500																																					
S _{FF} 70																																					
S _{FR} 35																																					
PHF 0.92																																					
(P _r) 10%																																					
P _{HW} 0.952380952																																					

Segment Inputs				Cumulative+Cargo+MPU Conditions																
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures									
				PM																
				Length	Number of Lanes	Interchange Density	AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
				(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Elverta Road Off-Ramp			2900	2	1.00	3,757	2,094	2144.15	72.18	70	59.6595	35.94	E	1195.174	72.18	70	69.9997	17.074	B
	North of Elkhorn Rd Off-Ramp			3500	2	1.33	3,067	2,184	1750.4	71.3	70	66.4859	26.327	D	1246.533	71.3	70	69.9749	17.814	B
	North of I-5 Northbound Off-Ramp			0	2	1.63	3,327	2,894	1898.77	70.56	70	64.336	29.513	D	1651.696	70.56	70	67.6333	24.421	C
	South of I-5 Northbound Off-Ramp			1300	2	1.63	2,454	2,545	1400.59	70.56	70	69.5333	20.143	C	1452.538	70.56	70	69.2602	20.972	C
Northbound	North of Elverta Road Diagonal On-Ramp			5900	2	1.00	1,112	4,820	634.451	72.18	70	66.2898	9.5709	A	2750.715	72.18	70	42.1053	65.329	F
	North of Elkhorn Rd Diagonal On-Ramp			4000	2	1.33	1,382	4,370	788.527	71.3	70	68.036	11.59	B	2493.921	71.3	70	50.5789	49.308	F
	North of I-5 Southbound On-Ramp			-700	2	1.63	2,352	5,280	1342.06	70.56	70	69.7659	19.237	C	3013.215	70.56	70	31.8621	94.57	F
	South of I-5 Southbound On-Ramp			700	2	1.63	2,000	4,342	1141.19	70.56	70	69.9599	16.312	B	2477.943	70.56	70	51.0556	48.534	F
Universal Inputs:																				
PHF		0.92																		
(P _T)		10%																		
f _{HV}		0.952380952																		

Segment Inputs				Cumulative+Cargo+MPU Conditions																																
				AM Flow Inputs			AM LOS Performance Measures													PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)														Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)														
							V _D	V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	V/c	D	LOS	V _D				V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	ity	V ₃	V _{12a}	V/c	D	LOS			
Σ	Elverta Road Loop On-Ramp	2	1	280	2987	2687	300	3409	3067	342	88	1	3067	4800	0	2300	3067	0.71	30.16	D	1884.4	1804	80	2151	2059	91	59	1	2059	4800	0	1545	2059	0.448	20.45	C
	Elverta Rd Diagonal On-Ramp	2	2	265	3067	2987	80	3501	3409	91	97	1	3409	4800	0	2557	3409	0.729	31.08	D	2184.4	1884	300	2493	2151	342	61	1	2151	4800	0	1613	2151	0.519	23.1	C
	Elkhorn Boulevard Loop On-Ramp	2	1	235	2857	2037	820	3261	2325	936	66	1	2325	4800	0	1744	2325	0.679	29.01	D	1674.4	1314	360	1911	1500	411	43	1	1500	4800	0	1125	1500	0.398	18.72	B
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	3327	2857	470	3798	3261	536	93	1	3261	4800	0	2446	3261	0.791	33.97	D	2894.4	1674	1220	3303	1911	1392	55	1	1911	4800	0	1433	1911	0.688	29.72	D
	Σ	Elverta Rd Diagonal On-Ramp	2	1	260	1112	882	230	1269	1006	263	29	1	1006	4800	0	755	1006	0.264	13.62	B	4820.3	4570	250	5501	5216	285	149	1	5216	4800	0	3912	5216	1.146	46.62
Elverta Road Loop On-Ramp		2	1	290	882	792	90	1006	904	103	26	1	903.7	4800	0	678	904	0.21	11.46	B	4570.3	3610	960	5216	4120	1096	118	1	4120	4800	0	3090	4120	1.087	43.84	F
Elkhorn Boulevard Diagonal On-Ramp		2	1	240	1382	1172	210	1577	1337	240	38	1	1337	4800	0	1003	1337	0.329	16.16	B	4370.3	4120	250	4988	4703	285	134	1	4703	4800	0	3527	4703	1.039	42.74	F
Elkhorn Boulevard Loop On-Ramp		2	1	255	1172	802	370	1337	915	422	26	1	915.1	4800	0	686	915	0.279	14.11	B	4120.3	3730	390	4703	4257	445	122	1	4257	4800	0	3193	4257	0.98	40.35	E
I-5 Southbound On-Ramp		2	1	100	2352	2000	352	2684	2282	402	65	1	2282	4800	0	1712	2282	0.559	25.6	C	5280.3	4342	938	6026	4956	1071	142	1	4956	4800	0	3717	4956	1.256	51.36	F
Universal Inputs:																																				
Length		1500																																		
S _{FF}		(ft)																																		
S _{FR}		70																																		
PHF		35																																		
(P _i)		0.92																																		
P _{HV}		10%																																		
		0.952380952																																		

Segment Inputs					Cumulative+Cargo+MPU Conditions																																
					AM Flow Inputs														PM Flow Inputs			PM LOS Performance Measures															
	Number of Lanes	Number of Ramp Lanes	Length of Deceleration Lane (L _D)		Downstream Volume	Upstream Volume	Ramp Volume	V _D	V _F	V _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	V _D	V _F	V _R	P _{FD}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS					
			L _{EQ}	Lane (L _D)																																	
	(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)				(pc/mi/ln)			(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)						(pc/mi/ln)					
SB	Elverta Road Off-Ramp	2	1	-	540	2687	3757	1070	-	4288	1221	1	4288	4800	0	3216	4288	0.893	36.27	E	1804	2094	290	-	2390	331	1	2390	4800	0	1793	2390	0.498	19.95	B		
	Elkhorn Rd Off-Ramp	2	1		220	2037	3067	1030	-	3501	1176	1	3501	4800	0	2626	3501	0.729	32.38	D	1314	2184	870	-	2493	992.9	1	2493	4800	0	1870	2493	0.519	23.71	C		
	I-5 Northbound Off-Ramp	2	1		440	2454	3327	873	-	3798	996.4	1	3798	4800	0	2848	3798	0.791	32.95	D	2545	2894	349	-	3303	398.3	1	3303	4800	0	2478	3303	0.688	28.7	D		
NB	Elverta Road Off-Ramp	2	1		1445	792	1382	590	-	1577	673.4	1	1577	4800	0	1183	1577	0.329	4.81	A	3610	4370	760	-	4988	867.4	1	4988	4800	0	3741	4988	1.039	34.14	F		
	Elkhorn Rd Off-Ramp	2	2		255	802	2352	1550	-	2684	1769	1	2684	4800	0	2013	2684	0.559	25.04	C	3730	5280	1550	-	6026	1769	1	6026	4800	0	4520	6026	1.256	53.78	F		
Universal Inputs:																																					
Leng 1500																																					
S _{FF} 70																																					
S _{FR} 35																																					
PHF 0.92																																					
(P _r) 10%																																					
P _{HW} 0.952380952																																					

Appendix F

Traffic Signal Warrants Worksheets

Traffic Signal Warrants Worksheet

Warrant 3: Peak Hour

Source: MUTCD 2014 California Supplement

Scenario: Existing plus MPU plus Cargo Facility Conditions Shift Change

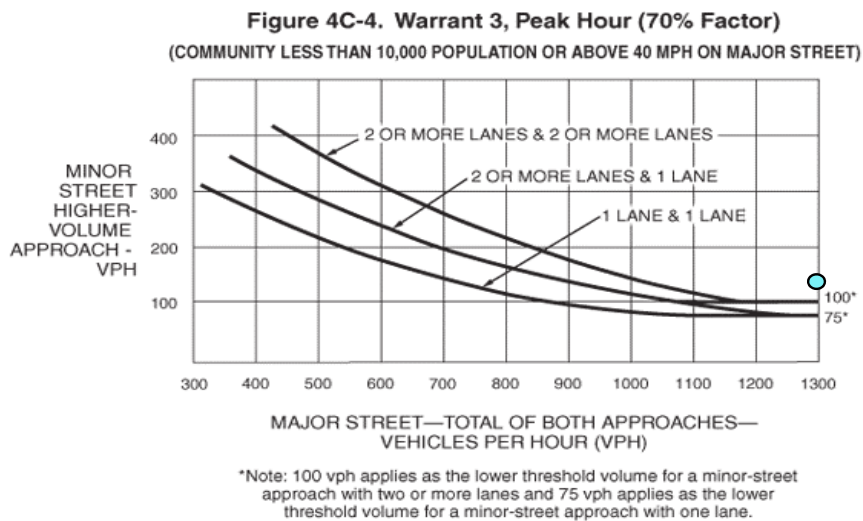
Intersection: Elverta Rd AND Power Line Rd

Comments:

	<u>PART A</u> or <u>PART B</u>	SATISFIED	YES
<u>PART A</u>			
(All parts 1, 2, and 3 below must be satisfied)			
		SATISFIED	YES
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; <u>AND</u>			Yes
2. The volume on the same minor street approach equals or exceeds 75 vph for one moving lane of traffic or 100 vph for two moving lanes; <u>AND</u>			Yes
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches.			Yes
<u>PART B</u>			
		SATISFIED	YES

APPROACH LANES	One	2 or More
Both Approaches - Major Street	1540	
Highest Approach - Minor Street	120	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-4.



