

Appendix K
Transportation Impact Analysis



Transportation Impact Analysis
Scotts Valley Development Project
City of Vallejo

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Scotts Valley Development Project

City of Vallejo

TRANSPORTATION IMPACT ANALYSIS

1) INTRODUCTION

This transportation impact analysis describes the existing and future conditions for transportation with and without the proposed Scotts Valley Development Project in the City of Vallejo. The project would include a casino with restaurants, bars, and event space. It would also include Tribal housing, a Tribal administration building, and associated parking and infrastructure on the site. The site is currently vacant.

This study also describes the regulatory setting; the criterion used for determining the significance of environmental impacts; and summarizes potential environmental impacts and appropriate mitigation measures. This study has been conducted in accordance with the requirements and methodologies set forth by the City of Vallejo, Solano County, and Caltrans. This report has been prepared to assess off-reservation impacts of the project in accordance with Appendix B of the Tribe's Tribal-State Compact.

Summary of Required Mitigations and Recommended Improvement Measures - The following is a summary of the proposed mitigation measures to address the transportation impacts of the project. Based on a detailed analysis of traffic operations with and without each of the proposed mitigations, implementation of the following mitigation measures would reduce some of the project impacts to a *less-than-significant* level.

Impact #1 Impacts to intersection operations - The project would contribute to LOS operations exceeding the established standards at the following intersection under future Friday conditions (Significant and Unavoidable):

Auto Mall Parkway at Admiral Callaghan Lane (Intersection #1)

The addition of traffic from the proposed project would contribute to this intersection exceeding the established LOS standards. The proposed mitigation (MM 1) would be required for the anticipated 2028 opening of the project, and would also be required for a 2028 opening of the project under Alternative B. For Alternative C,

no LOS or queuing impacts were identified for the existing and baseline scenarios. However, mitigation measure #1 would still be required to address queuing under Cumulative Plus Project conditions for Alternative C. The proposed mitigation measure would be forecast to sufficiently mitigate both the LOS and queuing to acceptable levels in all plus project scenarios.

Mitigation Measures

MM 1 Auto Mall Parkway at Admiral Callaghan Lane and the Proposed Project Entrance – Widen Auto Mall Parkway to provide for a dual eastbound left turn movement. At this intersection a right turn overlap phase (i.e., a green arrow for southbound traffic turning right out of the site towards I-80) would also be required for traffic to exit the site efficiently. This mitigation is required for all alternatives except for Alternative C, where it is only required for cumulative plus project conditions.

2) PROJECT DESCRIPTION

As noted above, the proposed project would consist of casino with 238,266 square feet of gaming floor area and ballroom/event space that could accommodate a maximum of 2,500 guests. It would also include 24 Tribal residences, and a 12,555 square foot Tribal administration building. All access to the site would be via a new entrance roadway that would connect to the Auto Mall Parkway as the north leg at its existing intersection with Admiral Callaghan Lane. **Figure 1** shows the project location and the surrounding roadway network. **Figures 2** presents the site plan for the project. Two alternatives to the project have also been studied. Alternative B is a Reduced Intensity Alternative which consists of the same casino project but without the Tribal Housing and Offices. Alternative C is a Non-Gaming Alternative that would involve construction of 50 tribal residences and three Tribal administration buildings with a total of 23,353 square feet of building space. This alternative would also include two commercial buildings with a total of 129,702 square feet of building space and two hotel buildings with a total of 264 hotel rooms.

3) EXISTING CONDITIONS

This section of the report describes the roadways, traffic conditions and other existing transportation characteristics in the vicinity of the project. The primary basis of the analysis is the peak hour level of service for the key intersections. The hours identified as the “peak” hours are generally from 8:00 a.m. to 9:00 a.m. and from 4:30 p.m. to 5:30 p.m. for the transportation facilities described, based on the intersection turning movement counts collected for this analysis. These peak hours will be identified as the AM and PM peak hours. These volumes

represent the conditions on a typical weekday (Tuesday through Thursday). An analysis of project impacts on Friday evening traffic conditions is presented in Section 4.10.

3.1 Project Study Intersections

Figure 1 shows the location of the project study intersections included in the analysis. As mentioned above, all access to the site would be via a new entrance roadway that would connect to the Auto Mall Parkway as the north leg at its existing intersection with Admiral Callaghan Lane. The following sixteen study intersections were analyzed.

