APPENDIX H

FOCUSED TRANSPORTATION IMPACT STUDY FOR THE SAN JOAQUIN BEWELL PROJECT (TIS)

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Transportation Impact Study for the San Joaquin Be Well Project

Prepared for the County of San Joaquin

Submitted by
W-Trans

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Executive Summary

The proposed project includes development of a substance abuse recovery center and support facilities on the northwest corner of South El Dorado Street/West Hospital Road in the French Camp community of San Joaquin County. The project would be accessed via a public driveway on South El Dorado Street and a restricted-use driveway on West Hospital Road. As proposed, the project is estimated to generate a daily average of 2,029 trips, including 179 morning peak hour trips and 216 trips during the p.m. peak hour.

While the project would include sidewalks along each frontage and walkways connecting these sidewalks to the buildings within the site, there would be a potentially significant impact caused by the design of the channelizing islands on the northwest and southwest corners of South El Dorado Street/Hospital Road. Therefore, it is recommended that these islands be redesigned to improve accessibility. Additionally, a sidewalk and curb ramp should be constructed between the project site and Manthey Road to enable access to and from the San Joaquin General Hospital bus stop and to mitigate a potentially significant impact. The accessibility of the West Hospital Road bus stop should be maintained throughout construction, or the bus stop should be temporarily relocated. Likewise, the project would significantly impact adopted policies regarding bicycle facilities, which could be mitigated through the inclusion of 27 short-term and 27 long-term bicycle parking spaces.

The project would have a less-than-significant impact on vehicle miles traveled (VMT) as the project is located in an area that has low VMT for both employees and residents and therefore is presumed to screen from quantitative VMT analysis.

There would be new hazards introduced by the project that would result in potential impacts to roadway safety. These include restricted sight lines at the West Hospital Road driveway that would be mitigated by prohibition of parking or semi-trucks on West Hospital Road or otherwise redesigning the driveway to have curb extensions. Also, there would be increased traffic activity and conflicts associated with more turns at the South El Dorado Street driveway that would be mitigated by inclusion of a left-turn lane in the project design. Another potential hazard would be queue overages in the northbound left-turn lane at French Camp Road/South El Dorado Street. Extending the turn lane from 150 feet to 225 feet is recommended so that there would be a less-than-significant impact to safety.

The project would not warrant additional turn lanes or signalization at the West Hospital Road driveway, signalization of Manthey Road/Hospital Road or the South El Dorado Street driveway, or cause impacts to queues at other turn lanes. There would be adequate sight distance at the South El Dorado Street driveway for prevailing speeds and posted speed limits.

The project might significantly impact emergency access. Recommendations to mitigate these impacts to a less-than-significant level include securing an exemption from the fire code official to have building exteriors greater than 150 feet from fire access roads, modifying the gates to increase unobstructed width or receiving an exemption for the current design, and demonstrating corner radii meet Code requirements. Otherwise, the project would include adequate drive aisle widths and circulation for emergency vehicles and would not significantly impact off-site emergency access and response times.

West Mathews Road/Manthey Road, West Mathews Road/I-5 South Ramps, and Mathews Road/South El Dorado Street operate deficiently but would be improved to acceptable operation with the planned signalization of the Mathews Road corridor. Under Baseline Conditions, French Camp Road/Manthey Road and West Hospital Road/Manthey Road would have deficient operation but would improve with future improvements. Under Future Conditions, all intersections would operate acceptably. The addition of project traffic would not result in an adverse effect to the study intersections under any scenario assessed.

The proposed parking supply, including accessible and van-accessible spaces, would be sufficient to satisfy County requirements.

The project would be subject to the County's Traffic Impact Mitigation Fee (TIMF) program, estimated at $459,149.53 based on the project's trip generation, and also SJCOG's Regional Transportation Impact Fee (RTIF) program, which is estimated to be $977,078.80 based on the project's trip generation and current fee structure. Combined, these fees would be $1,436,228.33.

Introduction

This report presents an analysis of the potential traffic impacts and adverse operational effects that would be associated with development of a proposed substance abuse recovery center and support facilities on APN 193-05-018 at the northwest corner of South El Dorado Street/West Hospital Road in the French Camp community of San Joaquin County. The traffic study was completed in accordance with the criteria established by the County of San Joaquin and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide County of San Joaquin staff and policy makers with data that they can use to make an informed decision regarding the potential transportation impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to an acceptable level under CEQA, the County's General Plan, or other policies. This report provides an analysis of those items that are identified as areas of environmental concern under the California Environmental Quality Act (CEQA) and that, if significant, require an EIR. Impacts associated with access for pedestrians, bicyclists, and to transit; the vehicle miles traveled (VMT) generated by the project; potential safety concerns such as increased queuing in dedicated turn lanes, adequacy of sight distance, need for turn lanes, and need for additional right-of-way controls; and emergency access are addressed in the context of the CEQA criteria. While no longer a part of the CEQA review process, vehicular traffic service levels at key intersections were evaluated for consistency with General Plan policies by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the effect the new traffic would be expected to have on the study intersections and need for improvements to maintain acceptable operation. The adequacy of parking is also addressed as a policy issue, as is the computation of applicable transportation impact fees.

Applied Standards and Criteria

The report is organized to provide background data that supports the various aspects of the analysis, followed by the assessment of CEQA issues and then evaluation of policy-related issues. The CEQA criteria evaluated are as follows.

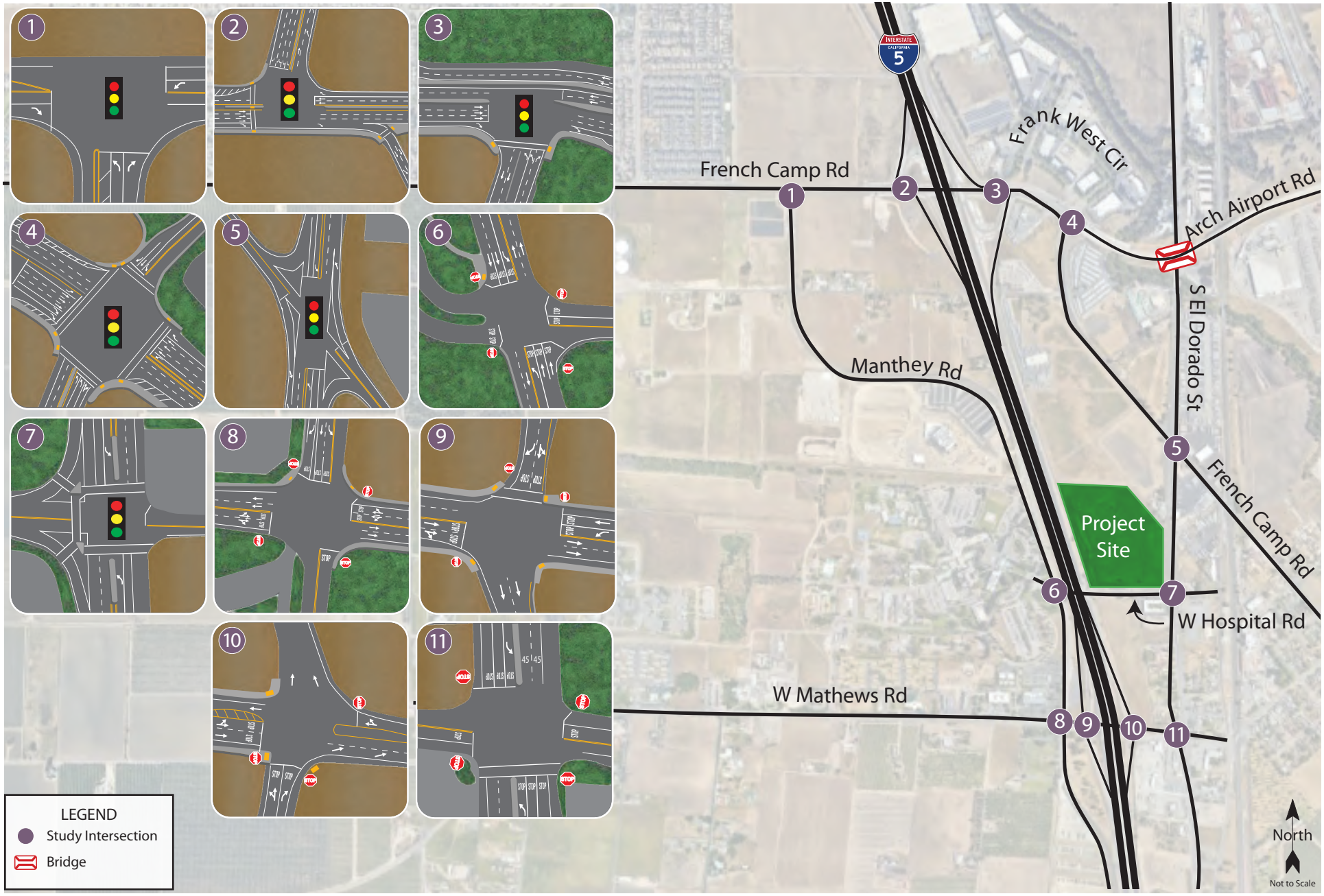
Would the project:

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

The project was also evaluated against the County's policies, which provide guidance relative to traffic impacts for CEQA issues as well as the effects caused by traffic associated with new development.

Project Profile

The project as proposed involves construction of a substance abuse recovery center and support facilities with 540 parking spaces on a parcel that is currently undeveloped. The project site of APN 193-05-018 is located on the northwest corner of South El Dorado Street/West Hospital Road in San Joaquin County, as shown in Figure 1. Vehicular access would be via a driveway on South El Dorado Street and another on West Hospital Road.



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Transportation Impact Study for the San Joaquin Be Well Project

Figure 1 – Study Area and Existing Lane Configurations

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Transportation Setting

Study Area and Periods

The study area varies depending on the topic. For pedestrian trips it consists of all streets within a half mile of the project site that would lie along primary routes of pedestrian travel. For bicycle trips it consists of all streets within one mile of the project site that would lie along primary routes of bicycle travel. For the safety and operational analyses, it consists of the project frontage and the following intersections:

1. French Camp Road/Manthey Road
2. French Camp Road/I-5 South Ramps
3. French Camp Road/I-5 North Ramps
4. French Camp Road/Arch Airport Road-Frank West Circle
5. French Camp Road/South El Dorado Street
6. West Hospital Road/Manthey Road
7. Hospital Road/South El Dorado Street
8. West Mathews Road/Manthey Road
9. West Mathews Road/I-5 South Ramps
10. West Mathews Road/I-5 North Ramps
11. Mathews Road/South El Dorado Street

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. Traffic counts were obtained for the study intersections on Thursday, November 2, 2023, representing typical weekday conditions.

Study Intersections

French Camp Road/Manthey Road is a signalized three-legged intersection with protected left-turn phasing on the westbound French Camp Road approach.

French Camp Road/I-5 South Ramps is a signalized intersection with three legs. Eastbound left-turns are not permitted as there is an eastbound-to-southbound on-ramp located about 200 feet east of the intersection. Sidewalks are present at the northwest corner of the intersection and along and south side of French Camp Road. Marked crosswalks with curb ramps are available across the west leg of the intersection and the on-ramp just east of the intersection. There is a pedestrian refuge island on the west leg. Bicyclists are allowed to ride on the sidewalk along the south side of French Camp Road, including posted signage delineating pedestrian and bicycle areas of the sidewalk.

French Camp Road/I-5 North Ramps is a signalized three-legged intersection where the westbound right turn (towards I-5 North) is channelized and free-flowing towards an on-ramp west of the intersection. No left turns are permitted on the westbound French Camp Road approach. Sidewalks with curb ramps are present along the south side of French Camp Road and a marked crosswalk with pedestrian phasing is available across the south leg of the intersection. Bicyclists are allowed to ride on this sidewalk.

French Camp Road/Arch Airport Road-Frank West Circle is a four-legged intersection with signal controls and protected left-turn phasing on all approaches. There are sidewalks present along the south side of French Camp Road as well as at the northeast and northwest corners of the intersection on Frank West Circle. Marked crosswalks with pedestrian phasing and curb ramps are available across all four legs of the intersection and bicyclists are permitted to ride on the sidewalk along the south side of French Camp Road.

French Camp Road/South El Dorado Street is a signalized four-legged intersection with protected left-turn phasing on the northbound and southbound South El Dorado Street approaches.

West Hospital Road/Manthey Road is a four-legged intersection with stop controls on all approaches. There is a sidewalk with a curb ramp present at the northwest corner of the intersection.

Hospital Road/South El Dorado Street is four-legged signalized intersection with protected left-turn phasing on the northbound and southbound South El Dorado Street approaches. Marked crosswalks with pedestrian phasing are available across the north, south and west legs of the intersection though there are no sidewalks present.

West Mathews Road/Manthey Road is an all-way stop-controlled intersection with four legs. Sidewalks with curb ramps are present on the northeast, northwest and southeast corners of the intersection, and there are sidewalks along both sides of West Mathews Road east of the intersection and on the north side of West Mathews Road to the west.

West Mathews Road/I-5 South Ramps is a four-legged intersection with stop controls on all three approaches (the south leg is one-way for southbound departures only). Sidewalks with curb ramps are present along both sides of West Mathews Road and a crosswalk is marked on the north leg.

West Mathews Road/I-5 North Ramps has stop controls on the I-5 North Off-Ramp approach and both West Mathews Road approaches, and four legs. There are sidewalks present on both sides of West Mathews Road along the west leg of the intersection; curb ramps with tactile domes are available on the northwest and southwest corners of the intersection, whereas the northeast and southeast corners have smaller concrete pads with tactile domes.

Mathews Road/South El Dorado Street is a four-way stop-controlled intersection with a marked crosswalk on the south leg.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Existing Transportation Facilities

Existing and Planned Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, there is a limited network of sidewalks, crosswalks, pedestrian signals, and curb ramps to provide access for pedestrians in the vicinity of the proposed project site; sidewalk gaps, obstacles, and barriers can be found along most of the roadways connecting to the project site. Specifically, sidewalks exist on Mathews Road west of the I-5 North Ramps as well as on French Camp Road-Arch Airport Road east of the I-5 South Ramps but are otherwise absent from the study area. Crosswalks and pedestrian phasing are present at South El Dorado Street/Hospital Road on the southeast corner of the site, though no sidewalks currently exist along any legs of the intersection. Existing gaps and obstacles along the connecting roadways impact convenient and continuous access for pedestrians and present safety concerns in those locations where appropriate pedestrian infrastructure would address potential conflict points.

Additional pedestrian facilities are not planned within the study area at this time.

Existing and Planned Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2020, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.

- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, a Class I multi-use path exists on French Camp Road and Arch Airport Road between the I-5 South Ramps and Sperry Road, in the form of a wide sidewalk with posted signage delineating part of the sidewalk for pedestrians and part of the sidewalk for bicyclists. Bicyclists ride in the roadway along all other streets within the project study area.

Class II bike lanes are proposed in the *San Joaquin County Bicycle Master Plan Update*, Alta, 2020, for several roads within the San Joaquin General Hospital campus (Cesar Chavez Road, North Loop Road, and Freedom Road), and for French Camp Road, Manthey Road, Mathews Road, South Delivery Drive and South El Dorado Street. While the *Bicycle Master Plan Update* includes plans for the installation of Class II bike lanes on French Camp Road between its western terminus and Arch Airport Road, the *Envision Stockton General Plan 2040*, City of Stockton, 2018, shows a Class IV bikeway planned for this segment. Similarly, the *Bicycle Master Plan Update* shows South El Dorado Street between the Stockton City Limit and West Hospital Road as having Class II bike lanes whereas the *General Plan* shows it as a Class IV bikeway. Table 1 summarizes the existing and planned bicycle facilities in the project vicinity.

Table 1 – Bicycle Facility Summary

Status Location	Class	Length (miles)	Begin Point	End Point
Existing				
French Camp Rd & Arch Airport Rd	I	1.36	I-5 South Ramps	Sperry Rd
Planned				
Cesar Chavez Rd	II	0.32	S Loop Rd	N Loop Rd
Freedom Rd	II	0.11	S Loop Rd	W Mathews Rd
French Camp Rd	II/IV*	2.23	W Terminus	Arch Airport Rd
French Camp Rd	II	12.60	Arch Airport Rd	SR-120
Manthey Rd	II	4.27	Stockton City Limit	Lathrop City Limit
Mathews Rd	II	0.76	Manthey Rd	Howard Rd
N Loop Rd	II	0.41	Cesar Chavez Rd	S Loop Rd
S Delivery Dr	II	0.19	S Loop Rd	W Mathews Rd
S El Dorado St	II/IV*	0.76	Stockton City Limit	W Hospital Rd
W Hospital Rd	II	0.27	S El Dorado St	S Loop Rd

Sources: *San Joaquin County Bicycle Master Plan Update*, Alta, 2020; *Envision Stockton General Plan 2040*, City of Stockton, 2018

Note: * The *Bicycle Master Plan Update* shows these facilities as Class II whereas the *General Plan* shows Class IV facilities.

Existing Transit Facilities

San Joaquin Regional Transit District (RTD) provides fixed route bus service in San Joaquin County. RTD Route 510 runs one to two buses per hour on weekdays that stop along the project frontage on West Hospital Road (southbound/westbound) and opposite the project site on South El Dorado Street (northbound/eastbound). Route 510 connects the County facilities along Mathews Road and the San Joaquin General Hospital to southern and central Stockton. Approximately 650 feet west of the project site is the bus stop for the San Joaquin General Hospital which is served by eight buses per weekday on RTD Route 90 between central Stockton and Tracy. On

weekends, this stop is served by RTD Route 710 with hourly service between the Hospital and central Stockton, and RTD Route 797 with four buses each way between Tracy and Manteca via Lathrop and Stockton. RTD Route 797 buses are permitted to deviate up to one mile twice per run within rural areas with at least two days' notice.

Two bicycles can be carried on RTD buses. Bike rack space is on a first come, first served basis. Additional bicycles are allowed on RTD buses in the cargo area where one is provided.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. RTD Paratransit is designed to serve the needs of individuals with disabilities within the County of San Joaquin.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is October 1, 2019, through September 30, 2024.

As presented in Table 2, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2022 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same environment (urban, suburban, or rural), with the same number of approaches (three or four), and the same controls (all-way stop, two-way stop, or traffic signal). The collision rate calculations are provided in Appendix A.

Table 2 – Collision Rates for the Study Intersections

Study Intersection	Number of Collisions (2019-2024)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. French Camp Rd/Manthey Rd	1	0.02	0.43
2. French Camp Rd/I-5 S Ramps	3	0.05	0.43
3. French Camp Rd/I-5 N Ramps	1	0.02	0.28
4. French Camp Rd/Arch Airport Rd-Frank W Cir	5	0.09	0.33
5. French Camp Rd/S El Dorado St	8	0.23	0.55
6. W Hospital Rd/Manthey Rd	0	0.00	0.39
7. Hospital Rd/S El Dorado St	1	0.05	0.55
8. W Mathews Rd/Manthey Rd	5	0.13	0.39
9. W Mathews Rd/I-5 S Ramps	5	0.16	0.36
10. W Mathews Rd/I-5 N Ramps	6	0.25	0.36
11. Mathews Rd/S El Dorado St	43	**1.44**	0.39

Note: c/mve = collisions per million vehicles entering; **bold** text = rate exceeds the Statewide average

The intersection of Mathews Road/South El Dorado Street had a collision rate more than triple the statewide average during the most recent five-year period. Of the 43 collisions reported, the majority (37) were broadsides. Of these, 25 were cited as being due to failure to stop at the stop sign and nine were cited as being caused by right-of-way violations. Additionally, about half of the reported collisions (20) occurred between 3:00 p.m. and 7:00 p.m., indicating a potential relationship between increased evening peak period traffic and crash rates. It is noted that the p.m. peak period corresponds to increased traffic on the northbound approach, and that this intersection is the first controlled intersection for traffic exiting I-5 North onto northbound South El Dorado Street. This intersection as well as the three other study intersections on Mathews Road are planned to be signalized as part of the nearby VA Medical Center project.

Per data evaluated in *Accident Modification Factors for Traffic Engineering and Its Improvements*, Harkey et al., 2008, installation of traffic signals in generally rural settings has been shown to reduce all collision types by 44 percent, including broadside collisions by 77 percent. If these crash reduction factors were applied to the collision history of Mathews Road/South El Dorado Street, an estimated 31 fewer collisions would have occurred during the study period for a remaining count of 12 crashes and a collision rate of 0.40 crashes per million vehicles entering (c/mve), which would be below the relevant statewide average for signalized intersections of 0.55 c/mve. Therefore, the planned installation of signal controls at this intersection would be anticipated to alleviate the above-average trend of crashes.

Pedestrian Safety

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for pedestrians. During the five-year study period there were three reported collisions involving pedestrians at the study intersections. One collision was reported at French Camp Road/I-5 North Ramps and two collisions were reported at Mathews Road/South El Dorado Street. The collision at French Camp Road/I-5 North Ramps occurred at 11:35 p.m. and was cited as being due to unsafe vehicle speed. The pedestrian was reportedly not crossing within a crosswalk; given the presence of a marked crosswalk with overhead lighting and pedestrian phasing across the south leg of French Camp Road/I-5 North Ramps, no further action appears warranted based on this single incident.

Both collisions reported at Mathews Road/South El Dorado Street occurred between 1:00 p.m. and 2:00 p.m. The primary collision factors cited for these collisions were unsafe speed and improper turning, respectively. As there are no sidewalks present at the intersection, the pedestrians were reported to be walking in the road or on the shoulder. With the future signalization of Mathews Road/South El Dorado Street, sidewalks, crosswalks, and pedestrian phasing should be included for pedestrian safety and visibility.

Bicyclist Safety

Collision records for the study area were reviewed to determine if there had been any bicyclist-involved crashes. During the five-year study period there was one reported collision involving a bicyclist at West Mathews Road/I-5 North Ramps. The crash occurred at 7:25 a.m. and the primary collision factor cited was improper turning. As there was only one collision reported during the five-year period, there is no pattern that would indicate a safety issue.

Project Data

The proposed project is a substance abuse recovery center and support facilities split into a South Campus containing Buildings A through D and a North Campus with Buildings E through G. Building A would consist of a Community and Outpatient center with administrative facilities and would be open to the public. Building B would house an institutional urgent care center where patients would be delivered and retrieved by law enforcement. Buildings C and D would include residences and health facilities in support of Building B. For the North Campus, Buildings E through G would provide a variety of transitional and supportive housing to assist residents in acclimation after institutionalization; these residents would be free to come and go and potentially have live-in family members. The proposed project site plan is shown in Figure 2.

Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11th Edition, 2021 for "Medical-Dental Office Building" (ITE LU 720), "Nursing Home" (ITE LU 620) and "Assisted Living" (ITE LU 254).

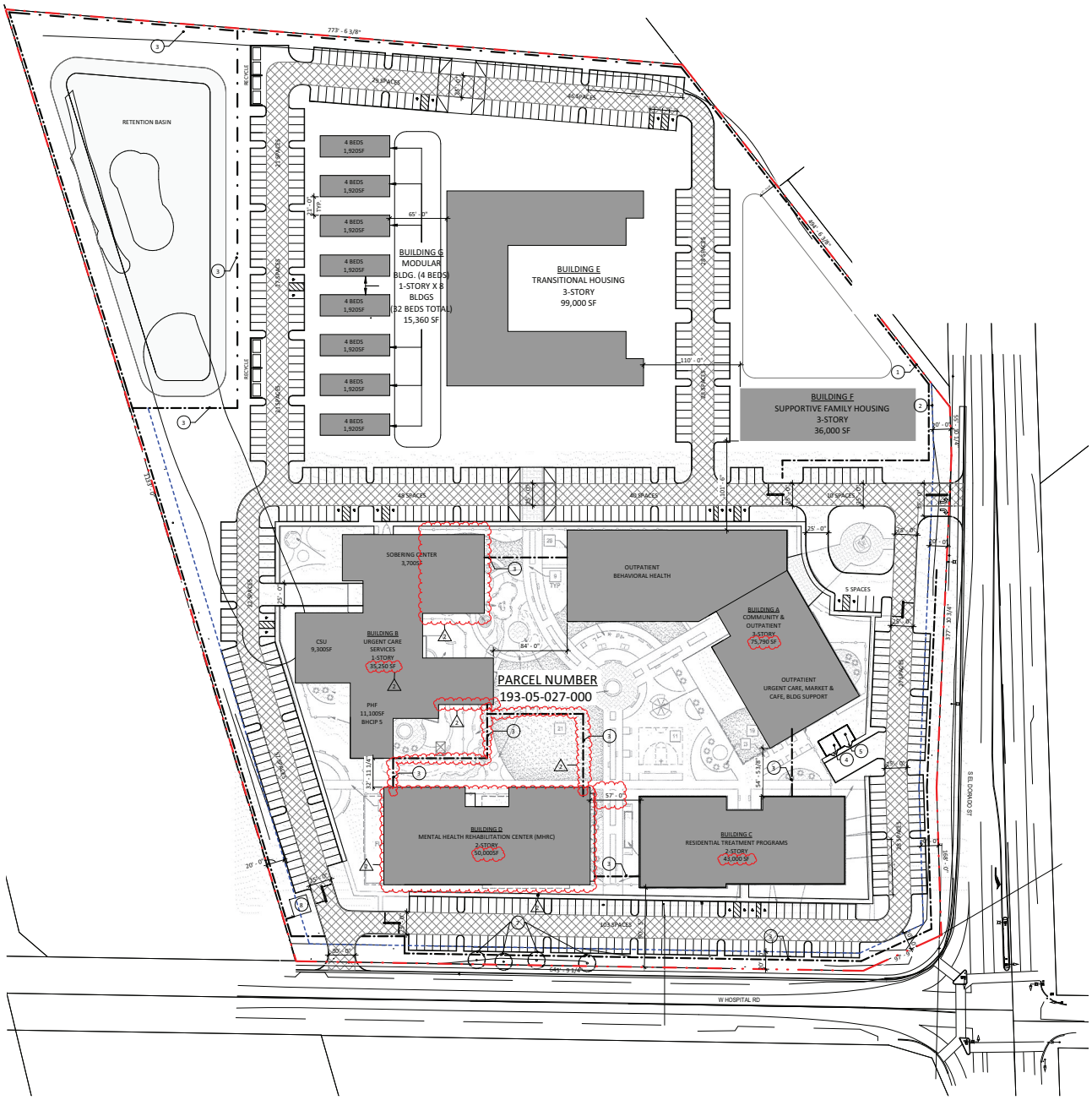
The trip generation was developed for each of the buildings based on its intended use. Building A was assessed using the "Medical-Dental Office Building" land use as it would contain outpatient services and administrative functions with support facilities (such as an on-site café) with a similar anticipated trip generation profile to medical or dental offices on a per-employee basis. Buildings B through D were evaluated using the "Nursing Home" land use with employees as an independent variable as patients would not arrive or leave on their own, so the majority of trips would be made by employees and other non-patient users, similar to nursing homes. The trip generation of the on-site housing (Buildings E through G) was estimated using the "Assisted Living" land use as residents of these buildings may come and go freely but would likely have travel characteristics more similar to an assisted living facility than to a standard apartment complex or institutional housing.

The expected trip generation potential for the proposed project is indicated in Table 3 and includes an average of 2,029 trips per day, with 179 trips during the a.m. peak hour and 216 during the p.m. peak hour.

Table 3 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
South Campus											
Bldg A – Community and Outpatient	93 empl	8.71	810	0.75	70	52	18	1.02	95	35	60
Bldg B – Urgent Care Services	47 empl	3.31	156	0.37	17	14	3	0.35	16	5	11
Bldg C – Residential Treatment Program	73 empl	3.31	242	0.37	27	21	6	0.35	26	8	18
Bldg D – Residential Treatment Program	50 empl	3.31	166	0.37	19	14	5	0.35	18	6	12
North Campus											
Bldg E – Transitional Housing	178 beds	2.60	463	0.18	32	19	13	0.24	43	17	26
Bldg F – Supportive Housing	42 beds	2.60	109	0.18	8	5	3	0.24	10	4	6
Bldg G – Supportive/Transitional Housing	32 beds	2.60	83	0.18	6	3	3	0.24	8	3	5
Total			**2,029**		**179**	**128**	**51**		**216**	**78**	**138**

Note: Bldg = Building; empl = employees; du = dwelling unit



Source: Boulder Associates, May 2025

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Figure 2 – Site Plan

Trip Distribution

The anticipated trips generated by the proposed project were distributed to the surrounding roadway by first determining the site user generating each trip (visitors, staff, law enforcement, and residents), the driveway most likely to be used by each driver (South El Dorado Street or West Hospital Road), and the origin or destination of each trip external to the study area.

User Type Distribution

To determine which trips would use which driveway, the estimated project trip generation was divided by trip purpose. Visitor trips are those made by members of the general public to Building A and the residential buildings, staff trips are those made by employees to all buildings, law enforcement trips are those made to Building B to drop off or pick up patients, and resident trips are associated with Buildings E through G.

To split the total site trip generation by these four types, the trip generation components of each building were assessed. For Building A, the *Trip Generation Manual* estimates that all users of the building would generate an average of 8.71 trips per employee. Typically, employees are assumed to generate three trips for themselves (one inbound, one outbound, and one for occasional appointments, lunch, errands, being dropped off, or other such activities), for about a third of the total trip generation, with the other two-thirds being attributed to visitors. For Buildings B through D, it is estimated that there would be 20 to 34 patients per day. Assuming an average of 30 patients per day and that each patient would generate four trips as law enforcement would drop the patient off, leave the site, return to the site to pick up the patient, then depart the site again; law enforcement would account for 120 trips out of the 560 total daily trips across these three buildings. The remainder of 444 trips would be assumed to relate to the estimated 170 staff among these buildings, or about 2.6 trips per staff member per day. For the residential buildings, it is understood that around ten to 20 percent of residents would have a vehicle and therefore residential trip generation would be limited. Also, there would be some visitors but the majority of trips would be by staff. Therefore, it was assumed that 80 percent of trips would be made by staff and the remaining 20 percent would be split between residents and visitors. Table 4 shows these four trip types for each group of buildings.

Table 4 – Trip Generation by Building and Trip Type

Trip Type	Building A				Buildings B-D				Buildings E-G				Total Trips		
	Ratio	Daily	AM	PM	Ratio	Daily	AM	PM	Ratio	Daily	AM	PM	Daily	AM	PM
Visitors	66%	535	46	63	0%	-	-	-	10%	66	5	6	601	51	69
Staff	34%	275	24	32	79%	444	50	47	80%	523	36	49	1,242	110	128
Law Enforcement	0%	-	-	-	21%	120	13	13	0%	-	-	-	120	13	13
Residents	0%	-	-	-	0%	-	-	-	10%	66	5	6	66	5	3
Total	**100%**	**810**	**70**	**95**	**100%**	**564**	**63**	**60**	**100%**	**655**	**46**	**61**	**2,029**	**179**	**216**

Note: Daily = daily trips; AM = a.m. peak hour trips; PM = p.m. peak hour trips

Driveway Distribution

The South El Dorado Street driveway would be accessible by all users including the general public, whereas the West Hospital Road driveway would have gated access so only be open to law enforcement and staff. Based on the relative locations of the buildings around the project site, it was assumed that all visitor and resident trips would use the South El Dorado Street driveway, staff trips would be split evenly between the two driveways, and that law enforcement officers would generally prefer the West Hospital Road driveway with 75 percent using this driveway and the other 25 percent using the South El Dorado Street Driveway. These ratios by trip type and resulting trip generation for each driveway are shown in Table 5.

Table 5 – Trip Generation by Driveway											
Trip Type	**South El Dorado Street Driveway**				**West Hospital Road Driveway**				**Total Trips**		
	Ratio	**Daily**	**AM**	**PM**	**Ratio**	**Daily**	**AM**	**PM**	**Daily**	**AM**	**PM**
Visitors	100%	601	51	69	0%	-	-	-	601	51	69
Staff	50%	621	55	64	50%	621	55	64	1,242	110	128
Law Enforcement	25%	30	3	3	75%	90	10	10	120	13	13
Residents	100%	66	5	6	0%	-	-	-	66	5	6
Total		**1,318**	**114**	**142**		**711**	**65**	**74**	**2,029**	**179**	**216**

Note: Daily = daily trips; AM = a.m. peak hour trips; PM = p.m. peak hour trips

External Distribution

The trip generation of the proposed project was distributed to the surrounding roadway network using the trip distribution assumptions contained in the *VA French Camp Site Traffic Impact Analysis Update*, W-Trans, 2019, given the similarities in land use and location between these two projects. The trip distribution to and from Mathews Road west of Manthey Road was increased compared to the VA Medical Center project to account for law enforcement, administration, or other trips routing between the County facilities on Mathews Road and the project site. The applied distribution assumptions and resulting trips are shown in Table 6.

Table 6 – Trip Distribution Assumptions				
Route	**Percent**	**Daily Trips**	**AM Trips**	**PM Trips**
I-5 South of Mathews Rd	40%	811	71	86
I-5 North of French Camp Rd	35%	710	62	76
Mathews Rd West of Manthey Rd	10%	203	18	22
French Camp Rd East of S El Dorado St	7%	142	13	15
S El Dorado St North of French Camp Rd	4%	81	7	9
French Camp Rd West of Manthey Rd	2%	41	4	4
Arch Airport Rd East of French Camp Rd	2%	41	4	4
TOTAL	**100%**	**2,029**	**179**	**216**

Circulation System

This section addresses the first transportation bullet point on the CEQA checklist, which relates to the potential for a project to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Pedestrian Facilities

Relevant Policies

San Joaquin County General Plan Public Facilities and Services Element Policy TM-4.9 states that the County shall ensure that new automobile parking facilities are designed to facilitate safe and convenient pedestrian access, including clearly defined corridors and walkways connecting parking areas with buildings. Likewise, TM-2.3 states that the County shall support developments that support the use of public transit, bicycling, and walking over private auto use, and TM-2.7 requires new developments to provide a "fair share" of roadway facilities for alternative transportation modes to reduce auto demand. TM-3.2 requires new developments in Urban Communities (of which French Camp is defined as being) to include curb, gutter, and sidewalks.

Site Design

Per the conceptual site plan and renderings, pedestrian pathways and benches would be provided outside buildings and between buildings and parking areas as part of the project. Curb, gutters, and five-foot sidewalks are included along both frontages per County Standard Detail R-7, along with connections between the on-site facilities and each frontage sidewalk. A curb ramp is proposed for the corner of the project site at South El Dorado Street/Hospital Road. There are no off-site improvements proposed, including within the channelizing islands at South El Dorado Street/Hospital Road that contain pedestrian pushbuttons located behind raised curbs.

Project Impacts on Pedestrian Facilities

The provision of sidewalks along the project frontages and walkways connecting the sidewalks to the on-site buildings satisfies adopted policies. However, accessible paths to the RTD bus stops across South El Dorado Street should be provided, including modification of the traffic signal at South El Dorado Street/Hospital Road to allow for unimpeded access for pedestrians using mobility devices. Currently, the pedestrian pushbuttons on the northwest (project site) corner and southwest corner are isolated behind a raised curb, which restricts access to the pushbuttons and forces wheeled users to navigate into traffic to maneuver around the raised curb. This conflicts with Policies TM-2.3 and TM-2.7 which require the County to support non-auto modes such as pedestrian access to transit through the design of development projects. It is understood that while the design on the northwest corner is most relevant with respect to transit access for site users, the southwest corner is also relevant based on ADA requirements that prescribe upgrading intersection infrastructure to accessible standards.

Finding – The project would comply with adopted policies for on-site pedestrian facilities, including along the project frontages on West Hospital Road and South El Dorado Street. However, physical barriers restricting pedestrian access to the northbound RTD bus stop on South El Dorado Street would present a conflict with County policies related to off-site pedestrian facilities. Therefore, the project would have a potentially significant impact on pedestrian facilities by way of conflicting with adopted policy.

Recommendation – Access to the pedestrian pushbuttons at the intersection of South El Dorado Street/Hospital Road should be incorporated into the project design to allow for adequate pedestrian access to the nearby bus stop, which would mitigate the potential impact to a less-than-significant level.

Bicycle Facilities

Relevant Policies

San Joaquin County *Municipal Code Section 9-406.090* states that one short-term bicycle parking space and one long-term bicycle parking space shall be included for every 20 vehicle parking spaces provided. Mandatory, short-term and long-term bicycle parking requirements for non-residential projects are included in Sections 5.106.4.1.1 and 5.106.4.1.2, respectively, of the *California Green Building Code* (CALGreen). The CALGreen requirement is that five percent of vehicular parking spaces must be provided as short-term and another five percent as long-term bicycle parking, matching the County requirement for one of each type per 20 vehicle parking spaces.

Per the *San Joaquin County Bicycle Master Plan Update*, Class II bike lanes are planned along the project frontages on South El Dorado Street as well as on West Hospital Road.

Site Design

The conceptual site plan shown in Figure 2 does not include any planned bicycle facilities within the project site.

Project Impacts on Bicycle Facilities

A total of 540 vehicle parking spaces are shown on the conceptual site plan. Per County Code and CALGreen requirements, 27 short-term and 27 long-term bicycle parking spaces must be provided on site. The project site plan does not identify the provision of bicycle parking or storage facilities; as such the proposed project does not meet Code requirements.

It is noted that the Class II bike lanes planned in the County's *Bicycle Master Plan Update* would be located within the roadway and therefore not require dedicated off-street space from the project.

Finding – The project conflicts with applicable policies regarding bicycle facilities, presenting a potentially significant impact.

Recommendation – To have a less-than-significant impact on adopted policy regarding bicycle facilities, the site plan should be updated to include 27 short-term and 27 long-term bicycle parking spaces.

Transit Facilities

Relevant Policies

The County's *General Plan* does not contain policies relevant to development projects regarding transit other than generally providing access as discussed above under Pedestrian Facilities. However, as the entire study area including the project site is within the City of Stockton's *General Plan* Planning Area and Sphere of Influence, policies from the City's *General Plan* were also reviewed. Action TR-2.2A requires new developments to incorporate safe and comfortable access to transit.

Site Design

The project as designed would include a sidewalk along the entire project frontage, including at the location of the existing bus stop on West Hospital Road along the project's frontage. There are no off-site improvements proposed. There is a curb ramp at the northwest corner of the Manthey Road/West Hospital Road intersection that leads into the San Joaquin General Hospital site, including the on-site bus stop, but there would be no pedestrian facilities between the site and Manthey Road/West Hospital Road.

Impact on Transit Facilities

It is likely that some project users will arrive or depart the site via transit. As discussed above, the pushbutton for pedestrians wishing to route from the project site to the RTD bus stop on northbound South El Dorado Street is located behind a raised curb and therefore inaccessible to users in mobility devices, in addition to forcing these users into vehicle traffic to navigate around this curb and to the crosswalk. This results in an unsafe and uncomfortable condition, conflicting with City of Stockton Policy Action TR-2.2A.

Similarly, there may be demand to access the San Joaquin General Hospital bus stop located approximately 650 feet west of the site. This bus stop has service south of the area all the way to Tracy as well as weekend service, as opposed to the nearby West Hospital Road and South El Dorado Street bus stops that only have weekday service to Stockton. While the project site includes a proposed sidewalk along the West Hospital Road frontage, this would leave a gap of about 325 feet between the site and the northeast corner of Manthey Road/West Hospital Road, which lacks a sidewalk so pedestrians either need to walk in the road or on the unpaved shoulder of the roadway. This would also result in a conflict with Action TR-2.2A requiring safe and comfortable access to transit.

While the build out of the proposed project would include a sidewalk along the entire project frontage, providing a pedestrian space for transit riders to wait at the West Hospital Road bus stop, there is potential for this bus stop to be negatively impacted by construction of the project frontage. Access to this bus stop should be maintained (or relocated nearby) throughout construction to avoid a degradation of transit connectivity and conflicting with Action TR-2.2A.

Finding – The proposed project would result in an increase in pedestrian demand crossing South El Dorado Street between the site and the northbound RTD bus stop. This crossing currently includes a pushbutton located behind a raised curb, resulting in an unsafe and uncomfortable condition for users in mobility devices and therefore resulting in a potentially significant impact by way of conflicting with adopted policy regarding transit facilities. Likewise, the project would result in pedestrian demand to/from the west of the site for transit users accessing the San Joaquin General Hospital bus stop, where currently there is a sidewalk gap of 325 feet between the project site and Manthey Road/West Hospital Road. This would represent another potentially significant impact to adopted transit facility policy. Another potential impact to adopted policy would occur if access to the West Hospital Road bus stop was negatively affected by construction of the project frontage.

Recommendation – The island on the northwest corner of South El Dorado Street/Hospital Road should be reconstructed to enable access to the pushbutton for all pedestrians, including the ability to stay within crosswalks or protected areas during the entire crossing movement and not having to navigate into vehicular traffic areas. Likewise, constructing a sidewalk between the site and Manthey Road as well as a curb ramp on the northeast corner of Manthey Road/West Hospital Road would provide a continuous pedestrian connection between the site and San Joaquin General Hospital bus stop. Access to the West Hospital Road bus stop should be maintained (or relocated nearby) throughout construction of the project frontage. These actions would satisfy the City of Stockton's policy regarding transit access and would reduce the impact on transit facilities to a less-than-significant level.

Significance Finding – The proposed project would conflict with plans or policies for transportation facilities. It would therefore have a potentially significant impact on these facilities, which could be mitigated to a less-than-significant level through redesigning the islands on the northwest and southwest corners of South El Dorado Street/Hospital Road, constructing a sidewalk along West Hospital Road between the project site and Manthey Road, including a curb ramp on the northeast corner of Manthey Road/West Hospital Road, maintaining access during construction of the West Hospital Road bus stop, and providing 27 short-term and 27 long-term bicycle spaces.

Vehicle Miles Traveled (VMT)

The potential for the project to conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) was evaluated based the project's anticipated Vehicle Miles Traveled (VMT).

Senate Bill (SB) 743 established VMT as the metric to be applied to determining traffic impacts associated with development projects. San Joaquin County established parameters for VMT analyses in the *VMT Thresholds Study*, GHD, 2020. The County's parameters are consistent with guidance provided in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*, California Governor's Office of Planning and Research, (OPR), 2018. Both documents indicate that a project generating vehicle travel that is 15 or more percent below the existing countywide VMT per capita may indicate a less-than-significant VMT impact.

Based on data from the San Joaquin Council of Governments (SJCOG) travel demand model, as well as the Longitudinal-Employer Household Dynamics (LEHD) Program, the County of San Joaquin has a baseline average residential VMT of 26.63 miles per capita and a baseline average employee VMT of 19.05. A project generating VMT that is 15 percent or more below each of these values, or 22.63 miles per capita or less for residential travel and 16.19 miles per capita or less for employee travel, would have a less-than-significant impact on VMT.

OPR encourages the use of screening maps to establish geographic areas that achieve a VMT that is 15 percent below regional average thresholds, allowing jurisdictions to "screen" projects in those areas from quantitative VMT analysis since impacts can be presumed to be less than significant. GHD prepared a screening map that shows the project site to be within a screened area for both residential and employee travel. It is therefore reasonable to conclude that the project would have a less-than-significant VMT impact associated with resident and employee travel.

Significance Finding – The project would screen out from quantitative analysis and therefore have a less-than-significant impact on VMT.

Safety Issues

The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance, the need for turn lanes at the project accesses, the adequacy of stacking space in dedicated turn lanes at the study intersections to accommodate additional queuing due to adding project-generated trips, and the need for additional right-of-way controls. This section addresses the third transportation bullet on the CEQA checklist which is whether or not the project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Site Access

The project site would be accessed by two proposed driveways, one on South El Dorado Street and one on West Hospital Road.

Sight Distance

The sight distances available at the proposed project driveway locations on West Hospital Road and South El Dorado Street were assessed for adequacy based on sight distance criteria contained in the *Highway Design Manual* (HDM) published by Caltrans. Although sight distance requirements are not applicable to urban driveways, the stopping sight distance criterion was applied for evaluation purposes.

Speeds on each road in the vicinity of the proposed driveways were measured in the field: a maximum of 30 miles per hour (mph) was observed on West Hospital Road, and a critical speed (85th percentile) of 43 mph was observed on South El Dorado Street. While a speed limit is not posted on West Hospital Road, the posted speed limit on South El Dorado Street is 45 mph. At 30 mph, the required stopping sight distance is 200 feet, and at 45 mph it is 360 feet. Sight distances at the proposed driveways were measured, and it was determined that with respect to fixed objects, visibility is in excess of 360 feet at the proposed South El Dorado Street driveway location, and over 200 feet for the proposed West Hospital Road driveway location.

While no permanent fixtures restricting sight lines were observed during a field visit to each driveway, there were several semi-trucks parked on West Hospital Road along the project frontage that would reduce sight distance between drivers departing the proposed driveway and motorists on West Hospital Road. It is understood that the County does not typically erect signs for no-parking zones at driveways, so other means of opening sightlines would need to be considered. This may include altering the County *Municipal Code* to include prohibition of parking on West Hospital Road or enacting weight restrictions on West Hospital Road (to prevent semi-trucks from parking on the street), or constructing curb extensions at the project driveway to both prohibit parking (without signage or striping) and to bring motorists exiting the driveway closer to the traveled way, increasing visibility.

Finding – Sight lines at both project driveways would be adequate except for the presence of parked semi-trucks on West Hospital Road near the proposed driveway locations, which would present a potentially significant impact to safety.

Recommendation – Sight lines at the West Hospital Road driveway should be increased, potentially by altering the *Municipal Code* to either prohibit parking on West Hospital Road or introduce a weight limit to restrict semi-truck access, or by constructing curb extensions at the driveway. This would mitigate the impact on safety to a less-than-significant level.

Access Analysis

The need for left-turn lanes at the project driveways to be located on West Hospital Road and South El Dorado Street was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as an update of the methodology developed by the Washington State Department of Transportation and published in the *Method For Prioritizing Intersection Improvements*, 1997. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes to determine the need for a left-turn pocket based on safety issues.

Based on Future plus Project volumes, a left-turn lane is not warranted on West Hospital Road at the project driveway during either of the peak periods evaluated. By inspection, a left-turn lane would therefore also not be warranted under the lower-volume Existing and Baseline Conditions scenarios. Under Existing plus Project volumes, a left-turn lane is warranted at the project driveway on South El Dorado Street during both the a.m. and p.m. peak hours.

The turn lane warrant calculations are located in Appendix B.

Finding – A left-turn lane into the South El Dorado Street driveway would be warranted with occupation of the project. This facility should be constructed to enable turning traffic to decelerate and stop if needed for left turns out of the way of through traffic. Without this facility, the large volume of turning traffic may impede through traffic, presenting a potentially significant impact to safety. A left-turn lane would not be warranted for the West Hospital Road driveway.

Recommendation – For the South El Dorado Street driveway, a left-turn lane should be constructed as part of the project. This would enable turning traffic to decelerate without impeding through traffic, and mitigate the safety impact to a less-than-significant level.

Queuing

The thresholds for queueing impacts used in the *VA French Camp Site Traffic Impact Analysis Update* were used for this analysis. They include situations where the addition of project traffic would cause the back of queue that would otherwise be contained within a turn lane to extend past the end of the turn lane or into a visually restricted area. For freeway offramps, the threshold used in this prior analysis was if the queue would be contained within the distance between the intersection stop bar and freeway gore point without project traffic, and extend past the gore point with the addition of project traffic. To better address this issue as a safety concern, more recent analyses prepared by W-Trans have accounted for the distance needed for a driver encountering a queue to stop by subtracting the stopping sight distance for 55 mph of 500 feet from the stacking length.

The queues at the study intersections were assessed under Existing, Baseline, and Future Conditions, without and with the addition of project-generated traffic. Under each scenario, the projected maximum queues in turn pockets and freeway offramps at the study intersections were determined using the SimTraffic application of Synchro and averaging the maximum projected queue for each of ten runs. Summarized in Table 7 are the predicted queue lengths for turn lanes and offramps at each of the 11 study intersections. Copies of the SimTraffic projections are contained in Appendix C.

Table 7 – Maximum Queue Lengths

Study Intersection Turn Lane or Ramp	Available Storage	Maximum Queues											
		AM Peak Hour						PM Peak Hour					
		E	E+P	B	B+P	F	F+P	E	E+P	B	B+P	F	F+P
1. French Camp Rd/Manthey Rd													
EB Right	225	171	170	**328**	**339**	**344**	**341**	48	47	75	90	93	64
WB Left	250 (E)	**312**	**296**	-	-	-	-	126	134	-	-	-	-
	400 (B, F)	-	-	**426**	**425**	**468**	**473**	-	-	**502**	**477**	252	257
NB Right	425	59	58	133	121	137	148	70	71	138	142	169	161
2. French Camp Rd/I-5S Ramps													
SB Left	525	513	450	**736**	**742**	389	386	65	69	135	143	176	187
SB Right	850	**965**	**851**	841	828	568	585	85	94	295	280	332	328
SB Offramp	1,000[1]	**1,528**	**1,265**	**1,656**	**1,570**	629	692	159	157	324	396	375	378
3. French Camp Rd/I-5N Ramps													

Table 7 – Maximum Queue Lengths

Study Intersection Turn Lane or Ramp	Available Storage	Maximum Queues											
		AM Peak Hour						PM Peak Hour					
		E	E+P	B	B+P	F	F+P	E	E+P	B	B+P	F	F+P
EB Right	300	117	117	164	164	162	176	79	81	141	141	170	158
NB Left	425	47	42	161	258	165	150	48	42	130	122	106	109
NB Right	425	252	268	296	318	**456**	**491**	205	204	245	253	348	339
NB Offramp	900[1]	252	268	296	318	495	627	205	204	245	253	348	339
4. French Camp Rd/Arch Airport Rd-Frank West Cir													
EB Left	425	127	140	117	115	149	154	91	85	91	90	90	100
EB Right	500	98	101	101	103	141	133	52	53	62	60	179	209
WB Left	275	57	61	**289**	**299**	91	95	49	53	149	89	187	269
WB Right	550	71	90	333	296	224	209	154	153	505	398	385	463
NB Left	325	156	162	**427**	**445**	**450**	**441**	205	254	**332**	**365**	**471**	**467**
SB Left	150	29	25	28	31	30	32	54	46	52	50	50	52
SB Right	100	41	42	65	53	46	47	53	53	67	63	66	68
5. French Camp Rd/S El Dorado St													
NB Left	150	13	26	42	78	44	58	55	89	64	108	124	**221**
SB Left	200	144	144	162	160	**257**	**225**	97	109	113	117	**265**	**245**
6. W Hospital Rd/Manthey Rd													
WB Left	100	40	40	43	42	45	44	35	37	35	39	39	40
NB Left	300	34	32	36	36	34	40	25	23	23	24	24	24
SB Left	350	33	36	29	31	34	35	34	36	34	37	36	37
7. Hospital Rd/S El Dorado St													
NB Left	175	27	47	28	47	30	47	40	44	41	46	41	49
SB Left	175	13	8	11	8	11	13	15	17	17	14	17	17
8. W Mathews Rd/Manthey Rd													
EB Left	175 (B, F)	-	-	61	64	64	76	-	-	48	60	50	52
NB Left	125 (B, F)	-	-	66	65	67	62	-	-	61	63	64	52
SB Left	125	98	99	83	80	120	**137**	92	91	**147**	**158**	**166**	**165**
9. W Mathews Rd/I-5S Ramps													
WB Left	175 (E)	19	53	-	-	-	-	25	30	-	-	-	-
WB Left	100 (B, F)	-	-	44	50	47	53	-	-	58	87	73	81
SB Right	275	123	179	260	264	**290**	**288**	85	73	243	268	253	255
SB Offramp	525[1]	123	261	307	372	**641**	**475**	85	73	**611**	451	489	437
10. W Mathews Rd/I-5N Ramps													
EB Left	100 (B, F)	-	-	100	98	**112**	**112**	-	-	**121**	**133**	**130**	**131**
WB Right	125 (B, F)	-	-	**138**	124	**184**	**177**	-	-	**126**	**162**	**150**	**141**
NB Right	275	23	34	35	66	47	71	29	33	122	62	88	70

Table 7 – Maximum Queue Lengths													
Study Intersection Turn Lane or Ramp	**Available Storage**	**Maximum Queues**											
		AM Peak Hour						**PM Peak Hour**					
		E	**E+P**	**B**	**B+P**	**F**	**F+P**	**E**	**E+P**	**B**	**B+P**	**F**	**F+P**
NB Offramp	450[1]	55	53	281	277	289	297	37	38	423	273	337	272
11. Mathews Rd/S El Dorado St													
EB Left	300 (B, F)	-	-	98	130	130	194	-	-	122	163	187	218
WB Left	100 (B, F)	-	-	**112**	**135**	**148**	**148**	-	-	**159**	**160**	**167**	**169**
NB Left	150	56	59	120	130	125	125	53	57	**160**	**169**	**177**	**176**
SB Left	175	90	93	162	**165**	**180**	**181**	83	85	144	150	**223**	**219**

Note: Maximum Queue based on the average of the maximum value from ten SimTraffic runs; all distances are measured in feet; E = Existing; E+P = Existing plus Project; B = Baseline; B+P = Baseline plus Project; F = Future; F+P = Future plus Project; **Bold** text = queue length exceeds available storage; Shaded cell = project impact; NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound

[1] Off-ramp stacking distance based on the ramp length as measured from stop bar to the start of the gore minus stopping sight distance for 55 mph (500 feet).

For most turn lanes and ramps under most scenarios, the queue would be contained within the turn lane or ramp without or with the addition of project traffic, or the queue would already extend beyond the end of the turn lane or ramp without project traffic. However, at two intersections there are projected queues that would be contained within capacity without the project but exceed the available storage length with project traffic added.

At French Camp Road/South El Dorado Street, the northbound left-turn lane is 150 feet long and would have a queue reaching 124 feet under Future Conditions during the p.m. peak hour. With project traffic added, this would extend to 221 feet. Restriping the painted median to add three vehicles of queue length, or 75 feet for a total of 225 feet of storage, would mitigate this impact.

The southbound left-turn lane at West Mathews Road/Manthey Road is 125 feet long before transitioning into a two-way left-turn lane. Under Future Conditions during the a.m. peak hour, the queue would extend to 120 feet without the project, and to 137 feet with project traffic added. However, this minor overage of 12 feet would not represent a safety impact as additional vehicles would be able to stack beyond the 125-foot lane by making use of the two-way left-turn lane. The first driveway on the west side of the road upstream of the intersection is over 300 feet to the north, providing plenty of extra space for southbound drivers to stack beyond the end of the 125-foot turn pocket before conflicting with opposing traffic in the two-way left-turn lane.

Finding – The project would have a potentially significant impact with respect to queueing in the northbound left-turn lane at French Camp Road/South El Dorado Street, where queues would be contained within stacking capacity without the project but would extend beyond the end of the turn lane and into the adjacent through lane with project traffic added.

Recommendation – For French Camp Road/South El Dorado Street, the painted median should be restriped to add 75 feet of storage capacity for the northbound left-turn lane, extending it from 150 feet to a total length of 225 feet. With this recommendation implemented, the project's impact on queuing would be reduced to a less-than-significant level.

Traffic Signal Warrants

A signal warrant analysis was performed to determine the potential need for a traffic signal at West Hospital Road/ Manthey Road as well as the project driveways on West Hospital Road and South El Dorado Street. Traffic signal warrants were not evaluated for the four Mathews Road study intersections as these intersections are planned to be signalized as part of the nearby VA Medical Center project.

Chapter 4C of the *California Manual on Uniform Traffic Control Devices* (CA-MUTCD) provides guidance on when a traffic signal should be considered. There are nine different warrants, or criteria, presented, as follows:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour Volume
- Warrant 4, Pedestrian Volume
- Warrant 5, School Crossing
- Warrant 6, Coordinated Signal System
- Warrant 7, Crash Experience
- Warrant 8, Roadway Network
- Warrant 9, Intersection Near a Grade Crossing

Warrant 3, which is often the first warrant to be met, has a notice that this signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. Under the Peak Hour Warrant the need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

A. If all three of the following conditions exist for the same one hour (any four consecutive 15-minute periods) of an average day:

    1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: four vehicle-hours for a one-lane approach; or five vehicle-hours for a two-lane approach, and
    2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and
    3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

For the purposes of this study, Warrant 3, the Peak Hour volume warrant which determines the need for traffic control based on the highest volume hour of the day, was used as an initial indication of traffic control needs. The use of this signal warrant is common practice for planning studies. Other warrants, which are more generally applicable to existing traffic issues, require collection of traffic volumes for the highest four or eight hours of the day, review of the collision history, and evaluation of the system surrounding the location.

It was determined that a traffic signal would not be warranted based on the Peak Hour warrant under Future plus Project conditions during either the a.m. or p.m. peak hours for the all-way stop-controlled intersection of Manthey Road/Hospital Road or for either project driveway. Therefore, by inspection, signals would also not be warranted under the lower-volume Existing plus Project and Baseline plus Project scenarios.

Appendix D contains the Peak Hour traffic signal warrant evaluations.

Finding – Traffic signals would not be warranted for Manthey Road/Hospital Road or the project driveways on West Hospital Road and South El Dorado Street project driveway under all scenarios assessed.

Significance Finding – The proposed project would potentially create new hazards, significantly impacting safety of the surrounding roadway system. Through prohibition of parking around the West Hospital Road driveway, adding a left-turn lane at the South El Dorado Street driveway, and extending the northbound left-turn lane at French Camp Road/South El Dorado Street, the potential project impacts to safety would be mitigated to a less-than-significant level.