Traffic Signal Warrants Worksheet

Warrant 3: Peak Hour

Source: MUTCD 2014 California Supplement

Scenario: Cumulative plus MPU plus Cargo Facility Conditions (Cumulative Geometry) Shift Change

Intersection: Elverta Rd AND Earhart Dr

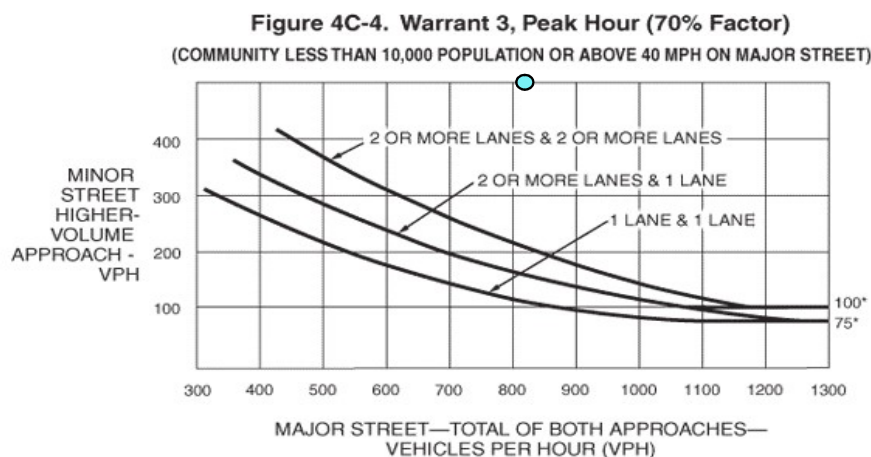
Comments:

	PART A or PART B	SATISFIED	YES
PART A			
(All parts 1, 2, and 3 below must be satisfied)		SATISFIED	NO
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; <u>AND</u>			No
2. The volume on the same minor street approach equals or exceeds 75 vph for one moving lane of traffic or 100 vph for two moving lanes; <u>AND</u>			Yes
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches.			Yes

PART B	SATISFIED	YES

APPROACH LANES	One	2 or More
Both Approaches - Major Street		810
Highest Approach - Minor Street		760

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-4.



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet

Warrant 3: Peak Hour

Source: MUTCD 2014 California Supplement

Scenario: Cumulative plus MPU plus Cargo Facility Conditions AM

Intersection: Elverta Rd AND Power Line Rd

Comments:

	<u>PART A</u> or <u>PART B</u>	SATISFIED	NO

PART A

(All parts 1, 2, and 3 below must be satisfied)

SATISFIED NO

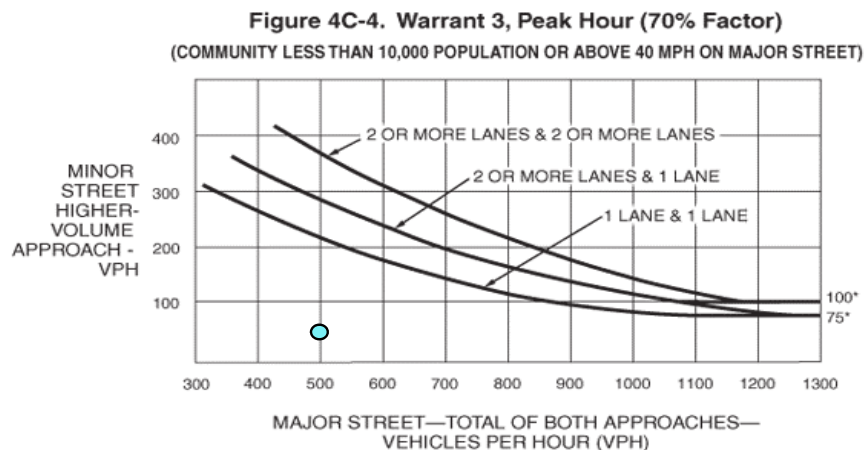
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 75 vph for one moving lane of traffic or 100 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches.

PART B

SATISFIED NO

APPROACH LANES	One	2 or More
Both Approaches - Major Street	500	
Highest Approache - Minor Street	50	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-4.



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet

Warrant 3: Peak Hour

Source: MUTCD 2014 California Supplement

Scenario: Cumulative plus MPU plus Cargo Facility Conditions PM

Intersection: Elverta Rd AND Power Line Rd

Comments:

	<u>PART A</u> or <u>PART B</u>	SATISFIED	NO

PART A

(All parts 1, 2, and 3 below must be satisfied)

SATISFIED NO

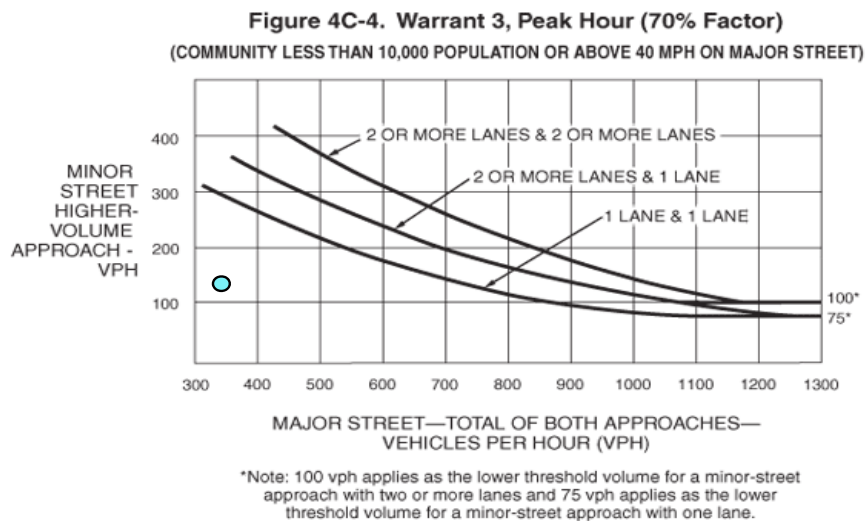
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 75 vph for one moving lane of traffic or 100 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches.

PART B

SATISFIED NO

APPROACH LANES	One	2 or More
Both Approaches - Major Street	340	
Highest Approache - Minor Street	120	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-3.



Traffic Signal Warrants Worksheet

Warrant 3: Peak Hour

Source: MUTCD 2014 California Supplement

Scenario: Cumulative plus MPU plus Cargo Facility Conditions (Cumulative Geometry) Shift Change

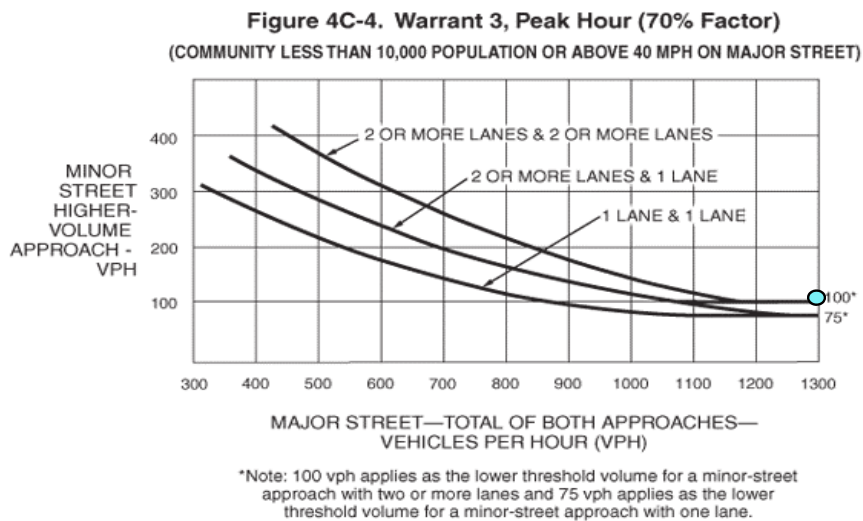
Intersection: Elverta Rd AND Power Line Rd

Comments:

	<u>PART A</u> or <u>PART B</u>	SATISFIED	YES
<u>PART A</u> (All parts 1, 2, and 3 below must be satisfied)		SATISFIED	NO
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; <u>AND</u>			No
2. The volume on the same minor street approach equals or exceeds 75 vph for one moving lane of traffic or 100 vph for two moving lanes; <u>AND</u>			Yes
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches.			Yes
<u>PART B</u>		SATISFIED	YES

APPROACH LANES	One	2 or More
Both Approaches - Major Street	1750	
Highest Approach - Minor Street	100	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-4.



Appendix G

Intersection Improvement Analysis Worksheets

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	15	3039	717	73	2007	508
v/c Ratio	0.01	3.03	1.25	0.14	2.69	0.70
Control Delay	10.8	932.3	169.7	20.1	784.1	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	932.3	169.7	20.1	784.1	20.2
Queue Length 50th (ft)	5	~5185	~872	24	~1743	147
Queue Length 95th (ft)	15	#5382	#1122	64	#1875	291
Internal Link Dist (ft)			310		809	
Turn Bay Length (ft)						485
Base Capacity (vph)	1103	1003	573	514	747	722
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	0.01	3.03	1.25	0.14	2.69	0.70
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.						