1. AUTO MALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE
2. AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY
3. COLUMBUS PARKWAY & REDWOOD PARKWAY
4. AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE
5. PLAZA DRIVE & ADMIRAL CALLAGHAN LANE
6. TURNER PARKWAY & ADMIRAL CALLAGHAN LANE
7. PLAZA DRIVE & TURNER PARKWAY
8. ASCOT PARKWAY & TURNER PARKWAY
9. ASCOT PARKWAY & REDWOOD PARKWAY
10. REDWOOD PARKWAY & OAKWOOD AVENUE
11. REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE
12. ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET
13. FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET
14. COLUMBUS PARKWAY & LAKE HERMAN ROAD
15. COLUMBUS PARKWAY & ROSE DRIVE
16. SONOMA BOULEVARD (SR-29) & THE SR-37 WB OFFRAMP

3.2 Traffic Analysis Scenarios

The study intersections were evaluated for the six scenarios described below:

- Scenario 1: *Existing Conditions* – Level of Service (LOS) based on the existing weekday peak hour volumes and existing intersection configurations.
- Scenario 2: *Existing Plus Project Conditions* – Existing traffic volumes plus the trips forecast to be generated by the proposed project.
- Scenario 3: *Baseline (No Project) Conditions* – The Baseline scenario is based on the existing volumes plus growth in background traffic (for three years) plus the traffic from all reasonably foreseeable developments that could substantially affect the volumes at the project study intersections.
- Scenario 4: *Baseline Plus Project Conditions* – This scenario is based on the Baseline traffic volumes plus the trips from the proposed project.