Emergency Access

The final transportation bullet on the CEQA checklist requires an evaluation as to whether the project would result in inadequate emergency access or not.

Adequacy of Site Access

The County of San Joaquin *Municipal Code Section 4-1000* adopts the *California Fire Code* (CFC) as the standard for the County along with providing several relevant amendments. CFC Section 503.1 requires fire access roads to be provided within 150 feet of all exterior building walls. Fire access roads are roads traversable by fire response equipment and are at least 20 feet wide with vertical clearances of at least 13.5 feet. The *Fire Apparatus Access Road Standard*, San Joaquin Fire Chiefs Association, has made the following relevant amendments to CFC Section 503:

1. Plans and specification for the fire apparatus access road shall be included on the site plan that is submitted to the Building Department or Fire District for review and approval prior to construction of the fire apparatus access road.
2. Fire apparatus access roads serving three or more structures or dwelling units on one or more parcels shall comply with Exhibit "B" of this standard.
    a. The fire apparatus access road shall be designed and maintained to provide an unobstructed width, height and use specifications below:
        i. 20-foot minimum unobstructed width:
            1. Parking is not allowed and may be so posted when required by the Fire District having authority.
        ii. 28-foot minimum unobstructed width:
            1. Parking is allowed on one side of the street and may be so posted when required by the Fire District having authority.
        iii. 36-foot minimum unobstructed width:
            1. Parking is unrestricted provided a 20-foot minimum unobstructed width is maintained.
            2. Rollover curbs are acceptable and preferable.
        iv. An unobstructed vertical clearance of not less than 13.5 feet is required for all roads.
    b. Gates shall not project into the required minimum width and be located to provide a minimum of 30 feet from the edge of the pavement for fire apparatus to stop when opening the gate.
    c. Turnarounds shall be provided no further than 150 feet from the dead end of the fire apparatus access road and as provided in EXHIBIT "D". Turning radius greater than 41 feet may be required by the Fire District having authority.
3. When a fire apparatus access road is required for a Planned Unit Development (PUD), it shall be constructed and approved by the Fire District having authority before the County Surveyor's Office will file the map for record.
    a. A PUD is a residential subdivision or portion of land resulting in three or more dwelling units as approved and recorded in accordance with local planning and zoning regulations and the provisions of this standard.

As some building exteriors would be more than 150 feet from the drive aisle circumnavigating the site, authorization would need to be secured from the fire code official for an exemption, such as installing an approved automatic sprinkler system to avoid a significant impact to emergency access.

Dimensions of drive aisle widths are provided in the conceptual site plan, with 25-foot drive aisles provided around the site that satisfy Code requirements for width. However, security gates are proposed at several locations on the site that could cause potential obstructions, and therefore they should be designed to comply with Code requirements. These gates are shown as median gates with an arm extending into each direction of travel. Assuming the gates are located along the drive aisle centerlines, the bisected 25-foot drive aisle width would be under the 20-foot width requirement given that the *Fire Apparatus Access Road Standard* prohibits gates from extending into the required minimum width. The gates should either be redesigned to maintain a minimum 20-foot width for emergency access, or an exemption should be secured from the fire code official to mitigate a

potentially significant impact to emergency access. These gates are located at least 30 feet from the adjacent roadways, satisfying the relevant Code requirement.

There are no vertical elements planned that would restrict the required clearance of 13.5 feet. No turnarounds are shown in the site plan, though this would be acceptable as the fire access road would be configured as two loops with inlets and outlets at the project driveways on South El Dorado Street and West Hospital Road and so would not have dead ends requiring turnarounds. Corner radii are not specified but should satisfy Code requirements to have a less-than-significant impact on emergency access.

Finding – The CFC and *Municipal Code* require construction of a fire access road with several standards regarding width, overhead clearance, and positioning. The project site plan includes dimensions of drive aisle widths which meet Code requirements, though there may be a significant impact on emergency access due to external building distances from fire access roads, gate design, and unspecified corner radii.

Recommendation – To result in a less-than-significant impact to emergency access, an exemption should be secured from the fire code official for building exteriors greater than 150 feet from a fire access road, the gates should either be redesigned to allow a minimum 20-foot unobstructed width or an exemption should be pursued for the current centerline design, and corner radii should be provided that satisfy Code requirements.

Off-Site Impacts

While the project traffic would cause some increases in delay, as detailed in the following chapter, emergency vehicles have lights and sirens to bypass queued traffic and minimize the effects of intersection delay. Therefore, the project would have little to no effect on emergency response times.

Finding – The project would not significantly impact off-site emergency access and response times.

Significance Finding – While the project would have a less-than-significant impact on off-site emergency response times, there are several potentially significant impacts regarding on-site emergency access. Securing an exemption for building exteriors being over 150 feet from fire access roads, redesigning the gates to allow 20 feet of unobstructed width or having the existing design be exempted, and demonstrating that all corner radii satisfy Code requirements would result in a less-than-significant impact to emergency access.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual, 6th Edition* (HCM), Transportation Research Board, 2017. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a Level of Service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersections with stop signs on all approaches were analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole and is then related to a Level of Service.

The study intersections that are currently controlled by a traffic signal, or may be in the future, were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from the County of San Joaquin, City of Stockton, and Caltrans. Optimized signal timings were assumed under Future conditions.

The ranges of delay associated with the various levels of service are indicated in Table 8.

Table 8 – Intersection Level of Service Criteria			
LOS	**Two-Way Stop-Controlled**	**All-Way Stop-Controlled**	**Signalized**
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual, 6th Edition,* Transportation Research Board, 2017

Traffic Operation Standards

Of the 11 study intersections, four are within the limits of the City of Stockton and the remainder are in unincorporated County of San Joaquin.

Caltrans

Some of the study intersections are under the jurisdiction of Caltrans, but Caltrans does not have a standard of significance relative to operation as this is no longer a CEQA issue. The *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (TISG), published in 2020, replaced the *Guide for the Preparation of Traffic Impact Studies*, 2002. As indicated in the TISG, the Department is transitioning away from requesting LOS or other vehicle operation analyses of land use projects and will instead focus on Vehicle Miles Traveled (VMT). Adequacy of operation was therefore evaluated using the County's standards.

County of San Joaquin

The *San Joaquin County General Plan*, 2016, states that the County's standard is LOS C in general, or LOS D for minor arterials or roadways of higher classification, as well as roadways designated in the *Congestion Management Plan* (CMP), San Joaquin Council of Governments (SJCOG). Within the County, French Camp Road, South El Dorado Street, and Mathews Road are all classified as minor arterials in the *General Plan*, and French Camp Road east of I-5 is designated as CMP roadway in the 2024 CMP, resulting in an LOS D standard for operations at intersections along these roads. The County's *General Plan* does not contain thresholds for project effects where an intersection

would already operate deficiently without the addition of project traffic. However, it us understood that the County's standard practice is to review further the magnitude of the impact and potential measures to address the deficiency.

City of Stockton

The *Envision Stockton 2040 General Plan*, 2018, lists the City's Level of Service (LOS) standard generally as LOS D with some exceptions, including LOS E for French Camp Road/Manthey Road and French Camp Road/I-5 South Ramps, and LOS F for French Camp Road/I-5 North Ramps and French Camp Road/Arch Airport Road-Frank West Circle.

Similar to the County, where an intersection would already operate deficiently without the addition of project traffic, the City's *General Plan* does not contain thresholds for project effects. In this case, typical traffic engineering practice is to assume an increase in delay of more than five seconds would constitute an adverse effect of a project. This was the approach used in the *VA French Camp Site Traffic Impact Analysis Update*.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Traffic volume data was collected on Thursday, November 2, 2023, a typical weekday condition while local schools were in session.

Under Existing Conditions, the seven study intersections that are not on Mathews Road operate acceptably, as does West Mathews Road/I-5 North Ramps. West Mathews Road/Manthey Road operates at LOS F during both the morning and evening peak hours, and West Mathews Road/I-5 South Ramps and Mathews Road/South El Dorado Street operate deficiently during the a.m. peak hour with LOS F and LOS E operation, respectively. A summary of the intersection Level of Service calculations is contained in Table 9. The existing traffic volumes are shown in Figure 3, and copies of the calculations are provided in Appendix E.

Table 9 – Existing Peak Hour Intersection Levels of Service

Study Intersection Approach	Control	Delay (LOS)		
		Standard	AM Peak Hour	PM Peak Hour
1. French Camp Rd/Manthey Rd	Signal	<80.0 (E)	77.6 (E)	12.8 (B)
2. French Camp Rd/I-5 S Ramps	Signal	<80.0 (E)	9.5 (A)	8.2 (A)
3. French Camp Rd/I-5 N Ramps	Signal	- (F)	17.4 (B)	11.0 (B)
4. French Camp Rd/Arch Airport Rd-Frank West Cir	Signal	- (F)	16.0 (B)	15.2 (B)
5. French Camp Rd/S El Dorado St	Signal	<55.0 (D)	18.6 (B)	18.2 (B)
6. W Hospital Rd/Manthey Rd	AWSC	<25.0 (C)	12.9 (B)	10.2 (B)
7. Hospital Rd/S El Dorado St	Signal	<55.0 (D)	7.8 (A)	9.0 (A)
8. W Mathews Rd/Manthey Rd	AWSC	<35.0 (D)	**84.6 (F)**	**58.0 (F)**
9. W Mathews Rd/I-5 S Ramps	AWSC	<35.0 (D)	**55.6 (F)**	27.0 (D)
10. W Mathews Rd/I-5 N Ramps	AWSC	<35.0 (D)	33.7 (D)	21.4 (C)
11. Mathews Rd/S El Dorado St	AWSC	<35.0 (D)	**35.9 (E)**	32.3 (D)

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* AWSC = all-way stop control; **Bold** text = deficient operation

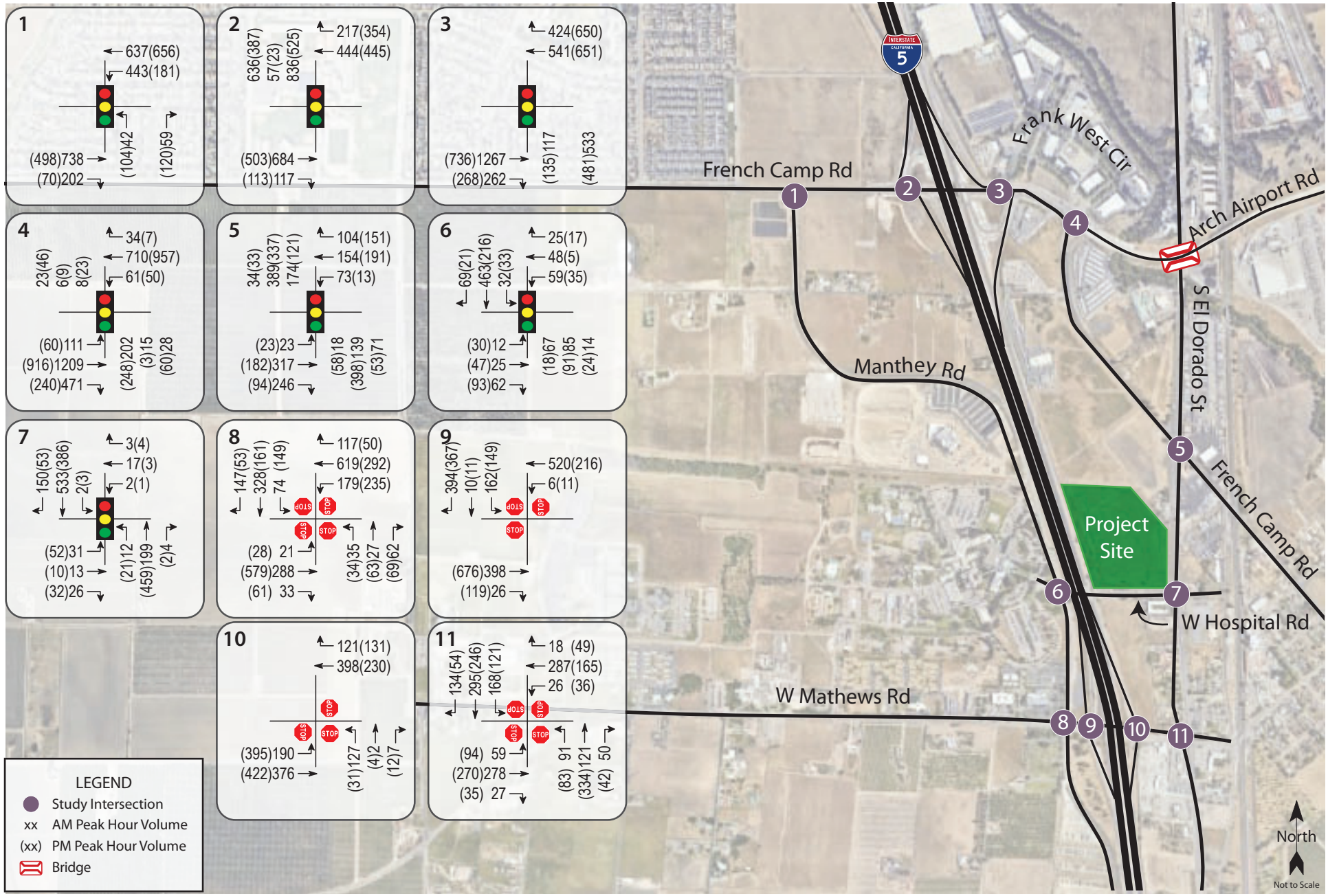

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Figure 3 – Existing Traffic Volumes

Baseline Conditions

Traffic that would be associated with nearby pending and approved projects was added to generate volumes for the Existing plus Approved (or "Baseline") scenario. These projects include the following.

- 25 French Camp Road: 227 truck parking spaces
- 645 West Yettner Road: 382 truck parking spaces
- South Nordwick Place: 48 supportive housing units with one manager's unit
- Truck Sales at 7400 South El Dorado St: Five truck parking spaces and 1,117 square feet of sales office
- Truck/Heavy Equipment Sales at 6001 and 6041 French Camp Road: 132,947 square feet across three buildings of sales, rental, service, warehouse, repair, wash, and storage
- VA Medical Center French Camp Site: 150,000-square-foot outpatient clinic and 120-bed community living center
- South Stockton Commerce Center: 6,091,551 square feet of industrial and warehousing, and 140,350 square feet of retail
- Airport Way/Sperry Road Commercial Project: Gas station and convenience store
- Asano Property (Carolyn Weston Boulevard): 211 single-family houses

For this scenario, signalization of the intersections on Mathews Road at Manthey Road, I-5 South Ramps, I-5 North Ramps, and South El Dorado Street was assumed as a planned part of the VA Medical Center project, along with lengthening the westbound left-turn lane at French Camp Road/Manthey Road. County staff have confirmed that the four Mathews Road signals are in the final design phase and are to be installed within the next year.

Under these conditions, all study intersections would operate acceptably except for French Camp Road/Manthey Road, which would operate at LOS F during both peak hours, and West Hospital Road/Manthey Road, which would operate at LOS D during the a.m. peak hour. These results are summarized in Table 10 and Baseline volumes are shown in Figure 4.

Table 10 – Baseline Peak Hour Intersection Levels of Service

Study Intersection Approach	Control	Delay (LOS)		
		Standard	AM Peak Hour	PM Peak Hour
1. French Camp Rd/Manthey Rd	Signal	<80.0 (E)	**280.0 (F)**	**91.0 (F)**
2. French Camp Rd/I-5 S Ramps	Signal	<80.0 (E)	11.8 (B)	9.0 (A)
3. French Camp Rd/I-5 N Ramps	Signal	- (F)	27.9 (C)	14.0 (B)
4. French Camp Rd/Arch Airport Rd-Frank West Cir	Signal	- (F)	17.9 (B)	17.2 (B)
5. French Camp Rd/S El Dorado St	Signal	<55.0 (D)	20.9 (C)	19.3 (B)
6. W Hospital Rd/Manthey Rd	AWSC	<25.0 (C)	**26.8 (D)**	15.3 (C)
7. Hospital Rd/S El Dorado St	Signal	<55.0 (D)	7.9 (A)	9.1 (A)
8. W Mathews Rd/Manthey Rd	Signal	<55.0 (D)	52.7 (D)	14.1 (B)
9. W Mathews Rd/I-5 S Ramps	Signal	<55.0 (D)	29.9 (C)	16.4 (B)
10. W Mathews Rd/I-5 N Ramps	Signal	<55.0 (D)	16.3 (B)	7.2 (A)
11. Mathews Rd/S El Dorado St	Signal	<55.0 (D)	49.1 (D)	26.1 (C)

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; AWSC = all-way stop control; **Bold** text = deficient operation

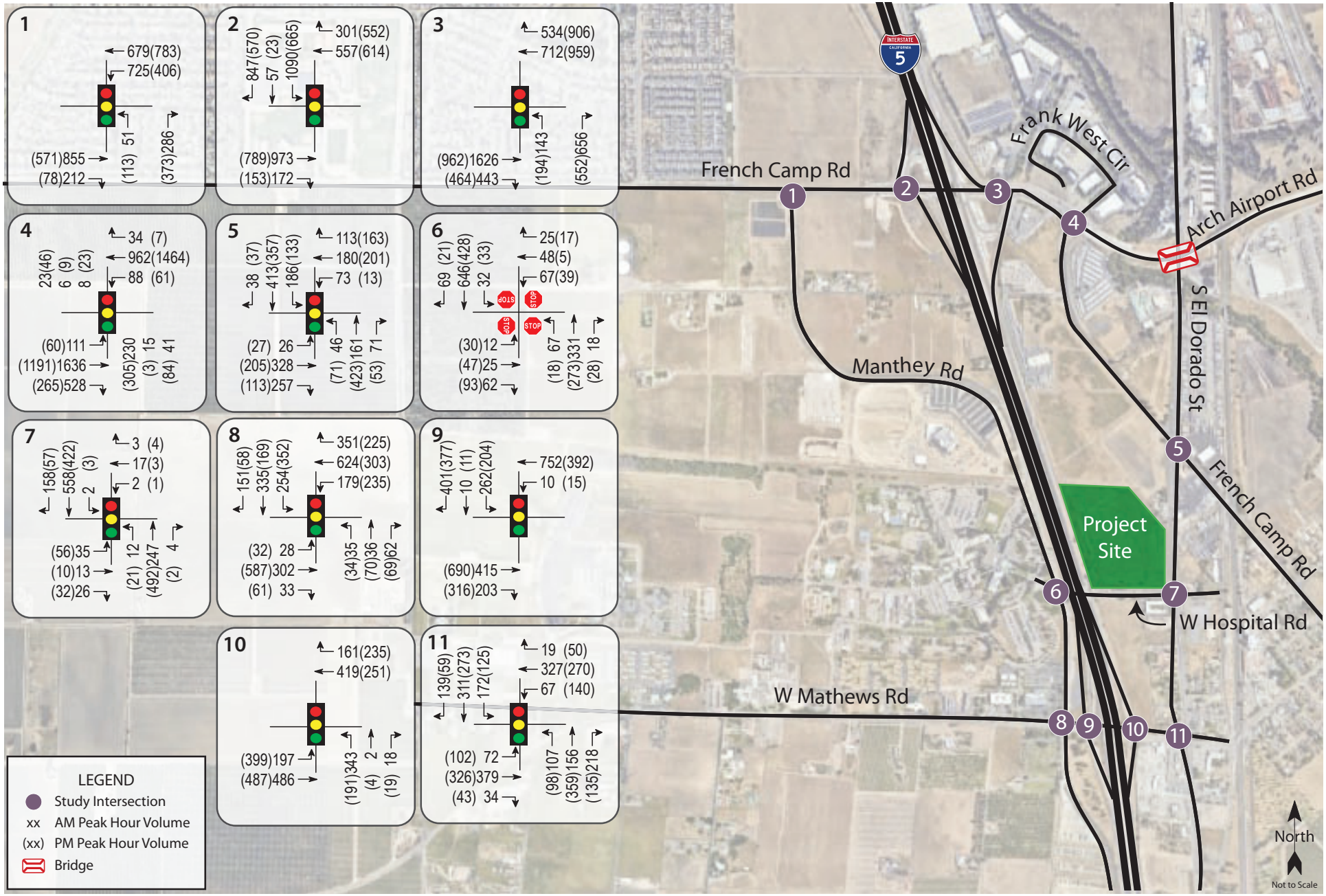

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Figure 4 – Baseline Traffic Volumes

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Future Conditions

Projected growth in area traffic documented in the *Envision Stockton 2040 General Plan Draft EIR*, 2018, was used to estimate traffic volumes in 2040 for the Future scenario. Where Baseline volumes exceeded the resultant Future volumes, the Baseline volumes were used as the minimum to present a more conservative analysis.

As part of this scenario, traffic signal timing was optimized and widening French Camp Road to two through lanes in each direction at Manthey Road as listed in the *Envision Stockton 2040 General Plan Draft EIR* was assumed. With these planned improvements, all study intersections would operate acceptably under Future Conditions. Operating conditions are summarized in Table 11 and future volumes are shown in Figure 5.

Table 11 – Future Peak Hour Intersection Levels of Service

Study Intersection Approach	Control	Delay (LOS)		
		Standard	AM Peak Hour	PM Peak Hour
1. French Camp Rd/Manthey Rd	Signal	<80.0 (E)	71.7 (E)	33.8 (C)
2. French Camp Rd/I-5 S Ramps	Signal	<80.0 (E)	11.0 (B)	9.3 (A)
3. French Camp Rd/I-5 N Ramps	Signal	- (F)	21.7 (C)	16.8 (B)
4. French Camp Rd/Arch Airport Rd-Frank West Cir	Signal	- (F)	22.5 (C)	26.7 (C)
5. French Camp Rd/S El Dorado St	Signal	<55.0 (D)	34.3 (C)	45.4 (D)
6. W Hospital Rd/Manthey Rd	AWSC	<25.0 (C)	19.8 (C)	12.5 (B)
7. Hospital Rd/S El Dorado St	Signal	<55.0 (D)	7.7 (A)	8.8 (A)
8. W Mathews Rd/Manthey Rd	Signal	<55.0 (D)	46.5 (D)	13.8 (B)
9. W Mathews Rd/I-5 S Ramps	Signal	<55.0 (D)	28.4 (C)	16.6 (B)
10. W Mathews Rd/I-5 N Ramps	Signal	<55.0 (D)	13.9 (B)	6.7 (A)
11. Mathews Rd/S El Dorado St	Signal	<55.0 (D)	48.5 (D)	29.3 (C)

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; AWSC = all-way stop control

Project Conditions

Existing plus Project Conditions

Upon the addition of project-related traffic to existing volumes, the study intersections are expected to operate at similar Levels of Service, except West Mathews Road/I-5 North Ramps, which would degrade from LOS D to LOS E during the a.m. peak hour, and Mathews Road/South El Dorado Street, which would operate at an acceptable LOS D without the project and deficient LOS E with project traffic added. West Mathews Road/Manthey Road and West Mathews Road/I-5 South Ramps would continue to operate efficiently with modest increases to delays. These results are summarized in Table 12. Project traffic volumes are shown in Figure 6 and Existing plus Project volumes in Figure 7.

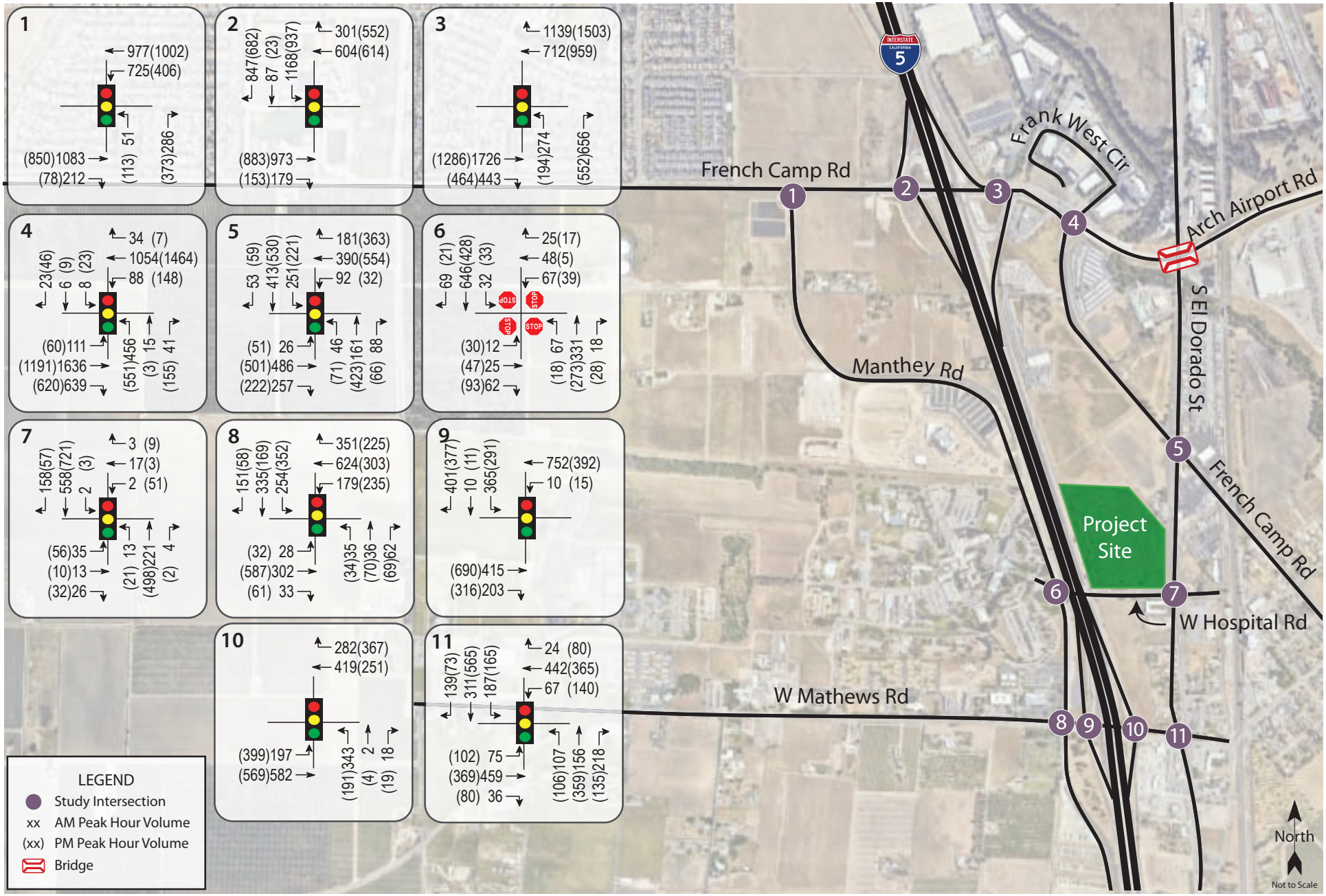

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Figure 5 – Future Traffic Volumes

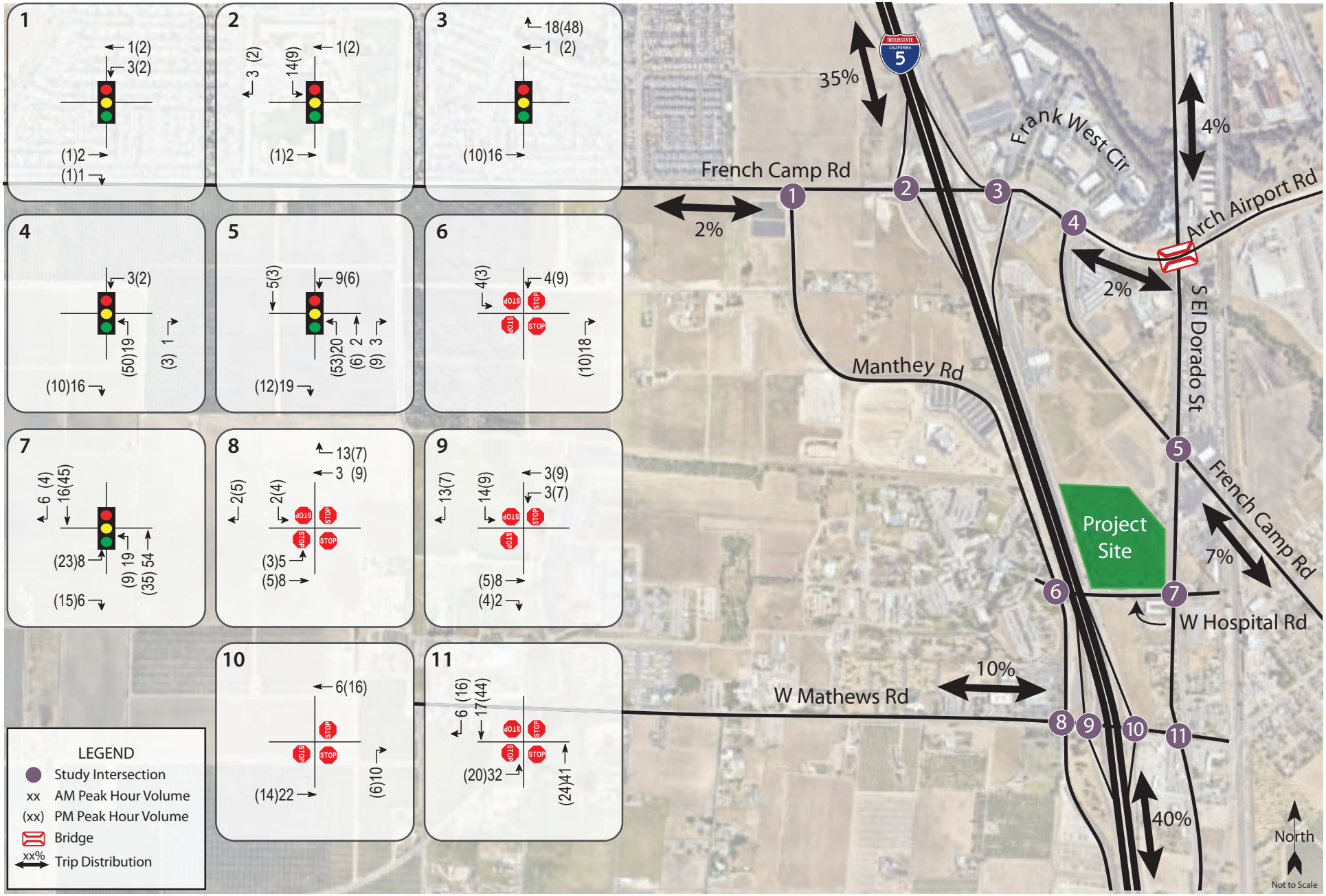

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Figure 6 – Project Traffic Volumes and Trip Distribution

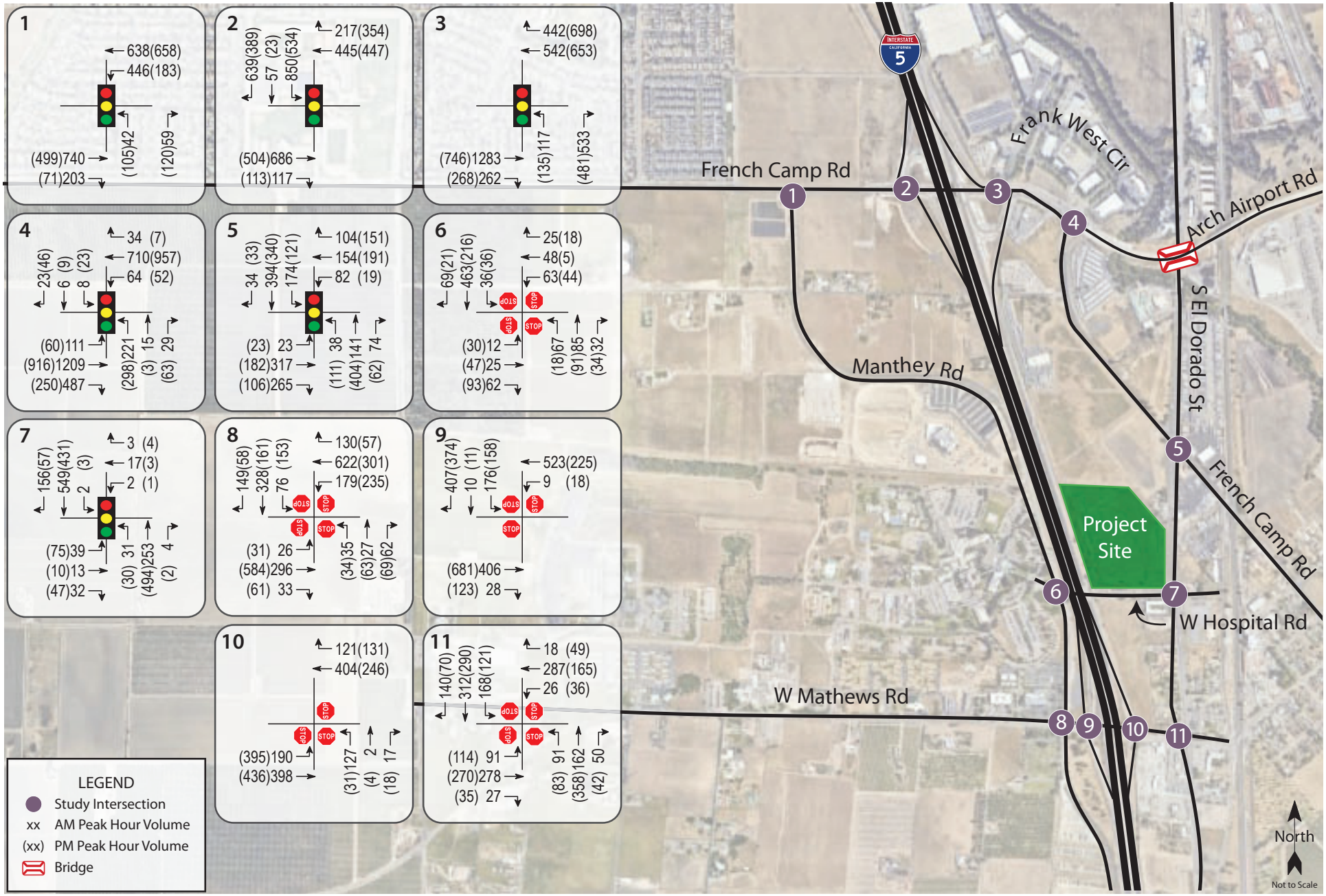

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Figure 7 – Existing plus Project Traffic Volumes

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Table 12 – Existing and Existing Plus Project Peak Hour Intersection Levels of Service						
Study Intersection Approach	**Control**	**Delay (LOS)**				
		Standard	**AM Peak Hour**		**PM Peak Hour**	
			E	**E+P**	**E**	**E+P**
1. French Camp Rd/Manthey Rd	Signal	<80.0 (E)	77.6 (E)	78.8 (E)	12.8 (B)	12.9 (B)
2. French Camp Rd/I-5 S Ramps	Signal	<80.0 (E)	9.5 (A)	9.6 (A)	8.2 (A)	8.2 (A)
3. French Camp Rd/I-5 N Ramps	Signal	- (F)	17.4 (B)	17.5 (B)	11.0 (B)	11.0 (B)
4. French Camp Rd/Arch Airport Rd-Frank West Cir	Signal	- (F)	16.0 (B)	16.6 (B)	15.2 (B)	16.3 (B)
5. French Camp Rd/S El Dorado St	Signal	<55.0 (D)	18.6 (B)	20.0 (C)	18.2 (B)	19.0 (B)
6. W Hospital Rd/Manthey Rd	AWSC	<25.0 (C)	12.9 (B)	13.0 (B)	10.2 (B)	10.4 (B)
7. Hospital Rd/S El Dorado St	Signal	<55.0 (D)	7.8 (A)	8.8 (A)	9.0 (A)	9.8 (A)
8. W Mathews Rd/Manthey Rd	AWSC	<35.0 (D)	**84.6 (F)**	**90.3 (F)**	**58.0 (F)**	**61.1 (F)**
9. W Mathews Rd/I-5 S Ramps	AWSC	<35.0 (D)	**55.6 (F)**	**59.2 (F)**	27.0 (D)	28.7 (D)
10. W Mathews Rd/I-5 N Ramps	AWSC	<35.0 (D)	33.7 (D)	**36.2 (E)**	21.4 (C)	22.4 (C)
11. Mathews Rd/S El Dorado St	AWSC	<35.0 (D)	**35.9 (E)**	**44.5 (E)**	32.3 (D)	**38.6 (E)**

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; E = Existing; E+P = Existing plus Project; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* AWSC = all-way stop control; **Bold** text = deficient operation

While the project would result in several deficient increases to intersection delay on Mathews Road, these were not considered adverse effects of the project as these four intersections are to be signalized within the next year, as confirmed by County staff. With signal controls installed, the four intersections would operate acceptably as detailed under Baseline and Future conditions without or with the addition of project traffic.

Finding – The addition of project traffic to the study intersections would not result in deficient conditions given the planned signalization of the Mathews Road intersections and acceptable operations at the other study intersections.

Baseline plus Project Conditions

With project-related traffic added to Baseline volumes, and with the planned signalizations along Mathews Road incorporated, the study intersections are expected to operate at the same Levels of Service as without the project. Baseline plus Project volumes are shown in Figure 8 and these results are summarized in Table 13.

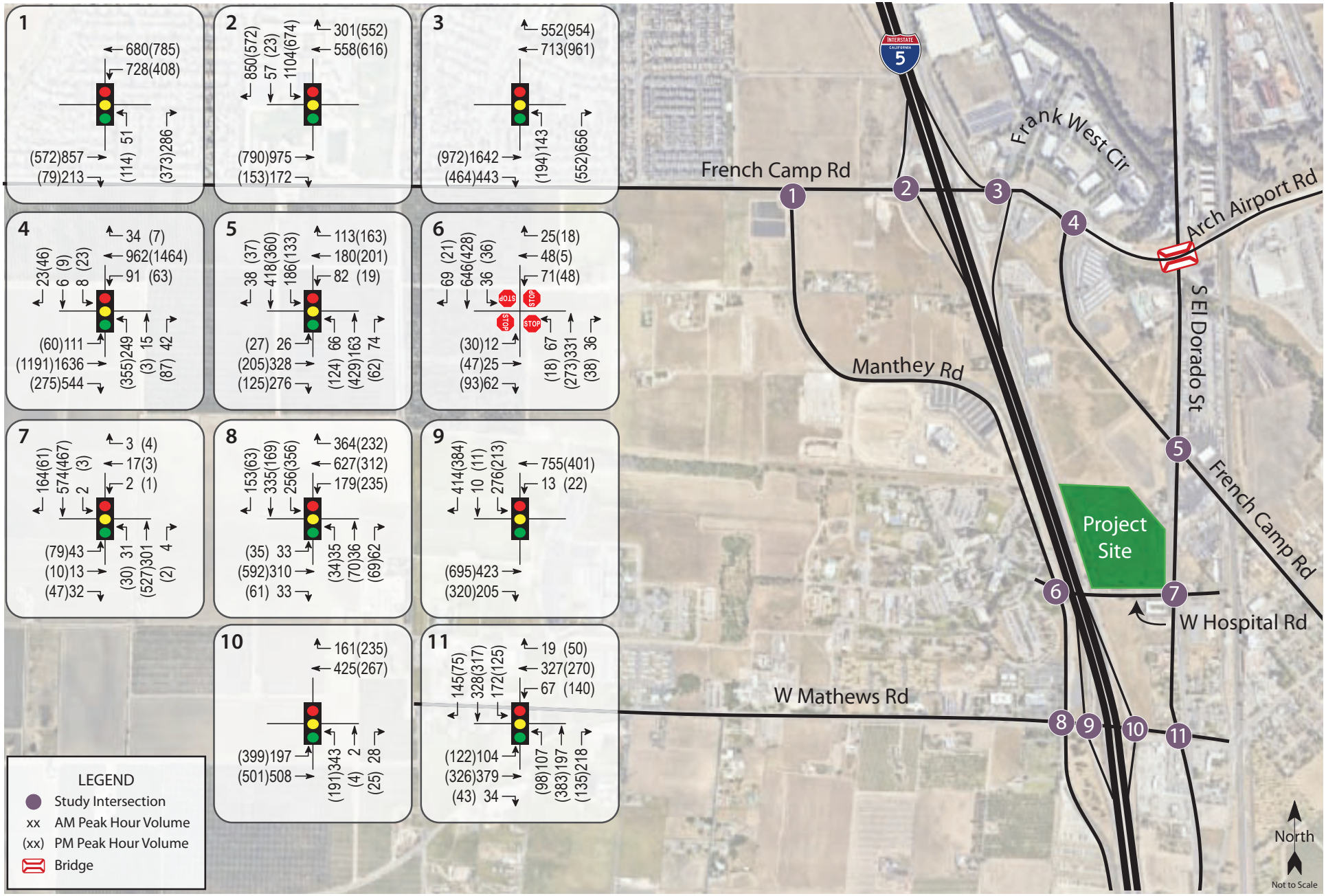

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Figure 8 – Baseline plus Project Traffic Volumes

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Table 13 – Baseline and Baseline Plus Project Peak Hour Intersection Levels of Service						
Study Intersection Approach	**Control**	**Delay (LOS)**				
		Standard	**AM Peak Hour**		**PM Peak Hour**	
			B	**B+P**	**B**	**B+P**
1. French Camp Rd/Manthey Rd	Signal	<80.0 (E)	**280.0 (F)**	**282.0 (F)**	**91.0 (F)**	**91.8 (F)**
2. French Camp Rd/I-5 S Ramps	Signal	<80.0 (E)	11.8 (B)	11.9 (B)	9.0 (A)	9.1 (A)
3. French Camp Rd/I-5 N Ramps	Signal	- (F)	27.9 (C)	28.6 (C)	14.0 (B)	14.1 (B)
4. French Camp Rd/Arch Airport Rd-Frank West Cir	Signal	- (F)	17.9 (B)	18.5 (B)	17.2 (B)	18.7 (B)
5. French Camp Rd/S El Dorado St	Signal	<55.0 (D)	20.9 (C)	22.4 (C)	19.3 (B)	19.9 (B)
6. W Hospital Rd/Manthey Rd	AWSC	<25.0 (C)	**26.8 (D)**	**27.6 (D)**	15.3 (C)	15.6 (C)
7. Hospital Rd/S El Dorado St	Signal	<55.0 (D)	7.9 (A)	8.8 (A)	9.1 (A)	9.9 (A)
8. W Mathews Rd/Manthey Rd	Signal	<55.0 (D)	52.7 (D)	53.2 (D)	14.1 (B)	14.0 (B)
9. W Mathews Rd/I-5 S Ramps	Signal	<55.0 (D)	29.9 (C)	30.5 (C)	16.4 (B)	16.7 (B)
10. W Mathews Rd/I-5 N Ramps	Signal	<55.0 (D)	16.3 (B)	16.1 (B)	7.2 (A)	7.2 (A)
11. Mathews Rd/S El Dorado St	Signal	<55.0 (D)	49.1 (D)	48.6 (D)	26.1 (C)	26.8 (C)

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; B = Baseline; B+P = Baseline plus Project; **Bold** text = deficient operation; AWSC = all-way stop control

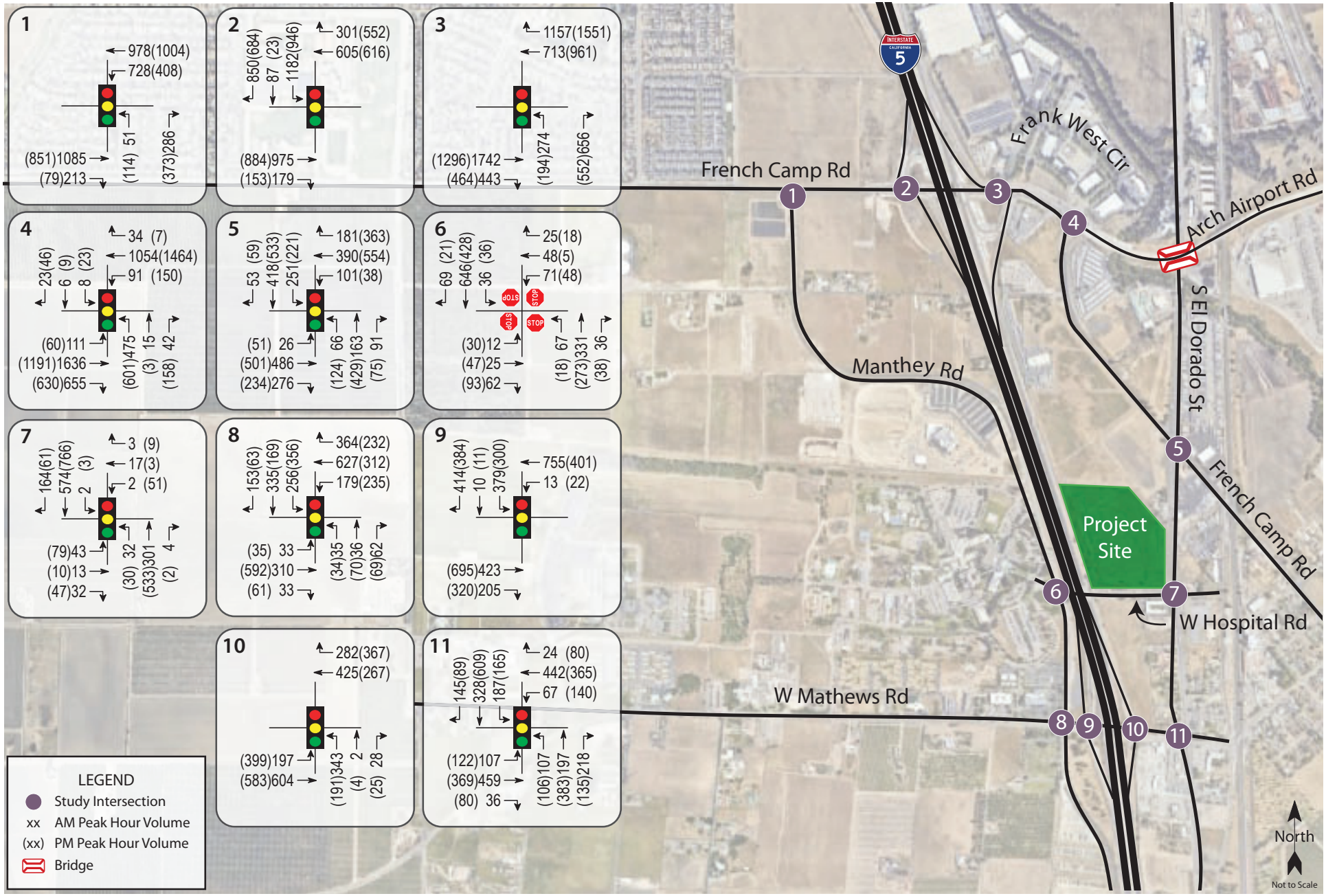
The addition of project traffic would increase the deficient delays at French Camp Road/Manthey Road by fewer than five seconds, precluding an adverse effect of the project.

For the West Hospital Road/Manthey Road intersection, which is in the County, the standard practice is to assess the magnitude of the impact and review potential measures to address any potential deficiency. The addition of project traffic at this intersection would increase the a.m. peak hour delay by 0.8 seconds, from 26.8 seconds to 27.6 seconds. The proposed project would add 26 vehicle trips to the intersection, compared to a total entering volume of 1,402 vehicles at the intersection under Baseline Conditions without the project. This represents an increase in volume of less than two percent, which is within the standard day-to-day variation of traffic typically assumed to be ten percent. It is also noted that the Baseline Conditions scenario represents a hypothetical buildout condition, and that actual volumes may vary based on what projects come online and with what trip generation characteristics. In terms of thresholds, while the intersection would operate deficiently, it is noted that it would be just over the threshold of deficiency of 25.0 seconds. Additionally, this is the only intersection in the study area that has an LOS C standard; all other intersections are held to a standard of LOS D or worse. As the intersection has a more stringent threshold than all others in the study area, the deficient operation would be just over the threshold regardless, and the proposed project would increase this deficiency by less than one second by increasing entering volumes by a negligible quantity, it is presumed that the project effect on West Hospital Road/Manthey Road would not be considered to be adverse.

Finding – The addition of project traffic to Baseline volumes would either retain acceptable operations or increase deficient delays by a nominal amount. Therefore, the project would not have an adverse effect on intersection operations.

Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Future volumes, and with the planned improvements on French Camp Road, the study intersections are expected to operate acceptably. The Future plus Project volumes are shown in Figure 9 and operating conditions are summarized in Table 14.



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Transportation Impact Study for the San Joaquin Be Well Project

Figure 9 – Future plus Project Traffic Volumes

W-Trans

Table 14 – Future and Future Plus Project Peak Hour Intersection Levels of Service						
Study Intersection Approach	**Control**	**Delay (LOS)**				
		Standard	**AM Peak Hour**		**PM Peak Hour**	
			F	**F+P**	**F**	**F+P**
1. French Camp Rd/Manthey Rd	Signal	<80.0 (E)	71.7 (E)	72.1 (E)	33.8 (C)	33.9 (C)
2. French Camp Rd/I-5 S Ramps	Signal	<80.0 (E)	11.0 (B)	11.0 (B)	9.3 (A)	9.3 (A)
3. French Camp Rd/I-5 N Ramps	Signal	- (F)	21.7 (C)	21.8 (C)	16.8 (B)	26.7 (C)
4. French Camp Rd/Arch Airport Rd-Frank West Cir	Signal	- (F)	22.5 (C)	23.2 (C)	26.7 (C)	30.4 (C)
5. French Camp Rd/S El Dorado St	Signal	<55.0 (D)	34.3 (C)	35.8 (D)	45.4 (D)	50.7 (D)
6. W Hospital Rd/Manthey Rd	AWSC	<25.0 (C)	19.8 (C)	20.2 (C)	12.5 (B)	12.7 (B)
7. Hospital Rd/S El Dorado St	Signal	<55.0 (D)	7.7 (A)	8.5 (A)	8.8 (A)	9.8 (A)
8. W Mathews Rd/Manthey Rd	Signal	<55.0 (D)	46.5 (D)	46.8 (D)	13.8 (B)	13.8 (B)
9. W Mathews Rd/I-5 S Ramps	Signal	<55.0 (D)	28.4 (C)	28.9 (C)	16.6 (B)	16.8 (B)
10. W Mathews Rd/I-5 N Ramps	Signal	<55.0 (D)	13.9 (B)	13.7 (B)	6.7 (A)	6.8 (A)
11. Mathews Rd/S El Dorado St	Signal	<55.0 (D)	48.5 (D)	48.1 (D)	29.3 (C)	31.1 (C)

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; F = Future; F+P = Future plus Project; AWSC = all-way stop control

It is noted that while West Hospital Road/Manthey Road is shown as operating acceptably under Future Conditions during the a.m. peak hour without or with the addition of project traffic, the Baseline Conditions scenario returned that it would be operating at a deficient LOS D with 26.8 seconds of delay without project traffic and 27.6 seconds of delay with project traffic added. As Baseline volumes were used as a minimum level for deriving Future volumes, this intersection was modeled as having the same volumes for both horizon years. The rationale for the decrease in delay is that under Future Conditions, a typical assumption is that the peak hour factor (spread of traffic across the peak hour) would be 1.00 (even traffic demand across the hour), in contrast to the peak hour factor of 0.91 used for the Baseline scenario based on existing traffic volumes.

Finding – The study intersections would continue operating acceptably with project traffic added, at the same or similar Levels of Service as without it.

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated parking demand. The project site as proposed would contain a total of 131 parking spaces for the transitional and supportive housing uses (North Campus) and 409 parking spaces for the clinic and residential care facility uses (South Campus). As the North Campus may be constructed after the South Campus, the parking requirements of each portion of the project were considered separately.

County of San Joaquin parking supply requirements are based on the County of San Joaquin *Municipal Code*, Section 9-406.40; Required Parking Spaces. As shown in Table 15, the proposed parking supply would satisfy the County requirements for each Campus individually as well as for the overall site.

Table 15 – Parking Analysis Summary

Building	Land Use	Units	Supply (spaces)	City Requirements	
				Rate	Spaces Required
South Campus					
A. Community & Outpatient	Clinic	75.79 ksf	409	4.0 per ksf	303
B. Urgent Care Services	RCF (Large)	35.25 ksf		0.7 per ksf	25
C. Residential Treatment Programs	RCF (Large)	43.00 ksf		0.7 per ksf	30
D. Residential Treatment Programs	RCF (Large)	50.00 ksf		0.7 per ksf	35
Subtotal			*409*		*393*
North Campus					
E. Transitional Housing	T/S Housing	178 beds	131	0.25 per bed	45
F. Supportive Family Housing	T/S Housing	42 beds		0.25 per bed	11
G. Transitional/Supportive Housing	T/S Housing	32 beds		0.25 per bed	8
Subtotal			*131*		*64*
Total			**540**		**457**

Note: RFC = Residential Care Facility; T/S = Transitional or Supportive; ksf = 1,000 square feet

The site plan shows that out of the 131 spaces proposed for transitional and supportive housing uses and 409 spaces for clinic and residential care facility uses, there are six accessible stalls and 16 accessible stalls in the two lots, respectively. Municipal Code Section 9-406.30 requires that accessible parking spaces be provided in compliance with the *California Building Code* (CBC), Division 11, Site Accessibility. The CBC requires five and nine accessible stalls for 131 and 409 spaces, respectively. Therefore, there would be an adequate supply of accessible stalls per adopted requirements.

For six accessible stalls, at least one must be van accessible, and the required number of van-accessible stalls for 16 accessible stalls is three. The site plan indicates that the North Campus would have at least three van accessible stalls and the South Campus would have at least five, exceeding these requirements.

Finding – The proposed parking supply for the project would satisfy County requirements for the total number of spaces, supply of accessible spaces, and provision of van-accessible spaces, for the North Campus and the South Campus independently, as well as for both Campuses combined.

Impact Fees

The San Joaquin County Public Works Department maintains the Traffic Impact Mitigation Fee (TIMF), which is levied on development projects to fund local transportation improvements as detailed in the *2022 Traffic Impact Mitigation Fee Update*, San Joaquin County Public Works Department, 2022.

The proposed transitional housing portion of the project would most closely align with the "multifamily residential" classification identified in the TIMF; this land use has a fee of $1.03 per square foot per the County's posted fees effective July 1, 2024. With 150,360 square feet between Buildings E, F, and G, the fee would be $154,870.80. The remainder of the project uses most closely align with the "office" land use (as opposed to the other use categories of single family, retail, service commercial, manufacturing, or warehouse), which has a fee of $1,491.27 per thousand square feet (ksf). The combined floor area of Buildings A through D would be 204.04 ksf which equates to a fee of $304,278.73. The combined TIMF levied is therefore estimated to be $459,149.53.

Separate from the County's Public Works TIMF, SJCOG applies a Regional Transportation Impact Fee (RTIF) that is guided by the *San Joaquin County Regional Transportation Impact Fee*, SJCOG, 2024. The rate set for fiscal year 2025-2026 for multifamily residential housing is $3.35 per square foot, which would be $503,706.00 for the 150,360 square feet of Buildings E through G. The RTIF for offices is $2.32 per square foot, which would be $473,372.80 for the 204,040 square feet of Buildings A through D. Combined, the RTIF applied to this project is estimated to be $977,078.80. The *RTIF 2019 Toolkit* from SJCOG specifies that the RTIF applies even to public agency projects.

Combined, the TIMF and RTIF are estimated to total $1,436,228.33 in traffic impact fees as shown in Table 16.

Table 16 – Impact Fee Summary

Building	Land Use	Units	Impact Fee	
			Rate	Fee
Traffic Impact Mitigation Fee				
A-D. South Campus	Office	204.04 ksf	$1,491.27 per ksf	$304,278.73
E-G. North Campus	Multifamily Residential	150,360 sf	$1.03 per sf	$154,870.80
Subtotal				$459,149.53
Regional Transportation Impact Fee				
A-D. South Campus	Office	183,200 sf	$2.32 per sf	$473,372.80
E-G. North Campus	Multifamily Residential	150,360 sf	$3.35 per sf	$503,706.00
Subtotal				$977,078.80
Total				**$1,436,228.33**

Note: ksf = 1,000 square feet; sf = square feet

Finding – The project would be subject to two transportation fee programs. The County's TIMF is estimated to be $459,149.53 and SJCOG's RTIF is estimated at $977,078.80, for an anticipated combined fee of $1,436,228.33.

Conclusions and Recommendations

Conclusions

- The proposed substance abuse recovery center would be expected to generate an average of 2,029 new trips per day, including 179 a.m. peak hour trips and 216 trips during the p.m. peak hour.

- The project would have a potentially significant impact on transportation facilities, which could be mitigated to a less-than-significant level through modifying the channelizing islands on the northwest and southwest corners of South El Dorado Street/Hospital Road, constructing facilities to close the gap in the pedestrian network between the site and San Joaquin General Hospital bus stop, maintaining the accessibility of the West Hospital Road bus stop (or temporarily relocating it) during construction, and providing short-term and long-term bicycle spaces.

- The project is located in a low-VMT-generating area for residents and workers, and, as such, would screen out from quantitative VMT analysis per the presumption that the project would have a less-than-significant impact on VMT.

- Several new hazards would be introduced by the proposed project, presenting a potentially significant impact that could be mitigated through prohibiting parking near the West Hospital Road driveway, constructing a left-turn lane into the site at the South El Dorado Street driveway, and extending the northbound left-turn lane at French Camp Road/South El Dorado Street.