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU Conditions Improved

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												 
Traffic Volume (veh/h)	0	0	0	15	0	3039	0	717	73	13	0	1994
Future Volume (veh/h)	0	0	0	15	0	3039	0	717	73	13	0	1994
Initial Q (Qb), veh				0	0	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach					No			No				No
Adj Sat Flow, veh/h/ln				1870	0	1870	0	1870	1870		0	1870
Adj Flow Rate, veh/h				15	0	0	0	717	0		0	1994
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2		0	2
Cap, veh/h				20	0		0	1448			0	2750
Arrive On Green				0.01	0.00	0.00	0.00	0.77	0.00		0.00	0.77
Sat Flow, veh/h				1781	0	1585	0	1870	1585		0	3647
Grp Volume(v), veh/h				15	0	0	0	717	0		0	1994
Grp Sat Flow(s),veh/h/ln				1781	0	1585	0	1870	1585		0	1777
Q Serve(g_s), s				0.4	0.0	0.0	0.0	6.7	0.0		0.0	13.9
Cycle Q Clear(g_c), s				0.4	0.0	0.0	0.0	6.7	0.0		0.0	13.9
Prop In Lane				1.00		1.00	0.00		1.00		0.00	
Lane Grp Cap(c), veh/h				20	0		0	1448			0	2750
V/C Ratio(X)				0.74	0.00		0.00	0.50			0.00	0.73
Avail Cap(c_a), veh/h				3472	0		0	1801			0	3423
HCM Platoon Ratio				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	0.00	1.00	0.00		0.00	1.00
Uniform Delay (d), s/veh				23.6	0.0	0.0	0.0	2.0	0.0		0.0	2.8
Incr Delay (d2), s/veh				41.1	0.0	0.0	0.0	0.3	0.0		0.0	0.6
Initial Q Delay(d3),s/veh				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	0.0	0.3	0.0		0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				64.8	0.0	0.0	0.0	2.3	0.0		0.0	3.4
LnGrp LOS				E	A		A	A			A	A
Approach Vol, veh/h					15	A		717	A			1994
Approach Delay, s/veh					64.8			2.3				3.4
Approach LOS					E			A				A
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	41.9			41.9			6.0					
Change Period (Y+Rc), s	4.8			4.8			5.5					
Max Green Setting (Gmax), s	46.2			46.2			93.5					
Max Q Clear Time (g_c+I1), s	8.7			15.9			2.4					
Green Ext Time (p_c), s	6.0			21.3			0.0					
Intersection Summary												
HCM 6th Ctrl Delay			3.4									
HCM 6th LOS			A									
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	508
Future Volume (veh/h)	508
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	0
Peak Hour Factor	1.00
Percent Heavy Veh, %	2
Cap, veh/h	
Arrive On Green	0.00
Sat Flow, veh/h	1585
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	1585
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	
V/C Ratio(X)	
Avail Cap(c_a), veh/h	
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	A
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	13	2230	673	60	3195	733
v/c Ratio	0.01	2.56	1.26	0.09	2.41	0.83
Control Delay	18.3	724.5	168.7	11.2	657.0	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	724.5	168.7	11.2	657.0	27.9
Queue Length 50th (ft)	6	~3610	~823	11	~2702	352
Queue Length 95th (ft)	18	#3857	#1068	40	#2798	563
Internal Link Dist (ft)			310		809	
Turn Bay Length (ft)						485
Base Capacity (vph)	902	871	534	690	1328	880
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	0.01	2.56	1.26	0.09	2.41	0.83
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.						

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU Conditions Improved
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	13	0	2230	4	0	669	60	7	0
Future Volume (veh/h)	0	0	0	13	0	2230	4	0	669	60	7	0
Initial Q (Qb), veh				0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)				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
Work Zone On Approach				No				No				
Adj Sat Flow, veh/h/ln				1870	0	1870		0	1870	1870		0
Adj Flow Rate, veh/h				13	0	0		0	669	0		0
Peak Hour Factor				1.00	1.00	1.00		1.00	1.00	1.00		1.00
Percent Heavy Veh, %				2	0	2		0	2	2		0
Cap, veh/h				17	0			0	1593			0
Arrive On Green				0.01	0.00	0.00		0.00	0.85	0.00		0.00
Sat Flow, veh/h				1781	0	1585		0	1870	1585		0
Grp Volume(v), veh/h				13	0	0		0	669	0		0
Grp Sat Flow(s),veh/h/ln				1781	0	1585		0	1870	1585		0
Q Serve(g_s), s				0.5	0.0	0.0		0.0	6.1	0.0		0.0
Cycle Q Clear(g_c), s				0.5	0.0	0.0		0.0	6.1	0.0		0.0
Prop In Lane				1.00		1.00		0.00		1.00		0.00
Lane Grp Cap(c), veh/h				17	0			0	1593			0
V/C Ratio(X)				0.77	0.00			0.00	0.42			0.00
Avail Cap(c_a), veh/h				1836	0			0	1593			0
HCM Platoon Ratio				1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)				1.00	0.00	0.00		0.00	1.00	0.00		0.00
Uniform Delay (d), s/veh				36.7	0.0	0.0		0.0	1.3	0.0		0.0
Incr Delay (d2), s/veh				51.1	0.0	0.0		0.0	0.2	0.0		0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln				0.5	0.0	0.0		0.0	0.3	0.0		0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				87.7	0.0	0.0		0.0	1.4	0.0		0.0
LnGrp LOS				F	A			A	A			A
Approach Vol, veh/h					13	A			669	A		
Approach Delay, s/veh					87.7				1.4			
Approach LOS					F				A			
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	68.0			68.0			6.2					
Change Period (Y+Rc), s	4.8			4.8			5.5					
Max Green Setting (Gmax), s	63.2			63.2			76.5					
Max Q Clear Time (g_c+I1), s	8.1			65.2			2.5					
Green Ext Time (p_c), s	5.6			0.0			0.0					
Intersection Summary												
HCM 6th Ctrl Delay				32.0								
HCM 6th LOS				C								
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU Conditions Improved
PM Peak Hour

	↓	↙
Movement	SBT	SBR
Lane Configurations	↑↑	↑
Traffic Volume (veh/h)	3188	733
Future Volume (veh/h)	3188	733
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	3188	0
Peak Hour Factor	1.00	1.00
Percent Heavy Veh, %	2	2
Cap, veh/h	3027	
Arrive On Green	0.85	0.00
Sat Flow, veh/h	3647	1585
Grp Volume(v), veh/h	3188	0
Grp Sat Flow(s),veh/h/ln	1777	1585
Q Serve(g_s), s	63.2	0.0
Cycle Q Clear(g_c), s	63.2	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	3027	
V/C Ratio(X)	1.05	
Avail Cap(c_a), veh/h	3027	
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	5.5	0.0
Incr Delay (d2), s/veh	32.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	0.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	38.1	0.0
LnGrp LOS	F	
Approach Vol, veh/h	3188	A
Approach Delay, s/veh	38.1	
Approach LOS	D	
Timer - Assigned Phs		



Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	561	585	180	373	2872
v/c Ratio	1.27	1.24	0.08	0.31	2.03
Control Delay	173.7	157.6	7.0	9.0	483.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	173.7	157.6	7.0	9.0	483.2
Queue Length 50th (ft)	~500	~461	22	103	~2943
Queue Length 95th (ft)	#714	#681	34	152	#3192
Internal Link Dist (ft)	382		247	748	
Turn Bay Length (ft)		30			290
Base Capacity (vph)	442	470	2169	1214	1413
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.27	1.24	0.08	0.31	2.03

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.

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Existing + MPU Conditions Improved
PM Peak Hour

							
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	561	585	10	170	10	363	2872
Future Volume (veh/h)	561	585	10	170	10	363	2872
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	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	561	585	10	170		363	0
Peak Hour Factor	1.00	1.00	1.00	1.00		1.00	1.00
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	818	728	116	959		532	
Arrive On Green	0.46	0.46	0.28	0.28		0.28	0.00
Sat Flow, veh/h	1781	1585	61	3461		1870	1585
Grp Volume(v), veh/h	561	585	97	83		363	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1820	1617		1870	1585
Q Serve(g_s), s	10.0	12.7	0.0	1.6		6.9	0.0
Cycle Q Clear(g_c), s	10.0	12.7	1.6	1.6		6.9	0.0
Prop In Lane	1.00	1.00	0.10				1.00
Lane Grp Cap(c), veh/h	818	728	616	459		532	
V/C Ratio(X)	0.69	0.80	0.16	0.18		0.68	
Avail Cap(c_a), veh/h	1220	1085	3222	2907		3362	
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	8.6	9.3	10.9	10.8		12.8	0.0
Incr Delay (d2), s/veh	1.0	2.7	0.1	0.2		1.6	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	2.8	3.5	0.5	0.5		2.5	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	9.6	12.0	11.0	11.0		14.3	0.0
LnGrp LOS	A	B	B	B		B	
Approach Vol, veh/h	1146			180		363	A
Approach Delay, s/veh	10.8			11.0		14.3	
Approach LOS	B			B		B	
Timer - Assigned Phs	2		4		6		
Phs Duration (G+Y+Rc), s	16.2		23.9		16.2		
Change Period (Y+Rc), s	4.8		5.5		4.8		
Max Green Setting (Gmax), s	72.2		27.5		72.2		
Max Q Clear Time (g_c+I1), s	3.6		14.7		8.9		
Green Ext Time (p_c), s	1.1		3.7		2.5		
Intersection Summary							
HCM 6th Ctrl Delay			11.6				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.							

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU + Cargo Conditions Improved
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	20	3060	730	100	2000	510
v/c Ratio	0.02	3.05	1.27	0.19	1.83	0.70
Control Delay	10.8	941.7	178.5	20.1	409.6	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	941.7	178.5	20.1	409.6	20.1
Queue Length 50th (ft)	7	~5228	~899	34	~1553	146
Queue Length 95th (ft)	18	#5423	#1148	82	#1685	290
Internal Link Dist (ft)			310		809	
Turn Bay Length (ft)						485
Base Capacity (vph)	1103	1003	573	523	1090	724
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	0.02	3.05	1.27	0.19	1.83	0.70
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.						