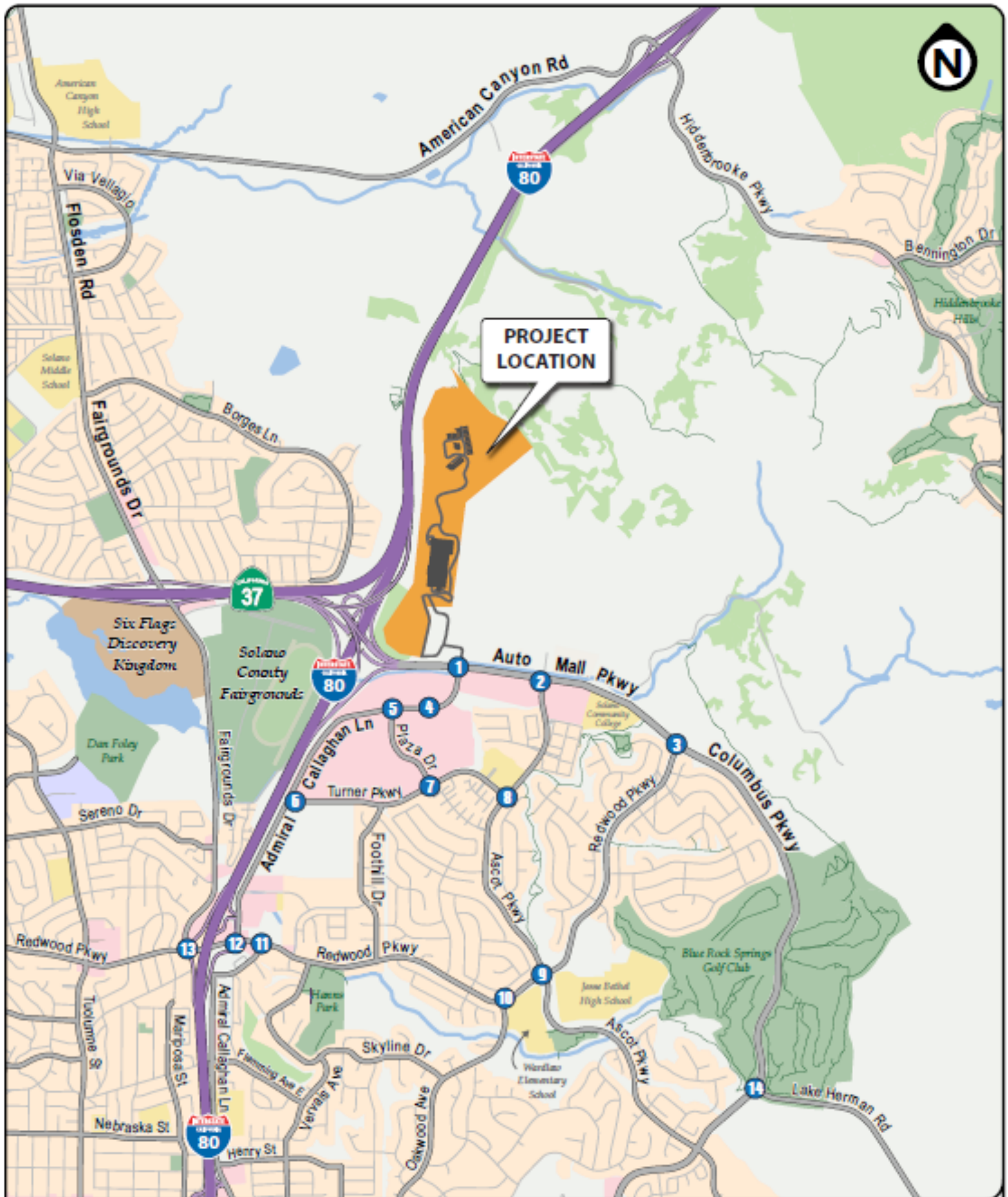


FIGURE 1 | PROJECT LOCATION & STUDY INTERSECTIONS
 TRANSPORTATION IMPACT ANALYSIS
Scotts Valley Development Project
 City of Vallejo



FIGURE 2 | SITE PLAN
 TRANSPORTATION IMPACT ANALYSIS
Scotts Valley Development Project
 City of Vallejo

- Scenario 5: *Cumulative Conditions* – This scenario includes year 2045 cumulative volumes based on planned and approved projects and the Solano Napa Activity Based Model (SNABM).
- Scenario 6: *Cumulative Plus Project Conditions* – This scenario includes year 2045 cumulative volumes based on the SNABM Model plus the forecast trips from proposed project.

3.3 Existing Roadway Network

As discussed previously, the project location and the surrounding roadway network are illustrated in **Figure 1**. The following is a more detailed description of some of the main roadways in the area that could be affected by the project:

- **Interstate 80 (I-80)** - is an east-west freeway that extends from Chicago to San Francisco. Within Vallejo, I-80 is six lanes and is oriented in a north-south direction. I-80 provides access to the project site from the north at Columbus Parkway and from the south at Redwood Parkway.
- **Auto Mall Parkway** – Auto Mall Parkway is an east-west four-lane arterial that begins at the terminus of SR-37 and changes names to the Columbus Parkway to the east of its intersection with St. John’s Mine Road. Auto Mall Parkway would provide access to the project site at its intersection with Admiral Callaghan Lane. The posted speed limit is 45 miles per hour (mph); on-street parking is prohibited on Columbus Parkway.
- **Columbus Parkway** – Columbus Parkway is a north-south four-lane arterial that begins at St. John’s Mine Road and extends south to terminate at the I-780 westbound ramps. The posted speed limit is 45 miles per hour (mph); on-street parking is prohibited on Columbus Parkway.
- **Admiral Callaghan Lane** – Admiral Callaghan Lane is a north-south four-lane arterial between Columbus Parkway and Turner Parkway and continues as a two-lane arterial between Turner Parkway and Rotary Way. South of Rotary Way, Admiral Callaghan Lane widens back out to a four-lane arterial before continuing as a residential street south of Redwood Parkway. An extension of Admiral Callaghan Lane would provide the primary access to project site. The posted speed limit is 35 mph; on-street parking is prohibited along most of its length.
- **Plaza Drive** – Plaza Drive is a north-south four-lane roadway between Admiral Callaghan Lane to the north and Turner Parkway to the south. Although there is no posted speed limit, vehicles generally travel at approximately 30 mph. On-street

parking is prohibited on Plaza Drive.

- **Redwood Parkway** – Redwood Parkway is an east-west four-lane arterial between I-80 and Columbus Parkway. Redwood Parkway provides access to the project site at its intersection with Admiral Callaghan Lane. The posted speed limit is 35 mph; on-street parking is prohibited in the project vicinity.
- **Turner Parkway** – Turner Parkway is an east-west four-lane arterial that extends from Ascot Parkway to Admiral Callaghan Lane. The posted speed limit is 40 mph; on-street parking is prohibited.
- **Sonoma Boulevard** - is a four and six-lane arterial route that extends north-south through the City of Vallejo, and is the major thoroughfare in northwest Vallejo. All major intersections are signalized, and there are several bus routes on Sonoma Boulevard (Hwy 29). The posted speed limit on Sonoma Boulevard north of SR 37 is 50 miles per hour.