- The proposed project would have a potentially significant impact on emergency access, which could be mitigated by securing an exemption from the fire code official to have building exteriors greater than 150 feet from fire access roads, modifying the gates to increase unobstructed width or receiving exemption for the current design, and demonstrating corner radii meet Code requirements.

- All but three study intersections operate acceptably. The deficient operations at West Mathews Road/Manthey Road, West Mathews Road/I-5 South Ramps, and Mathews Road/South El Dorado Street would be improved to acceptable levels with the planned signalization of these intersections. Under Baseline Conditions, French Camp Road/Manthey Road and West Hospital Road/Manthey Road would operate unacceptably, though acceptable operation would be achieved with improvements assumed for the Future Conditions scenario. The addition of project traffic to any of these scenarios would not result in an adverse effect to operations.

- The proposed parking supply of the project, for the North and South Campuses separately as well as combined, would satisfy County requirements for the total number of parking spaces required as well as for accessible and van-accessible spaces.

- The project would be subject to the County's TIMF program, estimated at $459,149.53, and SJCOG's RTIF program estimated to be $977,078.80. Combined, these fees would be $1,436,228.33.

Recommendations

- The channelizing islands on the northwest and southwest corners of South El Dorado Street/Hospital Road should be redesigned to enable users in mobility devices to access the pushbuttons and navigate between crosswalks without needing to enter traffic.

- The project should incorporate the construction of a sidewalk along West Hospital Road between the project site and Manthey Road, including a curb ramp on the northeast corner of Manthey Road/West Hospital Road.

- Access to and from the West Hospital Road bus stop should be maintained (or relocated nearby) during construction of the project frontage.
- Bicycle parking spaces should be provided, including at least 27 short-term and 27 long-term spaces.
- Sight lines should be increased for the West Hospital Road driveway by amending the *Municipal Code* to either restrict all parking or semi-truck access on West Hospital Road, or by designing the project frontage to include curb extensions at the driveway to bring it closer to the traveled way on West Hospital Road.
- It is recommended that the South El Dorado Street driveway be designed to include a left-turn lane inbound from South El Dorado Street.
- The northbound left-turn lane at French Camp Road/South El Dorado Street should be extended by 75 feet each to a total length of 225 feet.
- The County should secure an exemption from the fire code official for the presence of building exteriors that are more than 150 feet away from the nearest fire access road.
- The parking lot gates should be redesigned to allow for a 20-foot clear width for emergency access. It is otherwise recommended that the County pursue an exemption to this requirement for the current design that bisects the drive aisle.
- The corner radii along the fire access roads is recommended to be demonstrated to be sufficiently large to satisfy Code requirements.

Study Participants and References

Study Participants

Principal in Charge	Mark E. Spencer, PE (Traffic)
Traffic Engineer	Kevin Carstens, PE (Civil, Traffic)
Assistant Engineer	Alyssa Labrador, EIT
Graphics	Jessica Bender, Erika Totanes
Editing/Formatting	Rebecca Mansour, Jessica Bender
Quality Control	Dalene J. Whitlock, PE (Civil, Traffic), PTOE

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Communications

March 3, 2025. Levers, Jeffrey. Email to Kevin Carstens. "RE: SJ Be Well – Traffic Study." Confirmation of projects to use for Baseline volumes and imminent signalization of Mathews Road intersections.

March 17, 2025. Loera, Marilissa. Email to Kevin Carstens. "RE: SJ Be Well – Traffic Study." Confirming acceptance of trip generation and distribution assumptions.

March 25, 2025. Lihosit, Anson. Email to Kevin Carstens. "RE: Signal Timings, Baseline Projects, and City Model for Southern Stockton." Confirmation of projects to use for Baseline volumes and volumes to use for Future volumes.

May 30, 2025. Levers, Jeffrey. Email to Kevin Carstens "RE: Comments on SJ Be Well ISMND and TIS." Transmittal of Caltrans' plans for signalizing Mathews Road intersections and confirming details.

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Appendix A

Collision Rate Calculations

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Intersection Collision Rate Worksheet

TIS for the San Joaquin Be Well Due Diligence Project

Intersection # 1: French Camp Rd & Manthey Rd
Date of Count: Thursday, November 2, 2023

Number of Collisions: 1
Number of Injuries: 0
Number of Fatalities: 1
Average Daily Traffic (ADT): 25700
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{1 \times 1{,}000{,}000}{25{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.02 c/mve**	**100.0%**	**0.0%**
Statewide Average*	**0.43 c/mve**	**0.6%**	**38.0%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection # 2: French Camp Rd & I-5 S Ramps
Date of Count: Thursday, November 2, 2023

Number of Collisions: 3
Number of Injuries: 3
Number of Fatalities: 0
Average Daily Traffic (ADT): 34900
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{3 \times 1{,}000{,}000}{34{,}900 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.05 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.43 c/mve**	**0.6%**	**38.0%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

TIS for the San Joaquin Be Well Due Diligence Project

Intersection # 3: French Camp Rd & I-5 N Ramps

Date of Count: Thursday, November 2, 2023

Number of Collisions: 1
Number of Injuries: 1
Number of Fatalities: 0
Average Daily Traffic (ADT): 34500
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{1 \times 1{,}000{,}000}{34{,}500 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.02 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.28 c/mve**	**0.9%**	**49.1%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection # 4: French Camp Rd-Arch Airport Rd & Frank W Cir

Date of Count: Thursday, November 2, 2023

Number of Collisions: 5
Number of Injuries: 5
Number of Fatalities: 0
Average Daily Traffic (ADT): 30900
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{5 \times 1{,}000{,}000}{30{,}900 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.09 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.33 c/mve**	**0.6%**	**47.7%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

TIS for the San Joaquin Be Well Due Diligence Project

Intersection # 5: French Camp Rd & S El Dorado St

Date of Count: Thursday, November 2, 2023

Number of Collisions: 8
Number of Injuries: 8
Number of Fatalities: 0
Average Daily Traffic (ADT): 18800
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{8 \times 1{,}000{,}000}{18{,}800 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.23 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.55 c/mve**	**0.5%**	**39.2%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection # 6: Manthey Rd & W Hospital Rd

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
Average Daily Traffic (ADT): 11300
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: 4 Way Stop
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{0 \times 1{,}000{,}000}{11{,}300 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.39 c/mve**	**0.7%**	**30.6%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

TIS for the San Joaquin Be Well Due Diligence Project

Intersection # 7: S El Dorado St & Hospital Rd

Date of Count: Thursday, November 2, 2023

Number of Collisions: 1
Number of Injuries: 1
Number of Fatalities: 0
Average Daily Traffic (ADT): 10400
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{1 \times 1{,}000{,}000}{10{,}400 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.05 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.55 c/mve**	**0.5%**	**39.2%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection # 8: W Mathews Rd & Manthey Rd

Date of Count: Thursday, November 2, 2023

Number of Collisions: 5
Number of Injuries: 5
Number of Fatalities: 0
Average Daily Traffic (ADT): 21700
Start Date: October 1, 2019
End Date: September 20, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: 4 Way Stop
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{5 \times 1{,}000{,}000}{21{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.13 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.39 c/mve**	**0.7%**	**30.6%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

TIS for the San Joaquin Be Well Due Diligence Project

Intersection # 9: W Mathews Rd & I-5 S Ramps

Date of Count: Thursday, November 2, 2023

Number of Collisions: 5
Number of Injuries: 5
Number of Fatalities: 0
Average Daily Traffic (ADT): 16800
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{5 \times 1{,}000{,}000}{16{,}800 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.16 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.36 c/mve**	**1.5%**	**42.6%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection # 10: W Mathews Rd & I-5 N Ramps

Date of Count: Thursday, November 2, 2023

Number of Collisions: 6
Number of Injuries: 6
Number of Fatalities: 0
Average Daily Traffic (ADT): 13300
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{6 \times 1{,}000{,}000}{13{,}300 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.25 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.36 c/mve**	**1.5%**	**42.6%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

TIS for the San Joaquin Be Well Due Diligence Project

Intersection # 11: Mathews Rd & S El Dorado St

Date of Count: Thursday, November 2, 2023

Number of Collisions: 43
Number of Injuries: 43
Number of Fatalities: 0
Average Daily Traffic (ADT): 16400
Start Date: October 1, 2019
End Date: September 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: 4 Way Stop
Area: Suburban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{43 \times 1{,}000{,}000}{16{,}400 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**1.44 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.39 c/mve**	**0.7%**	**30.6%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Appendix B

Turn Lane Warrant Calculations

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Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: El Dorado Street and Project Driveway
Study Scenario: Existing AM Peak Hour

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

El Dorado Street

Southbound Volumes (veh/hr)

Through Volume = 691
Right Turn Volume = 27

Southbound Speed Limit: 45 mph
Southbound Configuration: 4 Lanes

Project Driveway

El Dorado Street

Northbound Volumes (veh/hr)

241 = Through Volume
54 = Left Turn Volume

Northbound Speed Limit: 45 mph
Northbound Configuration: 4 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	718
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

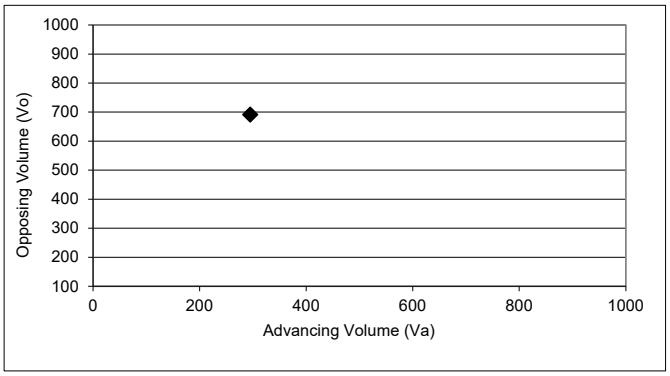
Advancing Volume Threshold	AV =	433.333333
Advancing Volume	Va =	718
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Northbound Left Turn Lane Warrants

Left Turn Volume Threshold	LtVol	13.4 veh/hr
Left Turn Volume	Vl =	54 veh/hr

If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: El Dorado Street and Project Driveway
Study Scenario: Existing PM Peak Hour

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

El Dorado Street

Southbound Volumes (veh/hr)

Through Volume = 446
Right Turn Volume = 17

El Dorado Street

Northbound Volumes (veh/hr)

538 = Through Volume
35 = Left Turn Volume

Project Driveway

Southbound Speed Limit: 45 mph
Southbound Configuration: 4 Lanes

Northbound Speed Limit: 45 mph
Northbound Configuration: 4 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold AV = -
Advancing Volume Va = 463
If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

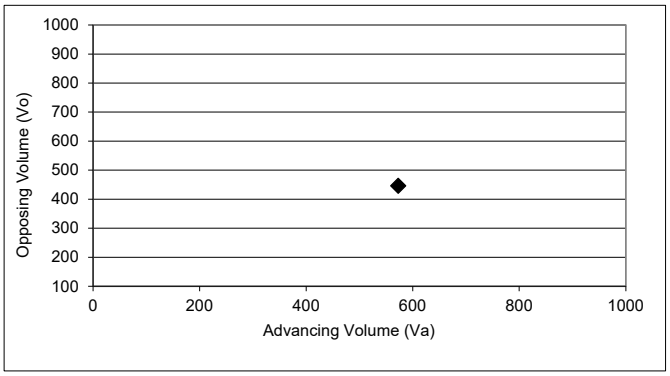
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold AV = 766.666667
Advancing Volume Va = 463
If AV<Va then warrant is met No

Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol 18.6 veh/hr
Left Turn Volume Vl = 35 veh/hr
If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: El Dorado Street and Project Driveway
Study Scenario: Baseline AM Peak Hour

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

El Dorado Street

Southbound Volumes (veh/hr)

Through Volume = 726
Right Turn Volume = 27

El Dorado Street

Northbound Volumes (veh/hr)

291 = Through Volume
54 = Left Turn Volume

Southbound Speed Limit: 45 mph
Southbound Configuration: 4 Lanes

Project Driveway

Northbound Speed Limit: 45 mph
Northbound Configuration: 4 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	753
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

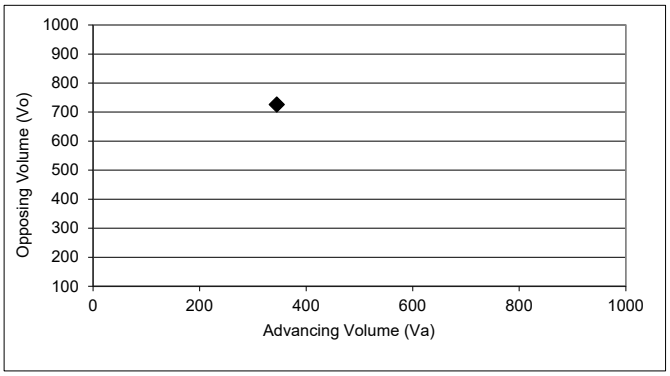
Advancing Volume Threshold	AV =	433.333333
Advancing Volume	Va =	753
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Northbound Left Turn Lane Warrants

Left Turn Volume Threshold	LtVol	12.8 veh/hr
Left Turn Volume	Vl =	54 veh/hr

If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: El Dorado Street and Project Driveway
Study Scenario: Baseline PM Peak Hour

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

El Dorado Street

Southbound Volumes (veh/hr)

Through Volume = 485

Right Turn Volume = 17

El Dorado Street

Northbound Volumes (veh/hr)

576 = Through Volume

35 = Left Turn Volume

Southbound Speed Limit: 45 mph

Southbound Configuration: 4 Lanes

Project Driveway

Northbound Speed Limit: 45 mph

Northbound Configuration: 4 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold AV = -

Advancing Volume Va = 502

If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold AV = 766.666667

Advancing Volume Va = 502

If AV<Va then warrant is met No

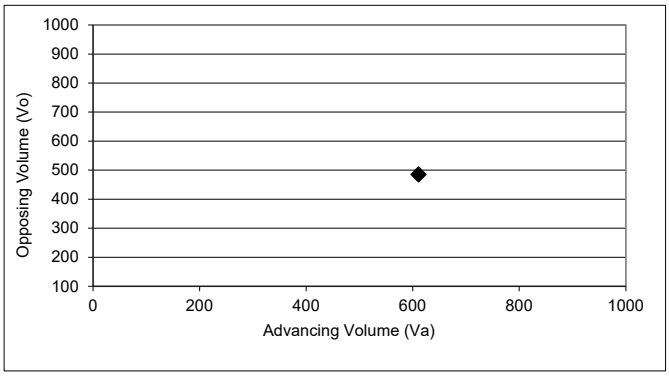
Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol 17.6 veh/hr

Left Turn Volume Vl = 35 veh/hr

If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: El Dorado Street and Project Driveway
Study Scenario: Future AM Peak Hour

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

El Dorado Street

Southbound Volumes (veh/hr)

Through Volume = 726
Right Turn Volume = 27

El Dorado Street

Northbound Volumes (veh/hr)

291 = Through Volume
54 = Left Turn Volume

Southbound Speed Limit: 45 mph
Southbound Configuration: 4 Lanes

Project Driveway

Northbound Speed Limit: 45 mph
Northbound Configuration: 4 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	753
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

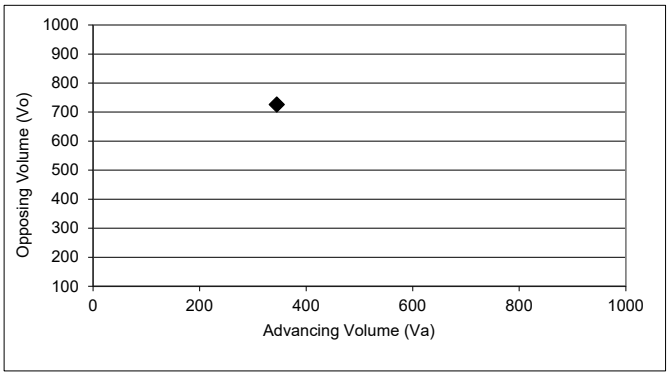
Advancing Volume Threshold	AV =	433.333333
Advancing Volume	Va =	753
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Northbound Left Turn Lane Warrants

Left Turn Volume Threshold	LtVol	12.8 veh/hr
Left Turn Volume	Vl =	54 veh/hr

If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: El Dorado Street and Project Driveway
Study Scenario: Future PM Peak Hour

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

El Dorado Street

Southbound Volumes (veh/hr)

Through Volume = 781
Right Turn Volume = 17

El Dorado Street

Northbound Volumes (veh/hr)

582 = Through Volume
35 = Left Turn Volume

Southbound Speed Limit: 45 mph
Southbound Configuration: 4 Lanes

Project Driveway

Northbound Speed Limit: 45 mph
Northbound Configuration: 4 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	798
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

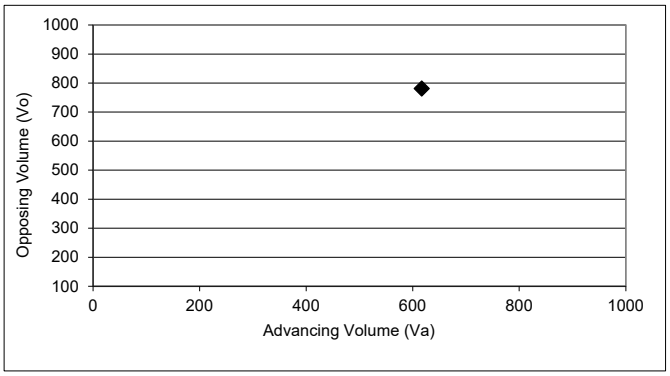
Advancing Volume Threshold	AV =	766.666667
Advancing Volume	Va =	798
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Northbound Left Turn Lane Warrants

Left Turn Volume Threshold	LtVol	11.9 veh/hr
Left Turn Volume	Vl =	35 veh/hr

If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Hospital Road and Project Driveway
Study Scenario: Future AM Peak Hour

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Hospital Road

Westbound Volumes (veh/hr)

Through Volume = 140

Right Turn Volume = 25

Hospital Road

Eastbound Volumes (veh/hr)

75 = Through Volume

22 = Left Turn Volume

Project Driveway

Westbound Speed Limit: 30 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 30 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	862.6
Advancing Volume	Va =	165
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	650
Advancing Volume	Va =	165
If AV<Va then warrant is met		No

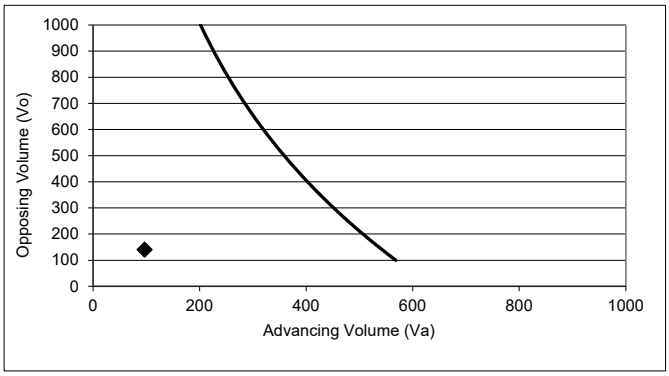
Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 22.7 %

Advancing Volume Threshold AV 543 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

——— Two lane roadway warrant threshold for: 30 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Hospital Road and Project Driveway
Study Scenario: Future PM Peak Hour

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Hospital Road

Westbound Volumes (veh/hr)

Through Volume = 61

Right Turn Volume = 13

Hospital Road

Eastbound Volumes (veh/hr)

108 = Through Volume

13 = Left Turn Volume

Project Driveway

Westbound Speed Limit: 30 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 30 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	952.6
Advancing Volume	Va =	74
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	74
If AV<Va then warrant is met		-

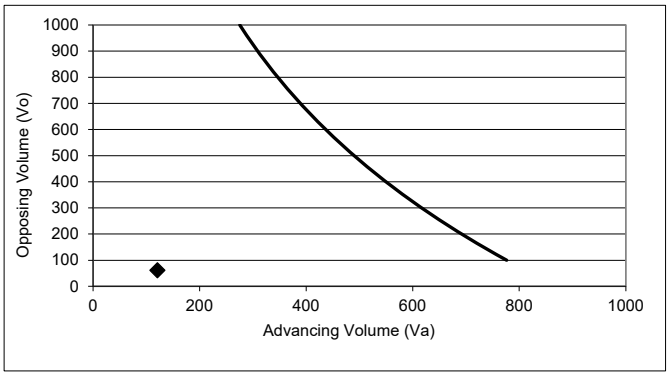
Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 10.7 %

Advancing Volume Threshold AV 812 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

——— Two lane roadway warrant threshold for: 30 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Appendix C

Intersection Queuing Calculations

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Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	WB	WB	B28	B28	NB	NB
Directions Served	T	R	L	T	T		L	R
Maximum Queue (ft)	356	241	275	539	528	481	78	65
Average Queue (ft)	173	67	266	478	406	365	34	31
95th Queue (ft)	307	171	312	736	719	699	67	59
Link Distance (ft)	388			468	500	500	4202	
Upstream Blk Time (%)	1			47	33	22		
Queuing Penalty (veh)	0			505	178	118		
Storage Bay Dist (ft)		235	250					400
Storage Blk Time (%)	3	0	62	2				
Queuing Penalty (veh)	5	0	398	10				

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	L	L	LTR	R
Maximum Queue (ft)	73	177	213	71	255	256	449	1184	1204	698
Average Queue (ft)	12	64	128	19	92	96	193	593	666	449
95th Queue (ft)	46	142	200	54	265	269	513	1498	1528	965
Link Distance (ft)			500	500	894	894		1490	1490	
Upstream Blk Time (%)								13	11	
Queuing Penalty (veh)								0	0	
Storage Bay Dist (ft)	425	425					530			790
Storage Blk Time (%)							0	7	24	7
Queuing Penalty (veh)							1	20	75	44

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	L	L	R
Maximum Queue (ft)	206	219	445	178	108	148	70	110	298
Average Queue (ft)	101	120	176	38	32	43	15	53	157
95th Queue (ft)	182	200	356	117	78	108	47	93	252
Link Distance (ft)	894	894	894		611	611		1350	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				290			425		425
Storage Blk Time (%)			0	0					
Queuing Penalty (veh)			1	0					

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	146	173	211	219	125	54	78	71	95	106	119	182
Average Queue (ft)	69	64	88	102	45	11	20	14	18	22	32	95
95th Queue (ft)	127	149	171	185	98	35	57	46	61	71	84	156
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	87	36	37	40
Average Queue (ft)	29	7	6	16
95th Queue (ft)	65	29	25	41
Link Distance (ft)	720		459	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		155		90
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T
Maximum Queue (ft)	408	322	26	66	93	176	166	150
Average Queue (ft)	173	113	2	25	38	74	64	63
95th Queue (ft)	337	248	13	56	76	144	126	118
Link Distance (ft)	1778	765		774	774		1134	1134
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			150			200		
Storage Blk Time (%)						0		0
Queuing Penalty (veh)						0		0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	51	48	42	43	44	38	35	91	89
Average Queue (ft)	26	21	17	18	24	13	14	55	53
95th Queue (ft)	45	40	32	34	36	37	33	79	78
Link Distance (ft)	206		331		1223			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	80	47	33	54	62	24	132	118	39
Average Queue (ft)	27	16	8	15	18	2	39	43	2
95th Queue (ft)	60	42	27	41	51	13	93	94	21
Link Distance (ft)	631	414		1390	1390		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)							0		
Queuing Penalty (veh)							0		

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	SB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	T	R
Maximum Queue (ft)	126	97	187	188	75	135	229	102
Average Queue (ft)	63	32	111	112	36	40	98	45
95th Queue (ft)	103	64	183	182	62	98	180	78
Link Distance (ft)	1452		168	168	1044		1223	1223
Upstream Blk Time (%)			3	3				
Queuing Penalty (veh)			14	14				
Storage Bay Dist (ft)		130				120		
Storage Blk Time (%)	0	0					9	
Queuing Penalty (veh)	0	0					7	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	102	60	26	180	104	164
Average Queue (ft)	51	21	4	68	38	61
95th Queue (ft)	82	43	19	142	100	123
Link Distance (ft)	168	168		362	1134	
Upstream Blk Time (%)	0					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)			175			230
Storage Blk Time (%)				2		1
Queuing Penalty (veh)				0		1

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	WB	NB	NB
Directions Served	LT	T	TR	LT	R
Maximum Queue (ft)	165	17	136	68	30
Average Queue (ft)	79	1	65	33	5
95th Queue (ft)	137	8	111	55	23
Link Distance (ft)	362	362	164	908	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			1		
Storage Bay Dist (ft)					270
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	164	198	66	61	63	115	111	142
Average Queue (ft)	72	91	32	32	32	50	48	71
95th Queue (ft)	129	161	56	54	54	90	82	114
Link Distance (ft)	256	326		768	768		1390	1390
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			175			165		
Storage Blk Time (%)						0		
Queuing Penalty (veh)						0		

Zone Summary

Zone wide Queuing Penalty: 1391

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	WB	WB	B28	B28	NB	NB
Directions Served	T	R	L	T	T		L	R
Maximum Queue (ft)	227	54	151	162	57	36	125	74
Average Queue (ft)	101	21	77	65	8	2	56	42
95th Queue (ft)	178	48	126	130	36	16	101	70
Link Distance (ft)	388			468	500	500	4202	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		235	250					400
Storage Blk Time (%)	0		0					
Queuing Penalty (veh)	0		0					

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	R	L	L	LTR	R
Maximum Queue (ft)	29	122	177	70	41	61	3	90	149	178	142
Average Queue (ft)	4	20	70	15	6	8	0	29	77	98	32
95th Queue (ft)	17	71	146	48	25	33	2	65	126	159	85
Link Distance (ft)			500	500	894	894			1490	1490	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	425	425					580	530			790
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	L	L	R
Maximum Queue (ft)	121	144	178	98	103	175	62	110	240
Average Queue (ft)	51	78	103	33	28	54	15	57	127
95th Queue (ft)	102	124	157	79	73	124	48	99	205
Link Distance (ft)	894	894	894		611	611		1350	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				290			425		425
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	112	161	191	209	68	27	72	99	165	200	137	239
Average Queue (ft)	43	49	79	99	25	4	16	18	40	63	38	123
95th Queue (ft)	91	123	152	175	52	17	49	61	115	154	97	205
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)												0
Queuing Penalty (veh)												0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	115	67	46	64
Average Queue (ft)	37	21	9	26
95th Queue (ft)	85	54	33	53
Link Distance (ft)	720		459	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		155		90
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T
Maximum Queue (ft)	191	233	81	138	160	119	143	116
Average Queue (ft)	78	93	17	67	77	44	64	49
95th Queue (ft)	160	195	55	113	130	97	120	98
Link Distance (ft)	1778	765		774	774		1134	1134
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			150			200		
Storage Blk Time (%)				0				0
Queuing Penalty (veh)				0				0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	62	37	29	19	42	33	38	78	58
Average Queue (ft)	33	16	10	9	24	17	15	43	31
95th Queue (ft)	55	35	25	25	36	40	34	67	53
Link Distance (ft)	206		331		1223			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	69	31	48	64	80	24	118	114	16
Average Queue (ft)	31	6	14	25	33	2	35	32	1
95th Queue (ft)	58	24	40	57	69	15	87	82	10
Link Distance (ft)	631	414		1390	1390		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)							0		
Queuing Penalty (veh)							0		

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	SB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	T	R
Maximum Queue (ft)	871	155	166	154	106	120	126	50
Average Queue (ft)	413	135	86	65	49	53	57	27
95th Queue (ft)	987	199	148	123	85	92	95	49
Link Distance (ft)	1452		168	168	1044		1223	1223
Upstream Blk Time (%)	2		1	0				
Queuing Penalty (veh)	0		4	1				
Storage Bay Dist (ft)		130				120		
Storage Blk Time (%)	56	5				0	0	
Queuing Penalty (veh)	197	16				0	1	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	172	133	26	65	72	112
Average Queue (ft)	92	40	7	31	33	47
95th Queue (ft)	155	86	25	53	58	85
Link Distance (ft)	168	168		362	1134	
Upstream Blk Time (%)	1	0				
Queuing Penalty (veh)	3	0				
Storage Bay Dist (ft)			175			230
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	WB	NB	NB
Directions Served	LT	T	TR	LT	R
Maximum Queue (ft)	296	27	101	36	32
Average Queue (ft)	134	1	51	16	9
95th Queue (ft)	257	14	84	37	29
Link Distance (ft)	362	362	164	908	
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					270
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	B24	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	T	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	232	10	123	66	112	81	98	86	107
Average Queue (ft)	104	0	65	31	60	41	46	42	58
95th Queue (ft)	194	8	105	53	92	66	83	73	93
Link Distance (ft)	256	164	326		768	768		1390	1390
Upstream Blk Time (%)	1								
Queuing Penalty (veh)	4								
Storage Bay Dist (ft)				175			165		
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Zone Summary

Zone wide Queuing Penalty: 226

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	WB	WB	B28	B28	NB	NB	B27
Directions Served	T	R	L	T	T		L	R	T
Maximum Queue (ft)	403	260	425	539	531	522	84	175	2
Average Queue (ft)	307	155	425	539	519	514	34	81	0
95th Queue (ft)	482	328	426	539	527	521	70	133	2
Link Distance (ft)	388			468	500	500	4202		982
Upstream Blk Time (%)	16			68	69	54			
Queuing Penalty (veh)	0			961	485	376			
Storage Bay Dist (ft)		235	400					400	
Storage Blk Time (%)	20	0	88	1					
Queuing Penalty (veh)	43	1	595	4					

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	B28	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	T	R	L	L	LTR	R
Maximum Queue (ft)	94	244	316	156	2	931	935	605	555	1506	1506	815
Average Queue (ft)	19	104	188	35	0	816	824	446	394	1489	1491	812
95th Queue (ft)	65	200	276	104	2	1147	1149	885	736	1656	1631	841
Link Distance (ft)			500	500	468	894	894			1490	1490	
Upstream Blk Time (%)						53	59			91	82	
Queuing Penalty (veh)						226	254			0	0	
Storage Bay Dist (ft)	425	425						580	530			790
Storage Blk Time (%)							82	0	2	30	85	30
Queuing Penalty (veh)							246	1	6	110	358	255

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	264	286	393	252	634	662	652	191	212	339
Average Queue (ft)	128	146	168	75	446	463	255	58	101	188
95th Queue (ft)	226	240	301	164	857	861	756	161	192	296
Link Distance (ft)	894	894	894		611	611	611		1350	
Upstream Blk Time (%)			0		36	48	24			
Queuing Penalty (veh)			0		148	193	96			
Storage Bay Dist (ft)				290				425		425
Storage Blk Time (%)			0	0						
Queuing Penalty (veh)			2	0						

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	R	L
Maximum Queue (ft)	141	217	246	258	141	54	300	1354	1354	575	562	337
Average Queue (ft)	59	78	110	125	46	10	94	632	648	318	56	120
95th Queue (ft)	117	182	207	215	101	32	289	1625	1639	733	333	320
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)								29	33			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	425				500	500	275			550	550	325
Storage Blk Time (%)							0	45	41	27	0	0
Queuing Penalty (veh)							0	40	144	88	0	0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	NB	B29	SB	SB	SB
Directions Served	L	TR	T	L	T	R
Maximum Queue (ft)	350	791	1249	40	58	77
Average Queue (ft)	238	382	287	7	8	23
95th Queue (ft)	427	965	1069	28	39	65
Link Distance (ft)		720	1778		459	
Upstream Blk Time (%)		35	0			
Queuing Penalty (veh)		94	1			
Storage Bay Dist (ft)	325			155		90
Storage Blk Time (%)	46	1				2
Queuing Penalty (veh)	26	2				0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T
Maximum Queue (ft)	310	294	69	85	105	190	186	147
Average Queue (ft)	123	119	11	27	39	86	76	76
95th Queue (ft)	263	246	42	62	82	162	144	129
Link Distance (ft)	1778	765		774	774		1134	1134
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			150			200		
Storage Blk Time (%)			0			1	0	1
Queuing Penalty (veh)			0			2	0	0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	51	56	43	44	79	52	27	76	102
Average Queue (ft)	26	22	18	19	42	28	11	42	63
95th Queue (ft)	45	43	35	36	67	46	29	67	89
Link Distance (ft)	206		331		1221			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)		0							
Queuing Penalty (veh)		0							

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	63	38	36	67	80	22	108	101	39
Average Queue (ft)	22	15	8	16	19	1	35	37	2
95th Queue (ft)	52	39	28	48	59	11	87	84	21
Link Distance (ft)	631	414		1383	1383		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	TR	L	L	TR
Maximum Queue (ft)	71	193	162	193	208	140	89	157	116	149	275
Average Queue (ft)	28	55	87	111	164	58	28	55	36	68	156
95th Queue (ft)	61	135	152	181	235	106	66	116	83	127	247
Link Distance (ft)		1454		163	163	163		1037		1221	1221
Upstream Blk Time (%)				3	13	0					
Queuing Penalty (veh)				12	49	0					
Storage Bay Dist (ft)	175		175				125		120		
Storage Blk Time (%)		0	0				0	1	0	1	
Queuing Penalty (veh)		1	0				0	0	0	2	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	133	181	73	374	409	254
Average Queue (ft)	45	85	10	229	144	146
95th Queue (ft)	102	167	44	384	307	260
Link Distance (ft)	163	163		361	1118	
Upstream Blk Time (%)	0	1		1		
Queuing Penalty (veh)	0	4		11		
Storage Bay Dist (ft)			100			230
Storage Blk Time (%)				25	1	4
Queuing Penalty (veh)				3	4	10

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	LT	R
Maximum Queue (ft)	116	148	234	331	173	309	44
Average Queue (ft)	50	71	79	115	43	176	10
95th Queue (ft)	100	120	182	259	138	281	35
Link Distance (ft)		361	361	474		913	
Upstream Blk Time (%)				0			
Queuing Penalty (veh)				0			
Storage Bay Dist (ft)	100				150		270
Storage Blk Time (%)	0	2		5	0	1	
Queuing Penalty (veh)	0	2		9	0	0	

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	130	290	135	308	148	135	222	182	205	222
Average Queue (ft)	47	123	54	152	67	61	97	96	87	121
95th Queue (ft)	98	249	112	263	120	114	176	162	159	193
Link Distance (ft)		474		325		761	761		1383	1383
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	300		120		175			165		
Storage Blk Time (%)		0	1	15	0	0		1	0	
Queuing Penalty (veh)		0	2	10	0	0		1	1	

Zone Summary

Zone wide Queuing Penalty: 4880

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	WB	WB	B28	B28	NB	NB
Directions Served	T	R	L	T	T		L	R
Maximum Queue (ft)	299	120	425	539	522	511	132	168
Average Queue (ft)	158	28	404	492	445	408	61	87
95th Queue (ft)	257	75	502	695	745	727	109	138
Link Distance (ft)	388			468	500	500	4202	
Upstream Blk Time (%)	0			36	48	26		
Queuing Penalty (veh)	0			427	281	156		
Storage Bay Dist (ft)		235	400					400
Storage Blk Time (%)	1		53	6				
Queuing Penalty (veh)	1		418	24				

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	R	L	L	LTR	R
Maximum Queue (ft)	84	273	367	99	839	842	545	173	303	368	339
Average Queue (ft)	11	69	174	24	463	482	280	61	137	207	157
95th Queue (ft)	50	186	308	68	1095	1123	774	135	234	324	295
Link Distance (ft)			500	500	894	894			1490	1490	
Upstream Blk Time (%)			0		12	18					
Queuing Penalty (veh)			0		71	106					
Storage Bay Dist (ft)	425	425					580	530			790
Storage Blk Time (%)		0	0			36	3				
Queuing Penalty (veh)		0	1			200	10				

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	195	208	924	156	569	603	501	155	192	273
Average Queue (ft)	87	112	205	70	171	255	83	42	88	156
95th Queue (ft)	153	175	632	141	507	637	426	130	175	245
Link Distance (ft)	894	894	894		611	611	611		1350	
Upstream Blk Time (%)			0		2	11	4			
Queuing Penalty (veh)			1		10	67	24			
Storage Bay Dist (ft)				290				425		425
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	109	214	263	278	92	30	236	970	1029	490	284	327
Average Queue (ft)	44	76	111	130	28	5	39	227	281	207	80	196
95th Queue (ft)	91	173	206	225	62	19	149	882	936	505	234	332
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)								4	7			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)							0	13	11	6	0	12
Queuing Penalty (veh)							0	8	55	30	0	10

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	B29	SB	SB	SB
Directions Served	TR	T	L	T	R
Maximum Queue (ft)	475	216	74	55	87
Average Queue (ft)	130	22	20	9	31
95th Queue (ft)	482	224	52	34	67
Link Distance (ft)	720	1778		459	
Upstream Blk Time (%)	4				
Queuing Penalty (veh)	12				
Storage Bay Dist (ft)			155		90
Storage Blk Time (%)	0				1
Queuing Penalty (veh)	0				0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T
Maximum Queue (ft)	288	283	87	147	177	152	134	124
Average Queue (ft)	111	101	22	74	87	54	66	55
95th Queue (ft)	229	222	64	134	150	113	119	107
Link Distance (ft)	1778	765		774	774		1134	1134
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			150			200		
Storage Blk Time (%)				0			0	0
Queuing Penalty (veh)				0			0	0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	78	37	31	21	61	50	40	77	91
Average Queue (ft)	35	17	10	8	37	27	14	45	58
95th Queue (ft)	61	35	25	23	59	46	34	68	82
Link Distance (ft)	206		331		1221			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	73	31	55	119	127	31	114	102	6
Average Queue (ft)	30	7	15	34	45	3	36	35	0
95th Queue (ft)	60	27	41	89	103	17	91	85	8
Link Distance (ft)	631	414		1383	1383		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)				0					
Queuing Penalty (veh)				0					

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	TR	L	L	TR
Maximum Queue (ft)	70	227	186	205	219	153	94	136	144	271	181
Average Queue (ft)	17	79	107	153	93	49	24	58	80	117	87
95th Queue (ft)	48	166	177	236	181	110	61	111	147	218	154
Link Distance (ft)		1454		163	163	163		1037		1221	1221
Upstream Blk Time (%)				31	1	0					
Queuing Penalty (veh)				81	4	0					
Storage Bay Dist (ft)	175		175				125		120		
Storage Blk Time (%)	0	0	1					1	2	9	
Queuing Penalty (veh)	0	2	2					0	4	17	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	175	188	89	326	461	244
Average Queue (ft)	76	105	15	150	186	119
95th Queue (ft)	158	197	58	362	611	243
Link Distance (ft)	163	163		361	1118	
Upstream Blk Time (%)	1	3		10	3	
Queuing Penalty (veh)	4	13		44	0	
Storage Bay Dist (ft)			100			230
Storage Blk Time (%)				24	0	9
Queuing Penalty (veh)				4	1	19

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	LT	R
Maximum Queue (ft)	124	186	213	236	95	351	90
Average Queue (ft)	64	78	80	92	39	156	25
95th Queue (ft)	121	144	169	340	126	423	122
Link Distance (ft)		361	361	474		913	
Upstream Blk Time (%)			0	6			
Queuing Penalty (veh)			0	25			
Storage Bay Dist (ft)	100				150		270
Storage Blk Time (%)	1	4		12	0	8	0
Queuing Penalty (veh)	3	7		28	0	2	0

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	143	295	145	276	145	303	304	164	147	166
Average Queue (ft)	68	150	91	146	76	160	136	80	63	88
95th Queue (ft)	122	257	159	288	160	451	393	144	129	149
Link Distance (ft)		474		325		761	761		1383	1383
Upstream Blk Time (%)				9		4	0			
Queuing Penalty (veh)				0		0	0			
Storage Bay Dist (ft)	300		120		175			165		
Storage Blk Time (%)		0	6	15	10	0		1	0	
Queuing Penalty (veh)		0	20	21	18	0		1	0	

Zone Summary

Zone wide Queuing Penalty: 2230

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	406	405	260	425	650	436	96	170
Average Queue (ft)	401	392	226	337	174	76	37	83
95th Queue (ft)	436	460	344	468	598	284	77	137
Link Distance (ft)	390	390			1023	1023	4187	
Upstream Blk Time (%)	65	63						
Queuing Penalty (veh)	0	0						
Storage Bay Dist (ft)			235	400				400
Storage Blk Time (%)		63	0	13	0			
Queuing Penalty (veh)		134	2	62	0			

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	L	L	LTR	R
Maximum Queue (ft)	108	264	394	233	133	102	494	744	696	606
Average Queue (ft)	23	81	170	50	45	22	185	323	432	347
95th Queue (ft)	77	194	322	155	109	72	389	577	629	568
Link Distance (ft)			1023	1023	894	894		1490	1490	
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	425	425					530			790
Storage Blk Time (%)							0	1	0	0
Queuing Penalty (veh)							0	2	1	0

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	L	L	R
Maximum Queue (ft)	224	242	313	239	83	109	222	629	445
Average Queue (ft)	130	148	196	59	23	32	91	173	314
95th Queue (ft)	208	224	293	162	61	83	165	495	456
Link Distance (ft)	894	894	894		611	611		1350	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				290			425		425
Storage Blk Time (%)			0	0				0	4
Queuing Penalty (veh)			2	0				2	12

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	R	L
Maximum Queue (ft)	172	264	286	291	170	67	122	141	228	276	56	337
Average Queue (ft)	78	124	157	172	66	21	38	29	62	119	2	233
95th Queue (ft)	149	247	262	270	131	50	91	89	162	224	55	450
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	425				500	500	275			550	550	325
Storage Blk Time (%)										0		0
Queuing Penalty (veh)										0		0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	NB	B29	SB	SB	SB
Directions Served	L	TR	T	L	T	R
Maximum Queue (ft)	350	778	298	40	42	51
Average Queue (ft)	311	413	66	8	7	17
95th Queue (ft)	419	924	356	30	29	46
Link Distance (ft)		720	1778		459	
Upstream Blk Time (%)		16				
Queuing Penalty (veh)		79				
Storage Bay Dist (ft)	325			155		90
Storage Blk Time (%)	47					0
Queuing Penalty (veh)	26					0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	B29	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	T	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	873	7	780	63	95	119	225	1063	1060	135
Average Queue (ft)	400	0	770	14	37	47	219	828	771	14
95th Queue (ft)	788	5	877	44	78	96	257	1393	1362	87
Link Distance (ft)	1778	720	765		774	774		1134	1134	
Upstream Blk Time (%)			88					32	14	
Queuing Penalty (veh)			0					0	0	
Storage Bay Dist (ft)				150			200			125
Storage Blk Time (%)							89	1	13	0
Queuing Penalty (veh)							184	3	7	0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	56	57	45	43	75	54	37	136	170
Average Queue (ft)	25	24	18	20	44	29	15	62	93
95th Queue (ft)	45	45	35	34	68	47	34	103	143
Link Distance (ft)	206		331		1221			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	65	55	41	72	87	20	105	107	42
Average Queue (ft)	27	17	9	18	23	1	37	40	3
95th Queue (ft)	56	44	30	54	66	11	85	89	25
Link Distance (ft)	631	414		1383	1383		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	TR	L	L	TR
Maximum Queue (ft)	81	195	185	199	214	132	84	125	140	310	576
Average Queue (ft)	25	64	91	121	174	59	29	50	55	118	325
95th Queue (ft)	64	147	159	193	233	102	67	104	120	269	555
Link Distance (ft)		1454		163	163	163		1037		1221	1221
Upstream Blk Time (%)				5	18						
Queuing Penalty (veh)				17	68						
Storage Bay Dist (ft)	175		175				125		120		
Storage Blk Time (%)	0	0	0				0	0	1	6	
Queuing Penalty (veh)	0	1	1				0	0	1	7	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	141	182	80	374	618	255
Average Queue (ft)	50	107	12	282	257	172
95th Queue (ft)	110	188	47	413	641	290
Link Distance (ft)	163	163		361	1118	
Upstream Blk Time (%)	0	3		3	1	
Queuing Penalty (veh)	0	8		20	0	
Storage Bay Dist (ft)			100			230
Storage Blk Time (%)				33	2	14
Queuing Penalty (veh)				3	9	51

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	LT	R
Maximum Queue (ft)	123	167	290	376	175	329	65
Average Queue (ft)	60	75	104	150	75	184	11
95th Queue (ft)	112	132	227	320	184	289	47
Link Distance (ft)		361	361	474		913	
Upstream Blk Time (%)			0	0			
Queuing Penalty (veh)			0	0			
Storage Bay Dist (ft)	100				150		270
Storage Blk Time (%)	1	3		11	0	2	
Queuing Penalty (veh)	1	3		31	0	0	

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	208	366	143	339	150	139	209	187	230	219
Average Queue (ft)	57	160	68	227	73	62	99	111	92	124
95th Queue (ft)	130	307	148	365	125	116	175	180	180	199
Link Distance (ft)		474		325		761	761		1383	1383
Upstream Blk Time (%)		0		4						
Queuing Penalty (veh)		0		0						
Storage Bay Dist (ft)	300		120		175			165		
Storage Blk Time (%)		1	1	28	0	0		3	0	
Queuing Penalty (veh)		1	3	19	0	0		5	1	

Zone Summary

Zone wide Queuing Penalty: 769

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	374	311	164	291	109	120	123	208
Average Queue (ft)	230	162	31	163	35	62	58	98
95th Queue (ft)	352	290	93	252	82	107	104	169
Link Distance (ft)	390	390			1023	1023	4187	
Upstream Blk Time (%)	1	0						
Queuing Penalty (veh)	0	0						
Storage Bay Dist (ft)			235	400				400
Storage Blk Time (%)		2	0					
Queuing Penalty (veh)		2	0					

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	R	L	L	LTR	R
Maximum Queue (ft)	103	313	409	246	116	106	22	206	322	397	352
Average Queue (ft)	16	89	211	47	35	23	1	87	171	270	194
95th Queue (ft)	64	227	348	158	90	73	12	176	274	375	332
Link Distance (ft)			1023	1023	894	894			1490	1490	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	425	425					580	530			790
Storage Blk Time (%)			0								
Queuing Penalty (veh)			1								

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	177	232	298	247	94	164	36	130	171	396
Average Queue (ft)	98	125	186	71	24	53	1	58	80	223
95th Queue (ft)	165	195	281	170	65	122	36	106	138	348
Link Distance (ft)	894	894	894		611	611	611		1350	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				290				425		425
Storage Blk Time (%)			0	0						0
Queuing Penalty (veh)			1	0						0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	109	278	304	311	206	158	211	325	456	424	338	350
Average Queue (ft)	45	113	142	156	87	40	92	68	162	217	265	349
95th Queue (ft)	90	224	245	259	179	117	187	256	364	385	471	352
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)		0					2	0	0	0	1	82
Queuing Penalty (veh)		0					12	0	0	0	1	129

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	B29	SB	SB	SB
Directions Served	TR	T	L	T	R
Maximum Queue (ft)	791	1790	61	42	75
Average Queue (ft)	780	1227	20	9	33
95th Queue (ft)	900	2159	50	32	66
Link Distance (ft)	720	1778		459	
Upstream Blk Time (%)	84	13			
Queuing Penalty (veh)	574	86			
Storage Bay Dist (ft)			155		90
Storage Blk Time (%)	0				0
Queuing Penalty (veh)	0				0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	B29	B29	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	T		LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	1738	544	412	780	164	224	244	225	958	936	148
Average Queue (ft)	1473	242	133	772	46	117	125	214	686	631	25
95th Queue (ft)	2285	722	525	862	124	196	212	265	1283	1233	115
Link Distance (ft)	1778	720	720	765		774	774		1134	1134	
Upstream Blk Time (%)	44	4	2	81					13	5	
Queuing Penalty (veh)	338	14	6	0					0	0	
Storage Bay Dist (ft)					150			200			125
Storage Blk Time (%)					2	3		79	2	22	0
Queuing Penalty (veh)					4	2		209	4	13	0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	67	47	27	26	65	51	40	92	108
Average Queue (ft)	34	19	9	8	38	27	15	50	63
95th Queue (ft)	58	39	24	24	59	48	36	78	93
Link Distance (ft)	206		331		1221			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	87	84	52	110	125	26	170	173	11
Average Queue (ft)	38	36	15	40	57	3	68	77	0
95th Queue (ft)	73	67	41	92	109	17	142	148	8
Link Distance (ft)	631	414		1383	1383		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)							0		
Queuing Penalty (veh)							0		

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	TR	L	L	TR
Maximum Queue (ft)	64	254	190	205	206	143	96	148	145	360	227
Average Queue (ft)	20	86	108	154	97	49	25	52	94	155	96
95th Queue (ft)	50	188	181	235	186	104	64	106	166	311	198
Link Distance (ft)		1454		163	163	163		1037		1221	1221
Upstream Blk Time (%)				32	2	0					
Queuing Penalty (veh)				82	5	0					
Storage Bay Dist (ft)	175		175				125		120		
Storage Blk Time (%)		1	1				0	1	2	19	
Queuing Penalty (veh)		3	2				0	0	4	33	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	181	184	99	374	572	255
Average Queue (ft)	88	114	18	186	185	125
95th Queue (ft)	172	204	73	412	489	253
Link Distance (ft)	163	163		361	1118	
Upstream Blk Time (%)	1	3		14	0	
Queuing Penalty (veh)	7	17		60	0	
Storage Bay Dist (ft)			100			230
Storage Blk Time (%)				32	1	6
Queuing Penalty (veh)				5	5	19

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	LT	R
Maximum Queue (ft)	124	189	226	325	168	370	123
Average Queue (ft)	70	84	89	107	57	139	18
95th Queue (ft)	130	158	188	351	150	337	88
Link Distance (ft)		361	361	474		913	
Upstream Blk Time (%)				3		0	
Queuing Penalty (veh)				18		0	
Storage Bay Dist (ft)	100				150		270
Storage Blk Time (%)	2	5		11	0	4	0
Queuing Penalty (veh)	5	9		41	1	1	0

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	257	400	145	340	171	281	274	190	352	320
Average Queue (ft)	83	202	104	218	91	137	119	144	195	183
95th Queue (ft)	187	344	167	368	177	290	257	223	385	334
Link Distance (ft)		474		325		761	761		1383	1383
Upstream Blk Time (%)		0		9						
Queuing Penalty (veh)		1		0						
Storage Bay Dist (ft)	300		120		175			165		
Storage Blk Time (%)		2	8	25	11	0		28	4	
Queuing Penalty (veh)		2	37	36	20	0		80	6	

Zone Summary

Zone wide Queuing Penalty: 1899

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	WB	WB	B28	B28	NB	NB
Directions Served	T	R	L	T	T		L	R
Maximum Queue (ft)	366	243	275	539	528	520	73	68
Average Queue (ft)	170	66	272	512	435	384	29	30
95th Queue (ft)	313	170	296	681	698	685	62	58
Link Distance (ft)	388			468	500	500	4202	
Upstream Blk Time (%)	1			50	33	20		
Queuing Penalty (veh)	0			538	177	110		
Storage Bay Dist (ft)		235	250					400
Storage Blk Time (%)	3	0	67	1				
Queuing Penalty (veh)	6	0	426	6				

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	L	L	LTR	R
Maximum Queue (ft)	72	171	215	92	240	248	519	1124	1188	760
Average Queue (ft)	11	64	125	18	73	78	161	443	532	384
95th Queue (ft)	42	143	204	60	228	234	450	1212	1265	851
Link Distance (ft)			500	500	894	894		1490	1490	
Upstream Blk Time (%)								8	7	
Queuing Penalty (veh)								0	0	
Storage Bay Dist (ft)	425	425					530			790
Storage Blk Time (%)							1	5	15	5
Queuing Penalty (veh)							2	14	49	32

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	L	L	R
Maximum Queue (ft)	213	226	393	222	102	130	63	111	309
Average Queue (ft)	99	123	176	35	29	40	13	53	168
95th Queue (ft)	178	197	309	117	74	100	42	97	268
Link Distance (ft)	894	894	894		611	611		1350	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				290			425		425
Storage Blk Time (%)			0	0					0
Queuing Penalty (veh)			1	0					0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	172	174	197	207	137	48	77	74	91	111	121	183
Average Queue (ft)	72	68	94	112	49	11	22	16	19	27	35	103
95th Queue (ft)	140	155	174	191	101	33	61	50	64	80	90	162
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	76	36	34	46
Average Queue (ft)	27	6	7	16
95th Queue (ft)	60	25	28	42
Link Distance (ft)	720		459	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		155		90
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T
Maximum Queue (ft)	427	371	37	60	82	157	147	142
Average Queue (ft)	188	143	6	22	35	80	70	70
95th Queue (ft)	367	298	26	49	73	144	129	126
Link Distance (ft)	1778	765		774	774		1134	1134
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			150			200		
Storage Blk Time (%)						0		1
Queuing Penalty (veh)						0		0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	57	47	43	42	46	31	41	92	90
Average Queue (ft)	25	22	18	18	24	20	17	56	53
95th Queue (ft)	45	40	33	32	37	40	36	82	78
Link Distance (ft)	206		331		1223			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	70	43	61	58	55	11	119	125	62
Average Queue (ft)	30	16	20	22	20	1	48	50	4
95th Queue (ft)	62	41	47	50	50	8	100	100	29
Link Distance (ft)	631	414		1390	1390		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	SB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	T	R
Maximum Queue (ft)	128	84	191	192	73	132	202	84
Average Queue (ft)	64	32	120	121	36	42	96	45
95th Queue (ft)	107	66	197	196	61	99	165	73
Link Distance (ft)	1452		168	168	1044		1223	1223
Upstream Blk Time (%)			5	5				
Queuing Penalty (veh)			25	23				
Storage Bay Dist (ft)		130				120		
Storage Blk Time (%)	0	0					7	
Queuing Penalty (veh)	1	0					5	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	111	60	78	242	297	203
Average Queue (ft)	52	23	9	91	64	78
95th Queue (ft)	86	44	53	221	261	179
Link Distance (ft)	168	168		362	1134	
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				2		
Storage Bay Dist (ft)			175			230
Storage Blk Time (%)				7		4
Queuing Penalty (veh)				1		8

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	WB	NB	NB
Directions Served	LT	T	TR	LT	R
Maximum Queue (ft)	215	20	139	60	31
Average Queue (ft)	88	1	65	34	12
95th Queue (ft)	167	12	114	53	34
Link Distance (ft)	362	362	164	908	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			2		
Storage Bay Dist (ft)					270
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	B24	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	T	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	237	2	256	72	86	67	105	119	145
Average Queue (ft)	101	0	108	32	41	33	54	51	79
95th Queue (ft)	191	2	203	59	68	56	93	89	124
Link Distance (ft)	256	164	326		768	768		1390	1390
Upstream Blk Time (%)	0		1						
Queuing Penalty (veh)	1		0						
Storage Bay Dist (ft)				175			165		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Zone Summary

Zone wide Queuing Penalty: 1428

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	WB	WB	B28	B28	NB	NB
Directions Served	T	R	L	T	T		L	R
Maximum Queue (ft)	214	57	156	140	62	40	116	82
Average Queue (ft)	97	21	82	59	6	2	54	43
95th Queue (ft)	173	47	134	120	33	17	94	71
Link Distance (ft)	388			468	500	500	4202	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		235	250					400
Storage Blk Time (%)	0							
Queuing Penalty (veh)	0							

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	R	L	L	LTR	R
Maximum Queue (ft)	16	110	185	64	56	71	2	111	145	182	128
Average Queue (ft)	3	20	74	15	6	9	0	29	78	97	33
95th Queue (ft)	12	68	151	46	28	39	1	69	125	157	94
Link Distance (ft)			500	500	894	894			1490	1490	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	425	425					580	530			790
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	L	L	R
Maximum Queue (ft)	128	142	180	97	109	165	54	113	225
Average Queue (ft)	49	76	103	32	30	54	14	54	124
95th Queue (ft)	100	123	157	81	77	125	42	97	204
Link Distance (ft)	894	894	894		611	611		1350	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				290			425		425
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	102	154	190	207	64	28	74	115	155	218	224	297
Average Queue (ft)	40	48	81	103	26	5	16	22	42	66	49	155
95th Queue (ft)	85	121	157	179	53	17	53	74	115	153	132	254
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)												0
Queuing Penalty (veh)												0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	148	58	47	58
Average Queue (ft)	37	18	10	26
95th Queue (ft)	92	46	34	53
Link Distance (ft)	720		459	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		155		90
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T
Maximum Queue (ft)	228	247	112	138	157	141	128	126
Average Queue (ft)	88	97	39	64	76	49	69	56
95th Queue (ft)	178	203	89	113	129	109	122	105
Link Distance (ft)	1778	765		774	774		1134	1134
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			150			200		
Storage Blk Time (%)			0	0		0		0
Queuing Penalty (veh)			0	0		0		0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	57	39	25	19	38	36	46	81	66
Average Queue (ft)	32	19	9	8	23	21	16	45	31
95th Queue (ft)	54	37	24	23	35	41	36	70	56
Link Distance (ft)	206		331		1223			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	80	35	52	82	80	30	114	122	11
Average Queue (ft)	38	7	19	33	37	3	43	42	0
95th Queue (ft)	70	27	44	68	73	17	97	98	8
Link Distance (ft)	631	414		1390	1390		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	SB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	T	R
Maximum Queue (ft)	910	155	158	136	102	112	111	58
Average Queue (ft)	444	138	84	63	49	55	54	28
95th Queue (ft)	955	200	142	109	86	91	87	51
Link Distance (ft)	1452		168	168	1044		1223	1223
Upstream Blk Time (%)	0		0	0				
Queuing Penalty (veh)	0		1	0				
Storage Bay Dist (ft)		130				120		
Storage Blk Time (%)	65	7				0	0	
Queuing Penalty (veh)	229	21				0	0	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	175	138	26	59	85	90
Average Queue (ft)	98	41	9	31	36	45
95th Queue (ft)	161	95	30	50	65	73
Link Distance (ft)	168	168		362	1134	
Upstream Blk Time (%)	1	0				
Queuing Penalty (veh)	4	0				
Storage Bay Dist (ft)			175			230
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	WB	NB	NB
Directions Served	LT	T	TR	LT	R
Maximum Queue (ft)	342	39	104	38	30
Average Queue (ft)	161	3	52	18	13
95th Queue (ft)	307	22	86	38	33
Link Distance (ft)	362	362	164	908	
Upstream Blk Time (%)	0		0		
Queuing Penalty (veh)	1		0		
Storage Bay Dist (ft)					270
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	B24	B24	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	T		LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	304	60	2	144	67	125	91	106	106	125
Average Queue (ft)	147	5	0	68	32	65	43	47	50	67
95th Queue (ft)	288	42	2	114	57	103	73	85	85	105
Link Distance (ft)	256	164	164	326		768	768		1390	1390
Upstream Blk Time (%)	8	0								
Queuing Penalty (veh)	35	0								
Storage Bay Dist (ft)					175			165		
Storage Blk Time (%)						0			0	
Queuing Penalty (veh)						0			0	