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU + Cargo Conditions Improved

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	20	0	3060	0	730	100	0	2000	510
Future Volume (veh/h)	0	0	0	20	0	3060	0	730	100	0	2000	510
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		No		No
Adj Sat Flow, veh/h/ln				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				20	0	0	0	730	0	0	2000	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				26	0		0	1445		0	2745	
Arrive On Green				0.01	0.00	0.00	0.00	0.77	0.00	0.00	0.77	0.00
Sat Flow, veh/h				1781	0	1585	0	1870	1585	0	3647	1585
Grp Volume(v), veh/h				20	0	0	0	730	0	0	2000	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	0	1870	1585	0	1777	1585
Q Serve(g_s), s				0.5	0.0	0.0	0.0	7.0	0.0	0.0	14.2	0.0
Cycle Q Clear(g_c), s				0.5	0.0	0.0	0.0	7.0	0.0	0.0	14.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				26	0		0	1445		0	2745	
V/C Ratio(X)				0.77	0.00		0.00	0.51		0.00	0.73	
Avail Cap(c_a), veh/h				3445	0		0	1787		0	3396	
HCM Platoon Ratio				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	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				23.7	0.0	0.0	0.0	2.1	0.0	0.0	2.9	0.0
Incr Delay (d2), s/veh				36.6	0.0	0.0	0.0	0.3	0.0	0.0	0.6	0.0
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				0.5	0.0	0.0	0.0	0.3	0.0	0.0	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				60.4	0.0	0.0	0.0	2.3	0.0	0.0	3.5	0.0
LnGrp LOS				E	A		A	A		A	A	
Approach Vol, veh/h					20	A		730	A		2000	A
Approach Delay, s/veh					60.4			2.3			3.5	
Approach LOS					E			A			A	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	42.1			42.1			6.2					
Change Period (Y+Rc), s	4.8			4.8			5.5					
Max Green Setting (Gmax), s	46.2			46.2			93.5					
Max Q Clear Time (g_c+I1), s	9.0			16.2			2.5					
Green Ext Time (p_c), s	6.2			21.2			0.0					
Intersection Summary												
HCM 6th Ctrl Delay	3.6											
HCM 6th LOS	A											

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	20	2230	670	80	3170	750
v/c Ratio	0.02	2.21	1.17	0.15	2.91	1.06
Control Delay	10.8	569.1	139.0	18.6	880.9	79.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	569.1	139.0	18.6	880.9	79.5
Queue Length 50th (ft)	7	~3511	~777	24	~2802	~576
Queue Length 95th (ft)	18	#3757	#1023	66	#2900	#831
Internal Link Dist (ft)			310		809	
Turn Bay Length (ft)						485
Base Capacity (vph)	1103	1008	573	519	1090	707
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	0.02	2.21	1.17	0.15	2.91	1.06
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.						

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Existing + MPU + Cargo Conditions Improved

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	0	0	20	0	2230	0	670	80	0	3170	750
Future Volume (veh/h)	0	0	0	20	0	2230	0	670	80	0	3170	750
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				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				20	0	0	0	670	0	0	3170	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				25	0		0	1508		0	2864	
Arrive On Green				0.01	0.00	0.00	0.00	0.81	0.00	0.00	0.81	0.00
Sat Flow, veh/h				1781	0	1585	0	1870	1585	0	3647	1585
Grp Volume(v), veh/h				20	0	0	0	670	0	0	3170	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	0	1870	1585	0	1777	1585
Q Serve(g_s), s				0.6	0.0	0.0	0.0	6.2	0.0	0.0	46.2	0.0
Cycle Q Clear(g_c), s				0.6	0.0	0.0	0.0	6.2	0.0	0.0	46.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				25	0		0	1508		0	2864	
V/C Ratio(X)				0.79	0.00		0.00	0.44		0.00	1.11	
Avail Cap(c_a), veh/h				2906	0		0	1508		0	2864	
HCM Platoon Ratio				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	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				28.2	0.0	0.0	0.0	1.7	0.0	0.0	5.6	0.0
Incr Delay (d2), s/veh				39.8	0.0	0.0	0.0	0.2	0.0	0.0	53.8	0.0
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				0.5	0.0	0.0	0.0	0.3	0.0	0.0	23.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				68.0	0.0	0.0	0.0	1.9	0.0	0.0	59.4	0.0
LnGrp LOS				E	A		A	A		A	F	
Approach Vol, veh/h					20	A		670	A		3170	A
Approach Delay, s/veh					68.0			1.9			59.4	
Approach LOS					E			A			E	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	51.0			51.0			6.3					
Change Period (Y+Rc), s	4.8			4.8			5.5					
Max Green Setting (Gmax), s	46.2			46.2			93.5					
Max Q Clear Time (g_c+I1), s	8.2			48.2			2.6					
Green Ext Time (p_c), s	5.4			0.0			0.0					
Intersection Summary												
HCM 6th Ctrl Delay	49.5											
HCM 6th LOS	D											



Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	570	600	200	370	2860
v/c Ratio	0.92	0.98	0.10	0.34	2.08
Control Delay	65.3	69.5	13.6	16.8	505.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	69.5	13.6	16.8	505.7
Queue Length 50th (ft)	493	474	42	173	~3695
Queue Length 95th (ft)	#716	#728	61	240	#3915
Internal Link Dist (ft)	382		247	748	
Turn Bay Length (ft)		30			290
Base Capacity (vph)	629	622	1905	1074	1374
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.91	0.96	0.10	0.34	2.08

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.

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Existing + MPU + Cargo Conditions Improved
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	570	600	10	190	370	2860
Future Volume (veh/h)	570	600	10	190	370	2860
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	570	600	10	190	370	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	851	757	107	957	529	
Arrive On Green	0.48	0.48	0.28	0.28	0.28	0.00
Sat Flow, veh/h	1781	1585	55	3471	1870	1585
Grp Volume(v), veh/h	570	600	108	92	370	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1824	1617	1870	1585
Q Serve(g_s), s	10.6	13.7	0.0	1.9	7.6	0.0
Cycle Q Clear(g_c), s	10.6	13.7	1.9	1.9	7.6	0.0
Prop In Lane	1.00	1.00	0.09			1.00
Lane Grp Cap(c), veh/h	851	757	607	457	529	
V/C Ratio(X)	0.67	0.79	0.18	0.20	0.70	
Avail Cap(c_a), veh/h	2051	1825	3351	3016	3489	
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	8.6	9.4	11.7	11.7	13.8	0.0
Incr Delay (d2), s/veh	0.9	1.9	0.1	0.2	1.7	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	3.0	3.6	0.7	0.6	2.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.5	11.4	11.9	11.9	15.5	0.0
LnGrp LOS	A	B	B	B	B	
Approach Vol, veh/h	1170			200	370	A
Approach Delay, s/veh	10.5			11.9	15.5	
Approach LOS	B			B	B	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	17.0			26.0		17.0
Change Period (Y+Rc), s	4.8			5.5		4.8
Max Green Setting (Gmax), s	80.2			49.5		80.2
Max Q Clear Time (g_c+I1), s	3.9			15.7		9.6
Green Ext Time (p_c), s	1.3			4.9		2.6
Intersection Summary						
HCM 6th Ctrl Delay			11.7			
HCM 6th LOS			B			

Notes

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

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + MPU Conditions Improved
AM Peak Hour

	→	↘	←	↖	↙	↗
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	430	370	2380	210	1010	540
v/c Ratio	0.15	0.24	0.82	0.13	0.88	0.35
Control Delay	9.1	0.4	18.3	0.2	36.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	0.4	18.3	0.2	36.5	0.6
Queue Length 50th (ft)	36	0	349	0	261	0
Queue Length 95th (ft)	58	0	473	0	340	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	3014	1550	3014	1583	1370	1563
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	0.14	0.24	0.79	0.13	0.74	0.35
Intersection Summary						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + MPU Conditions Improved

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗	↘↘		↗			
Traffic Volume (veh/h)	0	430	370	0	2380	210	1010	0	540	0	0	0
Future Volume (veh/h)	0	430	370	0	2380	210	1010	0	540	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	430	0	0	2380	0	1010	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2919		0	2952		1110	0				
Arrive On Green	0.00	0.57	0.00	0.00	0.58	0.00	0.32	0.00	0.00			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3456	0	1585			
Grp Volume(v), veh/h	0	430	0	0	2380	0	1010	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1728	0	1585			
Q Serve(g_s), s	0.0	3.1	0.0	0.0	29.2	0.0	22.3	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	3.1	0.0	0.0	29.2	0.0	22.3	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2919		0	2952		1110	0				
V/C Ratio(X)	0.00	0.15		0.00	0.81		0.91	0.00				
Avail Cap(c_a), veh/h	0	3152		0	3152		1437	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	7.9	0.0	0.0	13.2	0.0	25.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	1.5	0.0	6.4	0.0	0.0			
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	0.0	0.9	0.0	0.0	8.3	0.0	9.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.0	0.0	0.0	14.8	0.0	32.3	0.0	0.0			
LnGrp LOS	A	A		A	B		C	A				
Approach Vol, veh/h		430	A		2380	A		1010	A			
Approach Delay, s/veh		8.0			14.8			32.3				
Approach LOS		A			B			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		49.9				49.9		29.5				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		47.5				* 48		33.5				
Max Q Clear Time (g_c+I1), s		31.2				5.1		24.3				
Green Ext Time (p_c), s		13.1				2.1		1.7				

Intersection Summary

HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	100	2450	890	190	1760	550
v/c Ratio	0.09	2.46	1.55	0.35	1.61	0.71
Control Delay	11.6	681.2	292.7	24.5	314.9	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	681.2	292.7	24.5	314.9	16.0
Queue Length 50th (ft)	37	~3993	~1223	80	~1297	109
Queue Length 95th (ft)	63	#4227	#1481	152	#1433	257
Internal Link Dist (ft)			310		809	
Turn Bay Length (ft)						485
Base Capacity (vph)	1103	994	573	543	1090	778
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	0.09	2.46	1.55	0.35	1.61	0.71
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.						