Zone Summary

Zone wide Queuing Penalty: 292

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	WB	WB	B28	B28	NB	NB
Directions Served	T	R	L	T	T		L	R
Maximum Queue (ft)	403	260	425	539	527	523	92	142
Average Queue (ft)	324	167	425	539	519	514	37	78
95th Queue (ft)	479	339	425	539	526	521	72	121
Link Distance (ft)	388			468	500	500	4202	
Upstream Blk Time (%)	17			69	69	54		
Queuing Penalty (veh)	0			973	488	379		
Storage Bay Dist (ft)		235	400					400
Storage Blk Time (%)	22	0	88	1				
Queuing Penalty (veh)	47	1	599	5				

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	R	L	L	LTR	R
Maximum Queue (ft)	109	252	318	132	926	934	605	555	1506	1506	815
Average Queue (ft)	25	102	186	32	866	873	509	422	1501	1503	814
95th Queue (ft)	78	200	284	86	1076	1082	872	742	1570	1556	828
Link Distance (ft)			500	500	894	894			1490	1490	
Upstream Blk Time (%)					59	67			92	85	
Queuing Penalty (veh)					252	287			0	0	
Storage Bay Dist (ft)	425	425					580	530			790
Storage Blk Time (%)			0			90	1	2	34	84	23
Queuing Penalty (veh)			0			271	2	8	124	358	194

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	253	263	393	249	635	645	649	224	290	362
Average Queue (ft)	131	148	171	74	490	503	306	91	135	189
95th Queue (ft)	231	245	333	164	859	855	814	258	304	318
Link Distance (ft)	894	894	894		611	611	611		1350	
Upstream Blk Time (%)					44	53	27			
Queuing Penalty (veh)					180	219	112			
Storage Bay Dist (ft)				290				425		425
Storage Blk Time (%)			0	0				0	1	0
Queuing Penalty (veh)			2	0				1	5	0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	R	L
Maximum Queue (ft)	136	248	274	291	144	49	300	1354	1354	575	562	337
Average Queue (ft)	60	86	115	129	47	10	94	742	759	343	45	144
95th Queue (ft)	115	199	227	236	103	32	299	1745	1762	745	296	353
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)								30	43			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	425				500	500	275			550	550	325
Storage Blk Time (%)							0	57	49	28	0	0
Queuing Penalty (veh)							0	52	175	90	0	0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	NB	B29	SB	SB	SB
Directions Served	L	TR	T	L	T	R
Maximum Queue (ft)	350	791	1523	43	40	65
Average Queue (ft)	261	468	541	9	7	20
95th Queue (ft)	445	1062	1641	31	28	53
Link Distance (ft)		720	1778		459	
Upstream Blk Time (%)		50	9			
Queuing Penalty (veh)		141	25			
Storage Bay Dist (ft)	325			155		90
Storage Blk Time (%)	57	0				0
Queuing Penalty (veh)	32	0				0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	329	576	92	136	164	184	213	206	50
Average Queue (ft)	126	208	23	34	42	85	82	86	4
95th Queue (ft)	266	529	78	116	109	160	172	182	43
Link Distance (ft)	1778	765		774	774		1134	1134	
Upstream Blk Time (%)		5							
Queuing Penalty (veh)		0							
Storage Bay Dist (ft)			150			200			125
Storage Blk Time (%)			2			1	0	1	0
Queuing Penalty (veh)			2			1	0	0	0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	51	52	40	44	77	54	38	78	100
Average Queue (ft)	26	23	17	20	43	30	11	41	63
95th Queue (ft)	44	42	32	36	68	47	31	66	88
Link Distance (ft)	206		331		1221			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	67	52	62	83	78	14	119	120	39
Average Queue (ft)	28	16	19	20	20	1	41	46	3
95th Queue (ft)	58	43	47	60	60	8	93	98	22
Link Distance (ft)	631	414		1383	1383		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	TR	L	L	TR
Maximum Queue (ft)	79	209	190	192	207	130	85	113	115	156	305
Average Queue (ft)	28	57	91	119	161	60	27	46	35	70	157
95th Queue (ft)	64	139	162	190	234	106	65	89	80	124	258
Link Distance (ft)		1454		163	163	163		1037		1221	1221
Upstream Blk Time (%)				3	12	0					
Queuing Penalty (veh)				13	47	0					
Storage Bay Dist (ft)	175		175				125		120		
Storage Blk Time (%)		0	0				0	0	0	1	
Queuing Penalty (veh)		1	1				0	0	0	1	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	114	182	86	373	491	251
Average Queue (ft)	43	86	14	228	166	153
95th Queue (ft)	94	167	50	387	372	264
Link Distance (ft)	163	163		361	1118	
Upstream Blk Time (%)	0	1		1		
Queuing Penalty (veh)	0	3		10		
Storage Bay Dist (ft)			100			230
Storage Blk Time (%)				26	1	6
Queuing Penalty (veh)				3	3	17

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	LT	R
Maximum Queue (ft)	115	142	267	276	175	322	98
Average Queue (ft)	47	67	87	100	37	175	20
95th Queue (ft)	98	114	199	238	124	277	66
Link Distance (ft)		361	361	474		913	
Upstream Blk Time (%)				0			
Queuing Penalty (veh)				0			
Storage Bay Dist (ft)	100				150		270
Storage Blk Time (%)	0	1		5	0	1	0
Queuing Penalty (veh)	0	1		8	0	0	0

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	178	309	145	320	156	157	211	180	214	236
Average Queue (ft)	66	130	63	156	69	75	94	97	95	127
95th Queue (ft)	130	258	135	268	130	135	170	165	175	205
Link Distance (ft)		474		325		761	761		1383	1383
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	300		120		175			165		
Storage Blk Time (%)		0	1	16	0	0		2	1	
Queuing Penalty (veh)		0	3	11	0	0		3	1	

Zone Summary

Zone wide Queuing Penalty: 5157

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	WB	WB	B28	B28	NB	NB
Directions Served	T	R	L	T	T		L	R
Maximum Queue (ft)	302	157	425	539	550	540	122	175
Average Queue (ft)	155	30	413	501	464	407	56	87
95th Queue (ft)	260	90	477	682	721	701	101	142
Link Distance (ft)	388			468	500	500	4202	
Upstream Blk Time (%)	0			37	46	25		
Queuing Penalty (veh)	0			445	272	148		
Storage Bay Dist (ft)		235	400					400
Storage Blk Time (%)	1	0	54	7				
Queuing Penalty (veh)	1	0	424	28				

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	B28	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	T	R	L	L	LTR	R
Maximum Queue (ft)	123	307	383	130	4	748	764	442	193	391	468	308
Average Queue (ft)	14	75	177	29	0	343	355	140	64	139	212	153
95th Queue (ft)	68	198	316	83	6	897	916	556	143	285	396	280
Link Distance (ft)			500	500	468	894	894			1490	1490	
Upstream Blk Time (%)			0			8	11				0	
Queuing Penalty (veh)			0			47	66				0	
Storage Bay Dist (ft)	425	425						580	530			790
Storage Blk Time (%)		0	0				21	0				
Queuing Penalty (veh)		0	2				113	1				

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	174	201	1008	175	350	430	251	137	184	290
Average Queue (ft)	87	112	199	65	109	180	53	42	86	158
95th Queue (ft)	151	172	609	141	354	488	334	122	164	253
Link Distance (ft)	894	894	894		611	611	611		1350	
Upstream Blk Time (%)			0		0	6	4			
Queuing Penalty (veh)			0		1	38	25			
Storage Bay Dist (ft)				290				425		425
Storage Blk Time (%)			0							
Queuing Penalty (veh)			0							

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	110	227	272	288	76	38	135	419	525	400	327	347
Average Queue (ft)	44	85	119	137	28	6	27	145	203	175	105	229
95th Queue (ft)	90	182	217	237	60	22	89	679	737	398	275	365
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)								3	6			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)							0	7	7	3	0	13
Queuing Penalty (veh)							0	5	34	15	0	11

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	B29	SB	SB	SB
Directions Served	TR	T	L	T	R
Maximum Queue (ft)	514	355	67	42	75
Average Queue (ft)	145	63	18	9	31
95th Queue (ft)	509	538	50	32	63
Link Distance (ft)	720	1778		459	
Upstream Blk Time (%)	6	1			
Queuing Penalty (veh)	21	3			
Storage Bay Dist (ft)			155		90
Storage Blk Time (%)	0				1
Queuing Penalty (veh)	0				0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T
Maximum Queue (ft)	238	320	132	164	190	141	155	134
Average Queue (ft)	103	124	50	79	92	57	74	63
95th Queue (ft)	204	256	108	141	156	117	131	116
Link Distance (ft)	1778	765		774	774		1134	1134
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			150			200		
Storage Blk Time (%)			1	0			0	0
Queuing Penalty (veh)			1	0			0	0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	81	46	29	26	73	52	43	78	90
Average Queue (ft)	35	20	9	9	38	28	17	45	58
95th Queue (ft)	63	39	25	24	62	47	37	70	83
Link Distance (ft)	206		331		1221			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	80	31	65	126	131	25	131	128	14
Average Queue (ft)	38	7	17	46	52	2	45	49	0
95th Queue (ft)	70	28	46	100	107	14	100	103	14
Link Distance (ft)	631	414		1383	1383		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)							0		
Queuing Penalty (veh)							0		

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	TR	L	L	TR
Maximum Queue (ft)	93	252	190	206	210	123	84	145	145	395	229
Average Queue (ft)	21	95	115	161	105	48	25	55	88	142	93
95th Queue (ft)	60	200	188	241	194	100	63	112	158	300	184
Link Distance (ft)		1454		163	163	163		1037		1221	1221
Upstream Blk Time (%)				39	2	0					
Queuing Penalty (veh)				101	5	0					
Storage Bay Dist (ft)	175		175				125		120		
Storage Blk Time (%)		1	1					1	2	16	
Queuing Penalty (veh)		5	4					0	3	29	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	177	186	114	368	578	241
Average Queue (ft)	87	115	23	206	162	139
95th Queue (ft)	171	202	87	442	451	268
Link Distance (ft)	163	163		361	1118	
Upstream Blk Time (%)	1	4		19		
Queuing Penalty (veh)	6	18		86		
Storage Bay Dist (ft)			100			230
Storage Blk Time (%)				39	0	9
Queuing Penalty (veh)				9	0	20

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	LT	R
Maximum Queue (ft)	123	224	221	376	164	346	74
Average Queue (ft)	70	87	79	137	56	134	17
95th Queue (ft)	133	172	168	421	162	273	62
Link Distance (ft)		361	361	474		913	
Upstream Blk Time (%)				7			
Queuing Penalty (veh)				33			
Storage Bay Dist (ft)	100				150		270
Storage Blk Time (%)	3	6		18	0	3	0
Queuing Penalty (veh)	6	12		43	0	1	0

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	188	314	145	325	167	376	334	167	174	190
Average Queue (ft)	89	145	96	154	84	153	124	85	78	106
95th Queue (ft)	163	259	160	300	169	368	321	150	146	174
Link Distance (ft)		474		325		761	761		1383	1383
Upstream Blk Time (%)				8		2	0			
Queuing Penalty (veh)				0		0	0			
Storage Bay Dist (ft)	300		120		175			165		
Storage Blk Time (%)		0	8	16	10	1		1	0	
Queuing Penalty (veh)		1	25	22	18	1		2	0	

Zone Summary

Zone wide Queuing Penalty: 2155

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	406	405	260	425	641	441	98	174
Average Queue (ft)	404	403	249	347	178	74	38	83
95th Queue (ft)	417	431	322	473	583	254	78	139
Link Distance (ft)	390	390			1023	1023	4187	
Upstream Blk Time (%)	71	72						
Queuing Penalty (veh)	0	0						
Storage Bay Dist (ft)			235	400				400
Storage Blk Time (%)		71	0	12				
Queuing Penalty (veh)		152	2	59				

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	L	L	LTR	R
Maximum Queue (ft)	104	266	350	271	146	110	485	827	940	619
Average Queue (ft)	19	83	174	51	47	25	191	333	449	347
95th Queue (ft)	68	199	314	167	117	78	385	612	697	544
Link Distance (ft)			1023	1023	894	894		1490	1490	
Upstream Blk Time (%)								0	0	
Queuing Penalty (veh)								0	0	
Storage Bay Dist (ft)	425	425					530			790
Storage Blk Time (%)		0	0				0	0	0	
Queuing Penalty (veh)		0	0				0	2	0	

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	245	249	361	312	84	109	64	216	619	450
Average Queue (ft)	128	147	204	69	25	33	2	88	171	325
95th Queue (ft)	210	227	319	198	66	83	64	161	467	470
Link Distance (ft)	894	894	894		611	611	611		1350	
Upstream Blk Time (%)							0			
Queuing Penalty (veh)							0			
Storage Bay Dist (ft)				290				425		425
Storage Blk Time (%)			1	0					0	5
Queuing Penalty (veh)			4	0					1	14

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	167	256	281	302	172	81	116	102	192	253	338	350
Average Queue (ft)	77	128	159	177	74	24	43	26	55	119	281	343
95th Queue (ft)	140	240	257	276	139	59	95	73	143	223	462	398
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)											1	76
Queuing Penalty (veh)											0	44

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	B29	SB	SB	SB
Directions Served	TR	T	L	T	R
Maximum Queue (ft)	791	540	40	29	49
Average Queue (ft)	680	166	8	6	18
95th Queue (ft)	1002	637	30	23	44
Link Distance (ft)	720	1778		459	
Upstream Blk Time (%)	46				
Queuing Penalty (veh)	246				
Storage Bay Dist (ft)			155		90
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	B29	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	T	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	1113	106	780	115	98	178	225	1149	1147	134
Average Queue (ft)	610	5	775	38	37	53	224	980	905	14
95th Queue (ft)	1311	89	841	91	79	117	234	1372	1384	85
Link Distance (ft)	1778	720	765		774	774		1134	1134	
Upstream Blk Time (%)	1	0	91					42	15	
Queuing Penalty (veh)	10	0	0					0	0	
Storage Bay Dist (ft)				150			200			125
Storage Blk Time (%)				0	0		96	2	17	0
Queuing Penalty (veh)				0	0		201	5	9	0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	60	56	40	50	84	54	38	117	175
Average Queue (ft)	27	24	17	20	44	31	16	61	95
95th Queue (ft)	49	45	32	40	69	47	35	99	146
Link Distance (ft)	206		331		1221			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	76	48	58	88	78	22	119	131	52
Average Queue (ft)	30	16	16	24	22	2	41	49	3
95th Queue (ft)	63	43	43	67	60	12	94	101	25
Link Distance (ft)	631	414		1383	1383		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)							0		
Queuing Penalty (veh)							0		

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	TR	L	L	TR
Maximum Queue (ft)	70	194	172	200	215	161	91	146	144	480	695
Average Queue (ft)	26	70	95	117	180	66	30	52	66	186	420
95th Queue (ft)	59	154	158	186	233	122	71	110	139	462	752
Link Distance (ft)		1454		163	163	163		1037		1221	1221
Upstream Blk Time (%)				3	19	0					
Queuing Penalty (veh)				13	74	1					
Storage Bay Dist (ft)	175		175				125		120		
Storage Blk Time (%)		0	0				0	1	1	10	
Queuing Penalty (veh)		1	0				0	0	1	13	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	157	193	109	378	798	255
Average Queue (ft)	60	121	20	279	295	187
95th Queue (ft)	128	204	68	419	720	299
Link Distance (ft)	163	163		361	1118	
Upstream Blk Time (%)	0	4		3	1	
Queuing Penalty (veh)	1	13		24	0	
Storage Bay Dist (ft)			100			230
Storage Blk Time (%)			0	35	3	16
Queuing Penalty (veh)			0	7	12	64

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	LT	R
Maximum Queue (ft)	124	164	317	389	175	336	148
Average Queue (ft)	63	75	106	149	74	183	23
95th Queue (ft)	114	128	243	312	182	290	82
Link Distance (ft)		361	361	474		913	
Upstream Blk Time (%)			0	0			
Queuing Penalty (veh)			0	0			
Storage Bay Dist (ft)	100				150		270
Storage Blk Time (%)	1	3		9	0	2	0
Queuing Penalty (veh)	1	3		25	1	0	0

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	288	400	145	340	155	167	219	188	274	251
Average Queue (ft)	89	180	64	226	70	77	98	116	106	136
95th Queue (ft)	192	349	141	358	129	137	172	192	215	221
Link Distance (ft)		474		325		761	761		1383	1383
Upstream Blk Time (%)		0		3						
Queuing Penalty (veh)		0		0						
Storage Bay Dist (ft)	300		120		175			165		
Storage Blk Time (%)		1	0	27	0	0		6	1	
Queuing Penalty (veh)		2	2	18	0	0		11	2	

Zone Summary

Zone wide Queuing Penalty: 1041

Intersection: 1: Manthey Rd & Arch Airport Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	384	300	86	290	104	124	134	174
Average Queue (ft)	224	155	26	167	39	63	60	90
95th Queue (ft)	337	271	63	259	84	106	112	148
Link Distance (ft)	390	390			1023	1023	4187	
Upstream Blk Time (%)	0							
Queuing Penalty (veh)	0							
Storage Bay Dist (ft)			235	400				400
Storage Blk Time (%)		0						
Queuing Penalty (veh)		0						

Intersection: 2: I-5 SB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	R	L	L	LTR	R
Maximum Queue (ft)	94	243	355	171	133	108	21	227	440	527	378
Average Queue (ft)	12	81	191	38	36	24	1	83	173	274	188
95th Queue (ft)	51	186	310	111	94	74	12	180	382	474	331
Link Distance (ft)			1023	1023	894	894			1490	1490	
Upstream Blk Time (%)									0	0	
Queuing Penalty (veh)									0	0	
Storage Bay Dist (ft)	425	425					580	530			790
Storage Blk Time (%)			0								
Queuing Penalty (veh)			1								

Intersection: 3: I-5 NB Ramps & Arch Airport Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	193	210	322	236	101	148	138	129	151	386
Average Queue (ft)	94	121	180	71	23	49	6	58	77	224
95th Queue (ft)	162	186	283	168	66	116	92	105	129	354
Link Distance (ft)	894	894	894		611	611	611		1350	
Upstream Blk Time (%)							0			
Queuing Penalty (veh)							0			
Storage Bay Dist (ft)				290				425		425
Storage Blk Time (%)			0	0						0
Queuing Penalty (veh)			2	0						0

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	R	L	T	T	T	L	L
Maximum Queue (ft)	123	268	283	293	202	118	180	364	445	413	337	350
Average Queue (ft)	46	115	145	157	85	35	90	93	180	224	269	349
95th Queue (ft)	96	222	240	251	174	107	194	357	445	407	467	351
Link Distance (ft)		611	611	611				1339	1339			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	425				500	500	275			550	325	325
Storage Blk Time (%)							5	0	1	1	1	82
Queuing Penalty (veh)							24	0	3	4	1	133

Intersection: 4: French Camp Rd/Frank W Cir & Arch Airport Rd

Movement	NB	B29	SB	SB	SB
Directions Served	TR	T	L	T	R
Maximum Queue (ft)	791	1808	58	44	80
Average Queue (ft)	786	1438	18	10	32
95th Queue (ft)	846	2306	48	34	68
Link Distance (ft)	720	1778		459	
Upstream Blk Time (%)	85	23			
Queuing Penalty (veh)	629	171			
Storage Bay Dist (ft)			155		90
Storage Blk Time (%)	0				0
Queuing Penalty (veh)	0				0

Intersection: 5: El Dorado St & French Camp Rd

Movement	EB	B29	B29	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	T		LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	1468	344	274	780	175	739	666	225	1098	1067	149
Average Queue (ft)	1190	165	74	778	139	355	237	221	768	715	31
95th Queue (ft)	2218	586	379	813	227	761	539	251	1239	1198	130
Link Distance (ft)	1778	720	720	765		774	774		1134	1134	
Upstream Blk Time (%)	32	2	0	85		9	0		10	4	
Queuing Penalty (veh)	257	9	2	0		29	0		0	0	
Storage Bay Dist (ft)					150			200			125
Storage Blk Time (%)					59	4		89	2	27	0
Queuing Penalty (veh)					127	5		239	4	16	0

Intersection: 6: Manthey Rd & Hospital Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	77	41	25	28	70	52	47	92	119
Average Queue (ft)	36	20	9	9	38	28	16	48	66
95th Queue (ft)	62	37	24	25	61	46	36	78	101
Link Distance (ft)	206		331		1221			982	982
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		105		300		300	355		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Hospital Rd & El Dorado St

Movement	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	88	78	56	133	141	29	192	202	11
Average Queue (ft)	41	33	20	56	58	3	78	85	0
95th Queue (ft)	76	64	48	115	118	17	159	163	8
Link Distance (ft)	631	414		1383	1383		559	559	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			175			180			330
Storage Blk Time (%)				0			0		
Queuing Penalty (veh)				0			0		

Intersection: 8: Manthey Rd & Mathews Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	TR	L	L	TR
Maximum Queue (ft)	70	257	198	208	220	122	76	133	145	422	208
Average Queue (ft)	20	94	109	166	108	46	23	51	96	168	96
95th Queue (ft)	52	194	185	239	202	94	56	104	167	359	181
Link Distance (ft)		1454		163	163	163		1037		1221	1221
Upstream Blk Time (%)				37	2	0					
Queuing Penalty (veh)				97	5	0					
Storage Bay Dist (ft)	175		175				125		120		
Storage Blk Time (%)	0	1	1					0	3	24	
Queuing Penalty (veh)	0	4	4					0	6	42	

Intersection: 9: I-5 SB Ramps & Mathews Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	182	193	116	373	530	255
Average Queue (ft)	87	123	25	191	176	129
95th Queue (ft)	169	214	86	405	385	251
Link Distance (ft)	163	163		361	1118	
Upstream Blk Time (%)	1	5		11		
Queuing Penalty (veh)	6	25		53		
Storage Bay Dist (ft)			100			230
Storage Blk Time (%)				32	2	5
Queuing Penalty (veh)				8	8	17

Intersection: 10: I-5 NB Ramps & Mathews Rd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	LT	R
Maximum Queue (ft)	124	200	277	314	153	326	98
Average Queue (ft)	72	84	98	94	51	134	18
95th Queue (ft)	127	157	216	334	138	311	64
Link Distance (ft)		361	361	474		913	
Upstream Blk Time (%)			0	4			
Queuing Penalty (veh)			0	24			
Storage Bay Dist (ft)	100				150		270
Storage Blk Time (%)	2	4		10	0	4	
Queuing Penalty (veh)	4	9		36	0	1	

Intersection: 11: El Dorado Rd & Mathews Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	306	413	145	340	190	358	319	190	520	505
Average Queue (ft)	141	194	106	220	94	171	142	153	288	274
95th Queue (ft)	273	346	172	369	188	356	319	234	618	576
Link Distance (ft)		474		325		761	761		1383	1383
Upstream Blk Time (%)		0		11		0	0			
Queuing Penalty (veh)		1		0		0	0			
Storage Bay Dist (ft)	300		120		175			165		
Storage Blk Time (%)	1	3	11	25	12	2		45	5	
Queuing Penalty (veh)	4	4	47	35	25	2		139	9	

Zone Summary

Zone wide Queuing Penalty: 2269

Appendix D

Peak Hour Signal Warrant Calculations

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Warrant 3: Peak-Hour Volumes and Delay

Manthey Rd & Hospital Rd
San Joaquin County

Project Name: SJX011-1

Intersection: 6

	Major Street	Minor Street
Street Name	Manthey Rd	Hospital Rd
Direction	N-S	E-W
Number of Lanes	2	1
Approach Speed	30	30

Population less than 10,000? No
Date of Count: Thursday, November 2, 2023
Scenario: Future plus Project AM

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.52 vehicle-hours

Condition A2 — Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 144 vph

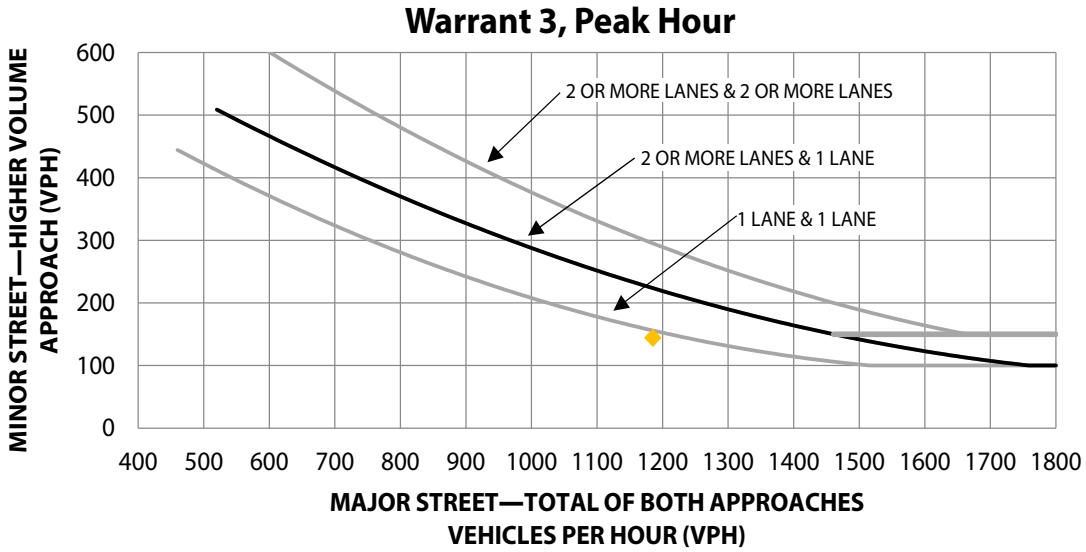
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1428 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Manthey Rd & Hospital Rd
San Joaquin County

Project Name: SJX011-1

Intersection: 6

	Major Street	Minor Street
Street Name	Manthey Rd	Hospital Rd
Direction	N-S	E-W
Number of Lanes	2	1
Approach Speed	30	30

Population less than 10,000? No
Date of Count: Thursday, November 2, 2023
Scenario: Future plus Project PM

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.6 vehicle-hours

Condition A2 — Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 170 vph

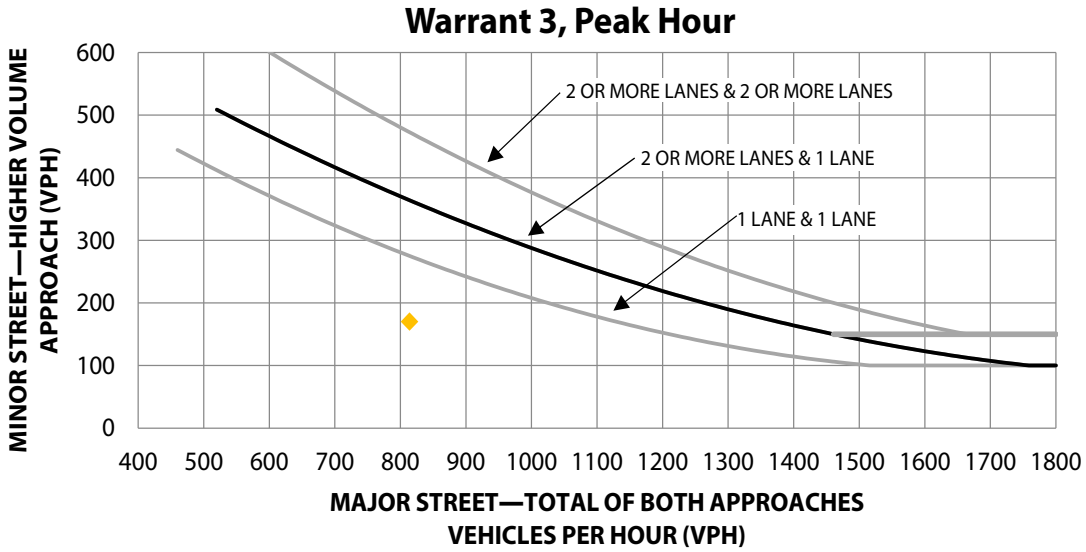
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1055 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Hospital Rd & Project Driveway
San Joaquin County

Project Name: SJX011-1

Intersection: 12

	Major Street	Minor Street
Street Name	Hospital Rd	Project Driveway
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	30	25

Population less than 10,000? No
Date of Count: Thursday, November 2, 2023
Scenario: Future plus Project AM

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: N/A vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 18 vph

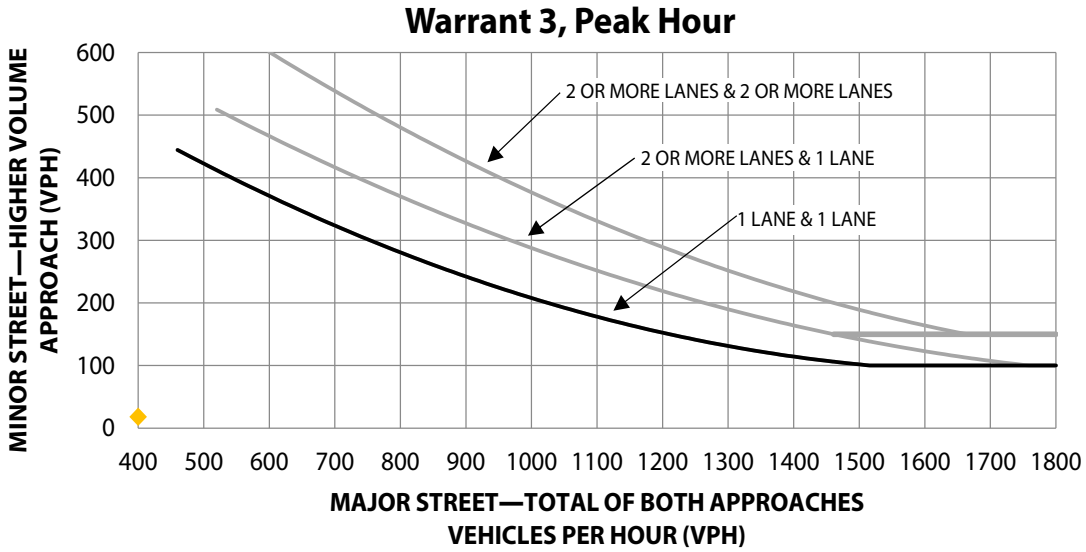
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 280 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Hospital Rd & Project Driveway
San Joaquin County

Project Name: SJX011-1

Intersection: 12

	Major Street	Minor Street
Street Name	Hospital Rd	Project Driveway
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	30	25

Population less than 10,000? No
Date of Count: Thursday, November 2, 2023
Scenario: Future plus Project PM

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: N/A vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 48 vph

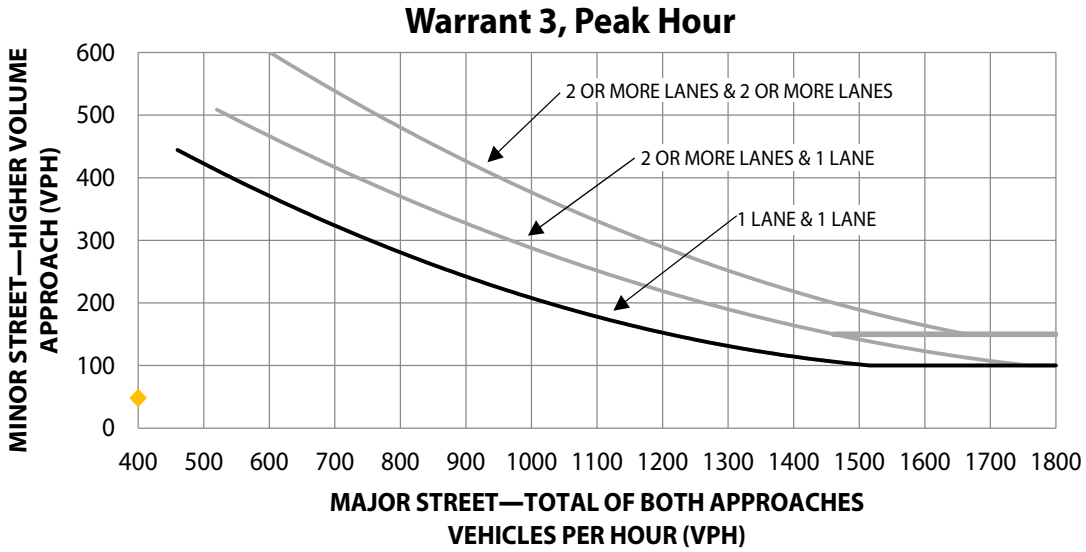
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 243 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

El Dorado & Project Driveway
San Joaquin County

Project Name: SJX011-1

Intersection: 13

	Major Street	Minor Street
Street Name	El Dorado	Project Driveway
Direction	N-S	E-W
Number of Lanes	2	2
Approach Speed	45	25

Population less than 10,000? No
Date of Count: Thursday, November 2, 2023
Scenario: Future plus Project AM

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: N/A vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 33 vph

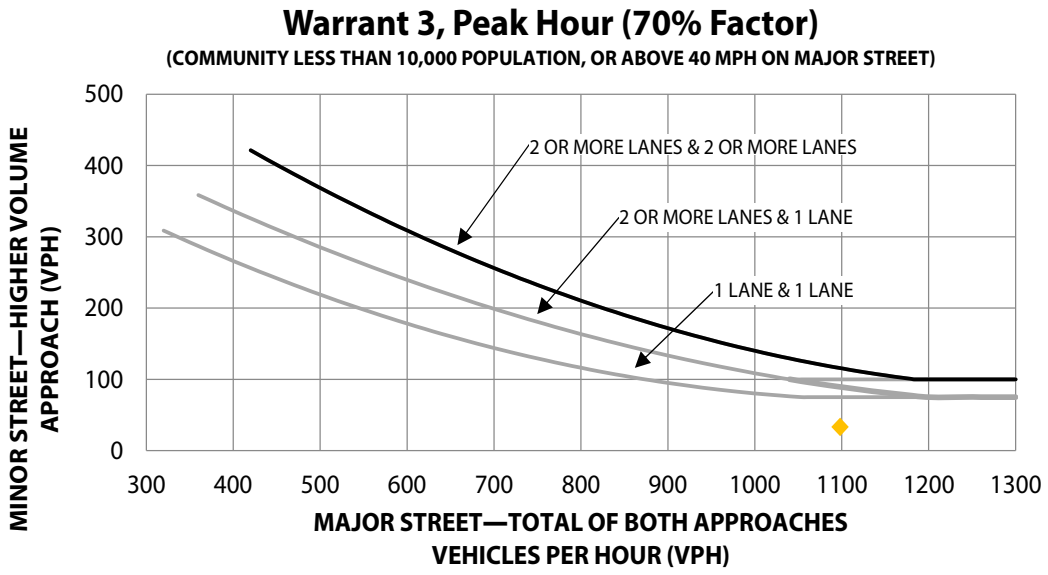
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1131 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

El Dorado & Project Driveway
San Joaquin County

Project Name: SJX011-1

Intersection: 13

	Major Street	Minor Street
Street Name	El Dorado	Project Driveway
Direction	N-S	E-W
Number of Lanes	2	2
Approach Speed	45	25

Population less than 10,000? No
Date of Count: Thursday, November 2, 2023
Scenario: Future plus Project PM

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: N/A vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 90 vph

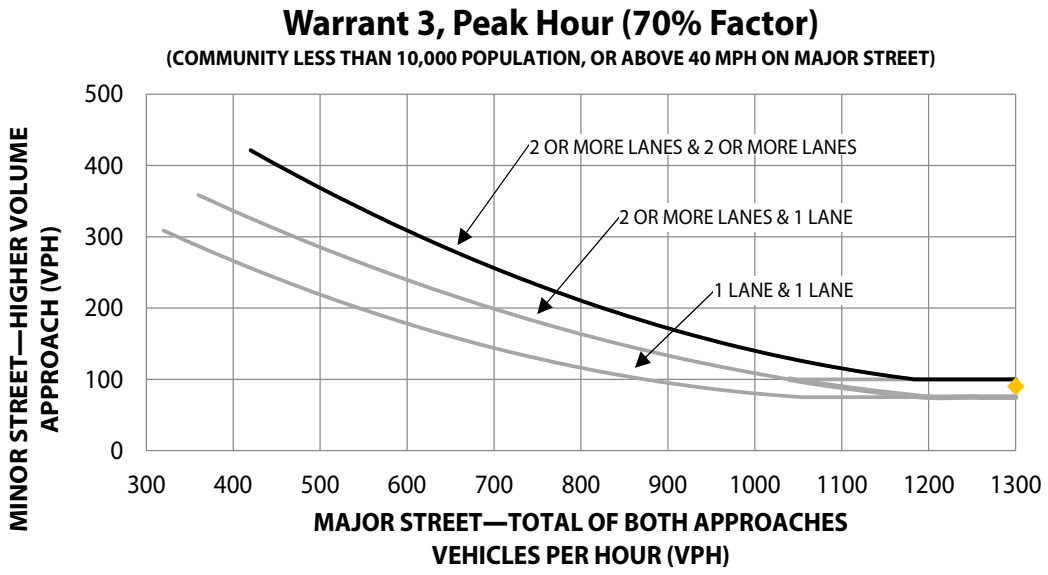
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1505 vph

Condition B — Not Met

The plotted point falls above the curve



Appendix E

Intersection Level of Service Calculations

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HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/30/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	738	202	443	637	42	59
Future Volume (veh/h)	738	202	443	637	42	59
Initial Q (Qb), veh	0	0	5	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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	785	185	471	678	45	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	936	777	317	1435	94	84
Arrive On Green	0.49	0.49	0.18	0.76	0.05	0.05
Sat Flow, veh/h	1900	1577	1810	1900	1810	1610
Grp Volume(v), veh/h	785	185	471	678	45	40
Grp Sat Flow(s),veh/h/ln	1900	1577	1810	1900	1810	1610
Q Serve(g_s), s	20.4	3.8	10.0	7.7	1.4	1.4
Cycle Q Clear(g_c), s	20.4	3.8	10.0	7.7	1.4	1.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	936	777	317	1435	94	84
V/C Ratio(X)	0.84	0.24	1.49	0.47	0.48	0.48
Avail Cap(c_a), veh/h	999	829	317	1435	475	423
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	12.5	8.3	23.5	2.7	26.3	26.3
Incr Delay (d2), s/veh	8.2	0.6	234.8	0.9	1.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	56.8	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	1.1	29.3	0.7	0.6	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.7	8.9	315.1	3.5	27.7	27.9
LnGrp LOS	C	A	F	A	C	C
Approach Vol, veh/h	970			1149	85	
Approach Delay, s/veh	18.4			131.3	27.8	
Approach LOS	B			F	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	34.1		8.0		49.1
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	10.0	30.0		15.0		30.0
Max Q Clear Time (g_c+I1), s	12.0	22.4		3.4		9.7
Green Ext Time (p_c), s	0.0	5.7		0.1		9.6

Intersection Summary			
HCM 6th Ctrl Delay			77.6
HCM 6th LOS			E

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	684	117	0	444	217	0	0	0	836	57	636
Future Volume (veh/h)	0	684	117	0	444	217	0	0	0	836	57	636
Initial Q (Qb), veh	0	0	0	0	1	0				0	0	5
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	760	130	0	493	165				1098	0	419
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1665	510	0	1145	517				1854	0	555
Arrive On Green	0.00	0.32	0.32	0.00	0.32	0.32				0.34	0.00	0.34
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	760	130	0	493	165				1098	0	419
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	3.7	1.9	0.0	3.4	2.5				5.3	0.0	7.4
Cycle Q Clear(g_c), s	0.0	3.7	1.9	0.0	3.4	2.5				5.3	0.0	7.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1665	510	0	1145	517				1854	0	555
V/C Ratio(X)	0.00	0.46	0.25	0.00	0.43	0.32				0.59	0.00	0.75
Avail Cap(c_a), veh/h	0	5620	1722	0	3957	1765				6002	0	1780
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.9	8.3	0.0	8.6	8.4				9.0	0.0	10.3
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.1	0.1				0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	2.4
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.4	0.0	0.7	0.5				1.0	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.0	8.4	0.0	8.7	8.6				9.1	0.0	13.5
LnGrp LOS	A	A	A	A	A	A				A	A	B
Approach Vol, veh/h		890			658						1517	
Approach Delay, s/veh		8.9			8.7						10.3	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		15.8		15.8		15.8
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		5.7		9.4		5.4
Green Ext Time (p_c), s		2.1		1.3		1.2

Intersection Summary			
HCM 6th Ctrl Delay			9.5
HCM 6th LOS			A

Notes

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

User approved volume balancing among the lanes for turning movement.

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

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1267	262	0	541	424	117	0	533	0	0	0
Future Volume (vph)	0	1267	262	0	541	424	117	0	533	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1408	291	0	601	471	130	0	592	0	0	0
RTOR Reduction (vph)	0	0	182	0	0	153	0	0	0	0	0	0
Lane Group Flow (vph)	0	1408	109	0	601	318	130	0	592	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		31.6	31.6		57.0	57.0	17.2		42.2			
Effective Green, g (s)		31.6	31.6		57.0	57.0	17.2		42.2			
Actuated g/C Ratio		0.37	0.37		0.67	0.67	0.20		0.50			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		1939	596		2435	1089	712		806			
v/s Ratio Prot		c0.27			0.17		0.04		c0.37			
v/s Ratio Perm			0.07			0.20						
v/c Ratio		0.73	0.18		0.25	0.29	0.18		0.73			
Uniform Delay, d1		22.7	17.8		5.4	5.6	27.8		16.7			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		1.5	0.2		0.1	0.2	0.1		3.5			
Delay (s)		24.2	18.0		5.4	5.8	28.0		20.2			
Level of Service		C	B		A	A	C		C			
Approach Delay (s)		23.1			5.6			21.6			0.0	
Approach LOS		C			A			C			A	

Intersection Summary				
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	15.6	
Intersection Capacity Utilization	66.4%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1209	471	61	710	34	202	15	28	8	6	23
Future Volume (veh/h)	111	1209	471	61	710	34	202	15	28	8	6	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	123	1343	424	68	789	37	224	17	27	9	7	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	151	3152	1687	89	2944	914	302	64	101	16	36	31
Arrive On Green	0.09	0.61	0.61	0.05	0.57	0.57	0.09	0.10	0.10	0.01	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	661	1050	1810	1900	1610
Grp Volume(v), veh/h	123	1343	424	68	789	37	224	0	44	9	7	16
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1711	1810	1900	1610
Q Serve(g_s), s	6.9	13.2	6.8	3.6	7.5	1.0	6.0	0.0	2.3	0.5	0.4	1.0
Cycle Q Clear(g_c), s	6.9	13.2	6.8	3.6	7.5	1.0	6.0	0.0	2.3	0.5	0.4	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.61	1.00		1.00
Lane Grp Cap(c), veh/h	151	3152	1687	89	2944	914	302	0	165	16	36	31
V/C Ratio(X)	0.81	0.43	0.25	0.77	0.27	0.04	0.74	0.00	0.27	0.56	0.19	0.52
Avail Cap(c_a), veh/h	264	3386	1812	356	3386	1051	691	0	248	356	374	317
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	10.0	8.8	45.4	10.6	9.2	43.1	0.0	40.5	47.6	46.6	46.9
Incr Delay (d2), s/veh	3.9	0.4	0.4	5.2	0.2	0.1	1.4	0.0	0.3	10.8	1.0	5.0
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	2.9	4.3	2.0	1.7	2.6	0.3	2.6	0.0	1.0	0.3	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	10.4	9.1	50.5	10.9	9.3	44.4	0.0	40.8	58.5	47.6	51.9
LnGrp LOS	D	B	A	D	B	A	D	A	D	E	D	D
Approach Vol, veh/h		1890			894			268			32	
Approach Delay, s/veh		12.5			13.8			43.8			52.8	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	61.8	5.9	15.3	9.7	65.6	13.3	7.8
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	8.9	9.5	2.5	4.3	5.6	15.2	8.0	3.0
Green Ext Time (p_c), s	0.1	25.4	0.0	0.1	0.0	43.4	0.3	0.0

Intersection Summary		
HCM 6th Ctrl Delay	16.0	
HCM 6th LOS	B	

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	317	246	73	154	104	18	139	71	174	389	34
Future Volume (veh/h)	23	317	246	73	154	104	18	139	71	174	389	34
Initial Q (Qb), veh	0	2	0	0	1	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	24	337	173	78	164	88	19	148	0	185	414	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	81	458	222	175	354	160	66	516		245	872	
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.04	0.14	0.00	0.14	0.24	0.00
Sat Flow, veh/h	36	1162	574	247	895	415	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	534	0	0	330	0	0	19	148	0	185	414	0
Grp Sat Flow(s),veh/h/ln	1772	0	0	1557	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.0	0.6	2.0	0.0	5.5	5.5	0.0
Cycle Q Clear(g_c), s	14.5	0.0	0.0	8.0	0.0	0.0	0.6	2.0	0.0	5.5	5.5	0.0
Prop In Lane	0.04		0.32	0.24		0.27	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	762	0	0	688	0	0	66	516		245	872	
V/C Ratio(X)	0.70	0.00	0.00	0.48	0.00	0.00	0.29	0.29		0.76	0.47	
Avail Cap(c_a), veh/h	1283	0	0	1123	0	0	454	2848		454	2848	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.9	0.0	0.0	12.8	0.0	0.0	26.3	21.4	0.0	23.3	18.2	0.0
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.7	0.0	0.0	3.3	0.6	0.0	4.7	0.9	0.0
Initial Q Delay(d3),s/veh	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	0.0	2.9	0.0	0.0	0.3	0.8	0.0	2.4	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	0.0	0.0	13.5	0.0	0.0	29.6	22.1	0.0	28.1	19.1	0.0
LnGrp LOS	B	A	A	B	A	A	C	C		C	B	
Approach Vol, veh/h		534			330			167			599	
Approach Delay, s/veh		16.7			13.5			23.0			21.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.5	14.0		28.2	8.0	19.5		28.2
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	14.0	44.0		38.5	14.0	44.0		38.5
Max Q Clear Time (g_c+I1), s	7.5	4.0		16.5	2.6	7.5		10.0
Green Ext Time (p_c), s	0.2	1.7		5.2	0.0	5.2		3.4

Intersection Summary		
HCM 6th Ctrl Delay		18.6
HCM 6th LOS		B

Notes

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

HCM 6th AWSC
6: Manthey Rd & Hospital Rd

05/30/2025

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	25	62	59	48	25	67	85	14	32	463	69
Future Vol, veh/h	12	25	62	59	48	25	67	85	14	32	463	69
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	27	68	65	53	27	74	93	15	35	509	76
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.2	11.1	10.7	14.2
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	12%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	67%	25%	0%	66%	0%	100%	69%
Vol Right, %	0%	0%	33%	63%	0%	34%	0%	0%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	57	42	99	59	73	32	309	223
LT Vol	67	0	0	12	59	0	32	0	0
Through Vol	0	57	28	25	0	48	0	309	154
RT Vol	0	0	14	62	0	25	0	0	69
Lane Flow Rate	74	62	47	109	65	80	35	339	245
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.15	0.118	0.085	0.203	0.135	0.151	0.063	0.563	0.393
Departure Headway (Hd)	7.312	6.804	6.569	6.728	7.517	6.774	6.483	5.977	5.758
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	489	525	543	531	475	527	552	604	623
Service Time	5.081	4.573	4.337	4.5	5.288	4.545	4.232	3.725	3.506
HCM Lane V/C Ratio	0.151	0.118	0.087	0.205	0.137	0.152	0.063	0.561	0.393
HCM Control Delay	11.4	10.5	10	11.2	11.5	10.8	9.7	16.2	12.2
HCM Lane LOS	B	B	A	B	B	B	A	C	B
HCM 95th-tile Q	0.5	0.4	0.3	0.8	0.5	0.5	0.2	3.5	1.9

HCM 6th Signalized Intersection Summary
7: Hospital Rd & El Dorado St

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	13	26	2	17	3	12	199	4	2	533	150
Future Volume (veh/h)	31	13	26	2	17	3	12	199	4	2	533	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	35	15	29	2	19	2	13	224	4	2	599	169
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	220	80	90	119	245	24	31	1660	30	5	1600	714
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.02	0.46	0.46	0.00	0.44	0.44
Sat Flow, veh/h	501	525	595	69	1616	160	1810	3629	65	1810	3610	1610
Grp Volume(v), veh/h	79	0	0	23	0	0	13	111	117	2	599	169
Grp Sat Flow(s),veh/h/ln	1620	0	0	1845	0	0	1810	1805	1888	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3	1.3	0.0	4.0	2.4
Cycle Q Clear(g_c), s	1.4	0.0	0.0	0.4	0.0	0.0	0.3	1.3	1.3	0.0	4.0	2.4
Prop In Lane	0.44		0.37	0.09		0.09	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	390	0	0	388	0	0	31	826	864	5	1600	714
V/C Ratio(X)	0.20	0.00	0.00	0.06	0.00	0.00	0.42	0.13	0.14	0.40	0.37	0.24
Avail Cap(c_a), veh/h	1191	0	0	1320	0	0	301	1051	1100	301	2102	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	0.0	13.1	0.0	0.0	17.6	5.7	5.7	18.0	6.7	6.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.0	0.0	3.4	0.3	0.3	17.9	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.1	0.0	0.0	0.1	0.3	0.3	0.0	0.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.9	0.0	0.0	13.2	0.0	0.0	21.0	6.0	6.0	35.8	7.4	7.0
LnGrp LOS	B	A	A	B	A	A	C	A	A	D	A	A
Approach Vol, veh/h		79			23			241			770	
Approach Delay, s/veh		13.9			13.2			6.8			7.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.1	22.0		10.0	3.6	22.5		10.0
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.3	6.0		3.4	2.0	3.3		2.4
Green Ext Time (p_c), s	0.0	10.0		0.5	0.0	3.5		0.1

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

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

HCM 6th AWSC
8: Manthey Rd & Mathews Rd

05/30/2025

Intersection	
Intersection Delay, s/veh	84.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	288	33	179	619	117	35	27	62	74	328	147
Future Vol, veh/h	21	288	33	179	619	117	35	27	62	74	328	147
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	23	310	35	192	666	126	38	29	67	80	353	158
Number of Lanes	0	2	0	0	2	0	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	2	2
HCM Control Delay	22.9	148.7	20.7	30.7
HCM LOS	C	F	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	28%	13%	0%	37%	0%	100%	0%	0%
Vol Thru, %	22%	87%	81%	63%	73%	0%	100%	0%
Vol Right, %	50%	0%	19%	0%	27%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	165	177	489	427	74	328	147
LT Vol	35	21	0	179	0	74	0	0
Through Vol	27	144	144	310	310	0	328	0
RT Vol	62	0	33	0	117	0	0	147
Lane Flow Rate	133	177	190	525	459	80	353	158
Geometry Grp	6	6	6	6	6	5	5	5
Degree of Util (X)	0.389	0.486	0.511	1.321	1.104	0.198	0.827	0.34
Departure Headway (Hd)	11.123	10.402	10.201	9.057	8.669	9.266	8.75	8.027
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	325	350	356	404	417	390	416	450
Service Time	8.823	8.102	7.901	6.82	6.432	6.966	6.45	5.727
HCM Lane V/C Ratio	0.409	0.506	0.534	1.3	1.101	0.205	0.849	0.351
HCM Control Delay	20.7	22.6	23.1	187.2	104.7	14.2	41.6	14.8
HCM Lane LOS	C	C	C	F	F	B	E	B
HCM 95th-tile Q	1.8	2.5	2.8	24	16	0.7	7.7	1.5

Intersection	
Intersection Delay, s/veh	55.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	398	26	6	520	0	0	0	0	162	10	394
Future Vol, veh/h	0	398	26	6	520	0	0	0	0	162	10	394
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	437	29	7	571	0	0	0	0	178	11	433
Number of Lanes	0	2	0	1	1	0	0	0	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	18.5	116.6	26.7
HCM LOS	C	F	D

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	94%	0%
Vol Thru, %	100%	84%	0%	100%	6%	0%
Vol Right, %	0%	16%	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	265	159	6	520	172	394
LT Vol	0	0	6	0	162	0
Through Vol	265	133	0	520	10	0
RT Vol	0	26	0	0	0	394
Lane Flow Rate	292	174	7	571	189	433
Geometry Grp	5	5	5	5	5	5
Degree of Util (X)	0.594	0.35	0.014	1.16	0.408	0.794
Departure Headway (Hd)	7.666	7.547	7.822	7.308	8.132	6.929
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	475	479	457	497	446	524
Service Time	5.366	5.247	5.579	5.065	5.832	4.629
HCM Lane V/C Ratio	0.615	0.363	0.015	1.149	0.424	0.826
HCM Control Delay	21	14.3	10.7	117.8	16.3	31.3
HCM Lane LOS	C	B	B	F	C	D
HCM 95th-tile Q	3.8	1.6	0	20.3	2	7.4

Intersection	
Intersection Delay, s/veh	33.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	190	376	0	0	398	121	127	2	7	0	0	0
Future Vol, veh/h	190	376	0	0	398	121	127	2	7	0	0	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	224	442	0	0	468	142	149	2	8	0	0	0
Number of Lanes	0	2	0	0	1	0	0	1	1	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	17.2	56.7	14.5
HCM LOS	C	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1
Vol Left, %	98%	0%	60%	0%	0%
Vol Thru, %	2%	0%	40%	100%	77%
Vol Right, %	0%	100%	0%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	7	315	251	519
LT Vol	127	0	190	0	0
Through Vol	2	0	125	251	398
RT Vol	0	7	0	0	121
Lane Flow Rate	152	8	371	295	611
Geometry Grp	5	5	5	5	4b
Degree of Util (X)	0.337	0.015	0.642	0.485	0.986
Departure Headway (Hd)	7.999	6.775	6.233	5.926	5.811
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	449	527	579	607	623
Service Time	5.754	4.528	3.977	3.67	3.846
HCM Lane V/C Ratio	0.339	0.015	0.641	0.486	0.981
HCM Control Delay	14.8	9.6	19.5	14.2	56.7
HCM Lane LOS	B	A	C	B	F
HCM 95th-tile Q	1.5	0	4.6	2.6	14.6

HCM 6th AWSC
11: El Dorado Rd & Mathews Rd

05/30/2025

Intersection	
Intersection Delay, s/veh	35.9
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	278	27	26	287	18	91	121	50	168	295	134
Future Vol, veh/h	59	278	27	26	287	18	91	121	50	168	295	134
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	64	302	29	28	312	20	99	132	54	183	321	146
Number of Lanes	0	1	0	0	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	63	48.9	15.5	21
HCM LOS	F	E	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	16%	8%	100%	0%	0%
Vol Thru, %	0%	100%	45%	76%	87%	0%	100%	42%
Vol Right, %	0%	0%	55%	7%	5%	0%	0%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	91	81	90	364	331	168	197	232
LT Vol	91	0	0	59	26	168	0	0
Through Vol	0	81	40	278	287	0	197	98
RT Vol	0	0	50	27	18	0	0	134
Lane Flow Rate	99	88	98	396	360	183	214	253
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.274	0.23	0.247	0.953	0.876	0.47	0.519	0.583
Departure Headway (Hd)	9.986	9.455	9.043	8.675	8.766	9.261	8.734	8.307
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	359	379	397	419	414	389	413	434
Service Time	7.764	7.231	6.819	6.44	6.532	7.033	6.505	6.078
HCM Lane V/C Ratio	0.276	0.232	0.247	0.945	0.87	0.47	0.518	0.583
HCM Control Delay	16.5	15.1	14.8	63	48.9	20	20.6	22.1
HCM Lane LOS	C	C	B	F	E	C	C	C
HCM 95th-tile Q	1.1	0.9	1	11	8.8	2.4	2.9	3.6