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + MPU Conditions Improved

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	100	0	2450	0	890	190	0	1760	550
Future Volume (veh/h)	0	0	0	100	0	2450	0	890	190	0	1760	550
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				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				100	0	0	0	890	0	0	1760	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				135	0		0	1327		0	2522	
Arrive On Green				0.08	0.00	0.00	0.00	0.71	0.00	0.00	0.71	0.00
Sat Flow, veh/h				1781	0	1585	0	1870	1585	0	3647	1585
Grp Volume(v), veh/h				100	0	0	0	890	0	0	1760	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	0	1870	1585	0	1777	1585
Q Serve(g_s), s				2.6	0.0	0.0	0.0	12.6	0.0	0.0	13.7	0.0
Cycle Q Clear(g_c), s				2.6	0.0	0.0	0.0	12.6	0.0	0.0	13.7	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				135	0		0	1327		0	2522	
V/C Ratio(X)				0.74	0.00		0.00	0.67		0.00	0.70	
Avail Cap(c_a), veh/h				3472	0		0	1801		0	3423	
HCM Platoon Ratio				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	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				21.7	0.0	0.0	0.0	3.9	0.0	0.0	4.0	0.0
Incr Delay (d2), s/veh				7.8	0.0	0.0	0.0	0.6	0.0	0.0	0.4	0.0
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				1.3	0.0	0.0	0.0	1.9	0.0	0.0	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.5	0.0	0.0	0.0	4.5	0.0	0.0	4.4	0.0
LnGrp LOS				C	A		A	A		A	A	
Approach Vol, veh/h					100	A		890	A		1760	A
Approach Delay, s/veh					29.5			4.5			4.4	
Approach LOS					C			A			A	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	38.8			38.8			9.1					
Change Period (Y+Rc), s	4.8			4.8			5.5					
Max Green Setting (Gmax), s	46.2			46.2			93.5					
Max Q Clear Time (g_c+I1), s	14.6			15.7			4.6					
Green Ext Time (p_c), s	8.3			18.4			0.3					
Intersection Summary												
HCM 6th Ctrl Delay	5.3											
HCM 6th LOS	A											

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + MPU Conditions Improved
AM Peak Hour



Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	760	80	340	100	1710
v/c Ratio	1.22	0.14	0.17	0.09	1.25
Control Delay	150.6	28.1	14.4	13.8	130.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	150.6	28.1	14.4	13.8	130.6
Queue Length 50th (ft)	~845	44	74	40	~1490
Queue Length 95th (ft)	#1092	84	100	68	#1759
Internal Link Dist (ft)	382		247	748	
Turn Bay Length (ft)		30			290
Base Capacity (vph)	625	565	2027	1067	1372
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.22	0.14	0.17	0.09	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.

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + MPU Conditions Improved

AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	760	80	0	340	100	1710
Future Volume (veh/h)	760	80	0	340	100	1710
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	760	80	0	340	100	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	909	808	0	738	388	
Arrive On Green	0.51	0.51	0.00	0.21	0.21	0.00
Sat Flow, veh/h	1781	1585	0	3741	1870	1585
Grp Volume(v), veh/h	760	80	0	340	100	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1777	1870	1585
Q Serve(g_s), s	13.3	0.9	0.0	3.1	1.6	0.0
Cycle Q Clear(g_c), s	13.3	0.9	0.0	3.1	1.6	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	909	808	0	738	388	
V/C Ratio(X)	0.84	0.10	0.00	0.46	0.26	
Avail Cap(c_a), veh/h	2418	2151	0	7815	4113	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.6	4.6	0.0	12.7	12.1	0.0
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.5	0.3	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	3.3	0.2	0.0	1.0	0.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.8	4.7	0.0	13.1	12.4	0.0
LnGrp LOS	A	A	A	B	B	
Approach Vol, veh/h	840			340	100	A
Approach Delay, s/veh	9.3			13.1	12.4	
Approach LOS	A			B	B	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	12.4			24.1		12.4
Change Period (Y+Rc), s	4.8			5.5		4.8
Max Green Setting (Gmax), s	80.2			49.5		80.2
Max Q Clear Time (g_c+I1), s	5.1			15.3		3.6
Green Ext Time (p_c), s	2.5			3.3		0.6
Intersection Summary						
HCM 6th Ctrl Delay			10.5			
HCM 6th LOS			B			

Notes

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

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	50	2130	790	100	2980	780
v/c Ratio	0.06	2.50	1.01	0.14	2.00	0.86
Control Delay	18.8	699.5	76.8	12.6	477.7	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	699.5	76.8	12.6	477.7	28.0
Queue Length 50th (ft)	24	~3446	~779	24	~2385	364
Queue Length 95th (ft)	48	#3697	#1060	63	#2490	593
Internal Link Dist (ft)			310		809	
Turn Bay Length (ft)						485
Base Capacity (vph)	902	851	784	700	1491	910
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	0.06	2.50	1.01	0.14	2.00	0.86
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.						

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + MPU Conditions Improved

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	50	0	2130	0	790	100	0	2980	780
Future Volume (veh/h)	0	0	0	50	0	2130	0	790	100	0	2980	780
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				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				50	0	0	0	790	0	0	2980	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				65	0		0	1550		0	2944	
Arrive On Green				0.04	0.00	0.00	0.00	0.83	0.00	0.00	0.83	0.00
Sat Flow, veh/h				1781	0	1585	0	1870	1585	0	3647	1585
Grp Volume(v), veh/h				50	0	0	0	790	0	0	2980	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	0	1870	1585	0	1777	1585
Q Serve(g_s), s				2.1	0.0	0.0	0.0	9.6	0.0	0.0	63.2	0.0
Cycle Q Clear(g_c), s				2.1	0.0	0.0	0.0	9.6	0.0	0.0	63.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				65	0		0	1550		0	2944	
V/C Ratio(X)				0.77	0.00		0.00	0.51		0.00	1.01	
Avail Cap(c_a), veh/h				1786	0		0	1550		0	2944	
HCM Platoon Ratio				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	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				36.4	0.0	0.0	0.0	1.9	0.0	0.0	6.5	0.0
Incr Delay (d2), s/veh				17.1	0.0	0.0	0.0	0.3	0.0	0.0	19.6	0.0
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				1.2	0.0	0.0	0.0	1.1	0.0	0.0	14.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.5	0.0	0.0	0.0	2.2	0.0	0.0	26.2	0.0
LnGrp LOS				D	A		A	A		A	F	
Approach Vol, veh/h					50	A		790	A		2980	A
Approach Delay, s/veh					53.5			2.2			26.2	
Approach LOS					D			A			C	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	68.0			68.0			8.3					
Change Period (Y+Rc), s	4.8			4.8			5.5					
Max Green Setting (Gmax), s	63.2			63.2			76.5					
Max Q Clear Time (g_c+I1), s	11.6			65.2			4.1					
Green Ext Time (p_c), s	7.3			0.0			0.1					
Intersection Summary												
HCM 6th Ctrl Delay	21.6											
HCM 6th LOS	C											

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + MPU Conditions Improved
PM Peak Hour



Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	680	690	250	510	2560
v/c Ratio	1.54	1.47	0.12	0.42	1.81
Control Delay	284.5	252.9	7.2	10.2	384.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	284.5	252.9	7.2	10.2	384.2
Queue Length 50th (ft)	~676	~622	31	155	~2474
Queue Length 95th (ft)	#901	#851	46	221	#2732
Internal Link Dist (ft)	382		247	748	
Turn Bay Length (ft)		30			290
Base Capacity (vph)	442	468	2171	1222	1413
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.54	1.47	0.12	0.42	1.81

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.

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + MPU Conditions Improved
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	680	690	10	240	510	2560
Future Volume (veh/h)	680	690	10	240	510	2560
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	680	690	10	240	510	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	837	745	82	1163	650	
Arrive On Green	0.47	0.47	0.35	0.35	0.35	0.00
Sat Flow, veh/h	1781	1585	39	3430	1870	1585
Grp Volume(v), veh/h	680	690	133	117	510	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1767	1617	1870	1585
Q Serve(g_s), s	18.5	23.0	0.1	2.9	13.8	0.0
Cycle Q Clear(g_c), s	18.5	23.0	13.8	2.9	13.8	0.0
Prop In Lane	1.00	1.00	0.08			1.00
Lane Grp Cap(c), veh/h	837	745	683	562	650	
V/C Ratio(X)	0.81	0.93	0.19	0.21	0.78	
Avail Cap(c_a), veh/h	869	773	2295	2071	2396	
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	12.8	14.0	12.9	12.9	16.5	0.0
Incr Delay (d2), s/veh	5.8	16.8	0.1	0.2	2.1	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	7.3	10.1	1.1	1.0	5.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.6	30.9	13.1	13.1	18.6	0.0
LnGrp LOS	B	C	B	B	B	
Approach Vol, veh/h	1370			250	510	A
Approach Delay, s/veh	24.8			13.1	18.6	
Approach LOS	C			B	B	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	24.4			32.0		24.4
Change Period (Y+Rc), s	4.8			5.5		4.8
Max Green Setting (Gmax), s	72.2			27.5		72.2
Max Q Clear Time (g_c+I1), s	15.8			25.0		15.8
Green Ext Time (p_c), s	1.6			1.4		3.8
Intersection Summary						
HCM 6th Ctrl Delay			21.9			
HCM 6th LOS			C			

Notes

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

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

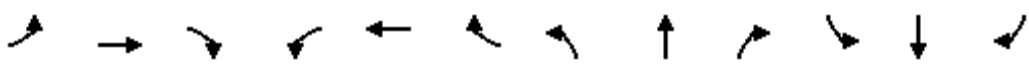
Cumulative + Cargo + MPU Conditions Improved
AM Peak Hour

						
Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	430	370	2380	210	1010	540
v/c Ratio	0.15	0.24	0.82	0.13	0.88	0.35
Control Delay	9.1	0.4	18.3	0.2	36.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	0.4	18.3	0.2	36.5	0.6
Queue Length 50th (ft)	36	0	349	0	261	0
Queue Length 95th (ft)	58	0	473	0	340	0
Internal Link Dist (ft)	937		1907			
Turn Bay Length (ft)		136		150	470	
Base Capacity (vph)	3014	1550	3014	1583	1370	1563
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	0.14	0.24	0.79	0.13	0.74	0.35
Intersection Summary						