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/30/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	498	70	181	656	104	120
Future Volume (veh/h)	498	70	181	656	104	120
Initial Q (Qb), veh	0	0	1	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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	560	61	203	737	117	77
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	814	675	258	1281	180	160
Arrive On Green	0.43	0.43	0.14	0.67	0.10	0.10
Sat Flow, veh/h	1900	1577	1810	1900	1810	1610
Grp Volume(v), veh/h	560	61	203	737	117	77
Grp Sat Flow(s),veh/h/ln	1900	1577	1810	1900	1810	1610
Q Serve(g_s), s	11.6	1.1	5.3	10.0	3.0	2.2
Cycle Q Clear(g_c), s	11.6	1.1	5.3	10.0	3.0	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	814	675	258	1281	180	160
V/C Ratio(X)	0.69	0.09	0.79	0.58	0.65	0.48
Avail Cap(c_a), veh/h	1176	976	373	1279	560	498
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	11.3	8.3	20.2	4.2	21.1	20.7
Incr Delay (d2), s/veh	3.7	0.2	3.9	1.5	1.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.5	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.3	2.2	1.6	1.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.0	8.5	24.6	5.8	22.5	21.5
LnGrp LOS	B	A	C	A	C	C
Approach Vol, veh/h	621			940	194	
Approach Delay, s/veh	14.4			9.8	22.1	
Approach LOS	B			A	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.9	26.8		9.8		38.6
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	10.0	30.0		15.0		30.0
Max Q Clear Time (g_c+I1), s	7.3	13.6		5.0		12.0
Green Ext Time (p_c), s	0.1	7.2		0.2		9.7

Intersection Summary	
HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	503	113	0	445	354	0	0	0	525	23	387
Future Volume (veh/h)	0	503	113	0	445	354	0	0	0	525	23	387
Initial Q (Qb), veh	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
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	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	547	123	0	484	261				665	0	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1679	515	0	1169	521				1756	0	521
Arrive On Green	0.00	0.32	0.32	0.00	0.32	0.32				0.32	0.00	0.32
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	547	123	0	484	261				665	0	189
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	2.5	1.8	0.0	3.2	4.0				2.9	0.0	2.8
Cycle Q Clear(g_c), s	0.0	2.5	1.8	0.0	3.2	4.0				2.9	0.0	2.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1679	515	0	1169	521				1756	0	521
V/C Ratio(X)	0.00	0.33	0.24	0.00	0.41	0.50				0.38	0.00	0.36
Avail Cap(c_a), veh/h	0	5742	1760	0	4043	1803				6133	0	1819
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.9	7.7	0.0	8.2	8.4				8.1	0.0	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.1	0.3				0.0	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.3	0.0	0.6	0.7				0.5	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.9	7.7	0.0	8.2	8.7				8.1	0.0	8.2
LnGrp LOS	A	A	A	A	A	A				A	A	A
Approach Vol, veh/h		670			745						854	
Approach Delay, s/veh		7.9			8.4						8.1	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		15.8		15.1		15.8						
Change Period (Y+Rc), s		5.8		5.1		* 5.8						
Max Green Setting (Gmax), s		34.2		34.9		* 35						
Max Q Clear Time (g_c+I1), s		4.5		4.9		6.0						
Green Ext Time (p_c), s		1.5		0.7		1.3						

Intersection Summary		
HCM 6th Ctrl Delay		8.2
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	736	268	0	651	650	135	0	481	0	0	0
Future Volume (vph)	0	736	268	0	651	650	135	0	481	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1594		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1594		3610	1615	3502		1615			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	767	279	0	678	677	141	0	501	0	0	0
RTOR Reduction (vph)	0	0	192	0	0	221	0	0	0	0	0	0
Lane Group Flow (vph)	0	767	87	0	678	456	141	0	501	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		19.6	19.6		42.4	42.4	10.2		32.6			
Effective Green, g (s)		19.6	19.6		42.4	42.4	10.2		32.6			
Actuated g/C Ratio		0.31	0.31		0.67	0.67	0.16		0.52			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		1616	496		2433	1088	567		837			
v/s Ratio Prot		0.15			0.19		0.04		c0.31			
v/s Ratio Perm			0.05			c0.28						
v/c Ratio		0.47	0.18		0.28	0.42	0.25		0.60			
Uniform Delay, d1		17.5	15.8		4.1	4.7	23.0		10.6			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.3	0.2		0.1	0.3	0.2		1.2			
Delay (s)		17.8	16.0		4.2	5.0	23.2		11.7			
Level of Service		B	B		A	A	C		B			
Approach Delay (s)		17.3			4.6			14.3			0.0	
Approach LOS		B			A			B			A	

Intersection Summary				
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	62.9	Sum of lost time (s)		15.6
Intersection Capacity Utilization	52.9%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	916	240	50	957	7	248	3	60	23	9	46
Future Volume (veh/h)	60	916	240	50	957	7	248	3	60	23	9	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	65	985	203	54	1029	8	267	3	23	25	10	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	82	2927	1566	70	2876	893	360	19	142	38	32	26
Arrive On Green	0.05	0.56	0.56	0.04	0.55	0.55	0.10	0.10	0.10	0.02	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	189	1450	1810	1900	1574
Grp Volume(v), veh/h	65	985	203	54	1029	8	267	0	26	25	10	5
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1639	1810	1900	1574
Q Serve(g_s), s	3.1	8.4	2.8	2.4	9.1	0.2	6.1	0.0	1.2	1.1	0.4	0.3
Cycle Q Clear(g_c), s	3.1	8.4	2.8	2.4	9.1	0.2	6.1	0.0	1.2	1.1	0.4	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	82	2927	1566	70	2876	893	360	0	160	38	32	26
V/C Ratio(X)	0.79	0.34	0.13	0.77	0.36	0.01	0.74	0.00	0.16	0.65	0.32	0.19
Avail Cap(c_a), veh/h	309	3952	2114	416	3952	1227	807	0	277	416	437	362
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	9.7	8.5	39.4	10.2	8.2	36.1	0.0	34.2	40.2	40.2	40.1
Incr Delay (d2), s/veh	6.2	0.3	0.2	6.7	0.3	0.0	1.1	0.0	0.2	6.8	2.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.7	0.8	1.2	3.0	0.1	2.6	0.0	0.5	0.6	0.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	10.0	8.6	46.1	10.6	8.3	37.2	0.0	34.4	47.0	42.3	41.4
LnGrp LOS	D	B	A	D	B	A	D	A	C	D	D	D
Approach Vol, veh/h		1253			1091			293			40	
Approach Delay, s/veh		11.6			12.3			36.9			45.1	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	52.8	6.7	14.1	8.2	53.7	13.5	7.4
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	5.1	11.1	3.1	3.2	4.4	10.4	8.1	2.4
Green Ext Time (p_c), s	0.0	32.6	0.0	0.0	0.0	36.2	0.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	182	94	13	191	151	58	398	53	121	337	33
Future Volume (veh/h)	23	182	94	13	191	151	58	398	53	121	337	33
Initial Q (Qb), veh	0	0	0	0	1	0	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	25	198	65	14	208	110	63	433	0	132	366	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	96	351	108	80	315	154	166	889		238	1033	
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.09	0.25	0.00	0.13	0.29	0.00
Sat Flow, veh/h	78	1312	405	31	1155	588	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	288	0	0	332	0	0	63	433	0	132	366	0
Grp Sat Flow(s),veh/h/ln	1794	0	0	1774	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	0.0	1.7	5.3	0.0	3.6	4.2	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0	8.7	0.0	0.0	1.7	5.3	0.0	3.6	4.2	0.0
Prop In Lane	0.09		0.23	0.04		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	555	0	0	546	0	0	166	889		238	1033	
V/C Ratio(X)	0.52	0.00	0.00	0.61	0.00	0.00	0.38	0.49		0.55	0.35	
Avail Cap(c_a), veh/h	1368	0	0	1373	0	0	488	3057		488	3057	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.6	0.0	0.0	17.3	0.0	0.0	22.5	17.0	0.0	21.6	14.9	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	1.6	0.0	0.0	2.0	0.9	0.0	2.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	3.5	0.0	0.0	0.7	1.9	0.0	1.5	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	0.0	18.9	0.0	0.0	24.5	17.9	0.0	23.9	15.3	0.0
LnGrp LOS	B	A	A	B	A	A	C	B		C	B	
Approach Vol, veh/h		288			332			496			498	
Approach Delay, s/veh		17.7			18.9			18.7			17.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.8	18.8		20.3	10.8	20.9		20.3
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	14.0	44.0		38.5	14.0	44.0		38.5
Max Q Clear Time (g_c+I1), s	5.6	7.3		9.1	3.7	6.2		10.7
Green Ext Time (p_c), s	0.2	5.5		2.7	0.1	4.6		3.1

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

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

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	30	47	93	35	5	17	18	91	24	33	216	21
Future Vol, veh/h	30	47	93	35	5	17	18	91	24	33	216	21
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	35	55	109	41	6	20	21	107	28	39	254	25
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.1	9.7	9.5	10.1
HCM LOS	B	A	A	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	18%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	56%	28%	0%	23%	0%	100%	77%
Vol Right, %	0%	0%	44%	55%	0%	77%	0%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	61	54	170	35	22	33	144	93
LT Vol	18	0	0	30	35	0	33	0	0
Through Vol	0	61	30	47	0	5	0	144	72
RT Vol	0	0	24	93	0	17	0	0	21
Lane Flow Rate	21	71	64	200	41	26	39	169	109
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.039	0.122	0.103	0.319	0.078	0.042	0.068	0.273	0.171
Departure Headway (Hd)	6.639	6.132	5.819	5.74	6.862	5.817	6.304	5.798	5.638
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	540	585	616	628	523	615	569	620	637
Service Time	4.371	3.865	3.552	3.468	4.6	3.555	4.031	3.526	3.366
HCM Lane V/C Ratio	0.039	0.121	0.104	0.318	0.078	0.042	0.069	0.273	0.171
HCM Control Delay	9.6	9.7	9.2	11.1	10.2	8.8	9.5	10.7	9.5
HCM Lane LOS	A	A	A	B	B	A	A	B	A
HCM 95th-tile Q	0.1	0.4	0.3	1.4	0.3	0.1	0.2	1.1	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	10	32	1	3	4	21	459	2	3	386	53
Future Volume (veh/h)	52	10	32	1	3	4	21	459	2	3	386	53
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		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	58	11	36	1	3	0	23	510	2	3	429	59
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	287	74	101	170	306	0	52	1438	6	7	1319	588
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.00	0.03	0.39	0.39	0.00	0.37	0.37
Sat Flow, veh/h	643	400	544	187	1643	0	1810	3688	14	1810	3610	1610
Grp Volume(v), veh/h	105	0	0	4	0	0	23	250	262	3	429	59
Grp Sat Flow(s),veh/h/ln	1586	0	0	1830	0	0	1810	1805	1897	1810	1805	1610
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.4	3.3	3.3	0.1	2.9	0.8
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.1	0.0	0.0	0.4	3.3	3.3	0.1	2.9	0.8
Prop In Lane	0.55		0.34	0.25		0.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	463	0	0	476	0	0	52	704	740	7	1319	588
V/C Ratio(X)	0.23	0.00	0.00	0.01	0.00	0.00	0.44	0.35	0.35	0.40	0.33	0.10
Avail Cap(c_a), veh/h	1276	0	0	1401	0	0	325	1136	1193	325	2271	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	11.1	0.0	0.0	15.9	7.2	7.2	16.6	7.6	7.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	2.2	1.4	1.3	12.5	0.7	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	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.9	0.9	0.0	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	0.0	0.0	11.1	0.0	0.0	18.1	8.6	8.5	29.1	8.3	7.3
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		105			4			535			491	
Approach Delay, s/veh		12.1			11.1			9.0			8.3	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	18.2		10.7	3.6	19.0		10.7
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.4	4.9		3.7	2.1	5.3		2.1
Green Ext Time (p_c), s	0.0	7.3		0.7	0.0	7.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Notes

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

Intersection	
Intersection Delay, s/veh	58
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	579	61	235	292	50	34	63	69	149	161	53
Future Vol, veh/h	28	579	61	235	292	50	34	63	69	149	161	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	30	629	66	255	317	54	37	68	75	162	175	58
Number of Lanes	0	2	0	0	2	0	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	2	2
HCM Control Delay	61	88.6	25.7	18.7
HCM LOS	F	F	D	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	20%	9%	0%	62%	0%	100%	0%	0%
Vol Thru, %	38%	91%	83%	38%	74%	0%	100%	0%
Vol Right, %	42%	0%	17%	0%	26%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	318	351	381	196	149	161	53
LT Vol	34	28	0	235	0	149	0	0
Through Vol	63	290	290	146	146	0	161	0
RT Vol	69	0	61	0	50	0	0	53
Lane Flow Rate	180	345	381	414	213	162	175	58
Geometry Grp	6	6	6	6	6	5	5	5
Degree of Util (X)	0.531	0.885	0.96	1.14	0.556	0.43	0.439	0.135
Departure Headway (Hd)	11.099	9.625	9.452	9.907	9.401	9.987	9.466	8.736
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	327	380	385	369	383	363	383	413
Service Time	8.799	7.325	7.152	7.647	7.141	7.687	7.166	6.436
HCM Lane V/C Ratio	0.55	0.908	0.99	1.122	0.556	0.446	0.457	0.14
HCM Control Delay	25.7	53.6	67.7	122.2	23.3	20	19.4	12.8
HCM Lane LOS	D	F	F	F	C	C	C	B
HCM 95th-tile Q	2.9	8.8	10.8	16	3.3	2.1	2.2	0.5

Intersection	
Intersection Delay, s/veh	27
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	676	119	11	216	0	0	0	0	149	11	367
Future Vol, veh/h	0	676	119	11	216	0	0	0	0	149	11	367
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	719	127	12	230	0	0	0	0	159	12	390
Number of Lanes	0	2	0	1	1	0	0	0	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	33.8	17.1	21
HCM LOS	D	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	93%	0%
Vol Thru, %	100%	65%	0%	100%	7%	0%
Vol Right, %	0%	35%	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	451	344	11	216	160	367
LT Vol	0	0	11	0	149	0
Through Vol	451	225	0	216	11	0
RT Vol	0	119	0	0	0	367
Lane Flow Rate	479	366	12	230	170	390
Geometry Grp	5	5	5	5	5	5
Degree of Util (X)	0.896	0.659	0.027	0.488	0.364	0.707
Departure Headway (Hd)	6.727	6.48	8.167	7.651	7.708	6.522
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	537	553	441	473	465	551
Service Time	4.518	4.271	5.867	5.351	5.494	4.307
HCM Lane V/C Ratio	0.892	0.662	0.027	0.486	0.366	0.708
HCM Control Delay	43.5	21.1	11.1	17.4	14.9	23.7
HCM Lane LOS	E	C	B	C	B	C
HCM 95th-tile Q	10.3	4.8	0.1	2.6	1.6	5.6

Intersection	
Intersection Delay, s/veh	21.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	395	422	0	0	230	131	31	4	12	0	0	0
Future Vol, veh/h	395	422	0	0	230	131	31	4	12	0	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	425	454	0	0	247	141	33	4	13	0	0	0
Number of Lanes	0	2	0	0	1	0	0	1	1	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	24.9	14.9	10.6
HCM LOS	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	0%	74%	0%	0%
Vol Thru, %	11%	0%	26%	100%	64%
Vol Right, %	0%	100%	0%	0%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	12	536	281	361
LT Vol	31	0	395	0	0
Through Vol	4	0	141	281	230
RT Vol	0	12	0	0	131
Lane Flow Rate	38	13	576	303	388
Geometry Grp	5	5	5	5	4b
Degree of Util (X)	0.079	0.023	0.859	0.42	0.564
Departure Headway (Hd)	7.57	6.404	5.367	4.996	5.231
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	470	554	674	717	687
Service Time	5.362	4.195	3.114	2.743	3.276
HCM Lane V/C Ratio	0.081	0.023	0.855	0.423	0.565
HCM Control Delay	11	9.3	32.1	11.3	14.9
HCM Lane LOS	B	A	D	B	B
HCM 95th-tile Q	0.3	0.1	9.9	2.1	3.5

Intersection	
Intersection Delay, s/veh	32.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	94	270	35	36	165	49	83	334	42	121	246	54
Future Vol, veh/h	94	270	35	36	165	49	83	334	42	121	246	54
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	99	284	37	38	174	52	87	352	44	127	259	57
Number of Lanes	0	1	0	0	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	67.6	26.3	19	16.8
HCM LOS	F	D	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	24%	14%	100%	0%	0%
Vol Thru, %	0%	100%	73%	68%	66%	0%	100%	60%
Vol Right, %	0%	0%	27%	9%	20%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	83	223	153	399	250	121	164	136
LT Vol	83	0	0	94	36	121	0	0
Through Vol	0	223	111	270	165	0	164	82
RT Vol	0	0	42	35	49	0	0	54
Lane Flow Rate	87	234	161	420	263	127	173	143
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.224	0.567	0.381	0.979	0.644	0.33	0.422	0.338
Departure Headway (Hd)	9.234	8.707	8.505	8.395	8.81	9.328	8.8	8.506
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	388	415	423	433	411	385	409	422
Service Time	7.003	6.475	6.273	6.152	6.577	7.098	6.57	6.276
HCM Lane V/C Ratio	0.224	0.564	0.381	0.97	0.64	0.33	0.423	0.339
HCM Control Delay	14.7	22.4	16.5	67.6	26.3	16.7	17.9	15.6
HCM Lane LOS	B	C	C	F	D	C	C	C
HCM 95th-tile Q	0.8	3.4	1.8	12	4.4	1.4	2	1.5

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	855	212	725	679	51	286
Future Volume (veh/h)	855	212	725	679	51	286
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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	910	196	771	722	54	281
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	815	677	259	1223	360	320
Arrive On Green	0.43	0.43	0.14	0.64	0.20	0.20
Sat Flow, veh/h	1900	1577	1810	1900	1810	1610
Grp Volume(v), veh/h	910	196	771	722	54	281
Grp Sat Flow(s),veh/h/ln	1900	1577	1810	1900	1810	1610
Q Serve(g_s), s	30.0	5.7	10.0	15.3	1.7	11.8
Cycle Q Clear(g_c), s	30.0	5.7	10.0	15.3	1.7	11.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	815	677	259	1223	360	320
V/C Ratio(X)	1.12	0.29	2.98	0.59	0.15	0.88
Avail Cap(c_a), veh/h	815	677	259	1223	388	345
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	20.0	13.0	30.0	7.2	23.1	27.2
Incr Delay (d2), s/veh	68.4	0.9	900.7	1.7	0.1	19.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.3	1.8	68.7	4.5	0.7	6.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	88.4	13.9	930.7	8.9	23.2	46.7
LnGrp LOS	F	B	F	A	C	D
Approach Vol, veh/h	1106			1493	335	
Approach Delay, s/veh	75.2			484.9	42.9	
Approach LOS	E			F	D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	36.0		18.9		51.0
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	10.0	30.0		15.0		30.0
Max Q Clear Time (g_c+I1), s	12.0	32.0		13.8		17.3
Green Ext Time (p_c), s	0.0	0.0		0.1		7.4

Intersection Summary			
HCM 6th Ctrl Delay			280.0
HCM 6th LOS			F

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	973	172	0	557	301	0	0	0	1090	57	847
Future Volume (veh/h)	0	973	172	0	557	301	0	0	0	1090	57	847
Initial Q (Qb), veh	0	0	0	0	1	0				0	0	5
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	1081	191	0	619	258				1462	0	564
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1661	509	0	1125	515				2255	0	671
Arrive On Green	0.00	0.31	0.31	0.00	0.31	0.31				0.41	0.00	0.41
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	1081	191	0	619	258				1462	0	564
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	7.2	3.7	0.0	5.6	5.2				8.6	0.0	12.5
Cycle Q Clear(g_c), s	0.0	7.2	3.7	0.0	5.6	5.2				8.6	0.0	12.5
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1661	509	0	1125	515				2255	0	671
V/C Ratio(X)	0.00	0.65	0.38	0.00	0.55	0.50				0.65	0.00	0.84
Avail Cap(c_a), veh/h	0	4479	1373	0	3154	1407				4783	0	1419
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.2	11.0	0.0	11.4	11.5				9.9	0.0	12.3
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.2	0.3				0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	2.5
%ile BackOfQ(50%),veh/ln	0.0	2.0	1.0	0.0	1.6	1.4				2.0	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.4	11.2	0.0	11.6	11.8				10.1	0.0	15.9
LnGrp LOS	A	B	B	A	B	B				B	A	B
Approach Vol, veh/h		1272			877						2026	
Approach Delay, s/veh		12.2			11.6						11.7	
Approach LOS		B			B						B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		18.1		21.5		18.1
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		9.2		14.5		7.6
Green Ext Time (p_c), s		3.1		1.9		1.6

Intersection Summary			
HCM 6th Ctrl Delay			11.8
HCM 6th LOS			B

Notes

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

User approved volume balancing among the lanes for turning movement.

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

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1626	443	0	712	534	143	0	656	0	0	0
Future Volume (vph)	0	1626	443	0	712	534	143	0	656	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1807	492	0	791	593	159	0	729	0	0	0
RTOR Reduction (vph)	0	0	304	0	0	221	0	0	0	0	0	0
Lane Group Flow (vph)	0	1807	188	0	791	372	159	0	729	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		34.6	34.6		60.2	60.2	25.5		50.7			
Effective Green, g (s)		34.6	34.6		60.2	60.2	25.5		50.7			
Actuated g/C Ratio		0.36	0.36		0.63	0.63	0.27		0.53			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		1869	574		2263	1012	930		852			
v/s Ratio Prot		c0.35			0.22		0.05		c0.45			
v/s Ratio Perm			0.12			0.23						
v/c Ratio		0.97	0.33		0.35	0.37	0.17		0.86			
Uniform Delay, d1		30.1	22.3		8.5	8.7	27.1		19.5			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		13.8	0.4		0.1	0.3	0.1		8.4			
Delay (s)		43.9	22.7		8.7	9.0	27.2		27.9			
Level of Service		D	C		A	A	C		C			
Approach Delay (s)		39.4			8.8			27.8			0.0	
Approach LOS		D			A			C			A	

Intersection Summary				
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	15.6	
Intersection Capacity Utilization	81.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1636	528	88	962	34	230	15	41	8	6	23
Future Volume (veh/h)	111	1636	528	88	962	34	230	15	41	8	6	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	123	1818	488	98	1069	37	256	17	42	9	7	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	150	3102	1660	125	3001	932	329	50	124	16	35	30
Arrive On Green	0.09	0.60	0.60	0.07	0.58	0.58	0.09	0.10	0.10	0.01	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	485	1199	1810	1900	1610
Grp Volume(v), veh/h	123	1818	488	98	1069	37	256	0	59	9	7	16
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1684	1810	1900	1610
Q Serve(g_s), s	7.4	22.6	8.9	5.6	11.4	1.0	7.4	0.0	3.4	0.5	0.4	1.0
Cycle Q Clear(g_c), s	7.4	22.6	8.9	5.6	11.4	1.0	7.4	0.0	3.4	0.5	0.4	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	150	3102	1660	125	3001	932	329	0	174	16	35	30
V/C Ratio(X)	0.82	0.59	0.29	0.79	0.36	0.04	0.78	0.00	0.34	0.56	0.20	0.53
Avail Cap(c_a), veh/h	245	3137	1678	330	3137	974	640	0	226	330	347	294
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	13.0	10.2	47.7	11.6	9.5	46.2	0.0	43.4	51.4	50.3	50.7
Incr Delay (d2), s/veh	4.3	0.8	0.5	4.1	0.3	0.1	1.5	0.0	0.4	11.1	1.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	7.8	2.7	2.6	4.0	0.4	3.3	0.0	1.4	0.3	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	13.8	10.7	51.8	12.0	9.5	47.7	0.0	43.8	62.6	51.3	56.0
LnGrp LOS	D	B	B	D	B	A	D	A	D	E	D	E
Approach Vol, veh/h		2429			1204			315			32	
Approach Delay, s/veh		15.0			15.1			47.0			56.8	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	67.3	5.9	16.8	12.2	69.3	14.8	7.9
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	9.4	13.4	2.5	5.4	7.6	24.6	9.4	3.0
Green Ext Time (p_c), s	0.1	33.4	0.0	0.1	0.1	37.7	0.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	328	257	73	180	113	46	161	71	186	413	38
Future Volume (veh/h)	26	328	257	73	180	113	46	161	71	186	413	38
Initial Q (Qb), veh	0	2	0	0	1	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	28	349	184	78	191	97	49	171	0	198	439	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	78	458	227	157	363	158	133	597		249	827	
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.07	0.17	0.00	0.14	0.23	0.00
Sat Flow, veh/h	43	1142	579	219	902	404	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	561	0	0	366	0	0	49	171	0	198	439	0
Grp Sat Flow(s),veh/h/ln	1764	0	0	1526	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	4.9	0.0	0.0	0.0	0.0	0.0	1.6	2.6	0.0	6.5	6.6	0.0
Cycle Q Clear(g_c), s	17.1	0.0	0.0	10.5	0.0	0.0	1.6	2.6	0.0	6.5	6.6	0.0
Prop In Lane	0.05		0.33	0.21		0.27	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	765	0	0	677	0	0	133	597		249	827	
V/C Ratio(X)	0.73	0.00	0.00	0.54	0.00	0.00	0.37	0.29		0.80	0.53	
Avail Cap(c_a), veh/h	1158	0	0	1013	0	0	412	2580		412	2580	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.4	0.0	0.0	14.2	0.0	0.0	27.3	22.6	0.0	25.8	20.9	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0	1.0	0.0	0.0	1.7	0.6	0.0	5.8	1.1	0.0
Initial Q Delay(d3),s/veh	0.2	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	6.7	0.0	0.0	3.7	0.0	0.0	0.7	1.0	0.0	2.9	2.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	0.0	0.0	15.2	0.0	0.0	28.9	23.2	0.0	31.6	22.0	0.0
LnGrp LOS	B	A	A	B	A	A	C	C		C	C	
Approach Vol, veh/h		561			366			220			637	
Approach Delay, s/veh		18.6			15.2			24.5			25.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.5	16.2		30.9	10.5	20.1		30.9
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	14.0	44.0		38.5	14.0	44.0		38.5
Max Q Clear Time (g_c+I1), s	8.5	4.6		19.1	3.6	8.6		12.5
Green Ext Time (p_c), s	0.2	2.0		5.2	0.0	5.6		3.8

Intersection Summary		
HCM 6th Ctrl Delay		20.9
HCM 6th LOS		C

Notes

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

HCM 6th AWSC
6: Manthey Rd & Hospital Rd

05/31/2025

Intersection	
Intersection Delay, s/veh	26.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	25	62	67	48	25	67	331	18	32	646	69
Future Vol, veh/h	12	25	62	67	48	25	67	331	18	32	646	69
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	27	68	74	53	27	74	364	20	35	710	76
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	14.1	13.6	16.1	37
HCM LOS	B	B	C	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	12%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	86%	25%	0%	66%	0%	100%	76%
Vol Right, %	0%	0%	14%	63%	0%	34%	0%	0%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	221	128	99	67	73	32	431	284
LT Vol	67	0	0	12	67	0	32	0	0
Through Vol	0	221	110	25	0	48	0	431	215
RT Vol	0	0	18	62	0	25	0	0	69
Lane Flow Rate	74	242	141	109	74	80	35	473	312
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.168	0.52	0.298	0.255	0.188	0.189	0.074	0.928	0.598
Departure Headway (Hd)	8.229	7.718	7.618	8.435	9.215	8.462	7.569	7.06	6.886
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	435	466	471	424	389	423	473	511	525
Service Time	5.992	5.48	5.38	6.211	6.989	6.236	5.323	4.813	4.64
HCM Lane V/C Ratio	0.17	0.519	0.299	0.257	0.19	0.189	0.074	0.926	0.594
HCM Control Delay	12.7	18.6	13.6	14.1	14.1	13.2	10.9	50.5	19.4
HCM Lane LOS	B	C	B	B	B	B	B	F	C
HCM 95th-tile Q	0.6	2.9	1.2	1	0.7	0.7	0.2	11.2	3.9

HCM 6th Signalized Intersection Summary
7: Hospital Rd & El Dorado St

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	13	26	2	17	3	12	247	4	2	558	158
Future Volume (veh/h)	35	13	26	2	17	3	12	247	4	2	558	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	39	15	29	2	19	2	13	278	4	2	627	178
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	227	80	88	117	252	25	31	1680	24	5	1614	720
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.02	0.46	0.46	0.00	0.45	0.45
Sat Flow, veh/h	534	517	564	66	1619	161	1810	3643	52	1810	3610	1610
Grp Volume(v), veh/h	83	0	0	23	0	0	13	138	144	2	627	178
Grp Sat Flow(s),veh/h/ln	1614	0	0	1846	0	0	1810	1805	1891	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.6	1.6	0.0	4.3	2.5
Cycle Q Clear(g_c), s	1.5	0.0	0.0	0.4	0.0	0.0	0.3	1.6	1.6	0.0	4.3	2.5
Prop In Lane	0.47		0.35	0.09		0.09	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	395	0	0	393	0	0	31	833	872	5	1614	720
V/C Ratio(X)	0.21	0.00	0.00	0.06	0.00	0.00	0.42	0.17	0.17	0.40	0.39	0.25
Avail Cap(c_a), veh/h	1166	0	0	1294	0	0	295	1030	1079	295	2061	919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	13.3	0.0	0.0	17.9	5.8	5.8	18.3	6.8	6.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.0	0.0	3.4	0.4	0.4	18.3	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.1	0.0	0.0	0.1	0.4	0.4	0.0	0.9	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	0.0	0.0	13.4	0.0	0.0	21.3	6.2	6.2	36.6	7.5	7.1
LnGrp LOS	B	A	A	B	A	A	C	A	A	D	A	A
Approach Vol, veh/h		83			23			295			807	
Approach Delay, s/veh		14.1			13.4			6.9			7.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.1	22.4		10.2	3.6	23.0		10.2
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.3	6.3		3.5	2.0	3.6		2.4
Green Ext Time (p_c), s	0.0	10.2		0.5	0.0	4.3		0.1

Intersection Summary			
HCM 6th Ctrl Delay			7.9
HCM 6th LOS			A

Notes

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

HCM 6th Signalized Intersection Summary
8: Manthey Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	302	33	179	624	351	35	36	62	254	335	151
Future Volume (veh/h)	28	302	33	179	624	351	35	36	62	254	335	151
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	30	325	35	192	671	377	38	39	67	273	360	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	42	1210	129	233	910	755	48	106	182	358	310	140
Arrive On Green	0.02	0.37	0.37	0.09	0.32	0.32	0.03	0.17	0.17	0.10	0.25	0.25
Sat Flow, veh/h	1810	3290	352	1810	1900	1575	1810	628	1078	3510	1241	558
Grp Volume(v), veh/h	30	177	183	192	671	377	38	0	106	273	0	522
Grp Sat Flow(s),veh/h/ln	1810	1805	1837	1810	1900	1575	1810	0	1706	1755	0	1799
Q Serve(g_s), s	1.6	6.6	6.7	10.0	30.2	18.6	2.0	0.0	5.3	7.3	0.0	24.0
Cycle Q Clear(g_c), s	1.6	6.6	6.7	10.0	30.2	18.6	2.0	0.0	5.3	7.3	0.0	24.0
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.63	1.00		0.31
Lane Grp Cap(c), veh/h	42	664	676	233	910	755	48	0	289	358	0	450
V/C Ratio(X)	0.72	0.27	0.27	0.82	0.74	0.50	0.79	0.00	0.37	0.76	0.00	1.16
Avail Cap(c_a), veh/h	75	664	676	556	910	755	75	0	289	603	0	450
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.6	21.3	21.3	42.8	27.2	23.3	46.5	0.0	35.3	42.0	0.0	36.0
Incr Delay (d2), s/veh	20.9	0.2	0.2	4.3	3.2	1.4	24.8	0.0	0.8	3.4	0.0	94.3
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	0.9	2.6	2.7	4.7	14.6	7.3	1.2	0.0	2.2	3.3	0.0	22.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	21.5	21.5	47.1	30.4	24.7	71.3	0.0	36.1	45.3	0.0	130.3
LnGrp LOS	E	C	C	D	C	C	E	A	D	D	A	F
Approach Vol, veh/h		390			1240			144			795	
Approach Delay, s/veh		25.0			31.2			45.4			101.1	
Approach LOS		C			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	21.2	16.9	40.3	6.6	29.0	6.2	51.0
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	16.5	11.0	29.5	20.0	4.0	24.0	4.0	46.0
Max Q Clear Time (g_c+I1), s	9.3	7.3	12.0	8.7	4.0	26.0	3.6	32.2
Green Ext Time (p_c), s	0.5	0.1	0.4	1.4	0.0	0.0	0.0	4.7

Intersection Summary			
HCM 6th Ctrl Delay			52.7
HCM 6th LOS			D

Notes

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

HCM 6th Signalized Intersection Summary
9: I-5 SB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	415	203	10	752	0	0	0	0	262	10	401
Future Volume (veh/h)	0	415	203	10	752	0	0	0	0	262	10	401
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	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	456	223	11	826	0				288	11	441
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1245	604	24	1118	0				536	20	495
Arrive On Green	0.00	0.53	0.53	0.00	0.19	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	2451	1143	1810	1900	0				1746	67	1610
Grp Volume(v), veh/h	0	349	330	11	826	0				299	0	441
Grp Sat Flow(s),veh/h/ln	0	1805	1694	1810	1900	0				1813	0	1610
Q Serve(g_s), s	0.0	10.8	11.0	0.6	39.3	0.0				13.1	0.0	25.1
Cycle Q Clear(g_c), s	0.0	10.8	11.0	0.6	39.3	0.0				13.1	0.0	25.1
Prop In Lane	0.00		0.67	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	954	895	24	1118	0				557	0	495
V/C Ratio(X)	0.00	0.37	0.37	0.46	0.74	0.00				0.54	0.00	0.89
Avail Cap(c_a), veh/h	0	954	895	141	1118	0				718	0	637
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.95	0.95	0.80	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.2	13.3	47.4	31.7	0.0				27.6	0.0	31.7
Incr Delay (d2), s/veh	0.0	1.0	1.1	10.6	3.5	0.0				0.8	0.0	12.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.2	4.0	0.3	20.7	0.0				5.3	0.0	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.3	14.4	58.0	35.3	0.0				28.4	0.0	44.1
LnGrp LOS	A	B	B	E	D	A				C	A	D
Approach Vol, veh/h		679			837						740	
Approach Delay, s/veh		14.3			35.6						37.7	
Approach LOS		B			D						D	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		5.8	55.7		34.5		61.5					
Change Period (Y+Rc), s		4.5	5.0		5.0		5.0					
Max Green Setting (Gmax), s		7.5	36.0		38.0		48.0					
Max Q Clear Time (g_c+I1), s		2.6	13.0		27.1		41.3					
Green Ext Time (p_c), s		0.0	3.9		2.4		2.9					

Intersection Summary												
HCM 6th Ctrl Delay		29.9										
HCM 6th LOS		C										

HCM 6th Signalized Intersection Summary
10: I-5 NB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	486	0	0	419	161	343	2	18	0	0	0
Future Volume (veh/h)	197	486	0	0	419	161	343	2	18	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		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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	232	572	0	0	493	189	404	2	21			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	302	1221	0	0	968	810	456	2	408			
Arrive On Green	0.17	1.00	0.00	0.00	1.00	1.00	0.25	0.25	0.25			
Sat Flow, veh/h	3510	1900	0	0	1900	1589	1801	9	1610			
Grp Volume(v), veh/h	232	572	0	0	493	189	406	0	21			
Grp Sat Flow(s),veh/h/ln	1755	1900	0	0	1900	1589	1810	0	1610			
Q Serve(g_s), s	6.1	0.0	0.0	0.0	0.0	0.0	20.7	0.0	0.9			
Cycle Q Clear(g_c), s	6.1	0.0	0.0	0.0	0.0	0.0	20.7	0.0	0.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	302	1221	0	0	968	810	459	0	408			
V/C Ratio(X)	0.77	0.47	0.00	0.00	0.51	0.23	0.89	0.00	0.05			
Avail Cap(c_a), veh/h	413	1221	0	0	968	810	622	0	553			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.86	0.86	1.00	0.00	1.00			
Uniform Delay (d), s/veh	38.8	0.0	0.0	0.0	0.0	0.0	34.5	0.0	27.1			
Incr Delay (d2), s/veh	5.6	1.2	0.0	0.0	1.6	0.6	11.3	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			
%ile BackOfQ(50%),veh/ln	2.6	0.4	0.0	0.0	0.4	0.1	9.8	0.0	0.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	1.2	0.0	0.0	1.6	0.6	45.8	0.0	27.2			
LnGrp LOS	D	A	A	A	A	A	D	A	C			
Approach Vol, veh/h		804			682			427				
Approach Delay, s/veh		13.7			1.4			44.9				
Approach LOS		B			A			D				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		29.3		66.7			12.8	53.9				
Change Period (Y+Rc), s		5.0		5.0			4.5	5.0				
Max Green Setting (Gmax), s		33.0		53.0			11.3	37.2				
Max Q Clear Time (g_c+I1), s		22.7		2.0			8.1	2.0				
Green Ext Time (p_c), s		1.6		3.8			0.2	3.7				

Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
11: El Dorado Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	379	34	67	327	19	107	156	218	172	311	139
Future Volume (veh/h)	72	379	34	67	327	19	107	156	218	172	311	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	78	412	37	73	355	21	116	170	237	187	338	151
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	518	448	40	466	412	24	183	319	284	194	430	188
Arrive On Green	0.57	0.52	0.52	0.26	0.23	0.23	0.10	0.18	0.18	0.11	0.18	0.18
Sat Flow, veh/h	1810	1718	154	1810	1776	105	1810	1805	1610	1810	2424	1060
Grp Volume(v), veh/h	78	0	449	73	0	376	116	170	237	187	250	239
Grp Sat Flow(s),veh/h/ln	1810	0	1872	1810	0	1881	1810	1805	1610	1810	1805	1678
Q Serve(g_s), s	1.9	0.0	21.2	3.0	0.0	18.4	5.9	8.2	13.6	9.9	12.7	13.1
Cycle Q Clear(g_c), s	1.9	0.0	21.2	3.0	0.0	18.4	5.9	8.2	13.6	9.9	12.7	13.1
Prop In Lane	1.00		0.08	1.00		0.06	1.00		1.00	1.00		0.63
Lane Grp Cap(c), veh/h	518	0	489	466	0	436	183	319	284	194	320	298
V/C Ratio(X)	0.15	0.00	0.92	0.16	0.00	0.86	0.63	0.53	0.83	0.96	0.78	0.80
Avail Cap(c_a), veh/h	518	0	669	466	0	725	183	432	386	194	470	437
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.00	0.88	1.00	0.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	15.0	0.0	22.0	27.6	0.0	35.4	41.4	35.9	38.2	42.7	37.7	37.9
Incr Delay (d2), s/veh	0.1	0.0	22.7	0.2	0.0	19.7	6.9	1.4	10.9	53.2	5.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	8.6	1.3	0.0	10.3	2.9	3.6	6.0	7.1	5.8	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	0.0	44.7	27.7	0.0	55.1	48.3	37.3	49.1	95.9	42.7	44.4
LnGrp LOS	B	A	D	C	A	E	D	D	D	F	D	D
Approach Vol, veh/h		527			449			523			676	
Approach Delay, s/veh		40.3			50.6			45.1			58.0	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	22.0	29.2	30.1	14.7	22.0	32.0	27.2
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	5.0	* 5	4.5	5.0
Max Green Setting (Gmax), s	10.3	23.0	9.4	34.3	8.3	* 25	6.7	37.0
Max Q Clear Time (g_c+I1), s	11.9	15.6	5.0	23.2	7.9	15.1	3.9	20.4
Green Ext Time (p_c), s	0.0	1.3	0.0	1.9	0.0	1.9	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	49.1
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	571	78	406	783	113	373
Future Volume (veh/h)	571	78	406	783	113	373
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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	642	70	456	880	127	361
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	759	630	265	1176	398	354
Arrive On Green	0.40	0.40	0.15	0.62	0.22	0.22
Sat Flow, veh/h	1900	1576	1810	1900	1810	1610
Grp Volume(v), veh/h	642	70	456	880	127	361
Grp Sat Flow(s),veh/h/ln	1900	1576	1810	1900	1810	1610
Q Serve(g_s), s	20.9	1.9	10.0	22.4	4.0	15.0
Cycle Q Clear(g_c), s	20.9	1.9	10.0	22.4	4.0	15.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	759	630	265	1176	398	354
V/C Ratio(X)	0.85	0.11	1.72	0.75	0.32	1.02
Avail Cap(c_a), veh/h	835	693	265	1176	398	354
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	18.6	12.9	29.1	9.2	22.4	26.6
Incr Delay (d2), s/veh	10.2	0.3	339.7	3.9	0.2	53.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	0.6	28.9	7.3	1.6	10.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.8	13.2	368.8	13.1	22.5	79.8
LnGrp LOS	C	B	F	B	C	F
Approach Vol, veh/h	712			1336	488	
Approach Delay, s/veh	27.3			134.5	64.9	
Approach LOS	C			F	E	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	15.0	33.3	20.0	48.3
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	10.0	30.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	12.0	22.9	17.0	24.4
Green Ext Time (p_c), s	0.0	4.3	0.0	4.3

Intersection Summary	
HCM 6th Ctrl Delay	91.0
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	789	153	0	614	552	0	0	0	665	23	570
Future Volume (veh/h)	0	789	153	0	614	552	0	0	0	665	23	570
Initial Q (Qb), veh	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
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	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	858	166	0	667	476				874	0	327
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1960	601	0	1364	608				1616	0	479
Arrive On Green	0.00	0.38	0.38	0.00	0.38	0.38				0.30	0.00	0.30
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	858	166	0	667	476				874	0	327
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	4.1	2.4	0.0	4.7	8.8				4.5	0.0	6.0
Cycle Q Clear(g_c), s	0.0	4.1	2.4	0.0	4.7	8.8				4.5	0.0	6.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1960	601	0	1364	608				1616	0	479
V/C Ratio(X)	0.00	0.44	0.28	0.00	0.49	0.78				0.54	0.00	0.68
Avail Cap(c_a), veh/h	0	5281	1619	0	3719	1659				5640	0	1673
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.8	7.3	0.0	8.0	9.2				9.9	0.0	10.4
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.1	0.8				0.1	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	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.4	0.0	0.9	1.6				0.9	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.8	7.4	0.0	8.1	10.1				10.0	0.0	11.0
LnGrp LOS	A	A	A	A	A	B				A	A	B
Approach Vol, veh/h		1024			1143						1201	
Approach Delay, s/veh		7.8			8.9						10.3	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		18.5		15.1		18.5						
Change Period (Y+Rc), s		5.8		5.1		* 5.8						
Max Green Setting (Gmax), s		34.2		34.9		* 35						
Max Q Clear Time (g_c+I1), s		6.1		8.0		10.8						
Green Ext Time (p_c), s		2.4		1.0		1.9						

Intersection Summary		
HCM 6th Ctrl Delay		9.0
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	962	464	0	959	906	194	0	552	0	0	0
Future Volume (vph)	0	962	464	0	959	906	194	0	552	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1002	483	0	999	944	202	0	575	0	0	0
RTOR Reduction (vph)	0	0	319	0	0	317	0	0	0	0	0	0
Lane Group Flow (vph)	0	1002	164	0	999	627	202	0	575	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		26.3	26.3		51.4	51.4	15.7		40.4			
Effective Green, g (s)		26.3	26.3		51.4	51.4	15.7		40.4			
Actuated g/C Ratio		0.34	0.34		0.66	0.66	0.20		0.52			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		1762	541		2397	1072	710		842			
v/s Ratio Prot		0.19			0.28		0.06		c0.36			
v/s Ratio Perm			0.10			c0.39						
v/c Ratio		0.57	0.30		0.42	0.58	0.28		0.68			
Uniform Delay, d1		20.9	18.8		6.0	7.1	26.1		13.7			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.5	0.4		0.1	0.9	0.2		2.3			
Delay (s)		21.4	19.2		6.2	8.1	26.3		16.0			
Level of Service		C	B		A	A	C		B			
Approach Delay (s)		20.7			7.1			18.7			0.0	
Approach LOS		C			A			B			A	

Intersection Summary				
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	77.4	Sum of lost time (s)		15.6
Intersection Capacity Utilization	61.7%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1191	265	61	1464	7	305	3	84	23	9	46
Future Volume (veh/h)	60	1191	265	61	1464	7	305	3	84	23	9	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	65	1281	230	66	1574	8	328	3	48	25	10	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	83	3059	1637	86	3053	948	405	11	171	36	31	25
Arrive On Green	0.05	0.59	0.59	0.05	0.59	0.59	0.12	0.11	0.11	0.02	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	96	1529	1810	1900	1570
Grp Volume(v), veh/h	65	1281	230	66	1574	8	328	0	51	25	10	5
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1625	1810	1900	1570
Q Serve(g_s), s	3.8	13.4	3.7	3.6	17.8	0.2	9.1	0.0	2.9	1.4	0.5	0.3
Cycle Q Clear(g_c), s	3.8	13.4	3.7	3.6	17.8	0.2	9.1	0.0	2.9	1.4	0.5	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.94	1.00		1.00
Lane Grp Cap(c), veh/h	83	3059	1637	86	3053	948	405	0	181	36	31	25
V/C Ratio(X)	0.79	0.42	0.14	0.77	0.52	0.01	0.81	0.00	0.28	0.69	0.33	0.20
Avail Cap(c_a), veh/h	256	3285	1758	346	3285	1020	670	0	229	346	363	300
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	11.1	9.1	46.8	12.1	8.5	42.9	0.0	40.5	48.4	48.4	48.3
Incr Delay (d2), s/veh	6.1	0.4	0.2	5.3	0.6	0.0	1.5	0.0	0.3	8.3	2.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.5	1.1	1.7	6.1	0.1	4.0	0.0	1.2	0.7	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	11.5	9.3	52.1	12.7	8.5	44.4	0.0	40.8	56.7	50.7	49.7
LnGrp LOS	D	B	A	D	B	A	D	A	D	E	D	D
Approach Vol, veh/h		1576			1648			379			40	
Approach Delay, s/veh		12.9			14.3			43.9			54.3	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	65.6	7.0	17.1	9.7	65.7	16.5	7.6
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	5.8	19.8	3.4	4.9	5.6	15.4	11.1	2.5
Green Ext Time (p_c), s	0.0	38.7	0.0	0.1	0.0	40.4	0.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	205	113	13	201	163	71	423	53	133	357	37
Future Volume (veh/h)	27	205	113	13	201	163	71	423	53	133	357	37
Initial Q (Qb), veh	0	0	0	0	1	0	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	29	223	86	14	218	123	77	460	0	145	388	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	94	350	127	76	321	168	182	911		237	1021	
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.10	0.25	0.00	0.13	0.28	0.00
Sat Flow, veh/h	81	1254	456	28	1128	613	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	338	0	0	355	0	0	77	460	0	145	388	0
Grp Sat Flow(s),veh/h/ln	1791	0	0	1769	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	2.2	6.0	0.0	4.1	4.7	0.0
Cycle Q Clear(g_c), s	8.9	0.0	0.0	9.8	0.0	0.0	2.2	6.0	0.0	4.1	4.7	0.0
Prop In Lane	0.09		0.25	0.04		0.35	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	571	0	0	562	0	0	182	911		237	1021	
V/C Ratio(X)	0.59	0.00	0.00	0.63	0.00	0.00	0.42	0.50		0.61	0.38	
Avail Cap(c_a), veh/h	1298	0	0	1303	0	0	464	2909		464	2909	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.5	0.0	0.0	17.8	0.0	0.0	23.4	17.7	0.0	22.9	15.9	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.0	1.7	0.0	0.0	1.6	0.9	0.0	2.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	0.0	4.0	0.0	0.0	0.9	2.2	0.0	1.8	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	0.0	0.0	19.6	0.0	0.0	24.9	18.6	0.0	25.8	16.4	0.0
LnGrp LOS	B	A	A	B	A	A	C	B		C	B	
Approach Vol, veh/h		338			355			537			533	
Approach Delay, s/veh		18.9			19.6			19.5			19.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	19.8		21.7	11.5	21.4		21.7
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	14.0	44.0		38.5	14.0	44.0		38.5
Max Q Clear Time (g_c+I1), s	6.1	8.0		10.9	4.2	6.7		11.8
Green Ext Time (p_c), s	0.2	5.9		3.2	0.1	4.9		3.4

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

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

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	47	93	39	5	17	18	273	28	33	428	21
Future Vol, veh/h	30	47	93	39	5	17	18	273	28	33	428	21
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	35	55	109	46	6	20	21	321	33	39	504	25
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	14.8	11.8	13.7	17
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	18%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	76%	28%	0%	23%	0%	100%	87%
Vol Right, %	0%	0%	24%	55%	0%	77%	0%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	182	119	170	39	22	33	285	164
LT Vol	18	0	0	30	39	0	33	0	0
Through Vol	0	182	91	47	0	5	0	285	143
RT Vol	0	0	28	93	0	17	0	0	21
Lane Flow Rate	21	214	140	200	46	26	39	336	193
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.045	0.421	0.269	0.403	0.109	0.054	0.078	0.627	0.355
Departure Headway (Hd)	7.584	7.074	6.906	7.255	8.56	7.503	7.236	6.727	6.636
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	472	510	521	496	418	476	498	540	545
Service Time	5.326	4.816	4.648	5.003	6.317	5.26	4.936	4.427	4.336
HCM Lane V/C Ratio	0.044	0.42	0.269	0.403	0.11	0.055	0.078	0.622	0.354
HCM Control Delay	10.7	14.9	12.2	14.8	12.4	10.7	10.5	20.1	12.9
HCM Lane LOS	B	B	B	B	B	B	B	C	B
HCM 95th-tile Q	0.1	2.1	1.1	1.9	0.4	0.2	0.3	4.3	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	10	32	1	3	4	21	492	2	3	422	57
Future Volume (veh/h)	56	10	32	1	3	4	21	492	2	3	422	57
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		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	62	11	36	1	3	0	23	547	2	3	469	63
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	291	72	98	166	308	0	52	1484	5	7	1364	608
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.00	0.03	0.40	0.40	0.00	0.38	0.38
Sat Flow, veh/h	677	381	522	190	1638	0	1810	3689	13	1810	3610	1610
Grp Volume(v), veh/h	109	0	0	4	0	0	23	268	281	3	469	63
Grp Sat Flow(s),veh/h/ln	1580	0	0	1828	0	0	1810	1805	1897	1810	1805	1610
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.4	3.6	3.6	0.1	3.2	0.9
Cycle Q Clear(g_c), s	1.9	0.0	0.0	0.1	0.0	0.0	0.4	3.6	3.6	0.1	3.2	0.9
Prop In Lane	0.57		0.33	0.25		0.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	460	0	0	474	0	0	52	726	763	7	1364	608
V/C Ratio(X)	0.24	0.00	0.00	0.01	0.00	0.00	0.44	0.37	0.37	0.40	0.34	0.10
Avail Cap(c_a), veh/h	1233	0	0	1355	0	0	315	1098	1155	315	2197	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.1	0.0	0.0	11.4	0.0	0.0	16.5	7.2	7.2	17.1	7.7	7.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	2.2	1.4	1.4	12.6	0.7	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	0.6	0.0	0.0	0.0	0.0	0.0	0.2	1.0	1.0	0.0	0.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	0.0	0.0	11.4	0.0	0.0	18.7	8.7	8.6	29.7	8.4	7.3
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		109			4			572			535	
Approach Delay, s/veh		12.5			11.4			9.0			8.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	19.0		11.0	3.6	19.9		11.0
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.4	5.2		3.9	2.1	5.6		2.1
Green Ext Time (p_c), s	0.0	7.8		0.7	0.0	7.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
8: Manthey Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	587	61	235	303	225	34	70	69	352	169	58
Future Volume (veh/h)	32	587	61	235	303	225	34	70	69	352	169	58
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	35	638	66	255	329	245	37	76	75	383	184	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	601	2022	209	472	1164	983	266	242	239	664	373	128
Arrive On Green	0.61	0.61	0.61	1.00	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	851	3301	341	754	1900	1605	1146	877	865	2430	1350	462
Grp Volume(v), veh/h	35	348	356	255	329	245	37	0	151	383	0	247
Grp Sat Flow(s),veh/h/ln	851	1805	1837	754	1900	1605	1146	0	1742	1215	0	1813
Q Serve(g_s), s	1.5	8.3	8.4	10.3	0.0	0.0	2.5	0.0	6.2	13.3	0.0	10.3
Cycle Q Clear(g_c), s	1.5	8.3	8.4	18.7	0.0	0.0	12.8	0.0	6.2	19.5	0.0	10.3
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.50	1.00		0.26
Lane Grp Cap(c), veh/h	601	1106	1126	472	1164	983	266	0	481	664	0	501
V/C Ratio(X)	0.06	0.32	0.32	0.54	0.28	0.25	0.14	0.00	0.31	0.58	0.00	0.49
Avail Cap(c_a), veh/h	601	1106	1126	472	1164	983	382	0	658	911	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.0	8.4	8.4	1.4	0.0	0.0	32.6	0.0	25.8	33.5	0.0	27.3
Incr Delay (d2), s/veh	0.2	0.7	0.7	3.9	0.5	0.5	0.2	0.0	0.4	0.8	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.9	2.9	0.5	0.2	0.1	0.7	0.0	2.5	3.9	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	9.1	9.1	5.3	0.5	0.5	32.9	0.0	26.2	34.3	0.0	28.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	C
Approach Vol, veh/h		739			829			188			630	
Approach Delay, s/veh		9.0			2.0			27.5			31.9	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.9		60.1		29.9		60.1				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		34.0		46.0		34.0		46.0				
Max Q Clear Time (g_c+I1), s		14.8		10.4		21.5		20.7				
Green Ext Time (p_c), s		0.8		4.5		2.6		4.7				

Intersection Summary												
HCM 6th Ctrl Delay			14.1									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
9: I-5 SB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	690	316	15	392	0	0	0	0	204	11	377
Future Volume (veh/h)	0	690	316	15	392	0	0	0	0	204	11	377
Initial Q (Qb), veh	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
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	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	734	336	16	417	0				217	12	401
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1457	666	406	1156	0				482	27	451
Arrive On Green	0.00	1.00	1.00	0.20	0.20	0.00				0.28	0.28	0.28
Sat Flow, veh/h	0	2491	1096	536	1900	0				1719	95	1607
Grp Volume(v), veh/h	0	553	517	16	417	0				229	0	401
Grp Sat Flow(s),veh/h/ln	0	1805	1687	536	1900	0				1814	0	1607
Q Serve(g_s), s	0.0	0.0	0.0	2.2	17.0	0.0				9.4	0.0	21.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.2	17.0	0.0				9.4	0.0	21.5
Prop In Lane	0.00		0.65	1.00		0.00				0.95		1.00
Lane Grp Cap(c), veh/h	0	1098	1026	406	1156	0				509	0	451
V/C Ratio(X)	0.00	0.50	0.50	0.04	0.36	0.00				0.45	0.00	0.89
Avail Cap(c_a), veh/h	0	1098	1026	406	1156	0				645	0	571
HCM Platoon Ratio	1.00	2.00	2.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.89	0.89	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	15.0	20.9	0.0				26.6	0.0	31.0
Incr Delay (d2), s/veh	0.0	1.5	1.6	0.2	0.9	0.0				0.6	0.0	13.4
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	0.4	0.4	0.2	8.7	0.0				3.7	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.5	1.6	15.1	21.8	0.0				27.3	0.0	44.5
LnGrp LOS	A	A	A	B	C	A				C	A	D
Approach Vol, veh/h		1070			433						630	
Approach Delay, s/veh		1.5			21.5						38.2	
Approach LOS		A			C						D	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				59.7		30.3		59.7				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				48.0		32.0		48.0				
Max Q Clear Time (g_c+I1), s				2.0		23.5		19.0				
Green Ext Time (p_c), s				8.1		1.7		2.6				

Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
10: I-5 NB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	487	0	0	251	235	191	4	19	0	0	0
Future Volume (veh/h)	399	487	0	0	251	235	191	4	19	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	429	524	0	0	270	253	205	4	20			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	1379	1417	0	0	1417	1201	254	5	230			
Arrive On Green	1.00	1.00	0.00	0.00	0.75	0.75	0.14	0.14	0.14			
Sat Flow, veh/h	1733	1900	0	0	1900	1610	1777	35	1605			
Grp Volume(v), veh/h	429	524	0	0	270	253	209	0	20			
Grp Sat Flow(s),veh/h/ln	866	1900	0	0	1900	1610	1811	0	1605			
Q Serve(g_s), s	1.9	0.0	0.0	0.0	3.8	4.3	10.1	0.0	1.0			
Cycle Q Clear(g_c), s	5.7	0.0	0.0	0.0	3.8	4.3	10.1	0.0	1.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.98		1.00			
Lane Grp Cap(c), veh/h	1379	1417	0	0	1417	1201	259	0	230			
V/C Ratio(X)	0.31	0.37	0.00	0.00	0.19	0.21	0.81	0.00	0.09			
Avail Cap(c_a), veh/h	1379	1417	0	0	1417	1201	543	0	481			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.90	0.90	0.00	0.00	0.77	0.77	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.0	3.4	3.5	37.4	0.0	33.5			
Incr Delay (d2), s/veh	0.5	0.7	0.0	0.0	0.2	0.3	5.8	0.0	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			
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	0.0	1.0	0.9	4.5	0.0	0.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.7	0.7	0.0	0.0	3.6	3.8	43.2	0.0	33.6			
LnGrp LOS	A	A	A	A	A	A	D	A	C			
Approach Vol, veh/h		953			523			229				
Approach Delay, s/veh		0.7			3.7			42.4				
Approach LOS		A			A			D				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		17.9		72.1				72.1				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		27.0		53.0				53.0				
Max Q Clear Time (g_c+I1), s		12.1		7.7				6.3				
Green Ext Time (p_c), s		0.9		7.2				2.4				
Intersection Summary												
HCM 6th Ctrl Delay			7.2									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary
11: El Dorado Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	326	43	140	270	50	98	359	135	125	273	59
Future Volume (veh/h)	102	326	43	140	270	50	98	359	135	125	273	59
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		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	107	343	45	147	284	53	103	378	142	132	287	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	138	459	60	189	477	89	133	572	211	169	719	152
Arrive On Green	0.08	0.28	0.28	0.10	0.31	0.31	0.07	0.22	0.22	0.09	0.24	0.24
Sat Flow, veh/h	1810	1644	216	1810	1555	290	1810	2549	941	1810	2943	624
Grp Volume(v), veh/h	107	0	388	147	0	337	103	266	254	132	174	175
Grp Sat Flow(s),veh/h/ln	1810	0	1860	1810	0	1845	1810	1805	1685	1810	1805	1762
Q Serve(g_s), s	3.7	0.0	12.1	5.0	0.0	9.8	3.6	8.5	8.8	4.5	5.1	5.3
Cycle Q Clear(g_c), s	3.7	0.0	12.1	5.0	0.0	9.8	3.6	8.5	8.8	4.5	5.1	5.3
Prop In Lane	1.00		0.12	1.00		0.16	1.00		0.56	1.00		0.35
Lane Grp Cap(c), veh/h	138	0	519	189	0	566	133	405	378	169	441	430
V/C Ratio(X)	0.77	0.00	0.75	0.78	0.00	0.60	0.78	0.66	0.67	0.78	0.39	0.41
Avail Cap(c_a), veh/h	219	0	983	316	0	1074	179	665	621	225	710	693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	20.9	27.8	0.0	18.7	28.9	22.4	22.5	28.2	20.1	20.2
Incr Delay (d2), s/veh	8.8	0.0	2.2	6.8	0.0	1.0	13.7	1.8	2.1	12.0	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	4.8	2.3	0.0	3.7	1.9	3.4	3.2	2.3	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	0.0	23.0	34.6	0.0	19.7	42.6	24.2	24.6	40.1	20.7	20.8
LnGrp LOS	D	A	C	C	A	B	D	C	C	D	C	C
Approach Vol, veh/h		495			484			623			481	
Approach Delay, s/veh		26.2			24.2			27.4			26.0	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	19.3	11.1	22.7	9.2	20.5	9.4	24.5				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	7.9	23.4	11.1	33.6	6.3	25.0	7.7	37.0				
Max Q Clear Time (g_c+I1), s	6.5	10.8	7.0	14.1	5.6	7.3	5.7	11.8				
Green Ext Time (p_c), s	0.0	2.3	0.1	2.0	0.0	1.6	0.0	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			26.1									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1083	212	725	977	51	286
Future Volume (veh/h)	1083	212	725	977	51	286
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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1083	184	725	977	51	264
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1174	512	753	2878	143	127
Arrive On Green	0.33	0.33	0.42	0.80	0.08	0.08
Sat Flow, veh/h	3705	1576	1810	3705	1810	1610
Grp Volume(v), veh/h	1083	184	725	977	51	264
Grp Sat Flow(s),veh/h/ln	1805	1576	1810	1805	1810	1610
Q Serve(g_s), s	25.7	7.9	34.7	6.7	2.4	7.0
Cycle Q Clear(g_c), s	25.7	7.9	34.7	6.7	2.4	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1174	512	753	2878	143	127
V/C Ratio(X)	0.92	0.36	0.96	0.34	0.36	2.08
Avail Cap(c_a), veh/h	1179	515	774	2927	143	127
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	22.9	25.3	2.5	38.8	40.9
Incr Delay (d2), s/veh	12.9	1.5	23.1	0.3	0.6	511.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	2.9	17.9	1.1	1.1	20.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.8	24.4	48.4	2.8	39.3	552.8
LnGrp LOS	D	C	D	A	D	F
Approach Vol, veh/h	1267			1702	315	
Approach Delay, s/veh	39.3			22.2	469.7	
Approach LOS	D			C	F	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	41.9	34.9		12.0		76.8
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	38.0	29.0		7.0		72.0
Max Q Clear Time (g_c+I1), s	36.7	27.7		9.0		8.7
Green Ext Time (p_c), s	0.3	1.2		0.0		23.6

Intersection Summary			
HCM 6th Ctrl Delay			71.7
HCM 6th LOS			E

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	973	179	0	604	301	0	0	0	1168	87	847
Future Volume (veh/h)	0	973	179	0	604	301	0	0	0	1168	87	847
Initial Q (Qb), veh	0	0	0	0	1	0				0	0	5
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	973	179	0	604	233				1386	0	540
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	0	0	0	0	0				0	0	0
Cap, veh/h	0	1574	482	0	1066	489				2205	0	657
Arrive On Green	0.00	0.29	0.29	0.00	0.29	0.29				0.40	0.00	0.40
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	973	179	0	604	233				1386	0	540
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	5.9	3.2	0.0	5.1	4.3				7.4	0.0	10.9
Cycle Q Clear(g_c), s	0.0	5.9	3.2	0.0	5.1	4.3				7.4	0.0	10.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1574	482	0	1066	489				2205	0	657
V/C Ratio(X)	0.00	0.62	0.37	0.00	0.57	0.48				0.63	0.00	0.82
Avail Cap(c_a), veh/h	0	4900	1502	0	3450	1539				5234	0	1552
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.4	10.4	0.0	10.9	10.8				9.2	0.0	11.3
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	0.2	0.3				0.1	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	2.3
%ile BackOfQ(50%),veh/ln	0.0	1.6	0.8	0.0	1.4	1.1				1.5	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.6	10.6	0.0	11.1	11.1				9.3	0.0	14.7
LnGrp LOS	A	B	B	A	B	B				A	A	B
Approach Vol, veh/h		1152			837						1926	
Approach Delay, s/veh		11.4			11.1						10.8	
Approach LOS		B			B						B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		16.5		19.7		16.5
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		7.9		12.9		7.1
Green Ext Time (p_c), s		2.8		1.8		1.6

Intersection Summary			
HCM 6th Ctrl Delay			11.0
HCM 6th LOS			B

Notes

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

User approved volume balancing among the lanes for turning movement.