SMF Master Plan Update
12: SR-99 NB Ramps & W Elkhorn Blvd

Cumulative + Cargo + MPU Conditions Improved

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗	↘↘		↗			
Traffic Volume (veh/h)	0	430	370	0	2380	210	1010	0	540	0	0	0
Future Volume (veh/h)	0	430	370	0	2380	210	1010	0	540	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	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	430	0	0	2380	0	1010	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2919		0	2952		1110	0				
Arrive On Green	0.00	0.57	0.00	0.00	0.58	0.00	0.32	0.00	0.00			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3456	0	1585			
Grp Volume(v), veh/h	0	430	0	0	2380	0	1010	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1728	0	1585			
Q Serve(g_s), s	0.0	3.1	0.0	0.0	29.2	0.0	22.3	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	3.1	0.0	0.0	29.2	0.0	22.3	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2919		0	2952		1110	0				
V/C Ratio(X)	0.00	0.15		0.00	0.81		0.91	0.00				
Avail Cap(c_a), veh/h	0	3152		0	3152		1437	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	7.9	0.0	0.0	13.2	0.0	25.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	1.5	0.0	6.4	0.0	0.0			
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	0.0	0.9	0.0	0.0	8.3	0.0	9.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.0	0.0	0.0	14.8	0.0	32.3	0.0	0.0			
LnGrp LOS	A	A		A	B		C	A				
Approach Vol, veh/h		430	A		2380	A		1010	A			
Approach Delay, s/veh		8.0			14.8			32.3				
Approach LOS		A			B			C				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		49.9				49.9		29.5				
Change Period (Y+Rc), s		5.5				* 5.5		3.5				
Max Green Setting (Gmax), s		47.5				* 48		33.5				
Max Q Clear Time (g_c+I1), s		31.2				5.1		24.3				
Green Ext Time (p_c), s		13.1				2.1		1.7				
Intersection Summary												
HCM 6th Ctrl Delay			18.6									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	90	2450	890	190	1760	550
v/c Ratio	0.08	2.46	1.55	0.35	1.61	0.71
Control Delay	11.5	681.2	292.7	24.5	314.9	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	681.2	292.7	24.5	314.9	16.0
Queue Length 50th (ft)	33	~3993	~1223	80	~1297	109
Queue Length 95th (ft)	57	#4227	#1481	152	#1433	257
Internal Link Dist (ft)			310		809	
Turn Bay Length (ft)						485
Base Capacity (vph)	1103	994	573	543	1090	778
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	0.08	2.46	1.55	0.35	1.61	0.71
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.						

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + Cargo + MPU Conditions Improved

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	0	0	90	0	2450	0	890	190	0	1760	550
Future Volume (veh/h)	0	0	0	90	0	2450	0	890	190	0	1760	550
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			No	
Adj Sat Flow, veh/h/ln				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				90	0	0	0	890	0	0	1760	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				120	0		0	1336		0	2539	
Arrive On Green				0.07	0.00	0.00	0.00	0.71	0.00	0.00	0.71	0.00
Sat Flow, veh/h				1781	0	1585	0	1870	1585	0	3647	1585
Grp Volume(v), veh/h				90	0	0	0	890	0	0	1760	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	0	1870	1585	0	1777	1585
Q Serve(g_s), s				2.3	0.0	0.0	0.0	12.3	0.0	0.0	13.2	0.0
Cycle Q Clear(g_c), s				2.3	0.0	0.0	0.0	12.3	0.0	0.0	13.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				120	0		0	1336		0	2539	
V/C Ratio(X)				0.75	0.00		0.00	0.67		0.00	0.69	
Avail Cap(c_a), veh/h				3524	0		0	1828		0	3474	
HCM Platoon Ratio				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	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				21.6	0.0	0.0	0.0	3.7	0.0	0.0	3.8	0.0
Incr Delay (d2), s/veh				8.9	0.0	0.0	0.0	0.6	0.0	0.0	0.4	0.0
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				1.2	0.0	0.0	0.0	1.7	0.0	0.0	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.5	0.0	0.0	0.0	4.3	0.0	0.0	4.2	0.0
LnGrp LOS				C	A		A	A		A	A	
Approach Vol, veh/h					90	A		890	A		1760	A
Approach Delay, s/veh					30.5			4.3			4.2	
Approach LOS					C			A			A	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	38.6			38.6			8.7					
Change Period (Y+Rc), s	4.8			4.8			5.5					
Max Green Setting (Gmax), s	46.2			46.2			93.5					
Max Q Clear Time (g_c+I1), s	14.3			15.2			4.3					
Green Ext Time (p_c), s	8.3			18.5			0.3					
Intersection Summary												
HCM 6th Ctrl Delay	5.1											
HCM 6th LOS	A											

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + Cargo + MPU Conditions Improved
AM Peak Hour

					
Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	760	100	350	110	1710
v/c Ratio	1.22	0.18	0.17	0.10	1.25
Control Delay	150.6	28.4	14.5	13.9	130.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	150.6	28.4	14.5	13.9	130.6
Queue Length 50th (ft)	~845	55	76	44	~1490
Queue Length 95th (ft)	#1092	100	102	73	#1759
Internal Link Dist (ft)	382		247	748	
Turn Bay Length (ft)		30			290
Base Capacity (vph)	625	567	2027	1067	1372
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.22	0.18	0.17	0.10	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.					

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + Cargo + MPU Conditions Improved
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	760	100	0	350	110	1710
Future Volume (veh/h)	760	100	0	350	110	1710
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	760	100	0	350	110	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	908	808	0	741	390	
Arrive On Green	0.51	0.51	0.00	0.21	0.21	0.00
Sat Flow, veh/h	1781	1585	0	3741	1870	1585
Grp Volume(v), veh/h	760	100	0	350	110	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1777	1870	1585
Q Serve(g_s), s	13.3	1.2	0.0	3.2	1.8	0.0
Cycle Q Clear(g_c), s	13.3	1.2	0.0	3.2	1.8	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	908	808	0	741	390	
V/C Ratio(X)	0.84	0.12	0.00	0.47	0.28	
Avail Cap(c_a), veh/h	2412	2146	0	7797	4104	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.7	4.7	0.0	12.7	12.2	0.0
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.5	0.4	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	3.0	0.2	0.0	1.0	0.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.8	4.8	0.0	13.2	12.6	0.0
LnGrp LOS	A	A	A	B	B	
Approach Vol, veh/h	860			350	110	A
Approach Delay, s/veh	9.2			13.2	12.6	
Approach LOS	A			B	B	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	12.4			24.1		12.4
Change Period (Y+Rc), s	4.8			5.5		4.8
Max Green Setting (Gmax), s	80.2			49.5		80.2
Max Q Clear Time (g_c+I1), s	5.2			15.3		3.8
Green Ext Time (p_c), s	2.5			3.3		0.6
Intersection Summary						
HCM 6th Ctrl Delay			10.5			
HCM 6th LOS			B			

Notes

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

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + Cargo + MPU Conditions Improved
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	50	2130	790	110	3000	780
v/c Ratio	0.06	2.50	1.01	0.16	2.01	0.86
Control Delay	18.8	699.5	76.8	12.5	483.5	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	699.5	76.8	12.5	483.5	28.3
Queue Length 50th (ft)	24	~3446	~779	27	~2406	367
Queue Length 95th (ft)	48	#3697	#1060	68	#2510	597
Internal Link Dist (ft)			310		809	
Turn Bay Length (ft)						485
Base Capacity (vph)	902	851	784	704	1491	908
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	0.06	2.50	1.01	0.16	2.01	0.86
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.						

SMF Master Plan Update
13: Airport Blvd & I-5 NB Ramps

Cumulative + Cargo + MPU Conditions Improved

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	0	0	50	0	2130	0	790	110	0	3000	780
Future Volume (veh/h)	0	0	0	50	0	2130	0	790	110	0	3000	780
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				1870	0	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h				50	0	0	0	790	0	0	3000	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	0	2	0	2	2	0	2	2
Cap, veh/h				65	0		0	1550		0	2944	
Arrive On Green				0.04	0.00	0.00	0.00	0.83	0.00	0.00	0.83	0.00
Sat Flow, veh/h				1781	0	1585	0	1870	1585	0	3647	1585
Grp Volume(v), veh/h				50	0	0	0	790	0	0	3000	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	0	1870	1585	0	1777	1585
Q Serve(g_s), s				2.1	0.0	0.0	0.0	9.6	0.0	0.0	63.2	0.0
Cycle Q Clear(g_c), s				2.1	0.0	0.0	0.0	9.6	0.0	0.0	63.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				65	0		0	1550		0	2944	
V/C Ratio(X)				0.77	0.00		0.00	0.51		0.00	1.02	
Avail Cap(c_a), veh/h				1786	0		0	1550		0	2944	
HCM Platoon Ratio				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	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				36.4	0.0	0.0	0.0	1.9	0.0	0.0	6.5	0.0
Incr Delay (d2), s/veh				17.1	0.0	0.0	0.0	0.3	0.0	0.0	21.5	0.0
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				1.2	0.0	0.0	0.0	1.1	0.0	0.0	15.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.5	0.0	0.0	0.0	2.2	0.0	0.0	28.1	0.0
LnGrp LOS				D	A		A	A		A	F	
Approach Vol, veh/h					50	A		790	A		3000	A
Approach Delay, s/veh					53.5			2.2			28.1	
Approach LOS					D			A			C	
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	68.0			68.0			8.3					
Change Period (Y+Rc), s	4.8			4.8			5.5					
Max Green Setting (Gmax), s	63.2			63.2			76.5					
Max Q Clear Time (g_c+I1), s	11.6			65.2			4.1					
Green Ext Time (p_c), s	7.3			0.0			0.1					
Intersection Summary												
HCM 6th Ctrl Delay	23.1											
HCM 6th LOS	C											

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + Cargo + MPU Conditions Improved
PM Peak Hour

					
Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	690	700	260	510	2570
v/c Ratio	1.56	1.50	0.12	0.42	1.82
Control Delay	294.1	262.0	7.2	10.2	387.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	294.1	262.0	7.2	10.2	387.4
Queue Length 50th (ft)	~690	~637	32	155	~2489
Queue Length 95th (ft)	#916	#868	48	221	#2747
Internal Link Dist (ft)	382		247	748	
Turn Bay Length (ft)		30			290
Base Capacity (vph)	442	468	2174	1222	1413
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.56	1.50	0.12	0.42	1.82
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.					

SMF Master Plan Update
14: Airport Blvd & I-5 SB Ramps

Cumulative + Cargo + MPU Conditions Improved

PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	690	700	10	250	510	2570
Future Volume (veh/h)	690	700	10	250	510	2570
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	690	700	10	250	510	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	841	748	81	1166	649	
Arrive On Green	0.47	0.47	0.35	0.35	0.35	0.00
Sat Flow, veh/h	1781	1585	37	3448	1870	1585
Grp Volume(v), veh/h	690	700	138	122	510	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1782	1617	1870	1585
Q Serve(g_s), s	19.0	23.7	0.0	3.0	13.9	0.0
Cycle Q Clear(g_c), s	19.0	23.7	14.0	3.0	13.9	0.0
Prop In Lane	1.00	1.00	0.07			1.00
Lane Grp Cap(c), veh/h	841	748	686	561	649	
V/C Ratio(X)	0.82	0.94	0.20	0.22	0.79	
Avail Cap(c_a), veh/h	862	767	2286	2054	2376	
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	12.9	14.2	13.1	13.1	16.7	0.0
Incr Delay (d2), s/veh	6.3	18.5	0.1	0.2	2.2	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	7.6	10.7	1.1	1.0	5.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.2	32.7	13.2	13.3	18.8	0.0
LnGrp LOS	B	C	B	B	B	
Approach Vol, veh/h	1390			260	510	A
Approach Delay, s/veh	26.0			13.3	18.8	
Approach LOS	C			B	B	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	24.5			32.3		24.5
Change Period (Y+Rc), s	4.8			5.5		4.8
Max Green Setting (Gmax), s	72.2			27.5		72.2
Max Q Clear Time (g_c+I1), s	16.0			25.7		15.9
Green Ext Time (p_c), s	1.7			1.1		3.8
Intersection Summary						
HCM 6th Ctrl Delay			22.8			
HCM 6th LOS			C			

Notes

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

Appendix H

Freeway Improvement Analysis Worksheets

Segment Inputs				Improved Cumulative Plus MPU Conditions																
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures									
				Number of Interchange		PM														
				Length	Lanes	Density	AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
				(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Airport Blvd Off-Ramp			600	3	1.50	3,062	4,463	1198.11	70.87	70	70	17.116	B	1746.261	70.87	70	66.5385	26.244	D
	North of Metro Parkway Off-Ramp			3300	2	2.00	2,082	3,133	1221.95	69.64	70	69.9944	17.458	B	1838.739	69.64	70	65.2673	28.172	D
	North of SR-99 Northbound Off-Ramp			Analyzed as a weaving segment																
	North of SR-99 Southbound On-Ramp			2100	2	2.17	2,207	3,625	1295.43	69.24	70	69.8944	18.534	C	2127.522	69.24	70	60.0206	35.447	E
Northbound	North of Airport Blvd Diagonal On-Ramp			8100	2	1.33	719	2,712	422.305	71.3	70	62.9842	6.7049	A	1591.562	71.3	70	68.2215	23.329	C
	North of Metro Parkway Diagonal On-Ramp			1700	2	2.00	2,649	4,012	1555.13	69.64	70	68.537	22.69	C	2354.605	69.64	70	54.5359	43.175	E
	North of SR-99 Southbound On-Ramp			2400	2	2.33	3,489	3,042	2048.18	68.84	70	61.655	33.22	D	1785.258	68.84	70	66.0267	27.038	D
	North of SR-99 Northbound Off-Ramp			0	2	2.33	2,616	2,693	1535.76	68.84	70	68.6923	22.357	C	1580.41	68.84	70	68.3213	23.132	C
Universal Inputs: PHF 0.92 (P _r) 16% f _{HV} 0.925925926																				

Segment Inputs				Improved Cumulative Plus Cargo Plus MPU Conditions																
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures									
				Number of Interchange		PM														
				Length	Lanes	Density	AM Peak	Peak	V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
				(ft)	(N)	(l/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Airport Blvd Off-Ramp			600	3	1.50	3,072	4,483	1202.03	70.87	70	70	17.172	B	1754.087	70.87	70	66.4387	26.402	D
	North of Metro Parkway Off-Ramp			3300	2	2.00	2,082	3,133	1221.95	69.64	70	69.9944	17.458	B	1838.739	69.64	70	65.2673	28.172	D
	North of SR-99 Northbound Off-Ramp			Analyzed as a weaving segment																
	North of SR-99 Southbound On-Ramp			2100	2	2.17	2,317	3,675	1360	69.24	70	69.703	19.511	C	2156.87	69.24	70	59.379	36.324	E
Northbound	North of Airport Blvd Diagonal On-Ramp			8100	2	1.33	809	2,772	475.132	71.3	70	63.905	7.435	A	1626.779	71.3	70	67.8872	23.963	C
	North of Metro Parkway Diagonal On-Ramp			1700	2	2.00	2,769	4,082	1625.57	69.64	70	67.8992	23.941	C	2395.692	69.64	70	53.4157	44.85	E
	North of SR-99 Southbound On-Ramp			2400	2	2.33	3,489	3,042	2048.18	68.84	70	61.655	33.22	D	1785.258	68.84	70	66.0267	27.038	D
	North of SR-99 Northbound Off-Ramp			0	2	2.33	2,616	2,693	1535.76	68.84	70	68.6923	22.357	C	1580.41	68.84	70	68.3213	23.132	C
Universal Inputs: PHF 0.92 (P _r) 16% f _{HV} 0.925925926																				

Segment Inputs				Improved Cumulative Plus Cargo Plus MPU Conditions																																
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures														
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _F /S _{FR}	P _{FM}	v ₁₂	ity	v ₃	v _{12a}	v/c	D	LOS			
S	Airport Blvd Loop On-Ramp	3	1	1500	5502	3792	1710	6459	4451	2007	127	0.62	2758	7200	847	2068	2758	0.897	32.31	D	8273	5703	2570	9711	6694	3017	191	0.62	4147	7200	1274	3110	4147	1.349	50.56	F
	Metro Pkwy Loop On-Ramp	2	1	900	2752	1462	1290	3230	1716	1514	49	1	1716	4800	0	1287	1716	0.673	24.33	C	4603	2443	2160	5403	2867	2536	82	1	2867	4800	0	2151	2867	1.126	40.81	F
	Metro Pkwy Diagonal On-Ramp	2	1	1200	2762	2752	10	3242	3230	12	92	1	3230	4800	0	2423	3230	0.675	23.23	C	4613	4603	10	5415	5403	12	154	1	5403	4800	0	4052	5403	1.128	40.18	F
M	Airport Blvd Diagonal On-Ramp	2	1	210	809	309	500	950	363	587	10	1	363.3	4800	0	272	363	0.198	11.3	B	2772	2062	710	3254	2420	833	69	1	2420	4800	0	1815	2420	0.678	29.15	D
	Airport Blvd Loop On-Ramp	2	1	235	309	229	80	363	269	94	8	1	269.4	4800	0	202	269	0.076	6.792	A	2062	1992	70	2420	2338	82	67	1	2338	4800	0	1753	2338	0.504	22.84	C
	Metro Pkwy Diagonal On-Ramp	2	1	800	2769	1479	1290	3251	1737	1514	50	1	1737	4800	0	1303	1737	0.677	25.12	C	4082	1922	2160	4791	2256	2536	64	1	2256	4800	0	1692	2256	0.998	36.67	E
	Metro Pkwy Loop On-Ramp	2	1	600	1479	1469	10	1737	1725	12	49	1	1725	4800	0	1294	1725	0.362	15.25	B	1922	1912	10	2256	2244	12	64	1	2244	4800	0	1683	2244	0.47	19.3	B
Universal Inputs:																																				
Length		1500		(ft)																																
S _{FF}		70		(mi/h)																																
S _{FR}		35		(mi/h)																																
PHF		0.92																																		
P ₁		16%																																		
P _{HV}		0.925925926																																		