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

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1726	443	0	712	1139	274	0	656	0	0	0
Future Volume (vph)	0	1726	443	0	712	1139	274	0	656	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
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	1726	443	0	712	1139	274	0	656	0	0	0
RTOR Reduction (vph)	0	0	228	0	0	243	0	0	0	0	0	0
Lane Group Flow (vph)	0	1726	215	0	712	896	274	0	656	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		44.3	44.3		70.8	70.8	10.0		36.1			
Effective Green, g (s)		44.3	44.3		70.8	70.8	10.0		36.1			
Actuated g/C Ratio		0.49	0.49		0.78	0.78	0.11		0.40			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		2522	775		2805	1255	384		639			
v/s Ratio Prot		0.33			0.20		0.08		c0.41			
v/s Ratio Perm			0.14			c0.55						
v/c Ratio		0.68	0.28		0.25	0.71	0.71		1.03			
Uniform Delay, d1		18.0	13.9		2.8	5.1	39.2		27.5			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.8	0.3		0.1	2.0	6.2		42.6			
Delay (s)		18.9	14.2		2.9	7.1	45.3		70.1			
Level of Service		B	B		A	A	D		E			
Approach Delay (s)		17.9			5.5			62.8			0.0	
Approach LOS		B			A			E			A	

Intersection Summary				
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	91.1	Sum of lost time (s)	15.6	
Intersection Capacity Utilization	82.9%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1636	639	88	1054	34	456	15	41	8	6	23
Future Volume (veh/h)	111	1636	639	88	1054	34	456	15	41	8	6	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	111	1636	550	88	1054	33	456	15	37	8	6	14
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	136	2923	1564	112	2830	878	521	76	188	14	32	27
Arrive On Green	0.08	0.56	0.56	0.06	0.55	0.55	0.15	0.16	0.16	0.01	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	486	1198	1810	1900	1610
Grp Volume(v), veh/h	111	1636	550	88	1054	33	456	0	52	8	6	14
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1684	1810	1900	1610
Q Serve(g_s), s	7.1	22.1	11.9	5.3	12.7	1.0	14.0	0.0	3.0	0.5	0.3	0.9
Cycle Q Clear(g_c), s	7.1	22.1	11.9	5.3	12.7	1.0	14.0	0.0	3.0	0.5	0.3	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	136	2923	1564	112	2830	878	521	0	265	14	32	27
V/C Ratio(X)	0.81	0.56	0.35	0.78	0.37	0.04	0.88	0.00	0.20	0.56	0.19	0.52
Avail Cap(c_a), veh/h	232	2973	1591	313	2973	923	607	0	265	313	328	278
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	15.3	13.1	50.8	14.2	11.6	45.8	0.0	40.3	54.3	53.3	53.6
Incr Delay (d2), s/veh	4.4	0.8	0.6	4.4	0.4	0.1	11.0	0.0	0.1	12.2	1.1	5.8
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	3.1	8.0	3.7	2.5	4.6	0.4	6.9	0.0	1.2	0.3	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	16.1	13.7	55.2	14.6	11.7	56.8	0.0	40.4	66.5	54.4	59.4
LnGrp LOS	D	B	B	E	B	B	E	A	D	E	D	E
Approach Vol, veh/h		2297			1175			508			28	
Approach Delay, s/veh		17.3			17.6			55.1			60.3	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	67.0	5.9	23.3	11.8	68.9	21.3	7.8
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	9.1	14.7	2.5	5.0	7.3	24.1	16.0	2.9
Green Ext Time (p_c), s	0.1	32.3	0.0	0.1	0.1	37.8	0.3	0.0

Intersection Summary		
HCM 6th Ctrl Delay	22.5	
HCM 6th LOS	C	

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	486	257	92	390	181	46	161	88	251	413	53
Future Volume (veh/h)	26	486	257	92	390	181	46	161	88	251	413	53
Initial Q (Qb), veh	0	2	0	0	1	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	26	486	173	92	390	159	46	161	0	251	413	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
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	67	745	177	133	568	143	117	372		230	650	
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.07	0.11	0.00	0.15	0.19	0.00
Sat Flow, veh/h	33	1310	454	160	982	377	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	685	0	0	641	0	0	46	161	0	251	413	0
Grp Sat Flow(s),veh/h/ln	1798	0	0	1518	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	4.7	0.0	0.0	1.8	3.1	0.0	10.1	7.7	0.0
Cycle Q Clear(g_c), s	22.7	0.0	0.0	27.5	0.0	0.0	1.8	3.1	0.0	10.1	7.7	0.0
Prop In Lane	0.04		0.25	0.14		0.25	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	936	0	0	802	0	0	117	372		230	650	
V/C Ratio(X)	0.73	0.00	0.00	0.80	0.00	0.00	0.39	0.43		1.09	0.64	
Avail Cap(c_a), veh/h	1238	0	0	1068	0	0	246	809		270	858	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.4	0.0	0.0	16.0	0.0	0.0	35.0	32.9	0.0	37.8	29.7	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0	3.8	0.0	0.0	2.1	1.7	0.0	82.3	2.2	0.0
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	0.0	0.0	9.3	0.0	0.0	0.9	1.4	0.0	9.8	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	0.0	0.0	19.9	0.0	0.0	37.2	34.6	0.0	120.0	31.9	0.0
LnGrp LOS	B	A	A	B	A	A	D	C		F	C	
Approach Vol, veh/h		685			641			207			664	
Approach Delay, s/veh		17.5			19.9			35.2			65.2	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	14.0		42.6	10.9	20.1		42.6
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	11.0	16.5		49.0	10.0	17.5		49.0
Max Q Clear Time (g_c+I1), s	12.1	5.1		24.7	3.8	9.7		29.5
Green Ext Time (p_c), s	0.0	1.0		7.5	0.0	2.4		6.6

Intersection Summary		
HCM 6th Ctrl Delay		34.3
HCM 6th LOS		C

Notes

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

HCM 6th AWSC
6: Manthey Rd & Hospital Rd

05/31/2025

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	25	62	67	48	25	67	331	18	32	646	69
Future Vol, veh/h	12	25	62	67	48	25	67	331	18	32	646	69
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	25	62	67	48	25	67	331	18	32	646	69
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	13	12.7	14.3	25.1
HCM LOS	B	B	B	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	12%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	86%	25%	0%	66%	0%	100%	76%
Vol Right, %	0%	0%	14%	63%	0%	34%	0%	0%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	221	128	99	67	73	32	431	284
LT Vol	67	0	0	12	67	0	32	0	0
Through Vol	0	221	110	25	0	48	0	431	215
RT Vol	0	0	18	62	0	25	0	0	69
Lane Flow Rate	67	221	128	99	67	73	32	431	284
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.146	0.451	0.258	0.219	0.163	0.162	0.064	0.807	0.519
Departure Headway (Hd)	7.859	7.35	7.25	7.973	8.759	8.009	7.253	6.745	6.572
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	456	490	495	450	409	447	494	538	549
Service Time	5.602	5.092	4.992	5.726	6.51	5.76	4.99	4.482	4.309
HCM Lane V/C Ratio	0.147	0.451	0.259	0.22	0.164	0.163	0.065	0.801	0.517
HCM Control Delay	11.9	16	12.5	13	13.2	12.3	10.5	32	16.2
HCM Lane LOS	B	C	B	B	B	B	B	D	C
HCM 95th-tile Q	0.5	2.3	1	0.8	0.6	0.6	0.2	7.8	3

HCM 6th Signalized Intersection Summary
7: Hospital Rd & El Dorado St

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	13	26	2	17	3	13	247	4	2	558	158
Future Volume (veh/h)	35	13	26	2	17	3	13	247	4	2	558	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	35	13	26	2	17	2	13	247	4	2	558	158
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	231	73	83	124	232	26	31	1638	26	5	1575	703
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.02	0.45	0.45	0.00	0.44	0.44
Sat Flow, veh/h	545	500	566	79	1585	175	1810	3636	59	1810	3610	1610
Grp Volume(v), veh/h	74	0	0	21	0	0	13	122	129	2	558	158
Grp Sat Flow(s),veh/h/ln	1611	0	0	1839	0	0	1810	1805	1889	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4	1.4	0.0	3.6	2.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	0.3	0.0	0.0	0.2	1.4	1.4	0.0	3.6	2.1
Prop In Lane	0.47		0.35	0.10		0.10	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	388	0	0	382	0	0	31	813	851	5	1575	703
V/C Ratio(X)	0.19	0.00	0.00	0.05	0.00	0.00	0.42	0.15	0.15	0.39	0.35	0.22
Avail Cap(c_a), veh/h	1224	0	0	1356	0	0	310	1083	1134	310	2166	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	12.9	0.0	0.0	17.0	5.7	5.7	17.4	6.6	6.2
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	3.4	0.4	0.4	16.6	0.6	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	0.5	0.0	0.0	0.1	0.0	0.0	0.1	0.3	0.3	0.0	0.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	0.0	13.0	0.0	0.0	20.4	6.1	6.0	34.0	7.2	6.9
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		74			21			264			718	
Approach Delay, s/veh		13.6			13.0			6.8			7.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.1	21.3		9.6	3.6	21.8		9.6
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.2	5.6		3.3	2.0	3.4		2.3
Green Ext Time (p_c), s	0.0	9.7		0.4	0.0	3.8		0.1

Intersection Summary		
HCM 6th Ctrl Delay		7.7
HCM 6th LOS		A

Notes

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

HCM 6th Signalized Intersection Summary
8: Manthey Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	302	33	179	624	351	35	36	62	254	335	151
Future Volume (veh/h)	28	302	33	179	624	351	35	36	62	254	335	151
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	28	302	33	179	624	351	35	36	62	254	335	151
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	40	1230	133	220	910	755	46	109	187	339	310	140
Arrive On Green	0.02	0.37	0.37	0.08	0.32	0.32	0.03	0.17	0.17	0.10	0.25	0.25
Sat Flow, veh/h	1810	3285	356	1810	1900	1575	1810	627	1079	3510	1240	559
Grp Volume(v), veh/h	28	165	170	179	624	351	35	0	98	254	0	486
Grp Sat Flow(s),veh/h/ln	1810	1805	1836	1810	1900	1575	1810	0	1706	1755	0	1799
Q Serve(g_s), s	1.5	6.0	6.1	9.3	27.4	17.1	1.8	0.0	4.8	6.8	0.0	24.0
Cycle Q Clear(g_c), s	1.5	6.0	6.1	9.3	27.4	17.1	1.8	0.0	4.8	6.8	0.0	24.0
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.63	1.00		0.31
Lane Grp Cap(c), veh/h	40	676	687	220	910	755	46	0	296	339	0	450
V/C Ratio(X)	0.71	0.24	0.25	0.81	0.69	0.46	0.77	0.00	0.33	0.75	0.00	1.08
Avail Cap(c_a), veh/h	75	676	687	556	910	755	75	0	296	603	0	450
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.6	20.7	20.7	43.0	26.3	22.8	46.5	0.0	34.8	42.2	0.0	36.0
Incr Delay (d2), s/veh	20.4	0.2	0.2	5.1	2.9	1.4	22.8	0.0	0.6	3.3	0.0	65.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.4	2.5	4.5	13.3	6.8	1.1	0.0	2.0	3.1	0.0	18.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.0	20.9	20.9	48.1	29.2	24.2	69.3	0.0	35.4	45.6	0.0	101.8
LnGrp LOS	E	C	C	D	C	C	E	A	D	D	A	F
Approach Vol, veh/h		363			1154			133			740	
Approach Delay, s/veh		24.4			30.6			44.3			82.5	
Approach LOS		C			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	21.7	16.2	40.9	6.4	29.0	6.1	51.0
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	16.5	11.0	29.5	20.0	4.0	24.0	4.0	46.0
Max Q Clear Time (g_c+I1), s	8.8	6.8	11.3	8.1	3.8	26.0	3.5	29.4
Green Ext Time (p_c), s	0.5	0.1	0.4	1.3	0.0	0.0	0.0	4.7

Intersection Summary		
HCM 6th Ctrl Delay		46.5
HCM 6th LOS		D

Notes

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

HCM 6th Signalized Intersection Summary
9: I-5 SB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	415	203	10	752	0	0	0	0	365	10	401
Future Volume (veh/h)	0	415	203	10	752	0	0	0	0	365	10	401
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	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	415	203	10	752	0				365	10	401
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	0	0	0	0	0				0	0	0
Cap, veh/h	0	1296	627	22	1157	0				506	14	462
Arrive On Green	0.00	0.55	0.55	0.00	0.20	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	2454	1141	1810	1900	0				1764	48	1610
Grp Volume(v), veh/h	0	317	301	10	752	0				375	0	401
Grp Sat Flow(s),veh/h/ln	0	1805	1695	1810	1900	0				1812	0	1610
Q Serve(g_s), s	0.0	9.2	9.4	0.5	34.9	0.0				17.9	0.0	22.7
Cycle Q Clear(g_c), s	0.0	9.2	9.4	0.5	34.9	0.0				17.9	0.0	22.7
Prop In Lane	0.00		0.67	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	992	931	22	1157	0				520	0	462
V/C Ratio(X)	0.00	0.32	0.32	0.45	0.65	0.00				0.72	0.00	0.87
Avail Cap(c_a), veh/h	0	992	931	141	1157	0				717	0	637
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.96	0.96	0.89	0.89	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.8	11.8	47.5	29.0	0.0				30.8	0.0	32.5
Incr Delay (d2), s/veh	0.0	0.8	0.9	12.4	2.5	0.0				2.2	0.0	9.2
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	3.5	3.3	0.3	18.2	0.0				7.4	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.6	12.7	59.9	31.5	0.0				33.0	0.0	41.7
LnGrp LOS	A	B	B	E	C	A				C	A	D
Approach Vol, veh/h		618			762						776	
Approach Delay, s/veh		12.7			31.9						37.5	
Approach LOS		B			C						D	

Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			5.7	57.8		32.6		63.4				
Change Period (Y+Rc), s			4.5	5.0		5.0		5.0				
Max Green Setting (Gmax), s			7.5	36.0		38.0		48.0				
Max Q Clear Time (g_c+I1), s			2.5	11.4		24.7		36.9				
Green Ext Time (p_c), s			0.0	3.6		2.9		3.6				

Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
10: I-5 NB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	582	0	0	419	282	343	2	18	0	0	0
Future Volume (veh/h)	197	582	0	0	419	282	343	2	18	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		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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	197	582	0	0	419	282	343	2	18			
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	0	0	0	0	0	0	0	0			
Cap, veh/h	268	1284	0	0	1050	879	396	2	354			
Arrive On Green	0.15	1.00	0.00	0.00	1.00	1.00	0.22	0.22	0.22			
Sat Flow, veh/h	3510	1900	0	0	1900	1590	1800	10	1610			
Grp Volume(v), veh/h	197	582	0	0	419	282	345	0	18			
Grp Sat Flow(s),veh/h/ln	1755	1900	0	0	1900	1590	1810	0	1610			
Q Serve(g_s), s	5.1	0.0	0.0	0.0	0.0	0.0	17.6	0.0	0.8			
Cycle Q Clear(g_c), s	5.1	0.0	0.0	0.0	0.0	0.0	17.6	0.0	0.8			
Prop In Lane	1.00		0.00	0.00		1.00	0.99		1.00			
Lane Grp Cap(c), veh/h	268	1284	0	0	1050	879	398	0	354			
V/C Ratio(X)	0.74	0.45	0.00	0.00	0.40	0.32	0.87	0.00	0.05			
Avail Cap(c_a), veh/h	413	1284	0	0	1050	879	622	0	553			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.97	0.97	0.00	0.00	0.82	0.82	1.00	0.00	1.00			
Uniform Delay (d), s/veh	39.8	0.0	0.0	0.0	0.0	0.0	36.1	0.0	29.5			
Incr Delay (d2), s/veh	3.8	1.1	0.0	0.0	0.9	0.8	7.8	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			
%ile BackOfQ(50%),veh/ln	2.1	0.4	0.0	0.0	0.3	0.2	8.0	0.0	0.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	1.1	0.0	0.0	0.9	0.8	43.9	0.0	29.6			
LnGrp LOS	D	A	A	A	A	A	D	A	C			
Approach Vol, veh/h		779			701			363				
Approach Delay, s/veh		11.9			0.9			43.2				
Approach LOS		B			A			D				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		26.1		69.9			11.8	58.1				
Change Period (Y+Rc), s		5.0		5.0			4.5	5.0				
Max Green Setting (Gmax), s		33.0		53.0			11.3	37.2				
Max Q Clear Time (g_c+I1), s		19.6		2.0			7.1	2.0				
Green Ext Time (p_c), s		1.5		3.9			0.2	3.5				

Intersection Summary												
HCM 6th Ctrl Delay			13.9									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
11: El Dorado Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	459	36	67	442	24	107	156	218	187	311	139
Future Volume (veh/h)	75	459	36	67	442	24	107	156	218	187	311	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	75	459	36	67	442	24	107	156	218	187	311	139
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	453	492	39	446	499	27	183	298	266	194	403	176
Arrive On Green	0.50	0.57	0.57	0.25	0.28	0.28	0.10	0.17	0.17	0.11	0.17	0.17
Sat Flow, veh/h	1810	1739	136	1810	1786	97	1810	1805	1610	1810	2426	1057
Grp Volume(v), veh/h	75	0	495	67	0	466	107	156	218	187	229	221
Grp Sat Flow(s),veh/h/ln	1810	0	1875	1810	0	1883	1810	1805	1610	1810	1805	1678
Q Serve(g_s), s	2.2	0.0	23.3	2.8	0.0	22.8	5.4	7.6	12.6	9.9	11.7	12.1
Cycle Q Clear(g_c), s	2.2	0.0	23.3	2.8	0.0	22.8	5.4	7.6	12.6	9.9	11.7	12.1
Prop In Lane	1.00		0.07	1.00		0.05	1.00		1.00	1.00		0.63
Lane Grp Cap(c), veh/h	453	0	531	446	0	526	183	298	266	194	300	279
V/C Ratio(X)	0.17	0.00	0.93	0.15	0.00	0.89	0.58	0.52	0.82	0.96	0.77	0.79
Avail Cap(c_a), veh/h	453	0	670	446	0	726	183	432	386	194	470	437
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.00	0.89	1.00	0.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	18.5	0.0	20.0	28.3	0.0	33.1	41.2	36.6	38.7	42.7	38.2	38.4
Incr Delay (d2), s/veh	0.2	0.0	23.5	0.2	0.0	19.3	4.7	1.4	8.9	53.2	4.0	5.1
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	0.9	0.0	9.0	1.2	0.0	12.5	2.6	3.3	5.4	7.1	5.2	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	0.0	43.4	28.4	0.0	52.4	45.9	38.1	47.6	95.9	42.2	43.6
LnGrp LOS	B	A	D	C	A	D	D	D	D	F	D	D
Approach Vol, veh/h		570			533			481			637	
Approach Delay, s/veh		40.2			49.4			44.1			58.4	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	20.8	28.2	32.2	14.7	20.9	28.5	31.8
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	5.0	* 5	4.5	5.0
Max Green Setting (Gmax), s	10.3	23.0	9.4	34.3	8.3	* 25	6.7	37.0
Max Q Clear Time (g_c+I1), s	11.9	14.6	4.8	25.3	7.4	14.1	4.2	24.8
Green Ext Time (p_c), s	0.0	1.3	0.0	1.9	0.0	1.8	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	48.5
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	850	78	406	1002	113	373
Future Volume (veh/h)	850	78	406	1002	113	373
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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	850	62	406	1002	113	321
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1192	520	458	2395	290	258
Arrive On Green	0.33	0.33	0.25	0.66	0.16	0.16
Sat Flow, veh/h	3705	1576	1810	3705	1810	1610
Grp Volume(v), veh/h	850	62	406	1002	113	321
Grp Sat Flow(s),veh/h/ln	1805	1576	1810	1805	1810	1610
Q Serve(g_s), s	12.9	1.7	13.5	8.1	3.5	10.0
Cycle Q Clear(g_c), s	12.9	1.7	13.5	8.1	3.5	10.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1192	520	458	2395	290	258
V/C Ratio(X)	0.71	0.12	0.89	0.42	0.39	1.24
Avail Cap(c_a), veh/h	1331	581	609	2835	290	258
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	18.3	14.6	22.4	4.9	23.5	26.2
Incr Delay (d2), s/veh	3.1	0.4	9.9	0.4	0.3	138.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.6	6.2	1.7	1.4	13.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.4	14.9	32.3	5.3	23.8	164.2
LnGrp LOS	C	B	C	A	C	F
Approach Vol, veh/h	912			1408	434	
Approach Delay, s/veh	21.0			13.1	127.7	
Approach LOS	C			B	F	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	20.8	26.6	15.0	47.4
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	21.0	23.0	10.0	49.0
Max Q Clear Time (g_c+I1), s	15.5	14.9	12.0	10.1
Green Ext Time (p_c), s	0.3	5.7	0.0	19.8

Intersection Summary	
HCM 6th Ctrl Delay	33.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	883	153	0	614	552	0	0	0	937	23	682
Future Volume (veh/h)	0	883	153	0	614	552	0	0	0	937	23	682
Initial Q (Qb), veh	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
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	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	883	153	0	614	438				1103	0	384
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	0	0	0	0	0				0	0	0
Cap, veh/h	0	1840	564	0	1280	571				1707	0	506
Arrive On Green	0.00	0.35	0.35	0.00	0.35	0.35				0.31	0.00	0.31
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	883	153	0	614	438				1103	0	384
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	4.4	2.3	0.0	4.4	7.9				5.8	0.0	7.1
Cycle Q Clear(g_c), s	0.0	4.4	2.3	0.0	4.4	7.9				5.8	0.0	7.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1840	564	0	1280	571				1707	0	506
V/C Ratio(X)	0.00	0.48	0.27	0.00	0.48	0.77				0.65	0.00	0.76
Avail Cap(c_a), veh/h	0	5384	1650	0	3791	1691				5750	0	1705
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.3	7.6	0.0	8.3	9.4				9.7	0.0	10.2
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.1	0.8				0.2	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.4	0.0	0.9	1.5				1.1	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.3	7.7	0.0	8.4	10.2				9.9	0.0	11.1
LnGrp LOS	A	A	A	A	A	B				A	A	B
Approach Vol, veh/h		1036			1052						1487	
Approach Delay, s/veh		8.2			9.2						10.2	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		17.5		15.5		17.5
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		6.4		9.1		9.9
Green Ext Time (p_c), s		2.5		1.3		1.7

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	850	78	406	1002	113	373
Future Volume (vph)	850	78	406	1002	113	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	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	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3610	1581	1805	3610	1805	1615
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3610	1581	1805	3610	1805	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	850	78	406	1002	113	373
RTOR Reduction (vph)	0	51	0	0	0	326
Lane Group Flow (vph)	850	27	406	1002	113	47
Confl. Bikes (#/hr)		1				
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	21.9	21.9	17.4	44.3	8.0	8.0
Effective Green, g (s)	21.9	21.9	17.4	44.3	8.0	8.0
Actuated g/C Ratio	0.35	0.35	0.27	0.70	0.13	0.13
Clearance Time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Vehicle Extension (s)	6.0	6.0	2.0	6.0	2.0	2.0
Lane Grp Cap (vph)	1248	546	496	2526	228	204
v/s Ratio Prot	c0.24		c0.22	0.28	c0.06	
v/s Ratio Perm		0.02				0.03
v/c Ratio	0.68	0.05	0.82	0.40	0.50	0.23
Uniform Delay, d1	17.7	13.8	21.5	3.9	25.8	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.1	9.6	0.3	0.6	0.2
Delay (s)	20.1	13.9	31.1	4.2	26.4	25.1
Level of Service	C	B	C	A	C	C
Approach Delay (s)	19.5			12.0	25.4	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1191	620	148	1464	7	551	3	155	23	9	46
Future Volume (veh/h)	60	1191	620	148	1464	7	551	3	155	23	9	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	60	1191	569	148	1464	7	551	3	116	23	9	5
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	76	2685	1436	177	2960	919	587	7	258	33	29	24
Arrive On Green	0.04	0.52	0.52	0.10	0.57	0.57	0.17	0.16	0.16	0.02	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	41	1576	1810	1900	1567
Grp Volume(v), veh/h	60	1191	569	148	1464	7	551	0	119	23	9	5
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1616	1810	1900	1567
Q Serve(g_s), s	4.0	16.3	14.1	9.1	19.2	0.2	17.6	0.0	7.6	1.4	0.5	0.4
Cycle Q Clear(g_c), s	4.0	16.3	14.1	9.1	19.2	0.2	17.6	0.0	7.6	1.4	0.5	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		1.00
Lane Grp Cap(c), veh/h	76	2685	1436	177	2960	919	587	0	265	33	29	24
V/C Ratio(X)	0.79	0.44	0.40	0.84	0.49	0.01	0.94	0.00	0.45	0.70	0.31	0.21
Avail Cap(c_a), veh/h	224	2875	1538	302	2960	919	587	0	265	302	318	262
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.8	17.2	16.6	50.4	14.6	10.5	46.8	0.0	42.9	55.5	55.4	55.3
Incr Delay (d2), s/veh	6.5	0.5	0.8	3.9	0.6	0.0	22.9	0.0	0.4	9.6	2.3	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	1.8	6.2	4.6	4.2	7.0	0.1	9.5	0.0	3.1	0.7	0.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	17.7	17.5	54.3	15.2	10.5	69.7	0.0	43.3	65.1	57.7	57.0
LnGrp LOS	E	B	B	D	B	B	E	A	D	E	E	E
Approach Vol, veh/h		1820			1619			670			37	
Approach Delay, s/veh		19.0			18.7			65.0			62.2	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	71.9	7.1	24.6	16.1	65.8	24.0	7.7
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	6.0	21.2	3.4	9.6	11.1	18.3	19.6	2.5
Green Ext Time (p_c), s	0.0	36.3	0.0	0.1	0.1	40.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	501	222	32	554	363	71	423	66	221	530	59
Future Volume (veh/h)	51	501	222	32	554	363	71	423	66	221	530	59
Initial Q (Qb), veh	0	0	0	0	1	0	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	51	501	188	32	554	313	71	423	0	221	530	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
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	549	198	56	721	233	123	536		213	717	
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.07	0.15	0.00	0.12	0.20	0.00
Sat Flow, veh/h	64	1038	375	35	1084	598	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	740	0	0	899	0	0	71	423	0	221	530	0
Grp Sat Flow(s),veh/h/ln	1477	0	0	1716	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	4.5	0.0	0.0	3.8	11.4	0.0	12.0	13.8	0.0
Cycle Q Clear(g_c), s	45.4	0.0	0.0	49.9	0.0	0.0	3.8	11.4	0.0	12.0	13.8	0.0
Prop In Lane	0.07		0.25	0.04		0.35	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	818	0	0	979	0	0	123	536		213	717	
V/C Ratio(X)	0.90	0.00	0.00	0.92	0.00	0.00	0.57	0.79		1.04	0.74	
Avail Cap(c_a), veh/h	870	0	0	1001	0	0	144	646		216	790	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.1	0.0	0.0	21.2	0.0	0.0	45.8	41.6	0.0	45.0	38.2	0.0
Incr Delay (d2), s/veh	12.7	0.0	0.0	13.1	0.0	0.0	4.2	7.4	0.0	72.3	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	16.9	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	0.0	0.0	22.0	0.0	0.0	1.8	5.4	0.0	10.4	6.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	0.0	0.0	34.4	0.0	0.0	50.0	49.0	0.0	134.3	42.6	0.0
LnGrp LOS	C	A	A	C	A	A	D	D		F	D	
Approach Vol, veh/h		740			899			494			751	
Approach Delay, s/veh		31.8			34.4			49.1			69.6	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.0	21.0		61.6	12.9	26.1		61.6
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	12.0	18.0		56.5	8.0	22.0		56.5
Max Q Clear Time (g_c+I1), s	14.0	13.4		47.4	5.8	15.8		51.9
Green Ext Time (p_c), s	0.0	1.6		4.7	0.0	2.6		3.1

Intersection Summary	
HCM 6th Ctrl Delay	45.4
HCM 6th LOS	D

Notes

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

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	47	93	39	5	17	18	273	28	33	428	21
Future Vol, veh/h	30	47	93	39	5	17	18	273	28	33	428	21
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	30	47	93	39	5	17	18	273	28	33	428	21
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	12.5	10.8	11.7	13.2
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	18%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	76%	28%	0%	23%	0%	100%	87%
Vol Right, %	0%	0%	24%	55%	0%	77%	0%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	182	119	170	39	22	33	285	164
LT Vol	18	0	0	30	39	0	33	0	0
Through Vol	0	182	91	47	0	5	0	285	143
RT Vol	0	0	28	93	0	17	0	0	21
Lane Flow Rate	18	182	119	170	39	22	33	285	164
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.035	0.329	0.209	0.314	0.085	0.041	0.061	0.491	0.277
Departure Headway (Hd)	7.01	6.504	6.337	6.648	7.802	6.752	6.696	6.19	6.099
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	509	550	564	539	457	527	533	579	588
Service Time	4.78	4.273	4.106	4.422	5.59	4.539	4.458	3.951	3.86
HCM Lane V/C Ratio	0.035	0.331	0.211	0.315	0.085	0.042	0.062	0.492	0.279
HCM Control Delay	10	12.5	10.8	12.5	11.3	9.8	9.9	14.8	11.2
HCM Lane LOS	A	B	B	B	B	A	A	B	B
HCM 95th-tile Q	0.1	1.4	0.8	1.3	0.3	0.1	0.2	2.7	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	10	32	51	3	9	21	498	2	3	721	57
Future Volume (veh/h)	56	10	32	51	3	9	21	498	2	3	721	57
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		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	56	10	32	51	3	5	21	498	2	3	721	57
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	262	64	87	387	26	22	47	1706	7	7	1591	709
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.03	0.46	0.46	0.00	0.44	0.44
Sat Flow, veh/h	680	382	515	1257	157	131	1810	3687	15	1810	3610	1610
Grp Volume(v), veh/h	98	0	0	59	0	0	21	244	256	3	721	57
Grp Sat Flow(s),veh/h/ln	1576	0	0	1544	0	0	1810	1805	1897	1810	1805	1610
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.4	3.2	3.2	0.1	5.4	0.8
Cycle Q Clear(g_c), s	1.9	0.0	0.0	1.1	0.0	0.0	0.4	3.2	3.2	0.1	5.4	0.8
Prop In Lane	0.57		0.33	0.86		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	413	0	0	435	0	0	47	835	878	7	1591	709
V/C Ratio(X)	0.24	0.00	0.00	0.14	0.00	0.00	0.44	0.29	0.29	0.40	0.45	0.08
Avail Cap(c_a), veh/h	1105	0	0	1084	0	0	283	987	1037	283	1973	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	0.0	0.0	13.7	0.0	0.0	18.4	6.4	6.4	19.1	7.5	6.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	2.4	0.9	0.8	12.6	0.9	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	0.7	0.0	0.0	0.4	0.0	0.0	0.2	0.8	0.8	0.0	1.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	0.0	0.0	13.9	0.0	0.0	20.8	7.3	7.3	31.7	8.4	6.5
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		98			59			521			781	
Approach Delay, s/veh		14.5			13.9			7.8			8.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	22.9		11.0	3.7	23.8		11.0
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.4	7.4		3.9	2.1	5.2		3.1
Green Ext Time (p_c), s	0.0	9.6		0.6	0.0	7.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
8: Manthey Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	587	61	235	303	225	34	70	69	352	169	58
Future Volume (veh/h)	32	587	61	235	303	225	34	70	69	352	169	58
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	32	587	61	235	303	225	34	70	69	352	169	58
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	640	2080	216	517	1198	1012	258	227	223	637	349	120
Arrive On Green	0.63	0.63	0.63	1.00	1.00	1.00	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	888	3300	342	795	1900	1605	1167	877	865	2456	1349	463
Grp Volume(v), veh/h	32	321	327	235	303	225	34	0	139	352	0	227
Grp Sat Flow(s),veh/h/ln	888	1805	1837	795	1900	1605	1167	0	1742	1228	0	1812
Q Serve(g_s), s	1.2	7.2	7.2	6.4	0.0	0.0	2.3	0.0	5.8	12.1	0.0	9.6
Cycle Q Clear(g_c), s	1.2	7.2	7.2	13.6	0.0	0.0	11.8	0.0	5.8	17.9	0.0	9.6
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.50	1.00		0.26
Lane Grp Cap(c), veh/h	640	1138	1158	517	1198	1012	258	0	450	637	0	468
V/C Ratio(X)	0.05	0.28	0.28	0.45	0.25	0.22	0.13	0.00	0.31	0.55	0.00	0.48
Avail Cap(c_a), veh/h	640	1138	1158	517	1198	1012	397	0	658	930	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.4	7.5	7.5	0.9	0.0	0.0	33.3	0.0	26.9	34.1	0.0	28.3
Incr Delay (d2), s/veh	0.1	0.6	0.6	2.6	0.5	0.5	0.2	0.0	0.4	0.8	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.4	2.5	0.4	0.2	0.1	0.6	0.0	2.3	3.6	0.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	8.1	8.1	3.4	0.5	0.5	33.5	0.0	27.3	34.9	0.0	29.1
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	C
Approach Vol, veh/h		680			763			173			579	
Approach Delay, s/veh		8.0			1.4			28.5			32.6	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.3		61.7		28.3		61.7				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		34.0		46.0		34.0		46.0				
Max Q Clear Time (g_c+I1), s		13.8		9.2		19.9		15.6				
Green Ext Time (p_c), s		0.7		4.1		2.5		4.3				

Intersection Summary												
HCM 6th Ctrl Delay			13.8									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
9: I-5 SB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	690	316	15	392	0	0	0	0	291	11	377
Future Volume (veh/h)	0	690	316	15	392	0	0	0	0	291	11	377
Initial Q (Qb), veh	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
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	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	690	316	15	392	0				291	11	377
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	0	0	0	0	0				0	0	0
Cap, veh/h	0	1483	679	432	1177	0				471	18	433
Arrive On Green	0.00	1.00	1.00	0.20	0.20	0.00				0.27	0.27	0.27
Sat Flow, veh/h	0	2490	1097	569	1900	0				1747	66	1607
Grp Volume(v), veh/h	0	520	486	15	392	0				302	0	377
Grp Sat Flow(s),veh/h/ln	0	1805	1686	569	1900	0				1813	0	1607
Q Serve(g_s), s	0.0	0.0	0.0	1.9	15.9	0.0				13.1	0.0	20.2
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.9	15.9	0.0				13.1	0.0	20.2
Prop In Lane	0.00		0.65	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	1118	1044	432	1177	0				489	0	433
V/C Ratio(X)	0.00	0.47	0.47	0.03	0.33	0.00				0.62	0.00	0.87
Avail Cap(c_a), veh/h	0	1118	1044	432	1177	0				645	0	571
HCM Platoon Ratio	1.00	2.00	2.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.91	0.91	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	14.4	19.9	0.0				28.8	0.0	31.4
Incr Delay (d2), s/veh	0.0	1.3	1.4	0.1	0.8	0.0				1.3	0.0	11.0
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	0.4	0.2	8.1	0.0				5.3	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.3	1.4	14.5	20.7	0.0				30.1	0.0	42.3
LnGrp LOS	A	A	A	B	C	A				C	A	D
Approach Vol, veh/h		1006			407						679	
Approach Delay, s/veh		1.3			20.5						36.9	
Approach LOS		A			C						D	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				60.7		29.3		60.7				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				48.0		32.0		48.0				
Max Q Clear Time (g_c+I1), s				2.0		22.2		17.9				
Green Ext Time (p_c), s				7.4		2.1		2.4				

Intersection Summary												
HCM 6th Ctrl Delay			16.6									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
10: I-5 NB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	569	0	0	251	367	191	4	19	0	0	0
Future Volume (veh/h)	399	569	0	0	251	367	191	4	19	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	399	569	0	0	251	367	191	4	19			
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	0	0	0	0	0	0	0	0			
Cap, veh/h	1297	1433	0	0	1433	1214	239	5	216			
Arrive On Green	1.00	1.00	0.00	0.00	0.75	0.75	0.13	0.13	0.13			
Sat Flow, veh/h	1587	1900	0	0	1900	1610	1774	37	1604			
Grp Volume(v), veh/h	399	569	0	0	251	367	195	0	19			
Grp Sat Flow(s),veh/h/ln	793	1900	0	0	1900	1610	1811	0	1604			
Q Serve(g_s), s	1.7	0.0	0.0	0.0	3.4	6.5	9.4	0.0	0.9			
Cycle Q Clear(g_c), s	5.1	0.0	0.0	0.0	3.4	6.5	9.4	0.0	0.9			
Prop In Lane	1.00		0.00	0.00		1.00	0.98		1.00			
Lane Grp Cap(c), veh/h	1297	1433	0	0	1433	1214	244	0	216			
V/C Ratio(X)	0.31	0.40	0.00	0.00	0.18	0.30	0.80	0.00	0.09			
Avail Cap(c_a), veh/h	1297	1433	0	0	1433	1214	543	0	481			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.90	0.90	0.00	0.00	0.70	0.70	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.1	0.0	0.0	0.0	3.1	3.5	37.7	0.0	34.1			
Incr Delay (d2), s/veh	0.6	0.7	0.0	0.0	0.2	0.4	5.9	0.0	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			
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	0.0	0.8	1.4	4.3	0.0	0.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.7	0.7	0.0	0.0	3.3	4.0	43.6	0.0	34.3			
LnGrp LOS	A	A	A	A	A	A	D	A	C			
Approach Vol, veh/h		968			618			214				
Approach Delay, s/veh		0.7			3.7			42.8				
Approach LOS		A			A			D				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		17.1		72.9				72.9				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		27.0		53.0				53.0				
Max Q Clear Time (g_c+I1), s		11.4		7.1				8.5				
Green Ext Time (p_c), s		0.8		7.9				2.7				
Intersection Summary												
HCM 6th Ctrl Delay			6.7									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary
11: El Dorado Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	369	80	140	365	80	106	359	135	165	565	73
Future Volume (veh/h)	102	369	80	140	365	80	106	359	135	165	565	73
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		0.99	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	102	369	80	140	365	80	106	359	135	165	565	73
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	132	461	100	179	499	109	136	535	197	204	793	102
Arrive On Green	0.07	0.31	0.31	0.10	0.33	0.33	0.08	0.21	0.21	0.11	0.25	0.25
Sat Flow, veh/h	1810	1511	328	1810	1507	330	1810	2549	940	1810	3202	412
Grp Volume(v), veh/h	102	0	449	140	0	445	106	252	242	165	318	320
Grp Sat Flow(s),veh/h/ln	1810	0	1839	1810	0	1838	1810	1805	1684	1810	1805	1809
Q Serve(g_s), s	3.9	0.0	15.6	5.3	0.0	14.9	4.0	8.9	9.2	6.2	11.2	11.3
Cycle Q Clear(g_c), s	3.9	0.0	15.6	5.3	0.0	14.9	4.0	8.9	9.2	6.2	11.2	11.3
Prop In Lane	1.00		0.18	1.00		0.18	1.00		0.56	1.00		0.23
Lane Grp Cap(c), veh/h	132	0	561	179	0	608	136	379	354	204	447	448
V/C Ratio(X)	0.77	0.00	0.80	0.78	0.00	0.73	0.78	0.67	0.68	0.81	0.71	0.71
Avail Cap(c_a), veh/h	200	0	889	289	0	978	164	607	567	206	649	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	0.0	22.2	30.6	0.0	20.5	31.6	25.2	25.3	30.1	23.9	23.9
Incr Delay (d2), s/veh	9.8	0.0	2.8	7.3	0.0	1.7	17.6	2.0	2.3	20.6	2.1	2.1
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	1.9	0.0	6.3	2.5	0.0	5.8	2.3	3.6	3.5	3.6	4.5	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	0.0	25.0	37.9	0.0	22.2	49.2	27.2	27.7	50.7	26.0	26.1
LnGrp LOS	D	A	C	D	A	C	D	C	C	D	C	C
Approach Vol, veh/h		551			585			600			803	
Approach Delay, s/veh		28.1			26.0			31.3			31.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	19.6	11.4	26.2	9.7	22.2	9.6	28.0				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	7.9	23.4	11.1	33.6	6.3	25.0	7.7	37.0				
Max Q Clear Time (g_c+I1), s	8.2	11.2	7.3	17.6	6.0	13.3	5.9	16.9				
Green Ext Time (p_c), s	0.0	2.1	0.1	2.3	0.0	2.8	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			29.3									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/30/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	740	203	446	638	42	59
Future Volume (veh/h)	740	203	446	638	42	59
Initial Q (Qb), veh	0	0	5	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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	787	186	474	679	45	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	937	777	317	1436	94	83
Arrive On Green	0.49	0.49	0.18	0.76	0.05	0.05
Sat Flow, veh/h	1900	1577	1810	1900	1810	1610
Grp Volume(v), veh/h	787	186	474	679	45	40
Grp Sat Flow(s),veh/h/ln	1900	1577	1810	1900	1810	1610
Q Serve(g_s), s	20.5	3.9	10.0	7.8	1.4	1.4
Cycle Q Clear(g_c), s	20.5	3.9	10.0	7.8	1.4	1.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	937	777	317	1436	94	83
V/C Ratio(X)	0.84	0.24	1.50	0.47	0.48	0.48
Avail Cap(c_a), veh/h	998	828	317	1436	475	423
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	12.5	8.3	23.6	2.7	26.3	26.3
Incr Delay (d2), s/veh	8.2	0.6	239.4	0.9	1.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	56.8	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	1.1	29.7	0.7	0.6	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.8	8.9	319.7	3.5	27.7	27.9
LnGrp LOS	C	A	F	A	C	C
Approach Vol, veh/h	973			1153	85	
Approach Delay, s/veh	18.5			133.5	27.8	
Approach LOS	B			F	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	34.2		8.0		49.2
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	10.0	30.0		15.0		30.0
Max Q Clear Time (g_c+I1), s	12.0	22.5		3.4		9.8
Green Ext Time (p_c), s	0.0	5.7		0.1		9.6

Intersection Summary			
HCM 6th Ctrl Delay			78.8
HCM 6th LOS			E

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	686	117	0	445	217	0	0	0	850	57	639
Future Volume (veh/h)	0	686	117	0	445	217	0	0	0	850	57	639
Initial Q (Qb), veh	0	0	0	0	1	0				0	0	5
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	762	130	0	494	165				1113	0	422
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1661	509	0	1142	516				1864	0	558
Arrive On Green	0.00	0.32	0.32	0.00	0.32	0.32				0.34	0.00	0.34
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	762	130	0	494	165				1113	0	422
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	3.7	1.9	0.0	3.4	2.5				5.4	0.0	7.4
Cycle Q Clear(g_c), s	0.0	3.7	1.9	0.0	3.4	2.5				5.4	0.0	7.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1661	509	0	1142	516				1864	0	558
V/C Ratio(X)	0.00	0.46	0.26	0.00	0.43	0.32				0.60	0.00	0.76
Avail Cap(c_a), veh/h	0	5604	1718	0	3946	1760				5985	0	1775
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.9	8.3	0.0	8.6	8.5				9.0	0.0	10.3
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.1	0.1				0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	2.4
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.4	0.0	0.8	0.5				1.0	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.0	8.4	0.0	8.7	8.6				9.1	0.0	13.5
LnGrp LOS	A	A	A	A	A	A				A	A	B
Approach Vol, veh/h		892			659						1535	
Approach Delay, s/veh		8.9			8.7						10.3	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		15.8		15.9		15.8
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		5.7		9.4		5.4
Green Ext Time (p_c), s		2.1		1.3		1.3

Intersection Summary			
HCM 6th Ctrl Delay			9.6
HCM 6th LOS			A

Notes

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

User approved volume balancing among the lanes for turning movement.

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

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1283	262	0	542	442	117	0	533	0	0	0
Future Volume (vph)	0	1283	262	0	542	442	117	0	533	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1426	291	0	602	491	130	0	592	0	0	0
RTOR Reduction (vph)	0	0	182	0	0	160	0	0	0	0	0	0
Lane Group Flow (vph)	0	1426	109	0	602	331	130	0	592	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		31.8	31.8		57.2	57.2	17.3		42.3			
Effective Green, g (s)		31.8	31.8		57.2	57.2	17.3		42.3			
Actuated g/C Ratio		0.38	0.38		0.67	0.67	0.20		0.50			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		1945	598		2435	1089	714		805			
v/s Ratio Prot		c0.27			0.17		0.04		c0.37			
v/s Ratio Perm			0.07			0.21						
v/c Ratio		0.73	0.18		0.25	0.30	0.18		0.74			
Uniform Delay, d1		22.8	17.8		5.4	5.7	27.9		16.8			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		1.6	0.2		0.1	0.2	0.1		3.5			
Delay (s)		24.4	18.0		5.5	5.8	28.0		20.3			
Level of Service		C	B		A	A	C		C			
Approach Delay (s)		23.3			5.6			21.7			0.0	
Approach LOS		C			A			C			A	

Intersection Summary				
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	15.6	
Intersection Capacity Utilization	66.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1209	487	64	710	34	221	15	29	8	6	23
Future Volume (veh/h)	111	1209	487	64	710	34	221	15	29	8	6	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	123	1343	442	71	789	37	246	17	28	9	7	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	151	3125	1672	92	2928	909	324	66	109	16	36	31
Arrive On Green	0.09	0.60	0.60	0.05	0.56	0.56	0.09	0.10	0.10	0.01	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	645	1063	1810	1900	1610
Grp Volume(v), veh/h	123	1343	442	71	789	37	246	0	45	9	7	16
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1709	1810	1900	1610
Q Serve(g_s), s	6.9	13.6	7.4	3.8	7.6	1.0	6.7	0.0	2.4	0.5	0.4	1.0
Cycle Q Clear(g_c), s	6.9	13.6	7.4	3.8	7.6	1.0	6.7	0.0	2.4	0.5	0.4	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.62	1.00		1.00
Lane Grp Cap(c), veh/h	151	3125	1672	92	2928	909	324	0	175	16	36	31
V/C Ratio(X)	0.81	0.43	0.26	0.77	0.27	0.04	0.76	0.00	0.26	0.56	0.19	0.52
Avail Cap(c_a), veh/h	261	3345	1790	352	3345	1038	683	0	245	352	369	313
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	10.4	9.2	45.8	10.9	9.5	43.3	0.0	40.4	48.2	47.2	47.5
Incr Delay (d2), s/veh	4.0	0.4	0.4	5.0	0.2	0.1	1.4	0.0	0.3	10.9	1.0	5.0
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	3.0	4.5	2.2	1.8	2.6	0.4	2.9	0.0	1.0	0.3	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	10.9	9.6	50.8	11.2	9.6	44.7	0.0	40.7	59.1	48.1	52.5
LnGrp LOS	D	B	A	D	B	A	D	A	D	E	D	D
Approach Vol, veh/h		1908			897			291			32	
Approach Delay, s/veh		12.9			14.2			44.1			53.4	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	62.2	5.9	16.0	10.0	65.9	14.0	7.9
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	8.9	9.6	2.5	4.4	5.8	15.6	8.7	3.0
Green Ext Time (p_c), s	0.1	25.4	0.0	0.1	0.0	43.3	0.3	0.0

Intersection Summary		
HCM 6th Ctrl Delay	16.6	
HCM 6th LOS	B	

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	317	265	82	154	104	38	141	74	174	394	34
Future Volume (veh/h)	23	317	265	82	154	104	38	141	74	174	394	34
Initial Q (Qb), veh	0	2	0	0	1	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	24	337	193	87	164	88	40	150	0	185	419	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	77	448	242	180	330	149	118	576		236	811	
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.07	0.16	0.00	0.13	0.23	0.00
Sat Flow, veh/h	35	1115	615	263	817	379	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	554	0	0	339	0	0	40	150	0	185	419	0
Grp Sat Flow(s),veh/h/ln	1766	0	0	1459	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	3.6	0.0	0.0	0.0	0.0	0.0	1.2	2.2	0.0	5.9	6.0	0.0
Cycle Q Clear(g_c), s	16.1	0.0	0.0	9.6	0.0	0.0	1.2	2.2	0.0	5.9	6.0	0.0
Prop In Lane	0.04		0.35	0.26		0.26	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	768	0	0	657	0	0	118	576		236	811	
V/C Ratio(X)	0.72	0.00	0.00	0.52	0.00	0.00	0.34	0.26		0.79	0.52	
Avail Cap(c_a), veh/h	1208	0	0	1017	0	0	429	2689		429	2689	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.7	0.0	0.0	13.4	0.0	0.0	26.5	21.9	0.0	25.0	20.2	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.9	0.0	0.0	1.7	0.5	0.0	5.7	1.1	0.0
Initial Q Delay(d3),s/veh	0.2	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	6.3	0.0	0.0	3.2	0.0	0.0	0.5	0.8	0.0	2.6	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	0.0	14.3	0.0	0.0	28.2	22.4	0.0	30.7	21.3	0.0
LnGrp LOS	B	A	A	B	A	A	C	C		C	C	
Approach Vol, veh/h		554			339			190			604	
Approach Delay, s/veh		17.7			14.3			23.6			24.2	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.7	15.4		29.9	9.9	19.3		29.9
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	14.0	44.0		38.5	14.0	44.0		38.5
Max Q Clear Time (g_c+I1), s	7.9	4.2		18.1	3.2	8.0		11.6
Green Ext Time (p_c), s	0.2	1.7		5.3	0.0	5.3		3.5

Intersection Summary		
HCM 6th Ctrl Delay		20.0
HCM 6th LOS		B

Notes

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

HCM 6th AWSC
6: Manthey Rd & Hospital Rd

05/30/2025

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	25	62	63	48	25	67	85	32	36	463	69
Future Vol, veh/h	12	25	62	63	48	25	67	85	32	36	463	69
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	27	68	69	53	27	74	93	35	40	509	76
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.4	11.3	10.7	14.5
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	12%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	47%	25%	0%	66%	0%	100%	69%
Vol Right, %	0%	0%	53%	63%	0%	34%	0%	0%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	57	60	99	63	73	36	309	223
LT Vol	67	0	0	12	63	0	36	0	0
Through Vol	0	57	28	25	0	48	0	309	154
RT Vol	0	0	32	62	0	25	0	0	69
Lane Flow Rate	74	62	66	109	69	80	40	339	245
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.15	0.118	0.119	0.206	0.146	0.153	0.072	0.57	0.397
Departure Headway (Hd)	7.357	6.849	6.472	6.816	7.593	6.85	6.553	6.047	5.828
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	485	521	551	523	470	521	545	594	616
Service Time	5.135	4.626	4.249	4.594	5.37	4.626	4.309	3.802	3.583
HCM Lane V/C Ratio	0.153	0.119	0.12	0.208	0.147	0.154	0.073	0.571	0.398
HCM Control Delay	11.4	10.6	10.1	11.4	11.7	10.9	9.8	16.6	12.4
HCM Lane LOS	B	B	B	B	B	B	A	C	B
HCM 95th-tile Q	0.5	0.4	0.4	0.8	0.5	0.5	0.2	3.6	1.9

HCM 6th Signalized Intersection Summary
7: Hospital Rd & El Dorado St

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	13	32	2	17	3	31	253	4	2	549	156
Future Volume (veh/h)	39	13	32	2	17	3	31	253	4	2	549	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	44	15	36	2	19	2	35	284	4	2	617	175
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	224	79	101	112	270	27	73	1700	24	5	1547	690
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.47	0.47	0.00	0.43	0.43
Sat Flow, veh/h	522	478	610	61	1626	161	1810	3645	51	1810	3610	1610
Grp Volume(v), veh/h	95	0	0	23	0	0	35	140	148	2	617	175
Grp Sat Flow(s),veh/h/ln	1610	0	0	1848	0	0	1810	1805	1891	1810	1805	1610
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	0.0	0.7	1.7	1.7	0.0	4.5	2.7
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.4	0.0	0.0	0.7	1.7	1.7	0.0	4.5	2.7
Prop In Lane	0.46		0.38	0.09		0.09	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	405	0	0	409	0	0	73	842	882	5	1547	690
V/C Ratio(X)	0.23	0.00	0.00	0.06	0.00	0.00	0.48	0.17	0.17	0.40	0.40	0.25
Avail Cap(c_a), veh/h	1116	0	0	1241	0	0	283	988	1035	283	1976	881
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	0.0	13.5	0.0	0.0	18.0	5.9	5.9	19.1	7.6	7.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.0	0.0	1.8	0.4	0.4	18.3	0.8	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	0.6	0.0	0.0	0.1	0.0	0.0	0.3	0.4	0.4	0.0	1.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	0.0	0.0	13.6	0.0	0.0	19.8	6.4	6.3	37.4	8.3	7.9
LnGrp LOS	B	A	A	B	A	A	B	A	A	D	A	A
Approach Vol, veh/h		95			23			323			794	
Approach Delay, s/veh		14.5			13.6			7.8			8.3	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	22.4		10.9	3.6	23.9		10.9
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.7	6.5		3.8	2.0	3.7		2.4
Green Ext Time (p_c), s	0.0	9.9		0.6	0.0	4.4		0.1

Intersection Summary		
HCM 6th Ctrl Delay		8.8
HCM 6th LOS		A

Notes

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

HCM 6th AWSC
8: Manthey Rd & Mathews Rd

05/30/2025

Intersection	
Intersection Delay, s/veh	90.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	296	33	179	622	130	35	27	62	76	328	149
Future Vol, veh/h	26	296	33	179	622	130	35	27	62	76	328	149
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	28	318	35	192	669	140	38	29	67	82	353	160
Number of Lanes	0	2	0	0	2	0	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	2	2
HCM Control Delay	23.8	160	21.1	31.3
HCM LOS	C	F	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	28%	15%	0%	37%	0%	100%	0%	0%
Vol Thru, %	22%	85%	82%	63%	71%	0%	100%	0%
Vol Right, %	50%	0%	18%	0%	29%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	174	181	490	441	76	328	149
LT Vol	35	26	0	179	0	76	0	0
Through Vol	27	148	148	311	311	0	328	0
RT Vol	62	0	33	0	130	0	0	149
Lane Flow Rate	133	187	195	527	474	82	353	160
Geometry Grp	6	6	6	6	6	5	5	5
Degree of Util (X)	0.393	0.515	0.525	1.339	1.152	0.205	0.834	0.348
Departure Headway (Hd)	11.251	10.492	10.282	9.148	8.746	9.324	8.808	8.085
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	321	346	352	400	417	387	413	447
Service Time	8.951	8.192	7.982	6.91	6.507	7.024	6.508	5.785
HCM Lane V/C Ratio	0.414	0.54	0.554	1.317	1.137	0.212	0.855	0.358
HCM Control Delay	21.1	23.8	23.8	194.8	121.4	14.4	42.7	15
HCM Lane LOS	C	C	C	F	F	B	E	B
HCM 95th-tile Q	1.8	2.8	2.9	24.6	17.7	0.8	7.8	1.5

Intersection	
Intersection Delay, s/veh	59.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	406	28	9	523	0	0	0	0	176	10	407
Future Vol, veh/h	0	406	28	9	523	0	0	0	0	176	10	407
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	446	31	10	575	0	0	0	0	193	11	447
Number of Lanes	0	2	0	1	1	0	0	0	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	19.3	125.4	29.1
HCM LOS	C	F	D

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	95%	0%
Vol Thru, %	100%	83%	0%	100%	5%	0%
Vol Right, %	0%	17%	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	271	163	9	523	186	407
LT Vol	0	0	9	0	176	0
Through Vol	271	135	0	523	10	0
RT Vol	0	28	0	0	0	407
Lane Flow Rate	297	179	10	575	204	447
Geometry Grp	5	5	5	5	5	5
Degree of Util (X)	0.613	0.364	0.022	1.185	0.444	0.823
Departure Headway (Hd)	7.768	7.644	7.935	7.421	8.195	6.989
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	474	451	489	441	523
Service Time	5.468	5.344	5.686	5.171	5.895	4.689
HCM Lane V/C Ratio	0.636	0.378	0.022	1.176	0.463	0.855
HCM Control Delay	22	14.7	10.9	127.4	17.3	34.5
HCM Lane LOS	C	B	B	F	C	D
HCM 95th-tile Q	4	1.6	0.1	21.2	2.2	8.1

Intersection	
Intersection Delay, s/veh	36.2
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	190	398	0	0	404	121	127	2	17	0	0	0
Future Vol, veh/h	190	398	0	0	404	121	127	2	17	0	0	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	224	468	0	0	475	142	149	2	20	0	0	0
Number of Lanes	0	2	0	0	1	0	0	1	1	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	18.1	62.5	14.3
HCM LOS	C	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1
Vol Left, %	98%	0%	59%	0%	0%
Vol Thru, %	2%	0%	41%	100%	77%
Vol Right, %	0%	100%	0%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	17	323	265	525
LT Vol	127	0	190	0	0
Through Vol	2	0	133	265	404
RT Vol	0	17	0	0	121
Lane Flow Rate	152	20	380	312	618
Geometry Grp	5	5	5	5	4b
Degree of Util (X)	0.336	0.038	0.663	0.519	1.008
Departure Headway (Hd)	8.117	6.835	6.289	5.99	5.873
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	446	523	573	602	618
Service Time	5.817	4.59	4.028	3.728	3.904
HCM Lane V/C Ratio	0.341	0.038	0.663	0.518	1
HCM Control Delay	14.9	9.9	20.6	15	62.5
HCM Lane LOS	B	A	C	B	F
HCM 95th-tile Q	1.5	0.1	4.9	3	15.5

HCM 6th AWSC
11: El Dorado Rd & Mathews Rd

05/30/2025

Intersection	
Intersection Delay, s/veh	44.5
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	91	278	27	26	287	18	91	162	50	168	312	140
Future Vol, veh/h	91	278	27	26	287	18	91	162	50	168	312	140
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	99	302	29	28	312	20	99	176	54	183	339	152
Number of Lanes	0	1	0	0	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	94.1	51.8	16.4	22.6
HCM LOS	F	F	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	23%	8%	100%	0%	0%
Vol Thru, %	0%	100%	52%	70%	87%	0%	100%	43%
Vol Right, %	0%	0%	48%	7%	5%	0%	0%	57%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	91	108	104	396	331	168	208	244
LT Vol	91	0	0	91	26	168	0	0
Through Vol	0	108	54	278	287	0	208	104
RT Vol	0	0	50	27	18	0	0	140
Lane Flow Rate	99	117	113	430	360	183	226	265
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.268	0.301	0.283	1.067	0.885	0.464	0.548	0.611
Departure Headway (Hd)	10.338	9.804	9.444	8.925	9.191	9.686	9.155	8.729
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	350	369	383	409	396	374	396	416
Service Time	8.038	7.504	7.144	6.666	6.891	7.386	6.855	6.429
HCM Lane V/C Ratio	0.283	0.317	0.295	1.051	0.909	0.489	0.571	0.637
HCM Control Delay	16.8	16.7	15.8	94.1	51.8	20.5	22.4	24.2
HCM Lane LOS	C	C	C	F	F	C	C	C
HCM 95th-tile Q	1.1	1.2	1.1	14.5	8.9	2.4	3.2	3.9

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/30/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	499	71	183	658	105	120
Future Volume (veh/h)	499	71	183	658	105	120
Initial Q (Qb), veh	0	0	1	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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	561	62	206	739	118	77
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	813	675	262	1282	181	161
Arrive On Green	0.43	0.43	0.14	0.67	0.10	0.10
Sat Flow, veh/h	1900	1577	1810	1900	1810	1610
Grp Volume(v), veh/h	561	62	206	739	118	77
Grp Sat Flow(s),veh/h/ln	1900	1577	1810	1900	1810	1610
Q Serve(g_s), s	11.7	1.1	5.4	10.1	3.1	2.2
Cycle Q Clear(g_c), s	11.7	1.1	5.4	10.1	3.1	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	813	675	262	1282	181	161
V/C Ratio(X)	0.69	0.09	0.79	0.58	0.65	0.48
Avail Cap(c_a), veh/h	1169	970	371	1281	557	495
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	11.4	8.3	20.2	4.2	21.2	20.8
Incr Delay (d2), s/veh	3.8	0.2	4.4	1.6	1.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.5	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.3	2.3	1.6	1.3	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.1	8.5	25.1	5.8	22.6	21.6
LnGrp LOS	B	A	C	A	C	C
Approach Vol, veh/h	623			945	195	
Approach Delay, s/veh	14.5			10.0	22.2	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.0	26.9		9.9		38.9
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	10.0	30.0		15.0		30.0
Max Q Clear Time (g_c+I1), s	7.4	13.7		5.1		12.1
Green Ext Time (p_c), s	0.1	7.2		0.2		9.7

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	504	113	0	447	354	0	0	0	534	23	389
Future Volume (veh/h)	0	504	113	0	447	354	0	0	0	534	23	389
Initial Q (Qb), veh	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
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	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	548	123	0	486	261				675	0	190
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1679	515	0	1169	521				1756	0	521
Arrive On Green	0.00	0.32	0.32	0.00	0.32	0.32				0.32	0.00	0.32
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	548	123	0	486	261				675	0	190
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	2.5	1.8	0.0	3.3	4.0				3.0	0.0	2.8
Cycle Q Clear(g_c), s	0.0	2.5	1.8	0.0	3.3	4.0				3.0	0.0	2.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1679	515	0	1169	521				1756	0	521
V/C Ratio(X)	0.00	0.33	0.24	0.00	0.42	0.50				0.38	0.00	0.36
Avail Cap(c_a), veh/h	0	5742	1760	0	4043	1803				6132	0	1819
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.9	7.7	0.0	8.2	8.4				8.1	0.0	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.1	0.3				0.1	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.3	0.0	0.6	0.7				0.5	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.9	7.7	0.0	8.3	8.7				8.1	0.0	8.2
LnGrp LOS	A	A	A	A	A	A				A	A	A
Approach Vol, veh/h		671			747						865	
Approach Delay, s/veh		7.9			8.4						8.1	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		15.8		15.1		15.8
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		4.5		5.0		6.0
Green Ext Time (p_c), s		1.5		0.7		1.3

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	746	268	0	653	698	135	0	481	0	0	0
Future Volume (vph)	0	746	268	0	653	698	135	0	481	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1594		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1594		3610	1615	3502		1615			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	777	279	0	680	727	141	0	501	0	0	0
RTOR Reduction (vph)	0	0	192	0	0	237	0	0	0	0	0	0
Lane Group Flow (vph)	0	777	87	0	680	490	141	0	501	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		19.8	19.8		42.6	42.6	10.3		32.7			
Effective Green, g (s)		19.8	19.8		42.6	42.6	10.3		32.7			
Actuated g/C Ratio		0.31	0.31		0.67	0.67	0.16		0.52			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		1625	499		2433	1088	570		835			
v/s Ratio Prot		0.15			0.19		0.04		c0.31			
v/s Ratio Perm			0.05			c0.30						
v/c Ratio		0.48	0.18		0.28	0.45	0.25		0.60			
Uniform Delay, d1		17.5	15.8		4.1	4.8	23.1		10.7			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.3	0.2		0.1	0.4	0.2		1.2			
Delay (s)		17.8	16.0		4.2	5.2	23.3		11.8			
Level of Service		B	B		A	A	C		B			
Approach Delay (s)		17.3			4.7			14.4			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	63.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	916	250	52	957	7	298	3	63	23	9	46
Future Volume (veh/h)	60	916	250	52	957	7	298	3	63	23	9	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	65	985	214	56	1029	8	320	3	26	25	10	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	82	2880	1541	72	2836	880	412	19	166	38	31	26
Arrive On Green	0.05	0.56	0.56	0.04	0.55	0.55	0.12	0.11	0.11	0.02	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	169	1467	1810	1900	1573
Grp Volume(v), veh/h	65	985	214	56	1029	8	320	0	29	25	10	5
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1636	1810	1900	1573
Q Serve(g_s), s	3.2	8.9	3.2	2.6	9.5	0.2	7.5	0.0	1.4	1.2	0.4	0.3
Cycle Q Clear(g_c), s	3.2	8.9	3.2	2.6	9.5	0.2	7.5	0.0	1.4	1.2	0.4	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.90	1.00		1.00
Lane Grp Cap(c), veh/h	82	2880	1541	72	2836	880	412	0	185	38	31	26
V/C Ratio(X)	0.79	0.34	0.14	0.77	0.36	0.01	0.78	0.00	0.16	0.66	0.32	0.19
Avail Cap(c_a), veh/h	301	3849	2060	405	3849	1195	786	0	270	405	425	352
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	10.4	9.1	40.4	10.9	8.8	36.4	0.0	34.0	41.3	41.3	41.2
Incr Delay (d2), s/veh	6.2	0.3	0.2	6.4	0.4	0.0	1.2	0.0	0.1	7.0	2.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.9	0.9	1.2	3.1	0.1	3.2	0.0	0.5	0.6	0.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	10.7	9.3	46.7	11.2	8.8	37.6	0.0	34.2	48.3	43.4	42.5
LnGrp LOS	D	B	A	D	B	A	D	A	C	D	D	D
Approach Vol, veh/h		1264			1093			349			40	
Approach Delay, s/veh		12.3			13.0			37.3			46.3	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	53.4	6.8	15.6	8.4	54.1	15.0	7.4
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	5.2	11.5	3.2	3.4	4.6	10.9	9.5	2.4
Green Ext Time (p_c), s	0.0	32.4	0.0	0.0	0.0	36.3	0.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.3
HCM 6th LOS	B

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	182	106	19	191	151	111	404	62	121	340	33
Future Volume (veh/h)	23	182	106	19	191	151	111	404	62	121	340	33
Initial Q (Qb), veh	0	0	0	0	1	0	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	25	198	78	21	208	110	121	439	0	132	370	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	94	340	126	86	316	153	227	893		237	911	
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.13	0.25	0.00	0.13	0.25	0.00
Sat Flow, veh/h	74	1251	463	51	1140	572	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	301	0	0	339	0	0	121	439	0	132	370	0
Grp Sat Flow(s),veh/h/ln	1788	0	0	1764	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	3.3	5.5	0.0	3.6	4.5	0.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0	9.0	0.0	0.0	3.3	5.5	0.0	3.6	4.5	0.0
Prop In Lane	0.08		0.26	0.06		0.32	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	560	0	0	551	0	0	227	893		237	911	
V/C Ratio(X)	0.54	0.00	0.00	0.62	0.00	0.00	0.53	0.49		0.56	0.41	
Avail Cap(c_a), veh/h	1348	0	0	1346	0	0	482	3020		482	3020	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.8	0.0	0.0	17.3	0.0	0.0	21.8	17.2	0.0	21.9	16.6	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	1.6	0.0	0.0	2.8	0.9	0.0	2.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0	3.6	0.0	0.0	1.4	2.0	0.0	1.6	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	0.0	0.0	19.0	0.0	0.0	24.6	18.1	0.0	24.2	17.2	0.0
LnGrp LOS	B	A	A	B	A	A	C	B		C	B	
Approach Vol, veh/h		301			339			560			502	
Approach Delay, s/veh		17.9			19.0			19.5			19.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.8	19.1		20.7	12.6	19.3		20.7
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	14.0	44.0		38.5	14.0	44.0		38.5
Max Q Clear Time (g_c+I1), s	5.6	7.5		9.6	5.3	6.5		11.0
Green Ext Time (p_c), s	0.2	5.6		2.8	0.3	4.6		3.2

Intersection Summary	
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

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

HCM 6th AWSC
6: Manthey Rd & Hospital Rd

05/30/2025

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	47	93	44	5	18	18	91	34	36	216	21
Future Vol, veh/h	30	47	93	44	5	18	18	91	34	36	216	21
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	35	55	109	52	6	21	21	107	40	42	254	25
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	11.3	9.9	9.6	10.3
HCM LOS	B	A	A	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	18%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	47%	28%	0%	22%	0%	100%	77%
Vol Right, %	0%	0%	53%	55%	0%	78%	0%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	61	64	170	44	23	36	144	93
LT Vol	18	0	0	30	44	0	36	0	0
Through Vol	0	61	30	47	0	5	0	144	72
RT Vol	0	0	34	93	0	18	0	0	21
Lane Flow Rate	21	71	76	200	52	27	42	169	109
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.039	0.123	0.122	0.324	0.1	0.044	0.075	0.277	0.174
Departure Headway (Hd)	6.708	6.201	5.826	5.824	6.922	5.869	6.385	5.879	5.719
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	534	578	615	618	518	609	562	612	627
Service Time	4.449	3.942	3.567	3.559	4.664	3.612	4.119	3.613	3.453
HCM Lane V/C Ratio	0.039	0.123	0.124	0.324	0.1	0.044	0.075	0.276	0.174
HCM Control Delay	9.7	9.8	9.4	11.3	10.4	8.9	9.6	10.9	9.7
HCM Lane LOS	A	A	A	B	B	A	A	B	A
HCM 95th-tile Q	0.1	0.4	0.4	1.4	0.3	0.1	0.2	1.1	0.6

HCM 6th Signalized Intersection Summary
7: Hospital Rd & El Dorado St

05/30/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	10	47	1	3	4	30	494	2	3	431	57
Future Volume (veh/h)	75	10	47	1	3	4	30	494	2	3	431	57
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		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	83	11	52	1	3	0	33	549	2	3	479	63
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	302	65	118	167	341	0	70	1480	5	7	1322	590
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.00	0.04	0.40	0.40	0.00	0.37	0.37
Sat Flow, veh/h	699	309	557	207	1611	0	1810	3689	13	1810	3610	1610
Grp Volume(v), veh/h	146	0	0	4	0	0	33	269	282	3	479	63
Grp Sat Flow(s),veh/h/ln	1565	0	0	1818	0	0	1810	1805	1897	1810	1805	1610
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.0	0.7	3.8	3.8	0.1	3.5	0.9
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.1	0.0	0.0	0.7	3.8	3.8	0.1	3.5	0.9
Prop In Lane	0.57		0.36	0.25		0.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	486	0	0	508	0	0	70	724	761	7	1322	590
V/C Ratio(X)	0.30	0.00	0.00	0.01	0.00	0.00	0.47	0.37	0.37	0.40	0.36	0.11
Avail Cap(c_a), veh/h	1161	0	0	1278	0	0	297	1038	1091	297	2075	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	11.4	0.0	0.0	17.2	7.7	7.7	18.1	8.5	7.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.0	0.0	0.0	1.8	1.5	1.4	12.6	0.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.0	0.0	0.0	0.2	1.1	1.1	0.0	0.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	0.0	0.0	11.4	0.0	0.0	19.0	9.2	9.1	30.7	9.2	8.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		146			4			584			545	
Approach Delay, s/veh		12.9			11.4			9.7			9.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	19.4		12.2	3.6	20.7		12.2
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.7	5.5		4.8	2.1	5.8		2.1
Green Ext Time (p_c), s	0.0	7.8		1.0	0.0	7.8		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

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

Intersection	
Intersection Delay, s/veh	61.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	584	61	235	301	57	34	63	69	153	161	58
Future Vol, veh/h	31	584	61	235	301	57	34	63	69	153	161	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	34	635	66	255	327	62	37	68	75	166	175	63
Number of Lanes	0	2	0	0	2	0	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	2	2
HCM Control Delay	64	94.1	26	18.9
HCM LOS	F	F	D	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	20%	10%	0%	61%	0%	100%	0%	0%
Vol Thru, %	38%	90%	83%	39%	73%	0%	100%	0%
Vol Right, %	42%	0%	17%	0%	27%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	323	353	386	208	153	161	58
LT Vol	34	31	0	235	0	153	0	0
Through Vol	63	292	292	151	151	0	161	0
RT Vol	69	0	61	0	57	0	0	58
Lane Flow Rate	180	351	384	419	226	166	175	63
Geometry Grp	6	6	6	6	6	5	5	5
Degree of Util (X)	0.532	0.903	0.969	1.165	0.595	0.444	0.443	0.147
Departure Headway (Hd)	11.229	9.73	9.554	10.013	9.496	10.048	9.527	8.796
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	323	376	384	365	383	361	380	410
Service Time	8.929	7.43	7.254	7.713	7.196	7.748	7.227	6.496
HCM Lane V/C Ratio	0.557	0.934	1	1.148	0.59	0.46	0.461	0.154
HCM Control Delay	26	57.2	70.2	131.2	25.2	20.5	19.6	13
HCM Lane LOS	D	F	F	F	D	C	C	B
HCM 95th-tile Q	2.9	9.2	11	16.8	3.7	2.2	2.2	0.5

Intersection	
Intersection Delay, s/veh	28.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	681	123	18	225	0	0	0	0	158	11	374
Future Vol, veh/h	0	681	123	18	225	0	0	0	0	158	11	374
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	724	131	19	239	0	0	0	0	168	12	398
Number of Lanes	0	2	0	1	1	0	0	0	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	36.4	17.9	22.2
HCM LOS	E	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	93%	0%
Vol Thru, %	100%	65%	0%	100%	7%	0%
Vol Right, %	0%	35%	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	454	350	18	225	169	374
LT Vol	0	0	18	0	158	0
Through Vol	454	227	0	225	11	0
RT Vol	0	123	0	0	0	374
Lane Flow Rate	483	372	19	239	180	398
Geometry Grp	5	5	5	5	5	5
Degree of Util (X)	0.915	0.679	0.044	0.515	0.388	0.728
Departure Headway (Hd)	6.82	6.569	8.258	7.742	7.777	6.588
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	547	436	469	460	545
Service Time	4.618	4.366	5.958	5.442	5.567	4.377
HCM Lane V/C Ratio	0.918	0.68	0.044	0.51	0.391	0.73
HCM Control Delay	47.2	22.3	11.3	18.4	15.5	25.2
HCM Lane LOS	E	C	B	C	C	D
HCM 95th-tile Q	10.9	5.1	0.1	2.9	1.8	6

Intersection	
Intersection Delay, s/veh	22.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	395	436	0	0	246	131	31	4	18	0	0	0
Future Vol, veh/h	395	436	0	0	246	131	31	4	18	0	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	425	469	0	0	265	141	33	4	19	0	0	0
Number of Lanes	0	2	0	0	1	0	0	1	1	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	26.2	15.8	10.6
HCM LOS	D	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	0%	73%	0%	0%
Vol Thru, %	11%	0%	27%	100%	65%
Vol Right, %	0%	100%	0%	0%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	18	540	291	377
LT Vol	31	0	395	0	0
Through Vol	4	0	145	291	246
RT Vol	0	18	0	0	131
Lane Flow Rate	38	19	581	313	405
Geometry Grp	5	5	5	5	4b
Degree of Util (X)	0.08	0.035	0.873	0.438	0.594
Departure Headway (Hd)	7.624	6.457	5.408	5.04	5.275
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	467	549	668	713	681
Service Time	5.423	4.255	3.159	2.791	3.324
HCM Lane V/C Ratio	0.081	0.035	0.87	0.439	0.595
HCM Control Delay	11.1	9.5	34	11.7	15.8
HCM Lane LOS	B	A	D	B	C
HCM 95th-tile Q	0.3	0.1	10.4	2.2	3.9

Intersection	
Intersection Delay, s/veh	38.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	114	270	35	36	165	49	83	358	42	121	290	70
Future Vol, veh/h	114	270	35	36	165	49	83	358	42	121	290	70
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	120	284	37	38	174	52	87	377	44	127	305	74
Number of Lanes	0	1	0	0	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	89.6	27.3	20.3	18.3
HCM LOS	F	D	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	27%	14%	100%	0%	0%
Vol Thru, %	0%	100%	74%	64%	66%	0%	100%	58%
Vol Right, %	0%	0%	26%	8%	20%	0%	0%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	83	239	161	419	250	121	193	167
LT Vol	83	0	0	114	36	121	0	0
Through Vol	0	239	119	270	165	0	193	97
RT Vol	0	0	42	35	49	0	0	70
Lane Flow Rate	87	251	170	441	263	127	204	175
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.221	0.597	0.395	1.057	0.648	0.322	0.485	0.403
Departure Headway (Hd)	9.58	9.05	8.857	8.63	9.187	9.61	9.08	8.768
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	377	402	409	423	395	377	399	414
Service Time	7.28	6.75	6.557	6.347	6.887	7.31	6.78	6.468
HCM Lane V/C Ratio	0.231	0.624	0.416	1.043	0.666	0.337	0.511	0.423
HCM Control Delay	15	24.3	17.2	89.6	27.3	16.8	20	17.3
HCM Lane LOS	B	C	C	F	D	C	C	C
HCM 95th-tile Q	0.8	3.7	1.8	14.4	4.4	1.4	2.6	1.9

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	857	213	728	680	51	286
Future Volume (veh/h)	857	213	728	680	51	286
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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	912	197	774	723	54	281
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	815	677	259	1223	360	320
Arrive On Green	0.43	0.43	0.14	0.64	0.20	0.20
Sat Flow, veh/h	1900	1577	1810	1900	1810	1610
Grp Volume(v), veh/h	912	197	774	723	54	281
Grp Sat Flow(s),veh/h/ln	1900	1577	1810	1900	1810	1610
Q Serve(g_s), s	30.0	5.7	10.0	15.3	1.7	11.8
Cycle Q Clear(g_c), s	30.0	5.7	10.0	15.3	1.7	11.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	815	677	259	1223	360	320
V/C Ratio(X)	1.12	0.29	2.99	0.59	0.15	0.88
Avail Cap(c_a), veh/h	815	677	259	1223	388	345
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	20.0	13.0	30.0	7.2	23.1	27.2
Incr Delay (d2), s/veh	69.4	0.9	905.9	1.7	0.1	19.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.5	1.9	69.1	4.5	0.7	6.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	89.3	13.9	935.9	8.9	23.2	46.7
LnGrp LOS	F	B	F	A	C	D
Approach Vol, veh/h	1109			1497	335	
Approach Delay, s/veh	75.9			488.2	42.9	
Approach LOS	E			F	D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	36.0		18.9		51.0
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	10.0	30.0		15.0		30.0
Max Q Clear Time (g_c+I1), s	12.0	32.0		13.8		17.3
Green Ext Time (p_c), s	0.0	0.0		0.1		7.4

Intersection Summary			
HCM 6th Ctrl Delay			282.0
HCM 6th LOS			F

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	975	172	0	558	301	0	0	0	1104	57	850
Future Volume (veh/h)	0	975	172	0	558	301	0	0	0	1104	57	850
Initial Q (Qb), veh	0	0	0	0	1	0				0	0	5
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	1083	191	0	620	258				1478	0	567
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1661	509	0	1124	516				2263	0	674
Arrive On Green	0.00	0.31	0.31	0.00	0.31	0.31				0.42	0.00	0.42
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	1083	191	0	620	258				1478	0	567
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	7.2	3.7	0.0	5.7	5.2				8.7	0.0	12.7
Cycle Q Clear(g_c), s	0.0	7.2	3.7	0.0	5.7	5.2				8.7	0.0	12.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1661	509	0	1124	516				2263	0	674
V/C Ratio(X)	0.00	0.65	0.38	0.00	0.55	0.50				0.65	0.00	0.84
Avail Cap(c_a), veh/h	0	4453	1365	0	3136	1399				4756	0	1411
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.3	11.1	0.0	11.5	11.6				10.0	0.0	12.4
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.2	0.3				0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	2.5
%ile BackOfQ(50%),veh/ln	0.0	2.1	1.0	0.0	1.6	1.4				2.0	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.5	11.2	0.0	11.6	11.9				10.1	0.0	16.0
LnGrp LOS	A	B	B	A	B	B				B	A	B
Approach Vol, veh/h		1274			878						2045	
Approach Delay, s/veh		12.3			11.7						11.7	
Approach LOS		B			B						B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		18.2		21.7		18.2
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		9.2		14.7		7.7
Green Ext Time (p_c), s		3.1		1.9		1.6

Intersection Summary			
HCM 6th Ctrl Delay			11.9
HCM 6th LOS			B

Notes

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

User approved volume balancing among the lanes for turning movement.

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

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1642	443	0	713	552	143	0	656	0	0	0
Future Volume (vph)	0	1642	443	0	713	552	143	0	656	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1824	492	0	792	613	159	0	729	0	0	0
RTOR Reduction (vph)	0	0	302	0	0	229	0	0	0	0	0	0
Lane Group Flow (vph)	0	1824	190	0	792	384	159	0	729	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		34.6	34.6		60.2	60.2	25.5		50.7			
Effective Green, g (s)		34.6	34.6		60.2	60.2	25.5		50.7			
Actuated g/C Ratio		0.36	0.36		0.63	0.63	0.27		0.53			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		1869	574		2263	1012	930		852			
v/s Ratio Prot		c0.35			0.22		0.05		c0.45			
v/s Ratio Perm			0.12			0.24						
v/c Ratio		0.98	0.33		0.35	0.38	0.17		0.86			
Uniform Delay, d1		30.3	22.3		8.6	8.8	27.1		19.5			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		15.4	0.5		0.1	0.3	0.1		8.4			
Delay (s)		45.7	22.7		8.7	9.1	27.2		27.9			
Level of Service		D	C		A	A	C		C			
Approach Delay (s)		40.8			8.8			27.8			0.0	
Approach LOS		D			A			C			A	

Intersection Summary				
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	15.6	
Intersection Capacity Utilization	81.3%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1636	544	91	962	34	249	15	42	8	6	23
Future Volume (veh/h)	111	1636	544	91	962	34	249	15	42	8	6	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	123	1818	505	101	1069	37	277	17	43	9	7	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	150	3073	1644	128	2983	926	349	52	132	16	35	30
Arrive On Green	0.09	0.59	0.59	0.07	0.58	0.58	0.10	0.11	0.11	0.01	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	477	1206	1810	1900	1610
Grp Volume(v), veh/h	123	1818	505	101	1069	37	277	0	60	9	7	16
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1683	1810	1900	1610
Q Serve(g_s), s	7.5	23.1	9.5	5.8	11.6	1.1	8.1	0.0	3.5	0.5	0.4	1.0
Cycle Q Clear(g_c), s	7.5	23.1	9.5	5.8	11.6	1.1	8.1	0.0	3.5	0.5	0.4	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.72	1.00		1.00
Lane Grp Cap(c), veh/h	150	3073	1644	128	2983	926	349	0	184	16	35	30
V/C Ratio(X)	0.82	0.59	0.31	0.79	0.36	0.04	0.79	0.00	0.33	0.57	0.20	0.53
Avail Cap(c_a), veh/h	242	3106	1662	327	3106	964	634	0	224	327	343	291
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	13.4	10.7	48.1	12.0	9.7	46.3	0.0	43.3	51.9	50.9	51.2
Incr Delay (d2), s/veh	4.8	0.8	0.5	4.0	0.3	0.1	1.6	0.0	0.4	11.2	1.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	8.0	2.9	2.7	4.1	0.4	3.6	0.0	1.5	0.3	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	14.3	11.2	52.2	12.3	9.8	47.9	0.0	43.7	63.1	51.9	56.6
LnGrp LOS	D	B	B	D	B	A	D	A	D	E	D	E
Approach Vol, veh/h		2446			1207			337			32	
Approach Delay, s/veh		15.5			15.6			47.1			57.4	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	67.5	5.9	17.5	12.4	69.3	15.5	8.0
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	9.5	13.6	2.5	5.5	7.8	25.1	10.1	3.0
Green Ext Time (p_c), s	0.1	33.3	0.0	0.1	0.1	37.2	0.4	0.0

Intersection Summary		
HCM 6th Ctrl Delay	18.5	
HCM 6th LOS	B	

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	328	276	82	180	113	66	163	74	186	418	38
Future Volume (veh/h)	26	328	276	82	180	113	66	163	74	186	418	38
Initial Q (Qb), veh	0	2	0	0	1	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	28	349	205	87	191	97	70	173	0	198	445	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	74	448	247	160	340	147	159	639		246	813	
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.09	0.18	0.00	0.14	0.23	0.00
Sat Flow, veh/h	42	1097	619	230	830	370	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	582	0	0	375	0	0	70	173	0	198	445	0
Grp Sat Flow(s),veh/h/ln	1758	0	0	1430	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	6.1	0.0	0.0	0.0	0.0	0.0	2.4	2.7	0.0	6.9	7.1	0.0
Cycle Q Clear(g_c), s	19.1	0.0	0.0	12.7	0.0	0.0	2.4	2.7	0.0	6.9	7.1	0.0
Prop In Lane	0.05		0.35	0.23		0.26	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	770	0	0	646	0	0	159	639		246	813	
V/C Ratio(X)	0.76	0.00	0.00	0.58	0.00	0.00	0.44	0.27		0.80	0.55	
Avail Cap(c_a), veh/h	1088	0	0	911	0	0	388	2431		388	2431	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.4	0.0	0.0	15.0	0.0	0.0	28.4	23.3	0.0	27.5	22.5	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	1.2	0.0	0.0	1.9	0.5	0.0	6.5	1.2	0.0
Initial Q Delay(d3),s/veh	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	0.0	4.1	0.0	0.0	1.0	1.1	0.0	3.1	2.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.1	0.0	0.0	16.2	0.0	0.0	30.3	23.8	0.0	33.9	23.7	0.0
LnGrp LOS	C	A	A	B	A	A	C	C		C	C	
Approach Vol, veh/h		582			375			243			643	
Approach Delay, s/veh		20.1			16.2			25.7			26.8	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.9	17.6		32.9	11.8	20.7		32.9
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	14.0	44.0		38.5	14.0	44.0		38.5
Max Q Clear Time (g_c+I1), s	8.9	4.7		21.1	4.4	9.1		14.7
Green Ext Time (p_c), s	0.2	2.0		5.2	0.1	5.6		3.8

Intersection Summary		
HCM 6th Ctrl Delay		22.4
HCM 6th LOS		C

Notes

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

HCM 6th AWSC
6: Manthey Rd & Hospital Rd

05/31/2025

Intersection	
Intersection Delay, s/veh	27.6
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	25	62	71	48	25	67	331	36	36	646	69
Future Vol, veh/h	12	25	62	71	48	25	67	331	36	36	646	69
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	27	68	78	53	27	74	364	40	40	710	76
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	14.3	13.9	16.4	38.5
HCM LOS	B	B	C	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	12%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	75%	25%	0%	66%	0%	100%	76%
Vol Right, %	0%	0%	25%	63%	0%	34%	0%	0%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	221	146	99	71	73	36	431	284
LT Vol	67	0	0	12	71	0	36	0	0
Through Vol	0	221	110	25	0	48	0	431	215
RT Vol	0	0	36	62	0	25	0	0	69
Lane Flow Rate	74	242	161	109	78	80	40	473	312
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.17	0.524	0.34	0.258	0.202	0.191	0.084	0.939	0.605
Departure Headway (Hd)	8.289	7.777	7.601	8.543	9.305	8.551	7.653	7.143	6.97
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	432	463	471	419	385	418	467	506	516
Service Time	6.055	5.543	5.367	6.328	7.086	6.333	5.413	4.902	4.729
HCM Lane V/C Ratio	0.171	0.523	0.342	0.26	0.203	0.191	0.086	0.935	0.605
HCM Control Delay	12.8	18.9	14.3	14.3	14.4	13.4	11.1	53	19.9
HCM Lane LOS	B	C	B	B	B	B	B	F	C
HCM 95th-tile Q	0.6	3	1.5	1	0.7	0.7	0.3	11.5	4

HCM 6th Signalized Intersection Summary
7: Hospital Rd & El Dorado St

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	13	32	2	17	3	31	301	4	2	574	164
Future Volume (veh/h)	43	13	32	2	17	3	31	301	4	2	574	164
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	48	15	36	2	19	2	35	338	4	2	645	184
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	230	79	98	110	274	27	73	1718	20	5	1561	696
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.47	0.47	0.00	0.43	0.43
Sat Flow, veh/h	552	469	584	60	1628	161	1810	3654	43	1810	3610	1610
Grp Volume(v), veh/h	99	0	0	23	0	0	35	167	175	2	645	184
Grp Sat Flow(s),veh/h/ln	1605	0	0	1848	0	0	1810	1805	1892	1810	1805	1610
Q Serve(g_s), s	0.2	0.0	0.0	0.0	0.0	0.0	0.7	2.1	2.1	0.0	4.8	2.9
Cycle Q Clear(g_c), s	1.9	0.0	0.0	0.4	0.0	0.0	0.7	2.1	2.1	0.0	4.8	2.9
Prop In Lane	0.48		0.36	0.09		0.09	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	407	0	0	412	0	0	73	849	890	5	1561	696
V/C Ratio(X)	0.24	0.00	0.00	0.06	0.00	0.00	0.48	0.20	0.20	0.40	0.41	0.26
Avail Cap(c_a), veh/h	1095	0	0	1220	0	0	278	971	1018	278	1942	866
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	0.0	13.7	0.0	0.0	18.3	6.0	6.0	19.4	7.7	7.1
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.0	0.0	1.8	0.5	0.5	18.3	0.8	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	0.7	0.0	0.0	0.2	0.0	0.0	0.3	0.5	0.5	0.0	1.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	0.0	0.0	13.7	0.0	0.0	20.1	6.6	6.5	37.7	8.5	8.0
LnGrp LOS	B	A	A	B	A	A	C	A	A	D	A	A
Approach Vol, veh/h		99			23			377			831	
Approach Delay, s/veh		14.7			13.7			7.8			8.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	22.9		11.1	3.6	24.4		11.1
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.7	6.8		3.9	2.0	4.1		2.4
Green Ext Time (p_c), s	0.0	10.1		0.6	0.0	5.2		0.1

Intersection Summary			
HCM 6th Ctrl Delay			8.8
HCM 6th LOS			A

Notes

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

HCM 6th Signalized Intersection Summary
8: Manthey Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	310	33	179	627	364	35	36	62	256	335	153
Future Volume (veh/h)	33	310	33	179	627	364	35	36	62	256	335	153
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	35	333	35	192	674	391	38	39	67	275	360	165
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	46	1221	127	233	910	755	48	106	182	361	308	141
Arrive On Green	0.03	0.37	0.37	0.09	0.32	0.32	0.03	0.17	0.17	0.10	0.25	0.25
Sat Flow, veh/h	1810	3299	344	1810	1900	1575	1810	628	1078	3510	1233	565
Grp Volume(v), veh/h	35	181	187	192	674	391	38	0	106	275	0	525
Grp Sat Flow(s),veh/h/ln	1810	1805	1838	1810	1900	1575	1810	0	1706	1755	0	1798
Q Serve(g_s), s	1.8	6.7	6.8	10.0	30.3	19.4	2.0	0.0	5.3	7.3	0.0	24.0
Cycle Q Clear(g_c), s	1.8	6.7	6.8	10.0	30.3	19.4	2.0	0.0	5.3	7.3	0.0	24.0
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.63	1.00		0.31
Lane Grp Cap(c), veh/h	46	668	680	233	910	755	48	0	288	361	0	450
V/C Ratio(X)	0.77	0.27	0.27	0.82	0.74	0.52	0.79	0.00	0.37	0.76	0.00	1.17
Avail Cap(c_a), veh/h	75	668	680	556	910	755	75	0	288	603	0	450
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.57	0.57	0.57	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.5	21.2	21.2	42.8	27.3	23.6	46.5	0.0	35.4	41.9	0.0	36.0
Incr Delay (d2), s/veh	22.8	0.2	0.2	4.2	3.1	1.5	24.8	0.0	0.8	3.4	0.0	97.2
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	1.1	2.7	2.8	4.7	14.7	7.7	1.2	0.0	2.2	3.3	0.0	22.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.3	21.4	21.4	46.9	30.4	25.0	71.3	0.0	36.2	45.3	0.0	133.2
LnGrp LOS	E	C	C	D	C	C	E	A	D	D	A	F
Approach Vol, veh/h		403			1257			144			800	
Approach Delay, s/veh		25.6			31.3			45.4			103.0	
Approach LOS		C			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	21.2	16.9	40.5	6.6	29.0	6.4	51.0
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	16.5	11.0	29.5	20.0	4.0	24.0	4.0	46.0
Max Q Clear Time (g_c+I1), s	9.3	7.3	12.0	8.8	4.0	26.0	3.8	32.3
Green Ext Time (p_c), s	0.5	0.1	0.4	1.4	0.0	0.0	0.0	4.8

Intersection Summary			
HCM 6th Ctrl Delay			53.2
HCM 6th LOS			D

Notes

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

HCM 6th Signalized Intersection Summary
9: I-5 SB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	423	205	13	755	0	0	0	0	276	10	414
Future Volume (veh/h)	0	423	205	13	755	0	0	0	0	276	10	414
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	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	465	225	14	830	0				303	11	455
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1222	587	29	1102	0				552	20	508
Arrive On Green	0.00	0.52	0.52	0.01	0.19	0.00				0.32	0.32	0.32
Sat Flow, veh/h	0	2459	1136	1810	1900	0				1749	63	1610
Grp Volume(v), veh/h	0	354	336	14	830	0				314	0	455
Grp Sat Flow(s),veh/h/ln	0	1805	1695	1810	1900	0				1813	0	1610
Q Serve(g_s), s	0.0	11.3	11.5	0.7	39.6	0.0				13.8	0.0	25.9
Cycle Q Clear(g_c), s	0.0	11.3	11.5	0.7	39.6	0.0				13.8	0.0	25.9
Prop In Lane	0.00		0.67	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	933	877	29	1102	0				572	0	508
V/C Ratio(X)	0.00	0.38	0.38	0.48	0.75	0.00				0.55	0.00	0.90
Avail Cap(c_a), veh/h	0	933	877	141	1102	0				717	0	637
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	0.94	0.80	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.9	14.0	47.3	32.3	0.0				27.2	0.0	31.3
Incr Delay (d2), s/veh	0.0	1.1	1.2	9.3	3.8	0.0				0.8	0.0	13.0
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	4.4	4.2	0.4	21.0	0.0				5.5	0.0	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.0	15.2	56.6	36.2	0.0				28.0	0.0	44.4
LnGrp LOS	A	B	B	E	D	A				C	A	D
Approach Vol, veh/h		690			844						769	
Approach Delay, s/veh		15.1			36.5						37.7	
Approach LOS		B			D						D	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		6.1	54.6		35.3		60.7					
Change Period (Y+Rc), s		4.5	5.0		5.0		5.0					
Max Green Setting (Gmax), s		7.5	36.0		38.0		48.0					
Max Q Clear Time (g_c+I1), s		2.7	13.5		27.9		41.6					
Green Ext Time (p_c), s		0.0	4.0		2.4		2.8					

Intersection Summary												
HCM 6th Ctrl Delay		30.5										
HCM 6th LOS		C										

HCM 6th Signalized Intersection Summary
10: I-5 NB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	508	0	0	425	161	343	2	28	0	0	0
Future Volume (veh/h)	197	508	0	0	425	161	343	2	28	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		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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	232	598	0	0	500	189	404	2	33			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	302	1220	0	0	968	810	457	2	408			
Arrive On Green	0.17	1.00	0.00	0.00	1.00	1.00	0.25	0.25	0.25			
Sat Flow, veh/h	3510	1900	0	0	1900	1589	1801	9	1610			
Grp Volume(v), veh/h	232	598	0	0	500	189	406	0	33			
Grp Sat Flow(s),veh/h/ln	1755	1900	0	0	1900	1589	1810	0	1610			
Q Serve(g_s), s	6.1	0.0	0.0	0.0	0.0	0.0	20.7	0.0	1.5			
Cycle Q Clear(g_c), s	6.1	0.0	0.0	0.0	0.0	0.0	20.7	0.0	1.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	302	1220	0	0	968	810	459	0	408			
V/C Ratio(X)	0.77	0.49	0.00	0.00	0.52	0.23	0.88	0.00	0.08			
Avail Cap(c_a), veh/h	413	1220	0	0	968	810	622	0	553			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.83	0.83	1.00	0.00	1.00			
Uniform Delay (d), s/veh	38.8	0.0	0.0	0.0	0.0	0.0	34.5	0.0	27.3			
Incr Delay (d2), s/veh	5.6	1.3	0.0	0.0	1.6	0.6	11.2	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			
%ile BackOfQ(50%),veh/ln	2.6	0.5	0.0	0.0	0.4	0.1	9.8	0.0	0.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	1.3	0.0	0.0	1.6	0.6	45.7	0.0	27.4			
LnGrp LOS	D	A	A	A	A	A	D	A	C			
Approach Vol, veh/h		830			689			439				
Approach Delay, s/veh		13.4			1.3			44.3				
Approach LOS		B			A			D				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		29.3		66.7			12.8	53.9				
Change Period (Y+Rc), s		5.0		5.0			4.5	5.0				
Max Green Setting (Gmax), s		33.0		53.0			11.3	37.2				
Max Q Clear Time (g_c+I1), s		22.7		2.0			8.1	2.0				
Green Ext Time (p_c), s		1.6		4.0			0.2	3.8				

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
11: El Dorado Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	379	34	67	327	19	107	197	218	172	328	145
Future Volume (veh/h)	104	379	34	67	327	19	107	197	218	172	328	145
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		0.98
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	113	412	37	73	355	21	116	214	237	187	357	158
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	516	448	40	463	412	24	173	321	287	194	449	195
Arrive On Green	0.57	0.52	0.52	0.26	0.23	0.23	0.10	0.18	0.18	0.11	0.18	0.18
Sat Flow, veh/h	1810	1718	154	1810	1776	105	1810	1805	1610	1810	2430	1055
Grp Volume(v), veh/h	113	0	449	73	0	376	116	214	237	187	263	252
Grp Sat Flow(s),veh/h/ln	1810	0	1872	1810	0	1881	1810	1805	1610	1810	1805	1680
Q Serve(g_s), s	2.9	0.0	21.2	3.0	0.0	18.4	5.9	10.6	13.6	9.9	13.4	13.8
Cycle Q Clear(g_c), s	2.9	0.0	21.2	3.0	0.0	18.4	5.9	10.6	13.6	9.9	13.4	13.8
Prop In Lane	1.00		0.08	1.00		0.06	1.00		1.00	1.00		0.63
Lane Grp Cap(c), veh/h	516	0	489	463	0	436	173	321	287	194	333	310
V/C Ratio(X)	0.22	0.00	0.92	0.16	0.00	0.86	0.67	0.67	0.83	0.96	0.79	0.81
Avail Cap(c_a), veh/h	516	0	669	463	0	725	173	432	386	194	470	437
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.87	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	15.4	0.0	22.0	27.7	0.0	35.4	42.0	36.8	38.0	42.7	37.4	37.5
Incr Delay (d2), s/veh	0.2	0.0	22.5	0.2	0.0	19.7	9.7	2.4	10.5	52.6	5.7	7.4
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	1.1	0.0	8.6	1.3	0.0	10.3	3.0	4.7	5.9	7.1	6.1	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	0.0	44.5	27.9	0.0	55.1	51.7	39.2	48.5	95.2	43.1	44.9
LnGrp LOS	B	A	D	C	A	E	D	D	D	F	D	D
Approach Vol, veh/h		562			449			567			702	
Approach Delay, s/veh		38.7			50.7			45.6			57.6	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	22.1	29.1	30.1	14.2	22.7	31.9	27.2
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	5.0	* 5	4.5	5.0
Max Green Setting (Gmax), s	10.3	23.0	9.4	34.3	8.3	* 25	6.7	37.0
Max Q Clear Time (g_c+I1), s	11.9	15.6	5.0	23.2	7.9	15.8	4.9	20.4
Green Ext Time (p_c), s	0.0	1.5	0.0	1.9	0.0	1.9	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	48.6
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	572	79	408	785	114	373
Future Volume (veh/h)	572	79	408	785	114	373
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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	643	71	458	882	128	361
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	759	630	265	1177	397	354
Arrive On Green	0.40	0.40	0.15	0.62	0.22	0.22
Sat Flow, veh/h	1900	1576	1810	1900	1810	1610
Grp Volume(v), veh/h	643	71	458	882	128	361
Grp Sat Flow(s),veh/h/ln	1900	1576	1810	1900	1810	1610
Q Serve(g_s), s	21.0	1.9	10.0	22.5	4.1	15.0
Cycle Q Clear(g_c), s	21.0	1.9	10.0	22.5	4.1	15.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	759	630	265	1177	397	354
V/C Ratio(X)	0.85	0.11	1.73	0.75	0.32	1.02
Avail Cap(c_a), veh/h	835	692	265	1177	397	354
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	18.6	12.9	29.2	9.2	22.4	26.7
Incr Delay (d2), s/veh	10.3	0.3	343.3	3.9	0.2	53.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	0.6	29.2	7.3	1.7	10.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.9	13.2	372.5	13.2	22.6	79.9
LnGrp LOS	C	B	F	B	C	F
Approach Vol, veh/h	714			1340	489	
Approach Delay, s/veh	27.3			136.0	64.9	
Approach LOS	C			F	E	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	15.0	33.3	20.0	48.3
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	10.0	30.0	15.0	30.0
Max Q Clear Time (g_c+I1), s	12.0	23.0	17.0	24.5
Green Ext Time (p_c), s	0.0	4.3	0.0	4.3

Intersection Summary	
HCM 6th Ctrl Delay	91.8
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	790	153	0	616	552	0	0	0	674	23	572
Future Volume (veh/h)	0	790	153	0	616	552	0	0	0	674	23	572
Initial Q (Qb), veh	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
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	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	859	166	0	670	476				884	0	329
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1960	601	0	1364	609				1616	0	479
Arrive On Green	0.00	0.38	0.38	0.00	0.38	0.38				0.30	0.00	0.30
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	859	166	0	670	476				884	0	329
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	4.1	2.4	0.0	4.8	8.8				4.6	0.0	6.1
Cycle Q Clear(g_c), s	0.0	4.1	2.4	0.0	4.8	8.8				4.6	0.0	6.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1960	601	0	1364	609				1616	0	479
V/C Ratio(X)	0.00	0.44	0.28	0.00	0.49	0.78				0.55	0.00	0.69
Avail Cap(c_a), veh/h	0	5280	1618	0	3718	1658				5639	0	1673
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.8	7.3	0.0	8.0	9.2				9.9	0.0	10.4
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.1	0.8				0.1	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.4	0.0	0.9	1.6				0.9	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.8	7.3	0.0	8.1	10.1				10.0	0.0	11.1
LnGrp LOS	A	A	A	A	A	B				B	A	B
Approach Vol, veh/h		1025			1146						1213	
Approach Delay, s/veh		7.8			8.9						10.3	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		18.5		15.1		18.5						
Change Period (Y+Rc), s		5.8		5.1		* 5.8						
Max Green Setting (Gmax), s		34.2		34.9		* 35						
Max Q Clear Time (g_c+I1), s		6.1		8.1		10.8						
Green Ext Time (p_c), s		2.4		1.0		1.9						

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	972	464	0	961	954	194	0	552	0	0	0
Future Volume (vph)	0	972	464	0	961	954	194	0	552	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1012	483	0	1001	994	202	0	575	0	0	0
RTOR Reduction (vph)	0	0	318	0	0	333	0	0	0	0	0	0
Lane Group Flow (vph)	0	1013	165	0	1001	661	202	0	575	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		26.4	26.4		51.5	51.5	15.7		40.4			
Effective Green, g (s)		26.4	26.4		51.5	51.5	15.7		40.4			
Actuated g/C Ratio		0.34	0.34		0.66	0.66	0.20		0.52			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		1766	543		2398	1073	709		841			
v/s Ratio Prot		0.20			0.28		0.06		c0.36			
v/s Ratio Perm			0.10			c0.41						
v/c Ratio		0.57	0.30		0.42	0.62	0.28		0.68			
Uniform Delay, d1		20.9	18.8		6.0	7.4	26.1		13.8			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.5	0.4		0.1	1.2	0.2		2.3			
Delay (s)		21.5	19.2		6.2	8.5	26.4		16.1			
Level of Service		C	B		A	A	C		B			
Approach Delay (s)		20.7			7.4			18.8			0.0	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	77.5	Sum of lost time (s)	15.6
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1191	275	63	1464	7	355	3	87	23	9	46
Future Volume (veh/h)	60	1191	275	63	1464	7	355	3	87	23	9	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	65	1281	241	68	1574	8	382	3	52	25	10	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	83	2999	1605	88	3000	931	457	11	194	36	31	25
Arrive On Green	0.05	0.58	0.58	0.05	0.58	0.58	0.13	0.13	0.13	0.02	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	89	1535	1810	1900	1570
Grp Volume(v), veh/h	65	1281	241	68	1574	8	382	0	55	25	10	5
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1624	1810	1900	1570
Q Serve(g_s), s	3.8	14.0	4.1	3.8	18.6	0.2	10.8	0.0	3.1	1.4	0.5	0.3
Cycle Q Clear(g_c), s	3.8	14.0	4.1	3.8	18.6	0.2	10.8	0.0	3.1	1.4	0.5	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		1.00
Lane Grp Cap(c), veh/h	83	2999	1605	88	3000	931	457	0	205	36	31	25
V/C Ratio(X)	0.79	0.43	0.15	0.77	0.52	0.01	0.84	0.00	0.27	0.69	0.33	0.20
Avail Cap(c_a), veh/h	251	3220	1723	339	3220	1000	657	0	224	339	356	294
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	12.0	9.9	47.7	12.9	9.1	43.1	0.0	40.1	49.4	49.4	49.3
Incr Delay (d2), s/veh	6.1	0.4	0.2	5.2	0.7	0.0	4.3	0.0	0.3	8.5	2.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.9	1.2	1.8	6.4	0.1	4.9	0.0	1.3	0.7	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	12.4	10.1	52.9	13.6	9.1	47.4	0.0	40.3	57.9	51.7	50.7
LnGrp LOS	D	B	B	D	B	A	D	A	D	E	D	D
Approach Vol, veh/h		1587			1650			437			40	
Approach Delay, s/veh		13.8			15.2			46.5			55.5	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	65.7	7.0	18.8	10.0	65.7	18.2	7.6
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	5.8	20.6	3.4	5.1	5.8	16.0	12.8	2.5
Green Ext Time (p_c), s	0.0	38.1	0.0	0.1	0.0	40.1	0.4	0.0

Intersection Summary		
HCM 6th Ctrl Delay		18.7
HCM 6th LOS		B

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	205	125	19	201	163	124	429	62	133	360	37
Future Volume (veh/h)	27	205	125	19	201	163	124	429	62	133	360	37
Initial Q (Qb), veh	0	0	0	0	1	0	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	29	223	99	21	218	123	135	466	0	145	391	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	92	339	142	82	322	166	228	917		236	931	
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.13	0.25	0.00	0.13	0.26	0.00
Sat Flow, veh/h	78	1204	504	48	1121	602	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	351	0	0	362	0	0	135	466	0	145	391	0
Grp Sat Flow(s),veh/h/ln	1786	0	0	1771	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	0.0	3.9	6.1	0.0	4.2	5.0	0.0
Cycle Q Clear(g_c), s	9.4	0.0	0.0	10.0	0.0	0.0	3.9	6.1	0.0	4.2	5.0	0.0
Prop In Lane	0.08		0.28	0.06		0.34	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	573	0	0	567	0	0	228	917		236	931	
V/C Ratio(X)	0.61	0.00	0.00	0.64	0.00	0.00	0.59	0.51		0.62	0.42	
Avail Cap(c_a), veh/h	1283	0	0	1284	0	0	460	2882		460	2882	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.7	0.0	0.0	18.0	0.0	0.0	23.0	17.8	0.0	23.1	17.2	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.0	1.7	0.0	0.0	2.4	0.9	0.0	2.6	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	0.0	4.1	0.0	0.0	1.6	2.3	0.0	1.9	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.2	0.0	0.0	19.7	0.0	0.0	25.5	18.8	0.0	26.1	17.9	0.0
LnGrp LOS	B	A	A	B	A	A	C	B		C	B	
Approach Vol, veh/h		351			362			601			536	
Approach Delay, s/veh		19.2			19.7			20.3			20.1	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	20.1		21.9	13.0	20.2		21.9
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	14.0	44.0		38.5	14.0	44.0		38.5
Max Q Clear Time (g_c+I1), s	6.2	8.1		11.4	5.9	7.0		12.0
Green Ext Time (p_c), s	0.2	6.0		3.3	0.2	4.9		3.4