Segment Inputs				Improved Cumulative+MPU Conditions															
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures								
			Number of Length Lanes Interchange Density	PM AM Peak Peak		V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS				
			(ft) (N) (I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)					
Southbound	North of Elverta Road Off-Ramp		2900	2	1.00	3,757	2,094	2144.15	72.18	70	59.6595	35.94	E	1195.174	72.18	70	69.9997	17.074	B
	North of Elkhorn Rd Off-Ramp		3500	2	1.33	3,237	2,094	1847.41	71.3	70	65.138	28.361	D	1195.174	71.3	70	69.9997	17.074	B
	North of I-5 Northbound Off-Ramp		0	3	1.63	3,747	2,154	1425.63	70.56	70	69.4095	20.539	C	819.6087	70.56	70	68.3215	11.996	B
	South of I-5 Northbound Off-Ramp		1300	2	1.63	2,874	1,805	1640.26	70.56	70	67.7515	24.21	C	1030.255	70.56	70	69.6658	14.789	B
Northbound	North of Elverta Road Diagonal On-Ramp		5900	3	1.00	1,862	4,370	708.293	72.18	70	67.1954	10.541	A	1662.614	72.18	70	67.5175	24.625	C
	North of Elkhorn Rd Diagonal On-Ramp		4000	2	1.33	1,982	4,420	1130.92	71.3	70	69.9446	16.169	B	2522.454	71.3	70	49.7129	50.74	F
	North of I-5 Southbound On-Ramp		-700	2	1.63	2,352	5,280	1342.06	70.56	70	69.7659	19.237	C	3013.215	70.56	70	31.8621	94.57	F
	South of I-5 Southbound On-Ramp		700	2	1.63	2,000	4,342	1141.19	70.56	70	69.9599	16.312	B	2477.943	70.56	70	51.0556	48.534	F
Universal Inputs:																			
PHF		0.92																	
(P _T)		10%																	
f _{HV}		0.952380952																	

Segment Inputs				Improved Cumulative+MPU Conditions																																
				AM Flow Inputs			AM LOS Performance Measures													PM Flow Inputs			PM LOS Performance Measures													
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)														Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)														
							V _D	V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	Capacity	V ₃	V _{12a}	V/C	D	LOS	V _D				V _F	V _R	V _i /S _{FR}	P _{FM}	V ₁₂	ity	V ₃	V _{12a}	V/C	D	LOS			
S		(N)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)	(pc/h/in)				(pc/mi/in)				(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)	(pc/h/in)				(pc/mi/in)								
	Elverta Road Loop On-Ramp	2	1	280	3217	2917	300	3672	3330	342	95	1	3330	4800	0	2497	3330	0.765	32.2	D	2064.4	1984	80	2356	2265	91	65	1	2265	4800	0	1699	2265	0.491	22.06	C
	Elverta Rd Diagonal On-Ramp	2	2	265	3237	3217	20	3695	3672	23	105	1	3672	4800	0	2754	3672	0.77	32.62	D	2094.4	2064	30	2390	2356	34	67	1	2356	4800	0	1767	2356	0.498	22.44	C
	Elkhorn Boulevard Loop On-Ramp	2	1	235	3577	2797	780	4083	3193	890	91	1	3193	4800	0	2394	3193	0.851	35.44	E	1774.4	1414	360	2025	1614	411	46	1	1614	4800	0	1211	1614	0.422	19.61	B
	Elkhorn Boulevard Diagonal On-Ramp	2	1	140	3747	3577	170	4277	4083	194	117	1	4083	4800	0	3062	4083	0.891	37.87	E	2154.4	1774	380	2459	2025	434	58	1	2025	4800	0	1519	2025	0.512	23.58	C
S	Elverta Rd Diagonal On-Ramp	3	1	260	1862	1772	90	2125	2022	103	58	0.585	1183	7200	420	887	1183	0.295	13.82	B	4370.3	4240	130	4988	4839	148	138	0.585	2830	7200	1005	2123	2830	0.693	27.01	C
	Elverta Road Loop On-Ramp	3	1	290	1772	1762	10	2022	2011	11	57	0.586	1178	7200	417	883	1178	0.281	12.93	B	4240.3	3750	490	4839	4280	559	122	0.586	2507	7200	887	1880	2507	0.672	27.31	C
	Elkhorn Boulevard Diagonal On-Ramp	2	1	240	1982	1832	150	2262	2091	171	60	1	2091	4800	0	1568	2091	0.471	21.53	C	4420.3	4210	210	5045	4805	240	137	1	4805	4800	0	3604	4805	1.051	43.21	F
	Elkhorn Boulevard Loop On-Ramp	2	1	255	1832	1492	340	2091	1703	388	49	1	1703	4800	0	1277	1703	0.436	20	B	4210.3	4050	160	4805	4623	183	132	1	4623	4800	0	3467	4623	1.001	41.27	F
	I-5 Southbound On-Ramp	2	1	100	2352	2000	352	2684	2282	402	65	1	2282	4800	0	1712	2282	0.559	25.6	C	5280.3	4342	938	6026	4956	1071	142	1	4956	4800	0	3717	4956	1.256	51.36	F
Universal Inputs:																																				
Length		1500																																		
S _{FF}		(ft)																																		
S _{FR}		70																																		
PHF		0.92																																		
P _i		10%																																		
P _{HV}		0.952380952																																		

Segment Inputs				Improved Cumulative+Cargo+MPU Conditions													
				Flow Inputs		AM LOS Performance Measures					PM LOS Performance Measures						
			Number of Length Lanes Interchange Density	PM AM Peak Peak		V _p	FFS	S	D	LOS	V _p	FFS	S	D	LOS		
			(ft) (N) (I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)	(mi/h)	(pc/mi/ln)			
Southbound	North of Elverta Road Off-Ramp		2900 2 1.00	3,757	2,094	2144.15	72.18	70	59.6595	35.94	E	1195.174	72.18	70	69.9997	17.074	B
	North of Elkhorn Rd Off-Ramp		3500 2 1.33	3,627	2,114	2069.96	71.3	70	61.2207	33.812	D	1206.587	71.3	70	69.9995	17.237	B
	North of I-5 Northbound Off-Ramp		0 2 1.63	4,137	2,324	2361	70.56	70	54.3642	43.429	E	1326.424	70.56	70	69.8146	18.999	C
	South of I-5 Northbound Off-Ramp		1300 2 1.63	3,264	1,975	1862.82	70.56	70	64.9038	28.701	D	1127.266	70.56	70	69.9386	16.118	B
Northbound	North of Elverta Road Diagonal On-Ramp		5900 3 1.00	1,842	4,170	700.685	72.18	70	67.1079	10.441	A	1586.527	72.18	70	68.2669	23.24	C
	North of Elkhorn Rd Diagonal On-Ramp		4000 2 1.33	1,912	4,380	1090.97	71.3	70	69.8621	15.616	B	2499.628	71.3	70	50.4072	49.589	F
	North of I-5 Southbound On-Ramp		-700 2 1.63	2,352	5,280	1342.06	70.56	70	69.7659	19.237	C	3013.215	70.56	70	31.8621	94.57	F
	South of I-5 Southbound On-Ramp		700 2 1.63	2,000	4,342	1141.19	70.56	70	69.9599	16.312	B	2477.943	70.56	70	51.0556	48.534	F
Universal Inputs:																	
PHF		0.92															
(P _T)		10%															
f _{HV}		0.952380952															

Segment Inputs				Improved Cumulative+Cargo+MPU Conditions																																	
				AM Flow Inputs			AM LOS Performance Measures													PM Flow Inputs			PM LOS Performance Measures														
		Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L _A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _i /S _{FR}	P _{FM}	v ₁₂	Capacity	v ₃	v _{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v _D	v _F	v _R	v _i /S _{FR}	P _{FM}	v ₁₂	Capac								
																													ity	v ₃	v _{12a}	v/c	D	LOS			
S	Elverta Road Loop On-Ramp		2	1	280	3607	3307	300	4117	3775	342	108	1	3775	4800	0	2831	3775	0.858	35.68	E	2084.4	2004	80	2379	2288	91	65	1	2288	4800	0	1716	2288	0.496	22.23	C
	Elverta Rd Diagonal On-Ramp		2	2	265	3627	3607	20	4140	4117	23	118	1	4117	4800	0	3088	4117	0.862	36.09	E	2114.4	2084	30	2413	2379	34	68	1	2379	4800	0	1784	2379	0.503	22.62	C
	Elkhorn Boulevard Loop On-Ramp		2	1	235	4007	3187	820	4574	3638	936	104	1	3638	4800	0	2728	3638	0.953	39.25	E	1994.4	1634	360	2276	1865	411	53	1	1865	4800	0	1399	1865	0.474	21.57	C
	Elkhorn Boulevard Diagonal On-Ramp		2	1	140	4137	4007	130	4722	4574	148	131	1	4574	4800	0	3430	4574	0.984	41.36	E	2324.4	1994	330	2653	2276	377	65	1	2276	4800	0	1707	2276	0.553	25.12	C
D	Elverta Rd Diagonal On-Ramp		3	1	260	1842	1772	70	2102	2022	80	58	0.585	1183	7200	420	887	1183	0.292	13.65	B	4170.3	4070	100	4760	4645	114	133	0.585	2717	7200	964	2037	2717	0.661	25.87	C
	Elverta Road Loop On-Ramp		3	1	290	1772	1762	10	2022	2011	11	57	0.586	1178	7200	417	883	1178	0.281	12.93	B	4070.3	3750	320	4645	4280	365	122	0.586	2507	7200	887	1880	2507	0.645	25.89	C
	Elkhorn Boulevard Diagonal On-Ramp		2	1	240	1912	1782	130	2182	2034	148	58	1	2034	4800	0	1525	2034	0.455	20.92	C	4380.3	4210	170	4999	4805	194	137	1	4805	4800	0	3604	4805	1.042	42.88	F
	Elkhorn Boulevard Loop On-Ramp		2	1	255	1782	1572	210	2034	1794	240	51	1	1794	4800	0	1345	1794	0.424	19.63	B	4210.3	4120	90	4805	4703	103	134	1	4703	4800	0	3527	4703	1.001	41.31	F
	I-5 Southbound On-Ramp		2	1	100	2352	2000	352	2684	2282	402	65	1	2282	4800	0	1712	2282	0.559	25.6	C	5280.3	4342	938	6026	4956	1071	142	1	4956	4800	0	3717	4956	1.256	51.36	F
Universal Inputs:																																					
Length		1500		(ft)																																	
S _{FF}		70		(mi/h)																																	
S _{FR}		35		(mi/h)																																	
PHF		0.92																																			
(P ₁)		10%																																			
P _{HV}		0.952380952																																			