Intersection Summary		
HCM 6th Ctrl Delay		19.9
HCM 6th LOS		B

Notes

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

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	47	93	48	5	18	18	273	38	36	428	21
Future Vol, veh/h	30	47	93	48	5	18	18	273	38	36	428	21
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	35	55	109	56	6	21	21	321	45	42	504	25
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	15.1	12.1	13.9	17.4
HCM LOS	C	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	18%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	71%	28%	0%	22%	0%	100%	87%
Vol Right, %	0%	0%	29%	55%	0%	78%	0%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	182	129	170	48	23	36	285	164
LT Vol	18	0	0	30	48	0	36	0	0
Through Vol	0	182	91	47	0	5	0	285	143
RT Vol	0	0	38	93	0	18	0	0	21
Lane Flow Rate	21	214	152	200	56	27	42	336	193
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.045	0.426	0.293	0.409	0.135	0.057	0.086	0.634	0.359
Departure Headway (Hd)	7.678	7.168	6.958	7.367	8.637	7.572	7.306	6.797	6.706
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	503	516	488	415	472	491	530	537
Service Time	5.421	4.91	4.7	5.112	6.393	5.328	5.044	4.535	4.443
HCM Lane V/C Ratio	0.045	0.425	0.295	0.41	0.135	0.057	0.086	0.634	0.359
HCM Control Delay	10.8	15.2	12.6	15.1	12.7	10.8	10.7	20.6	13.2
HCM Lane LOS	B	C	B	C	B	B	B	C	B
HCM 95th-tile Q	0.1	2.1	1.2	2	0.5	0.2	0.3	4.4	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	10	47	1	3	4	30	527	2	3	467	61
Future Volume (veh/h)	79	10	47	1	3	4	30	527	2	3	467	61
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		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	88	11	52	1	3	0	33	586	2	3	519	68
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	305	62	113	164	339	0	70	1521	5	7	1363	608
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.00	0.04	0.41	0.41	0.00	0.38	0.38
Sat Flow, veh/h	728	295	537	210	1607	0	1810	3690	13	1810	3610	1610
Grp Volume(v), veh/h	151	0	0	4	0	0	33	287	301	3	519	68
Grp Sat Flow(s),veh/h/ln	1560	0	0	1817	0	0	1810	1805	1897	1810	1805	1610
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	0.0	0.7	4.2	4.2	0.1	3.9	1.0
Cycle Q Clear(g_c), s	3.0	0.0	0.0	0.1	0.0	0.0	0.7	4.2	4.2	0.1	3.9	1.0
Prop In Lane	0.58		0.34	0.25		0.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	481	0	0	503	0	0	70	744	782	7	1363	608
V/C Ratio(X)	0.31	0.00	0.00	0.01	0.00	0.00	0.47	0.39	0.39	0.40	0.38	0.11
Avail Cap(c_a), veh/h	1128	0	0	1243	0	0	289	1009	1061	289	2018	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	0.0	0.0	11.7	0.0	0.0	17.7	7.7	7.7	18.7	8.5	7.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.0	0.0	0.0	1.8	1.5	1.4	12.6	0.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2	1.2	0.0	1.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	0.0	11.7	0.0	0.0	19.5	9.2	9.2	31.3	9.3	8.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		151			4			621			590	
Approach Delay, s/veh		13.4			11.7			9.7			9.3	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	20.2		12.4	3.7	21.5		12.4
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.7	5.9		5.0	2.1	6.2		2.1
Green Ext Time (p_c), s	0.0	8.3		1.0	0.0	8.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
8: Manthey Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	592	61	235	312	232	34	70	69	356	169	63
Future Volume (veh/h)	35	592	61	235	312	232	34	70	69	356	169	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	38	643	66	255	339	252	37	76	75	387	184	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	592	2019	207	468	1161	981	264	244	240	669	367	136
Arrive On Green	0.61	0.61	0.61	1.00	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	837	3304	339	751	1900	1605	1141	877	865	2430	1320	488
Grp Volume(v), veh/h	38	351	358	255	339	252	37	0	151	387	0	252
Grp Sat Flow(s),veh/h/ln	837	1805	1838	751	1900	1605	1141	0	1742	1215	0	1808
Q Serve(g_s), s	1.7	8.4	8.5	10.6	0.0	0.0	2.5	0.0	6.2	13.5	0.0	10.5
Cycle Q Clear(g_c), s	1.7	8.4	8.5	19.1	0.0	0.0	13.1	0.0	6.2	19.6	0.0	10.5
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.50	1.00		0.27
Lane Grp Cap(c), veh/h	592	1103	1123	468	1161	981	264	0	484	669	0	502
V/C Ratio(X)	0.06	0.32	0.32	0.54	0.29	0.26	0.14	0.00	0.31	0.58	0.00	0.50
Avail Cap(c_a), veh/h	592	1103	1123	468	1161	981	378	0	658	912	0	683
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.1	8.5	8.5	1.5	0.0	0.0	32.7	0.0	25.7	33.5	0.0	27.3
Incr Delay (d2), s/veh	0.2	0.8	0.7	3.9	0.6	0.6	0.2	0.0	0.4	0.8	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.9	3.0	0.5	0.2	0.2	0.7	0.0	2.4	4.0	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	9.2	9.2	5.4	0.6	0.6	33.0	0.0	26.1	34.3	0.0	28.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	C
Approach Vol, veh/h		747			846			188			639	
Approach Delay, s/veh		9.1			2.0			27.4			31.8	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.0		60.0		30.0		60.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		34.0		46.0		34.0		46.0				
Max Q Clear Time (g_c+I1), s		15.1		10.5		21.6		21.1				
Green Ext Time (p_c), s		0.8		4.6		2.6		4.8				

Intersection Summary												
HCM 6th Ctrl Delay			14.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
9: I-5 SB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	695	320	22	401	0	0	0	0	213	11	384
Future Volume (veh/h)	0	695	320	22	401	0	0	0	0	213	11	384
Initial Q (Qb), veh	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
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	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	739	340	23	427	0				227	12	409
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	1443	663	400	1146	0				492	26	459
Arrive On Green	0.00	1.00	1.00	0.20	0.20	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	2487	1099	531	1900	0				1723	91	1607
Grp Volume(v), veh/h	0	558	521	23	427	0				239	0	409
Grp Sat Flow(s),veh/h/ln	0	1805	1686	531	1900	0				1814	0	1607
Q Serve(g_s), s	0.0	0.0	0.0	3.2	17.5	0.0				9.8	0.0	22.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.2	17.5	0.0				9.8	0.0	22.0
Prop In Lane	0.00		0.65	1.00		0.00				0.95		1.00
Lane Grp Cap(c), veh/h	0	1089	1017	400	1146	0				518	0	459
V/C Ratio(X)	0.00	0.51	0.51	0.06	0.37	0.00				0.46	0.00	0.89
Avail Cap(c_a), veh/h	0	1089	1017	400	1146	0				645	0	571
HCM Platoon Ratio	1.00	2.00	2.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.89	0.89	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	15.6	21.3	0.0				26.5	0.0	30.8
Incr Delay (d2), s/veh	0.0	1.5	1.6	0.3	0.9	0.0				0.6	0.0	13.9
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	0.0	0.5	0.5	0.4	9.0	0.0				3.9	0.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.5	1.6	15.8	22.2	0.0				27.1	0.0	44.7
LnGrp LOS	A	A	A	B	C	A				C	A	D
Approach Vol, veh/h		1079			450						648	
Approach Delay, s/veh		1.6			21.9						38.2	
Approach LOS		A			C						D	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				59.3		30.7		59.3				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				48.0		32.0		48.0				
Max Q Clear Time (g_c+I1), s				2.0		24.0		19.5				
Green Ext Time (p_c), s				8.2		1.7		2.7				

Intersection Summary												
HCM 6th Ctrl Delay			16.7									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
10: I-5 NB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	501	0	0	267	235	191	4	25	0	0	0
Future Volume (veh/h)	399	501	0	0	267	235	191	4	25	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	429	539	0	0	287	253	205	4	27			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	1354	1416	0	0	1416	1200	255	5	230			
Arrive On Green	1.00	1.00	0.00	0.00	0.75	0.75	0.14	0.14	0.14			
Sat Flow, veh/h	1706	1900	0	0	1900	1610	1777	35	1605			
Grp Volume(v), veh/h	429	539	0	0	287	253	209	0	27			
Grp Sat Flow(s),veh/h/ln	853	1900	0	0	1900	1610	1811	0	1605			
Q Serve(g_s), s	2.1	0.0	0.0	0.0	4.1	4.3	10.1	0.0	1.3			
Cycle Q Clear(g_c), s	6.2	0.0	0.0	0.0	4.1	4.3	10.1	0.0	1.3			
Prop In Lane	1.00		0.00	0.00		1.00	0.98		1.00			
Lane Grp Cap(c), veh/h	1354	1416	0	0	1416	1200	260	0	230			
V/C Ratio(X)	0.32	0.38	0.00	0.00	0.20	0.21	0.80	0.00	0.12			
Avail Cap(c_a), veh/h	1354	1416	0	0	1416	1200	543	0	481			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.89	0.89	0.00	0.00	0.76	0.76	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.0	3.4	3.5	37.3	0.0	33.6			
Incr Delay (d2), s/veh	0.5	0.7	0.0	0.0	0.2	0.3	5.8	0.0	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			
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	0.0	1.1	0.9	4.5	0.0	0.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.7	0.7	0.0	0.0	3.7	3.8	43.1	0.0	33.8			
LnGrp LOS	A	A	A	A	A	A	D	A	C			
Approach Vol, veh/h		968			540			236				
Approach Delay, s/veh		0.7			3.7			42.0				
Approach LOS		A			A			D				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		17.9		72.1				72.1				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		27.0		53.0				53.0				
Max Q Clear Time (g_c+I1), s		12.1		8.2				6.3				
Green Ext Time (p_c), s		0.9		7.4				2.5				
Intersection Summary												
HCM 6th Ctrl Delay			7.2									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary
11: El Dorado Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	326	43	140	270	50	98	383	135	125	317	75
Future Volume (veh/h)	122	326	43	140	270	50	98	383	135	125	317	75
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		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	128	343	45	147	284	53	103	403	142	132	334	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	164	457	60	188	453	85	133	596	207	169	720	167
Arrive On Green	0.09	0.28	0.28	0.10	0.29	0.29	0.07	0.23	0.23	0.09	0.25	0.25
Sat Flow, veh/h	1810	1644	216	1810	1555	290	1810	2598	902	1810	2885	671
Grp Volume(v), veh/h	128	0	388	147	0	337	103	278	267	132	207	206
Grp Sat Flow(s),veh/h/ln	1810	0	1860	1810	0	1845	1810	1805	1695	1810	1805	1752
Q Serve(g_s), s	4.5	0.0	12.3	5.1	0.0	10.2	3.6	9.0	9.3	4.6	6.3	6.4
Cycle Q Clear(g_c), s	4.5	0.0	12.3	5.1	0.0	10.2	3.6	9.0	9.3	4.6	6.3	6.4
Prop In Lane	1.00		0.12	1.00		0.16	1.00		0.53	1.00		0.38
Lane Grp Cap(c), veh/h	164	0	517	188	0	538	133	414	389	169	450	437
V/C Ratio(X)	0.78	0.00	0.75	0.78	0.00	0.63	0.78	0.67	0.69	0.78	0.46	0.47
Avail Cap(c_a), veh/h	216	0	970	312	0	1060	177	656	616	222	701	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	21.2	28.1	0.0	19.8	29.3	22.6	22.7	28.6	20.5	20.6
Incr Delay (d2), s/veh	12.5	0.0	2.2	6.9	0.0	1.2	14.2	1.9	2.1	12.4	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	4.9	2.4	0.0	3.9	1.9	3.6	3.5	2.4	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2	0.0	23.4	35.0	0.0	21.0	43.5	24.5	24.8	41.0	21.2	21.4
LnGrp LOS	D	A	C	D	A	C	D	C	C	D	C	C
Approach Vol, veh/h		516			484			648			545	
Approach Delay, s/veh		27.8			25.2			27.7			26.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	19.8	11.2	22.9	9.2	21.1	10.3	23.8				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	7.9	23.4	11.1	33.6	6.3	25.0	7.7	37.0				
Max Q Clear Time (g_c+I1), s	6.6	11.3	7.1	14.3	5.6	8.4	6.5	12.2				
Green Ext Time (p_c), s	0.0	2.4	0.1	2.0	0.0	2.0	0.0	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			26.8									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1085	213	727	979	51	286
Future Volume (veh/h)	1085	213	727	979	51	286
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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1085	185	727	979	51	264
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1172	512	754	2880	142	127
Arrive On Green	0.32	0.32	0.42	0.80	0.08	0.08
Sat Flow, veh/h	3705	1576	1810	3705	1810	1610
Grp Volume(v), veh/h	1085	185	727	979	51	264
Grp Sat Flow(s),veh/h/ln	1805	1576	1810	1805	1810	1610
Q Serve(g_s), s	25.8	8.0	34.8	6.7	2.4	7.0
Cycle Q Clear(g_c), s	25.8	8.0	34.8	6.7	2.4	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1172	512	754	2880	142	127
V/C Ratio(X)	0.93	0.36	0.96	0.34	0.36	2.08
Avail Cap(c_a), veh/h	1177	514	773	2922	142	127
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	29.0	23.0	25.3	2.5	38.8	41.0
Incr Delay (d2), s/veh	13.2	1.6	23.3	0.3	0.6	513.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	3.0	18.1	1.1	1.1	20.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.2	24.5	48.6	2.8	39.4	554.5
LnGrp LOS	D	C	D	A	D	F
Approach Vol, veh/h	1270			1706	315	
Approach Delay, s/veh	39.7			22.3	471.1	
Approach LOS	D			C	F	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	42.1	34.9		12.0		77.0
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	38.0	29.0		7.0		72.0
Max Q Clear Time (g_c+I1), s	36.8	27.8		9.0		8.7
Green Ext Time (p_c), s	0.2	1.1		0.0		23.7

Intersection Summary			
HCM 6th Ctrl Delay			72.0
HCM 6th LOS			E

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	975	179	0	606	301	0	0	0	1186	87	849
Future Volume (veh/h)	0	975	179	0	606	301	0	0	0	1186	87	849
Initial Q (Qb), veh	0	0	0	0	1	0				0	0	5
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	975	179	0	606	233				1403	0	543
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	0	0	0	0	0				0	0	0
Cap, veh/h	0	1574	482	0	1065	489				2214	0	660
Arrive On Green	0.00	0.29	0.29	0.00	0.29	0.29				0.41	0.00	0.41
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	975	179	0	606	233				1403	0	543
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	5.9	3.3	0.0	5.2	4.3				7.5	0.0	11.0
Cycle Q Clear(g_c), s	0.0	5.9	3.3	0.0	5.2	4.3				7.5	0.0	11.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1574	482	0	1065	489				2214	0	660
V/C Ratio(X)	0.00	0.62	0.37	0.00	0.57	0.48				0.63	0.00	0.82
Avail Cap(c_a), veh/h	0	4874	1494	0	3432	1531				5205	0	1544
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.5	10.5	0.0	10.9	10.9				9.2	0.0	11.4
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	0.2	0.3				0.1	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	2.3
%ile BackOfQ(50%),veh/ln	0.0	1.6	0.8	0.0	1.4	1.1				1.6	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.6	10.7	0.0	11.1	11.2				9.3	0.0	14.7
LnGrp LOS	A	B	B	A	B	B				A	A	B
Approach Vol, veh/h		1154			839						1946	
Approach Delay, s/veh		11.5			11.1						10.8	
Approach LOS		B			B						B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		16.5		19.9		16.5
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		7.9		13.0		7.2
Green Ext Time (p_c), s		2.8		1.8		1.6

Intersection Summary			
HCM 6th Ctrl Delay			11.1
HCM 6th LOS			B

Notes

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

User approved volume balancing among the lanes for turning movement.

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

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1746	443	0	714	1182	274	0	656	0	0	0
Future Volume (vph)	0	1746	443	0	714	1182	274	0	656	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
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	1746	443	0	714	1182	274	0	656	0	0	0
RTOR Reduction (vph)	0	0	227	0	0	243	0	0	0	0	0	0
Lane Group Flow (vph)	0	1746	216	0	714	939	274	0	656	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		44.5	44.5		71.0	71.0	10.0		36.1			
Effective Green, g (s)		44.5	44.5		71.0	71.0	10.0		36.1			
Actuated g/C Ratio		0.49	0.49		0.78	0.78	0.11		0.40			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		2528	777		2807	1255	383		638			
v/s Ratio Prot		0.34			0.20		0.08		c0.41			
v/s Ratio Perm			0.14			c0.58						
v/c Ratio		0.69	0.28		0.25	0.75	0.72		1.03			
Uniform Delay, d1		18.1	13.9		2.8	5.4	39.3		27.6			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.9	0.3		0.1	2.6	6.2		43.0			
Delay (s)		19.0	14.1		2.9	8.0	45.5		70.6			
Level of Service		B	B		A	A	D		E			
Approach Delay (s)		18.0			6.1			63.2			0.0	
Approach LOS		B			A			E			A	

Intersection Summary				
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	91.3	Sum of lost time (s)	15.6	
Intersection Capacity Utilization	83.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1636	659	91	1054	34	501	15	43	8	6	23
Future Volume (veh/h)	111	1636	659	91	1054	34	501	15	43	8	6	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	111	1636	570	91	1054	33	501	15	39	8	6	14
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	136	2876	1539	116	2793	867	560	79	204	14	31	27
Arrive On Green	0.08	0.55	0.55	0.06	0.54	0.54	0.16	0.17	0.17	0.01	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	467	1214	1810	1900	1610
Grp Volume(v), veh/h	111	1636	570	91	1054	33	501	0	54	8	6	14
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1681	1810	1900	1610
Q Serve(g_s), s	7.2	23.0	12.9	5.5	13.2	1.1	15.7	0.0	3.1	0.5	0.3	1.0
Cycle Q Clear(g_c), s	7.2	23.0	12.9	5.5	13.2	1.1	15.7	0.0	3.1	0.5	0.3	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.72	1.00		1.00
Lane Grp Cap(c), veh/h	136	2876	1539	116	2793	867	560	0	283	14	31	27
V/C Ratio(X)	0.82	0.57	0.37	0.79	0.38	0.04	0.89	0.00	0.19	0.56	0.19	0.53
Avail Cap(c_a), veh/h	228	2920	1563	307	2920	907	596	0	283	307	323	273
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	16.2	14.0	51.6	15.0	12.2	46.1	0.0	40.0	55.3	54.3	54.6
Incr Delay (d2), s/veh	4.5	0.8	0.7	4.4	0.4	0.1	14.7	0.0	0.1	12.2	1.1	5.8
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	3.1	8.4	4.1	2.6	4.9	0.4	7.9	0.0	1.3	0.3	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	17.1	14.7	56.0	15.4	12.3	60.8	0.0	40.1	67.6	55.4	60.4
LnGrp LOS	E	B	B	E	B	B	E	A	D	E	E	E
Approach Vol, veh/h		2317			1178			555			28	
Approach Delay, s/veh		18.3			18.4			58.8			61.4	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	67.2	5.9	24.8	12.2	69.0	22.8	7.9
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	9.2	15.2	2.5	5.1	7.5	25.0	17.7	3.0
Green Ext Time (p_c), s	0.1	32.1	0.0	0.1	0.1	37.1	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	486	280	102	390	181	93	165	97	251	418	53
Future Volume (veh/h)	26	486	280	102	390	181	93	165	97	251	418	53
Initial Q (Qb), veh	0	2	0	0	1	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	26	486	196	102	390	159	93	165	0	251	418	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
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	64	735	198	139	544	138	156	402		225	579	
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.09	0.11	0.00	0.14	0.16	0.00
Sat Flow, veh/h	32	1260	495	172	921	353	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	708	0	0	651	0	0	93	165	0	251	418	0
Grp Sat Flow(s),veh/h/ln	1788	0	0	1446	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	7.1	0.0	0.0	3.8	3.3	0.0	10.8	8.5	0.0
Cycle Q Clear(g_c), s	24.6	0.0	0.0	31.7	0.0	0.0	3.8	3.3	0.0	10.8	8.5	0.0
Prop In Lane	0.04		0.28	0.16		0.24	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	961	0	0	791	0	0	156	402		225	579	
V/C Ratio(X)	0.74	0.00	0.00	0.82	0.00	0.00	0.60	0.41		1.11	0.72	
Avail Cap(c_a), veh/h	1168	0	0	970	0	0	233	765		256	812	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.5	0.0	0.0	16.6	0.0	0.0	35.9	33.7	0.0	38.7	32.5	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	5.4	0.0	0.0	3.6	1.4	0.0	93.1	3.7	0.0
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	0.0	10.6	0.0	0.0	1.8	1.5	0.0	10.4	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	0.0	0.0	22.0	0.0	0.0	39.5	35.2	0.0	131.8	36.2	0.0
LnGrp LOS	B	A	A	C	A	A	D	D		F	D	
Approach Vol, veh/h		708			651			258			669	
Approach Delay, s/veh		17.9			22.0			36.7			72.1	
Approach LOS		B			C			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	14.7		46.2	12.9	18.7		46.2
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	11.0	16.5		49.0	10.0	17.5		49.0
Max Q Clear Time (g_c+I1), s	12.8	5.3		26.6	5.8	10.5		33.7
Green Ext Time (p_c), s	0.0	1.0		7.6	0.1	2.2		6.0

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

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

HCM 6th AWSC
6: Manthey Rd & Hospital Rd

05/31/2025

Intersection	
Intersection Delay, s/veh	20
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	25	62	69	48	25	67	331	32	35	646	69
Future Vol, veh/h	12	25	62	69	48	25	67	331	32	35	646	69
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	25	62	69	48	25	67	331	32	35	646	69
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	13.1	12.9	14.4	25.5
HCM LOS	B	B	B	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	12%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	78%	25%	0%	66%	0%	100%	76%
Vol Right, %	0%	0%	22%	63%	0%	34%	0%	0%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	221	142	99	69	73	35	431	284
LT Vol	67	0	0	12	69	0	35	0	0
Through Vol	0	221	110	25	0	48	0	431	215
RT Vol	0	0	32	62	0	25	0	0	69
Lane Flow Rate	67	221	142	99	69	73	35	431	284
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.147	0.452	0.285	0.221	0.169	0.163	0.071	0.813	0.523
Departure Headway (Hd)	7.891	7.381	7.221	8.034	8.813	8.063	7.302	6.793	6.62
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	455	488	498	446	407	445	491	534	546
Service Time	5.636	5.126	4.966	5.792	6.569	5.819	5.041	4.532	4.359
HCM Lane V/C Ratio	0.147	0.453	0.285	0.222	0.17	0.164	0.071	0.807	0.52
HCM Control Delay	12	16.1	12.8	13.1	13.4	12.4	10.6	32.8	16.4
HCM Lane LOS	B	C	B	B	B	B	B	D	C
HCM 95th-tile Q	0.5	2.3	1.2	0.8	0.6	0.6	0.2	7.9	3

HCM 6th Signalized Intersection Summary
7: Hospital Rd & El Dorado St

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	13	30	2	17	3	27	316	4	2	613	163
Future Volume (veh/h)	40	13	30	2	17	3	27	316	4	2	613	163
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	40	13	30	2	17	2	27	316	4	2	613	163
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	228	74	90	117	247	27	59	1701	22	5	1574	702
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.03	0.47	0.47	0.00	0.44	0.44
Sat Flow, veh/h	548	478	581	72	1594	175	1810	3651	46	1810	3610	1610
Grp Volume(v), veh/h	83	0	0	21	0	0	27	156	164	2	613	163
Grp Sat Flow(s),veh/h/ln	1608	0	0	1842	0	0	1810	1805	1892	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.9	1.9	0.0	4.3	2.4
Cycle Q Clear(g_c), s	1.5	0.0	0.0	0.4	0.0	0.0	0.5	1.9	1.9	0.0	4.3	2.4
Prop In Lane	0.48		0.36	0.10		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	392	0	0	391	0	0	59	841	881	5	1574	702
V/C Ratio(X)	0.21	0.00	0.00	0.05	0.00	0.00	0.46	0.19	0.19	0.40	0.39	0.23
Avail Cap(c_a), veh/h	1150	0	0	1277	0	0	292	1019	1068	292	2039	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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	0.0	13.4	0.0	0.0	17.7	5.8	5.8	18.5	7.1	6.6
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.0	0.0	2.0	0.5	0.5	18.3	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.1	0.0	0.0	0.2	0.4	0.5	0.0	1.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.0	0.0	13.5	0.0	0.0	19.7	6.3	6.3	36.8	7.9	7.4
LnGrp LOS	B	A	A	B	A	A	B	A	A	D	A	A
Approach Vol, veh/h		83			21			347			778	
Approach Delay, s/veh		14.3			13.5			7.3			7.8	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	22.2		10.3	3.6	23.3		10.3
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.5	6.3		3.5	2.0	3.9		2.4
Green Ext Time (p_c), s	0.0	9.9		0.5	0.0	4.9		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.

HCM 6th Signalized Intersection Summary
8: Manthey Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	312	33	179	635	361	35	36	62	255	335	152
Future Volume (veh/h)	32	312	33	179	635	361	35	36	62	255	335	152
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		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	32	312	33	179	635	361	35	36	62	255	335	152
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	43	1241	130	220	910	755	46	109	187	340	309	140
Arrive On Green	0.02	0.38	0.38	0.08	0.32	0.32	0.03	0.17	0.17	0.10	0.25	0.25
Sat Flow, veh/h	1810	3297	346	1810	1900	1575	1810	627	1079	3510	1237	561
Grp Volume(v), veh/h	32	170	175	179	635	361	35	0	98	255	0	487
Grp Sat Flow(s),veh/h/ln	1810	1805	1838	1810	1900	1575	1810	0	1706	1755	0	1799
Q Serve(g_s), s	1.7	6.2	6.3	9.3	28.1	17.6	1.8	0.0	4.8	6.8	0.0	24.0
Cycle Q Clear(g_c), s	1.7	6.2	6.3	9.3	28.1	17.6	1.8	0.0	4.8	6.8	0.0	24.0
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.63	1.00		0.31
Lane Grp Cap(c), veh/h	43	680	692	220	910	755	46	0	295	340	0	450
V/C Ratio(X)	0.74	0.25	0.25	0.81	0.70	0.48	0.77	0.00	0.33	0.75	0.00	1.08
Avail Cap(c_a), veh/h	75	680	692	556	910	755	75	0	295	603	0	450
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.6	20.6	20.6	43.0	26.5	23.0	46.5	0.0	34.8	42.2	0.0	36.0
Incr Delay (d2), s/veh	21.5	0.2	0.2	4.9	3.0	1.5	22.8	0.0	0.7	3.3	0.0	66.6
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	1.0	2.5	2.6	4.4	13.6	7.0	1.1	0.0	2.0	3.1	0.0	18.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.1	20.8	20.8	48.0	29.5	24.4	69.3	0.0	35.5	45.6	0.0	102.6
LnGrp LOS	E	C	C	D	C	C	E	A	D	D	A	F
Approach Vol, veh/h		377			1175			133			742	
Approach Delay, s/veh		24.8			30.7			44.4			83.0	
Approach LOS		C			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	21.6	16.2	41.1	6.4	29.0	6.3	51.0
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	16.5	11.0	29.5	20.0	4.0	24.0	4.0	46.0
Max Q Clear Time (g_c+I1), s	8.8	6.8	11.3	8.3	3.8	26.0	3.7	30.1
Green Ext Time (p_c), s	0.5	0.1	0.4	1.3	0.0	0.0	0.0	4.7

Intersection Summary			
HCM 6th Ctrl Delay			46.5
HCM 6th LOS			D

Notes

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

HCM 6th Signalized Intersection Summary
9: I-5 SB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	425	204	19	763	0	0	0	0	383	10	411
Future Volume (veh/h)	0	425	204	19	763	0	0	0	0	383	10	411
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	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	425	204	19	763	0				383	10	411
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	0	0	0	0	0				0	0	0
Cap, veh/h	0	1269	603	37	1144	0				518	14	473
Arrive On Green	0.00	0.53	0.53	0.01	0.20	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	2469	1128	1810	1900	0				1766	46	1610
Grp Volume(v), veh/h	0	322	307	19	763	0				393	0	411
Grp Sat Flow(s),veh/h/ln	0	1805	1697	1810	1900	0				1812	0	1610
Q Serve(g_s), s	0.0	9.7	9.9	1.0	35.6	0.0				18.8	0.0	23.2
Cycle Q Clear(g_c), s	0.0	9.7	9.9	1.0	35.6	0.0				18.8	0.0	23.2
Prop In Lane	0.00		0.66	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	965	907	37	1144	0				532	0	473
V/C Ratio(X)	0.00	0.33	0.34	0.51	0.67	0.00				0.74	0.00	0.87
Avail Cap(c_a), veh/h	0	965	907	141	1144	0				717	0	637
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.95	0.95	0.88	0.88	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.7	12.7	47.2	29.6	0.0				30.6	0.0	32.2
Incr Delay (d2), s/veh	0.0	0.9	1.0	9.0	2.7	0.0				2.7	0.0	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	3.6	0.5	18.6	0.0				7.9	0.0	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.5	13.7	56.2	32.3	0.0				33.3	0.0	41.8
LnGrp LOS	A	B	B	E	C	A				C	A	D
Approach Vol, veh/h		629			782						804	
Approach Delay, s/veh		13.6			32.9						37.6	
Approach LOS		B			C						D	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			6.5	56.3		33.2		62.8				
Change Period (Y+Rc), s			4.5	5.0		5.0		5.0				
Max Green Setting (Gmax), s			7.5	36.0		38.0		48.0				
Max Q Clear Time (g_c+I1), s			3.0	11.9		25.2		37.6				
Green Ext Time (p_c), s			0.0	3.6		2.9		3.5				
Intersection Summary												
HCM 6th Ctrl Delay			29.1									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
10: I-5 NB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	610	0	0	439	282	343	2	29	0	0	0
Future Volume (veh/h)	197	610	0	0	439	282	343	2	29	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		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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	197	610	0	0	439	282	343	2	29			
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	0	0	0	0	0	0	0	0			
Cap, veh/h	268	1284	0	0	1050	878	396	2	355			
Arrive On Green	0.15	1.00	0.00	0.00	1.00	1.00	0.22	0.22	0.22			
Sat Flow, veh/h	3510	1900	0	0	1900	1590	1800	10	1610			
Grp Volume(v), veh/h	197	610	0	0	439	282	345	0	29			
Grp Sat Flow(s),veh/h/ln	1755	1900	0	0	1900	1590	1810	0	1610			
Q Serve(g_s), s	5.1	0.0	0.0	0.0	0.0	0.0	17.6	0.0	1.4			
Cycle Q Clear(g_c), s	5.1	0.0	0.0	0.0	0.0	0.0	17.6	0.0	1.4			
Prop In Lane	1.00		0.00	0.00		1.00	0.99		1.00			
Lane Grp Cap(c), veh/h	268	1284	0	0	1050	878	399	0	355			
V/C Ratio(X)	0.74	0.48	0.00	0.00	0.42	0.32	0.87	0.00	0.08			
Avail Cap(c_a), veh/h	413	1284	0	0	1050	878	622	0	553			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.96	0.96	0.00	0.00	0.76	0.76	1.00	0.00	1.00			
Uniform Delay (d), s/veh	39.8	0.0	0.0	0.0	0.0	0.0	36.1	0.0	29.7			
Incr Delay (d2), s/veh	3.8	1.2	0.0	0.0	0.9	0.7	7.8	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			
%ile BackOfQ(50%),veh/ln	2.1	0.4	0.0	0.0	0.3	0.2	8.0	0.0	0.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	1.2	0.0	0.0	0.9	0.7	43.8	0.0	29.8			
LnGrp LOS	D	A	A	A	A	A	D	A	C			
Approach Vol, veh/h		807			721			374				
Approach Delay, s/veh		11.5			0.9			42.7				
Approach LOS		B			A			D				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		26.1		69.9			11.8	58.0				
Change Period (Y+Rc), s		5.0		5.0			4.5	5.0				
Max Green Setting (Gmax), s		33.0		53.0			11.3	37.2				
Max Q Clear Time (g_c+I1), s		19.6		2.0			7.1	2.0				
Green Ext Time (p_c), s		1.5		4.1			0.2	3.7				
Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
11: El Dorado Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	459	36	67	442	24	107	200	218	187	350	159
Future Volume (veh/h)	114	459	36	67	442	24	107	200	218	187	350	159
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	114	459	36	67	442	24	107	200	218	187	350	159
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	450	492	39	443	499	27	155	301	268	194	441	196
Arrive On Green	0.50	0.57	0.57	0.25	0.28	0.28	0.09	0.17	0.17	0.11	0.18	0.18
Sat Flow, veh/h	1810	1739	136	1810	1786	97	1810	1805	1610	1810	2409	1072
Grp Volume(v), veh/h	114	0	495	67	0	466	107	200	218	187	260	249
Grp Sat Flow(s),veh/h/ln	1810	0	1875	1810	0	1883	1810	1805	1610	1810	1805	1676
Q Serve(g_s), s	3.5	0.0	23.3	2.8	0.0	22.8	5.5	10.0	12.5	9.9	13.2	13.7
Cycle Q Clear(g_c), s	3.5	0.0	23.3	2.8	0.0	22.8	5.5	10.0	12.5	9.9	13.2	13.7
Prop In Lane	1.00		0.07	1.00		0.05	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	450	0	531	443	0	526	155	301	268	194	331	307
V/C Ratio(X)	0.25	0.00	0.93	0.15	0.00	0.89	0.69	0.67	0.81	0.96	0.79	0.81
Avail Cap(c_a), veh/h	450	0	670	443	0	726	156	432	386	194	470	436
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.00	0.88	1.00	0.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	19.0	0.0	20.0	28.4	0.0	33.1	42.7	37.5	38.6	42.7	37.4	37.6
Incr Delay (d2), s/veh	0.3	0.0	23.3	0.2	0.0	19.3	12.1	2.5	8.4	53.2	5.6	7.3
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	1.3	0.0	9.0	1.2	0.0	12.5	2.9	4.4	5.3	7.1	6.1	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	0.0	43.3	28.6	0.0	52.4	54.7	40.0	47.0	95.9	43.1	44.9
LnGrp LOS	B	A	D	C	A	D	D	D	D	F	D	D
Approach Vol, veh/h		609			533			525			696	
Approach Delay, s/veh		38.8			49.4			45.9			57.9	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	21.0	28.0	32.2	13.2	22.6	28.4	31.8
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	5.0	* 5	4.5	5.0
Max Green Setting (Gmax), s	10.3	23.0	9.4	34.3	8.3	* 25	6.7	37.0
Max Q Clear Time (g_c+I1), s	11.9	14.5	4.8	25.3	7.5	15.7	5.5	24.8
Green Ext Time (p_c), s	0.0	1.5	0.0	1.9	0.0	1.9	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	48.4
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
1: Manthey Rd & Arch Airport Rd

05/31/2025

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	852	78	407	1004	114	373
Future Volume (veh/h)	852	78	407	1004	114	373
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	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	852	62	407	1004	114	321
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1192	520	459	2397	290	258
Arrive On Green	0.33	0.33	0.25	0.66	0.16	0.16
Sat Flow, veh/h	3705	1576	1810	3705	1810	1610
Grp Volume(v), veh/h	852	62	407	1004	114	321
Grp Sat Flow(s),veh/h/ln	1805	1576	1810	1805	1810	1610
Q Serve(g_s), s	12.9	1.7	13.5	8.1	3.5	10.0
Cycle Q Clear(g_c), s	12.9	1.7	13.5	8.1	3.5	10.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1192	520	459	2397	290	258
V/C Ratio(X)	0.71	0.12	0.89	0.42	0.39	1.25
Avail Cap(c_a), veh/h	1329	580	608	2831	290	258
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	18.3	14.6	22.4	4.9	23.5	26.2
Incr Delay (d2), s/veh	3.1	0.4	10.0	0.4	0.3	138.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.6	6.2	1.7	1.4	13.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.5	15.0	32.5	5.3	23.8	164.9
LnGrp LOS	C	B	C	A	C	F
Approach Vol, veh/h	914			1411	435	
Approach Delay, s/veh	21.0			13.1	128.0	
Approach LOS	C			B	F	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	20.9	26.6	15.0	47.5
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	21.0	23.0	10.0	49.0
Max Q Clear Time (g_c+I1), s	15.5	14.9	12.0	10.1
Green Ext Time (p_c), s	0.3	5.7	0.0	19.8

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
2: I-5 SB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	885	153	0	616	552	0	0	0	956	23	683
Future Volume (veh/h)	0	885	153	0	616	552	0	0	0	956	23	683
Initial Q (Qb), veh	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
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	1900	1900	0	1900	1900				1900	1900	1900
Adj Flow Rate, veh/h	0	885	153	0	616	438				1120	0	386
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	0	0	0	0	0				0	0	0
Cap, veh/h	0	1839	564	0	1280	571				1715	0	509
Arrive On Green	0.00	0.35	0.35	0.00	0.35	0.35				0.32	0.00	0.32
Sat Flow, veh/h	0	5358	1590	0	3705	1610				5429	0	1610
Grp Volume(v), veh/h	0	885	153	0	616	438				1120	0	386
Grp Sat Flow(s),veh/h/ln	0	1729	1590	0	1805	1610				1810	0	1610
Q Serve(g_s), s	0.0	4.4	2.3	0.0	4.4	8.0				5.9	0.0	7.1
Cycle Q Clear(g_c), s	0.0	4.4	2.3	0.0	4.4	8.0				5.9	0.0	7.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1839	564	0	1280	571				1715	0	509
V/C Ratio(X)	0.00	0.48	0.27	0.00	0.48	0.77				0.65	0.00	0.76
Avail Cap(c_a), veh/h	0	5365	1644	0	3778	1685				5730	0	1700
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	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.3	7.6	0.0	8.3	9.5				9.8	0.0	10.2
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.1	0.8				0.2	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.4	0.0	0.9	1.6				1.1	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.4	7.7	0.0	8.4	10.3				9.9	0.0	11.1
LnGrp LOS	A	A	A	A	A	B				A	A	B
Approach Vol, veh/h		1038			1054						1506	
Approach Delay, s/veh		8.3			9.2						10.2	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		17.5		15.5		17.5
Change Period (Y+Rc), s		5.8		5.1		* 5.8
Max Green Setting (Gmax), s		34.2		34.9		* 35
Max Q Clear Time (g_c+I1), s		6.4		9.1		10.0
Green Ext Time (p_c), s		2.5		1.3		1.7

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
3: I-5 NB Ramps & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1307	464	0	961	1556	194	0	552	0	0	0
Future Volume (vph)	0	1307	464	0	961	1556	194	0	552	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		5.4	5.4	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.95	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.99		1.00	1.00	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)		5187	1595		3610	1615	3502		1615			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5187	1595		3610	1615	3502		1615			
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	1307	464	0	961	1556	194	0	552	0	0	0
RTOR Reduction (vph)	0	0	282	0	0	208	0	0	0	0	0	0
Lane Group Flow (vph)	0	1307	182	0	961	1348	194	0	552	0	0	0
Confl. Bikes (#/hr)			1									
Turn Type		NA	Perm		NA	Perm	Prot		custom			
Protected Phases		2			6		8		1 8			
Permitted Phases			2			6						
Actuated Green, G (s)		41.1	41.1		84.6	84.6	9.6		52.7			
Effective Green, g (s)		41.1	41.1		84.6	84.6	9.6		52.7			
Actuated g/C Ratio		0.39	0.39		0.81	0.81	0.09		0.50			
Clearance Time (s)		5.8	5.8		5.4	5.4	4.9					
Vehicle Extension (s)		3.9	3.9		3.7	3.7	3.0					
Lane Grp Cap (vph)		2040	627		2922	1307	321		814			
v/s Ratio Prot		0.25			0.27		0.06		c0.34			
v/s Ratio Perm			0.11			c0.83						
v/c Ratio		0.64	0.29		0.33	1.03	0.60		0.68			
Uniform Delay, d1		25.7	21.7		2.6	10.0	45.6		19.5			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.8	0.3		0.1	33.4	3.2		2.3			
Delay (s)		26.5	22.1		2.7	43.3	48.8		21.8			
Level of Service		C	C		A	D	D		C			
Approach Delay (s)		25.3			27.8			28.8			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	104.5	Sum of lost time (s)	15.6
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: French Camp Rd/Frank W Cir & Arch Airport Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1191	641	150	1464	7	606	3	158	23	9	46
Future Volume (veh/h)	60	1191	641	150	1464	7	606	3	158	23	9	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
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	1786	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	60	1191	590	150	1464	7	606	3	119	23	9	5
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	76	2685	1436	179	2966	921	585	6	258	33	29	24
Arrive On Green	0.04	0.52	0.52	0.10	0.57	0.57	0.17	0.16	0.16	0.02	0.02	0.02
Sat Flow, veh/h	1701	5187	2775	1810	5187	1610	3510	40	1576	1810	1900	1567
Grp Volume(v), veh/h	60	1191	590	150	1464	7	606	0	122	23	9	5
Grp Sat Flow(s),veh/h/ln	1701	1729	1388	1810	1729	1610	1755	0	1616	1810	1900	1567
Q Serve(g_s), s	4.0	16.4	14.9	9.3	19.2	0.2	19.0	0.0	7.8	1.4	0.5	0.4
Cycle Q Clear(g_c), s	4.0	16.4	14.9	9.3	19.2	0.2	19.0	0.0	7.8	1.4	0.5	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Lane Grp Cap(c), veh/h	76	2685	1436	179	2966	921	585	0	264	33	29	24
V/C Ratio(X)	0.79	0.44	0.41	0.84	0.49	0.01	1.04	0.00	0.46	0.70	0.32	0.21
Avail Cap(c_a), veh/h	224	2866	1533	302	2966	921	585	0	264	302	317	261
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	17.2	16.8	50.5	14.6	10.5	47.5	0.0	43.2	55.7	55.6	55.5
Incr Delay (d2), s/veh	6.5	0.5	0.9	3.9	0.6	0.0	46.8	0.0	0.5	9.6	2.3	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	1.8	6.2	4.8	4.3	7.0	0.1	12.1	0.0	3.1	0.7	0.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5	17.8	17.7	54.4	15.2	10.5	94.3	0.0	43.6	65.3	57.9	57.1
LnGrp LOS	E	B	B	D	B	B	F	A	D	E	E	E
Approach Vol, veh/h		1841			1621			728			37	
Approach Delay, s/veh		19.1			18.8			85.8			62.4	
Approach LOS		B			B			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	72.2	7.1	24.6	16.3	66.0	24.0	7.7
Change Period (Y+Rc), s	5.0	7.0	5.0	6.0	5.0	7.0	5.0	* 6
Max Green Setting (Gmax), s	15.0	63.0	19.0	14.0	19.0	63.0	19.0	* 19
Max Q Clear Time (g_c+I1), s	6.0	21.2	3.4	9.8	11.3	18.4	21.0	2.5
Green Ext Time (p_c), s	0.0	36.3	0.0	0.1	0.1	40.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary
5: El Dorado St & French Camp Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	501	245	40	554	363	129	429	76	221	535	59
Future Volume (veh/h)	51	501	245	40	554	363	129	429	76	221	535	59
Initial Q (Qb), veh	0	0	0	0	1	0	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	51	501	211	40	554	313	129	429	0	221	535	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
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	69	526	213	60	695	222	142	538		212	680	
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.08	0.15	0.00	0.12	0.19	0.00
Sat Flow, veh/h	58	967	392	43	1019	560	1810	3705	0	1810	3610	1610
Grp Volume(v), veh/h	763	0	0	907	0	0	129	429	0	221	535	0
Grp Sat Flow(s),veh/h/ln	1417	0	0	1622	0	0	1810	1805	0	1810	1805	1610
Q Serve(g_s), s	0.0	0.0	0.0	4.2	0.0	0.0	7.2	11.7	0.0	12.0	14.4	0.0
Cycle Q Clear(g_c), s	52.3	0.0	0.0	56.5	0.0	0.0	7.2	11.7	0.0	12.0	14.4	0.0
Prop In Lane	0.07		0.28	0.04		0.35	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	808	0	0	936	0	0	142	538		212	680	
V/C Ratio(X)	0.94	0.00	0.00	0.97	0.00	0.00	0.91	0.80		1.04	0.79	
Avail Cap(c_a), veh/h	821	0	0	933	0	0	142	635		212	777	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.0	0.0	0.0	22.3	0.0	0.0	46.8	42.0	0.0	45.1	39.5	0.0
Incr Delay (d2), s/veh	19.2	0.0	0.0	22.3	0.0	0.0	49.9	7.9	0.0	72.8	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	17.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.7	0.0	0.0	25.9	0.0	0.0	5.1	5.6	0.0	10.5	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	0.0	0.0	44.9	0.0	0.0	96.7	49.9	0.0	134.9	45.7	0.0
LnGrp LOS	D	A	A	D	A	A	F	D		F	D	
Approach Vol, veh/h		763			907			558			756	
Approach Delay, s/veh		39.2			44.9			60.7			71.8	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.0	21.3		63.0	14.0	25.3		63.0
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5
Max Green Setting (Gmax), s	12.0	18.0		56.5	8.0	22.0		56.5
Max Q Clear Time (g_c+I1), s	14.0	13.7		54.3	9.2	16.4		58.5
Green Ext Time (p_c), s	0.0	1.5		1.4	0.0	2.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.2
HCM 6th LOS	D

Notes

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

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	47	93	45	5	18	18	273	35	34	428	21
Future Vol, veh/h	30	47	93	45	5	18	18	273	35	34	428	21
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	30	47	93	45	5	18	18	273	35	34	428	21
Number of Lanes	0	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	1
HCM Control Delay	12.6	11	11.8	13.4
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	18%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	72%	28%	0%	22%	0%	100%	87%
Vol Right, %	0%	0%	28%	55%	0%	78%	0%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	182	126	170	45	23	34	285	164
LT Vol	18	0	0	30	45	0	34	0	0
Through Vol	0	182	91	47	0	5	0	285	143
RT Vol	0	0	35	93	0	18	0	0	21
Lane Flow Rate	18	182	126	170	45	23	34	285	164
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.035	0.331	0.222	0.316	0.098	0.043	0.064	0.495	0.28
Departure Headway (Hd)	7.056	6.549	6.352	6.701	7.836	6.779	6.748	6.242	6.151
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	505	546	562	534	454	524	529	576	581
Service Time	4.828	4.32	4.123	4.48	5.629	4.571	4.512	4.005	3.914
HCM Lane V/C Ratio	0.036	0.333	0.224	0.318	0.099	0.044	0.064	0.495	0.282
HCM Control Delay	10.1	12.6	10.9	12.6	11.5	9.9	10	15	11.3
HCM Lane LOS	B	B	B	B	B	A	A	B	B
HCM 95th-tile Q	0.1	1.4	0.8	1.3	0.3	0.1	0.2	2.7	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	10	42	51	3	9	27	570	2	3	779	59
Future Volume (veh/h)	72	10	42	51	3	9	27	570	2	3	779	59
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		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	72	10	42	51	3	5	27	570	2	3	779	59
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	273	59	98	403	27	25	59	1718	6	7	1579	704
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.03	0.47	0.47	0.00	0.44	0.44
Sat Flow, veh/h	716	317	529	1281	147	132	1810	3689	13	1810	3610	1610
Grp Volume(v), veh/h	124	0	0	59	0	0	27	279	293	3	779	59
Grp Sat Flow(s),veh/h/ln	1561	0	0	1560	0	0	1810	1805	1897	1810	1805	1610
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.0	0.6	4.0	4.0	0.1	6.3	0.9
Cycle Q Clear(g_c), s	2.7	0.0	0.0	1.1	0.0	0.0	0.6	4.0	4.0	0.1	6.3	0.9
Prop In Lane	0.58		0.34	0.86		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	430	0	0	455	0	0	59	840	883	7	1579	704
V/C Ratio(X)	0.29	0.00	0.00	0.13	0.00	0.00	0.46	0.33	0.33	0.40	0.49	0.08
Avail Cap(c_a), veh/h	1043	0	0	1027	0	0	267	934	981	267	1867	833
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	0.0	13.9	0.0	0.0	19.3	6.9	6.9	20.2	8.2	6.7
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.0	0.0	2.1	1.1	1.0	12.6	1.1	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	0.9	0.0	0.0	0.4	0.0	0.0	0.2	1.1	1.1	0.0	1.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	0.0	0.0	14.1	0.0	0.0	21.4	7.9	7.9	32.8	9.3	6.9
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		124			59			599			841	
Approach Delay, s/veh		15.0			14.1			8.5			9.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	23.8		12.0	3.7	24.9		12.0
Change Period (Y+Rc), s	3.5	6.0		4.5	3.5	6.0		4.5
Max Green Setting (Gmax), s	6.0	21.0		24.0	6.0	21.0		24.0
Max Q Clear Time (g_c+I1), s	2.6	8.3		4.7	2.1	6.0		3.1
Green Ext Time (p_c), s	0.0	9.5		0.8	0.0	8.0		0.3

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
8: Manthey Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	598	61	235	315	230	34	70	69	355	169	61
Future Volume (veh/h)	34	598	61	235	315	230	34	70	69	355	169	61
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	598	61	235	315	230	34	70	69	355	169	61
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	630	2081	212	510	1196	1010	257	228	225	640	345	125
Arrive On Green	0.63	0.63	0.63	1.00	1.00	1.00	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	874	3306	337	787	1900	1605	1164	877	865	2456	1329	480
Grp Volume(v), veh/h	34	326	333	235	315	230	34	0	139	355	0	230
Grp Sat Flow(s),veh/h/ln	874	1805	1838	787	1900	1605	1164	0	1742	1228	0	1809
Q Serve(g_s), s	1.4	7.4	7.4	6.7	0.0	0.0	2.3	0.0	5.8	12.2	0.0	9.7
Cycle Q Clear(g_c), s	1.4	7.4	7.4	14.1	0.0	0.0	12.0	0.0	5.8	18.0	0.0	9.7
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.50	1.00		0.27
Lane Grp Cap(c), veh/h	630	1136	1157	510	1196	1010	257	0	452	640	0	470
V/C Ratio(X)	0.05	0.29	0.29	0.46	0.26	0.23	0.13	0.00	0.31	0.55	0.00	0.49
Avail Cap(c_a), veh/h	630	1136	1157	510	1196	1010	394	0	658	930	0	683
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.4	7.5	7.6	0.9	0.0	0.0	33.3	0.0	26.8	34.0	0.0	28.3
Incr Delay (d2), s/veh	0.2	0.6	0.6	2.7	0.5	0.5	0.2	0.0	0.4	0.8	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.5	2.5	0.4	0.2	0.1	0.6	0.0	2.3	3.6	0.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.6	8.2	8.2	3.6	0.5	0.5	33.6	0.0	27.2	34.8	0.0	29.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	C
Approach Vol, veh/h		693			780			173			585	
Approach Delay, s/veh		8.1			1.4			28.4			32.5	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.4		61.6		28.4		61.6				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		34.0		46.0		34.0		46.0				
Max Q Clear Time (g_c+I1), s		14.0		9.4		20.0		16.1				
Green Ext Time (p_c), s		0.7		4.2		2.5		4.4				

Intersection Summary												
HCM 6th Ctrl Delay			13.8									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
9: I-5 SB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	701	319	24	404	0	0	0	0	310	11	382
Future Volume (veh/h)	0	701	319	24	404	0	0	0	0	310	11	382
Initial Q (Qb), veh	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
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	1900	1900	1900	1900	0				1900	1900	1900
Adj Flow Rate, veh/h	0	701	319	24	404	0				310	11	382
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	0	0	0	0	0				0	0	0
Cap, veh/h	0	1478	672	426	1170	0				478	17	439
Arrive On Green	0.00	1.00	1.00	0.20	0.20	0.00				0.27	0.27	0.27
Sat Flow, veh/h	0	2495	1092	562	1900	0				1750	62	1607
Grp Volume(v), veh/h	0	527	493	24	404	0				321	0	382
Grp Sat Flow(s),veh/h/ln	0	1805	1687	562	1900	0				1812	0	1607
Q Serve(g_s), s	0.0	0.0	0.0	3.1	16.4	0.0				14.1	0.0	20.4
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.1	16.4	0.0				14.1	0.0	20.4
Prop In Lane	0.00		0.65	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1112	1039	426	1170	0				495	0	439
V/C Ratio(X)	0.00	0.47	0.47	0.06	0.35	0.00				0.65	0.00	0.87
Avail Cap(c_a), veh/h	0	1112	1039	426	1170	0				644	0	571
HCM Platoon Ratio	1.00	2.00	2.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.91	0.91	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	15.0	20.3	0.0				28.9	0.0	31.2
Incr Delay (d2), s/veh	0.0	1.3	1.4	0.2	0.8	0.0				1.4	0.0	11.1
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	0.0	0.4	0.4	0.4	8.4	0.0				5.7	0.0	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.3	1.4	15.3	21.1	0.0				30.3	0.0	42.3
LnGrp LOS	A	A	A	B	C	A				C	A	D
Approach Vol, veh/h		1020			428						703	
Approach Delay, s/veh		1.4			20.8						36.9	
Approach LOS		A			C						D	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				60.4		29.6		60.4				
Change Period (Y+Rc), s				5.0		5.0		5.0				
Max Green Setting (Gmax), s				48.0		32.0		48.0				
Max Q Clear Time (g_c+I1), s				2.0		22.4		18.4				
Green Ext Time (p_c), s				7.5		2.2		2.6				

Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
10: I-5 NB Ramps & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	599	0	0	272	367	191	4	29	0	0	0
Future Volume (veh/h)	399	599	0	0	272	367	191	4	29	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	399	599	0	0	272	367	191	4	29			
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	0	0	0	0	0	0	0	0			
Cap, veh/h	1269	1432	0	0	1432	1213	240	5	217			
Arrive On Green	1.00	1.00	0.00	0.00	0.75	0.75	0.14	0.14	0.14			
Sat Flow, veh/h	1556	1900	0	0	1900	1610	1774	37	1604			
Grp Volume(v), veh/h	399	599	0	0	272	367	195	0	29			
Grp Sat Flow(s),veh/h/ln	778	1900	0	0	1900	1610	1811	0	1604			
Q Serve(g_s), s	1.9	0.0	0.0	0.0	3.7	6.5	9.4	0.0	1.4			
Cycle Q Clear(g_c), s	5.6	0.0	0.0	0.0	3.7	6.5	9.4	0.0	1.4			
Prop In Lane	1.00		0.00	0.00		1.00	0.98		1.00			
Lane Grp Cap(c), veh/h	1269	1432	0	0	1432	1213	245	0	217			
V/C Ratio(X)	0.31	0.42	0.00	0.00	0.19	0.30	0.80	0.00	0.13			
Avail Cap(c_a), veh/h	1269	1432	0	0	1432	1213	543	0	481			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.89	0.89	0.00	0.00	0.61	0.61	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.0	3.2	3.5	37.7	0.0	34.3			
Incr Delay (d2), s/veh	0.6	0.8	0.0	0.0	0.2	0.4	5.8	0.0	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			
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	0.0	0.9	1.4	4.2	0.0	0.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.7	0.8	0.0	0.0	3.4	3.9	43.5	0.0	34.5			
LnGrp LOS	A	A	A	A	A	A	D	A	C			
Approach Vol, veh/h		998			639			224				
Approach Delay, s/veh		0.8			3.7			42.3				
Approach LOS		A			A			D				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		17.2		72.8				72.8				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		27.0		53.0				53.0				
Max Q Clear Time (g_c+I1), s		11.4		7.6				8.5				
Green Ext Time (p_c), s		0.8		8.3				2.8				
Intersection Summary												
HCM 6th Ctrl Delay			6.8									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary
11: El Dorado Rd & Mathews Rd

05/31/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	369	80	140	365	80	106	397	135	165	612	94
Future Volume (veh/h)	142	369	80	140	365	80	106	397	135	165	612	94
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		0.99	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	142	369	80	140	365	80	106	397	135	165	612	94
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	178	467	101	178	465	102	136	595	199	195	809	124
Arrive On Green	0.10	0.31	0.31	0.10	0.31	0.31	0.08	0.23	0.23	0.11	0.26	0.26
Sat Flow, veh/h	1810	1511	328	1810	1507	330	1810	2625	879	1810	3122	478
Grp Volume(v), veh/h	142	0	449	140	0	445	106	271	261	165	353	353
Grp Sat Flow(s),veh/h/ln	1810	0	1839	1810	0	1837	1810	1805	1700	1810	1805	1795
Q Serve(g_s), s	5.6	0.0	16.4	5.6	0.0	16.2	4.2	10.0	10.3	6.6	13.2	13.3
Cycle Q Clear(g_c), s	5.6	0.0	16.4	5.6	0.0	16.2	4.2	10.0	10.3	6.6	13.2	13.3
Prop In Lane	1.00		0.18	1.00		0.18	1.00		0.52	1.00		0.27
Lane Grp Cap(c), veh/h	178	0	568	178	0	568	136	409	385	195	468	465
V/C Ratio(X)	0.80	0.00	0.79	0.79	0.00	0.78	0.78	0.66	0.68	0.85	0.76	0.76
Avail Cap(c_a), veh/h	190	0	841	273	0	925	155	575	541	195	614	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	23.2	32.4	0.0	23.2	33.4	25.8	25.9	32.2	25.1	25.1
Incr Delay (d2), s/veh	19.9	0.0	3.1	8.1	0.0	2.4	19.8	1.8	2.1	27.9	3.8	4.0
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	3.3	0.0	6.7	2.6	0.0	6.6	2.5	4.1	4.0	4.2	5.6	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	0.0	26.3	40.5	0.0	25.6	53.1	27.7	28.0	60.1	28.9	29.0
LnGrp LOS	D	A	C	D	A	C	D	C	C	E	C	C
Approach Vol, veh/h		591			585			638			871	
Approach Delay, s/veh		32.6			29.2			32.1			34.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	21.7	11.7	27.7	10.0	24.0	11.7	27.7				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	7.9	23.4	11.1	33.6	6.3	25.0	7.7	37.0				
Max Q Clear Time (g_c+I1), s	8.6	12.3	7.6	18.4	6.2	15.3	7.6	18.2				
Green Ext Time (p_c), s	0.0	2.2	0.1	2.2	0.0	2.8	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			32.4									
HCM 6th LOS			C									