3.4 Analysis Methodology

Existing operational conditions at the sixteen (16) study intersections have been evaluated according to the requirements set forth by the Solano County and City of Vallejo General Plans. Analysis of traffic operations was conducted using the 6th Edition of the *Highway Capacity Manual (HCM)* Level of Service (LOS) methodology with Synchro software.¹ Level of service is an expression, in the form of a scale, of the relationship between the capacity of an intersection (or roadway segment) to accommodate the volume of traffic moving through it at any given time. The level of service scale describes traffic flow with six ratings ranging from A to F, with “A” indicating relatively free flow of traffic and “F” indicating stop-and-go traffic characterized by traffic jams. As the amount of traffic moving through a given intersection or roadway segment increases, the traffic flow conditions that motorists experience rapidly deteriorate as the capacity of the intersection or roadway segment is reached. Under such conditions, there is general instability in the traffic flow, which means that relatively small incidents (e.g., momentary engine stall) can cause considerable fluctuations in speeds and delays that lead to traffic congestion. This near-capacity situation is labeled level of service (LOS) E. Beyond LOS E, the intersection or roadway segment capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate it.

For signalized intersections, The *HCM* methodology determines the capacity of each lane group approaching the intersection. The LOS is then based on average control delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average control delay and LOS are presented for the intersection. A summary of the HCM results and copies of the detailed HCM LOS calculations are included in the appendix to this report.

¹ 6th Edition of *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2016

Table 1 summarizes the relationship between LOS, average control delay, and the volume to capacity ratio at signalized intersections. For unsignalized intersections (all-way stop controlled and two-way stop controlled) the average control delay and LOS operating conditions are calculated by approach (e.g., northbound) and by movement (e.g., northbound left-turn) for those movements that are subject to delay. In general, the operating conditions for unsignalized intersections are presented for the worst approach. **Table 2** summarizes the relationship between LOS and average control delay at unsignalized intersections. For queuing, the *HCM* methodology implemented with Synchro software was used to calculate the 95th percentile queues for left turn pockets at the project study intersections. The resulting queue lengths are reported in feet and compared to the available left turn storage at each intersection.

3.5 Existing Intersection Capacity Conditions (Scenario 1)

The existing intersection geometry at each of the project study intersections can be seen in **Figure 3** and the existing traffic volumes at each are presented in **Figure 4**. Traffic counts at the study intersections were conducted on June 7th, 2023 when local schools were still in session. **Table 3** summarizes the associated LOS computation results for the existing weekday AM and PM peak hour conditions. Please note that the corresponding LOS analysis calculation sheets are presented in the appendix to this report. As shown in **Table 3**, all of the project study intersections currently have acceptable conditions (LOS E or better) during the weekday AM and PM peak hours. See Section 3.8 for a description of the applicable intersection thresholds.

3.6 Pedestrian and Bicycle Facilities

Bicycle and pedestrian facilities in the project study area are currently very limited with no bike lanes or sidewalks provided in the vicinity of the project. Bicycle paths, lanes and routes are typical examples of bicycle transportation facilities, which are defined by Caltrans as being in one of the four classes:

Class I – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.

Class II – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.

Class III – Provides a route designated by signs or permanent markings and shared with pedestrians and motorists.

Class IV – Provides an adjacent bike lane or bikeway that is physically separated from motor vehicle traffic.

**TABLE 1
SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS**

Level of Service	Description of Operations	Average Delay (sec/veh)	Volume to Capacity Ratio
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	≤ 10	< 0.60
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10 to 20	> 0.61 to 0.70
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20 to 35	> 0.71 to 0.80
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35 to 55	> 0.81 to 0.90
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	> 55 to 80	> 0.91 to 1.00
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80	> 1.00

SOURCES: 6th Edition of the *Highway Capacity Manual*, Transportation Research Board, 2016.

**TABLE 2
UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS**

Level of Service	Description of Operations	Average Delay (seconds/vehicle)
A	No delay for stop-controlled approaches.	0 to 10
B	Operations with minor delays.	> 10 to 15
C	Operations with moderate delays.	> 15 to 25
D	Operations with some delays.	> 25 to 35
E	Operations with high delays and long queues.	> 35 to 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

SOURCE: 6th Edition of the *Highway Capacity Manual*, Transportation Research Board, 2016.

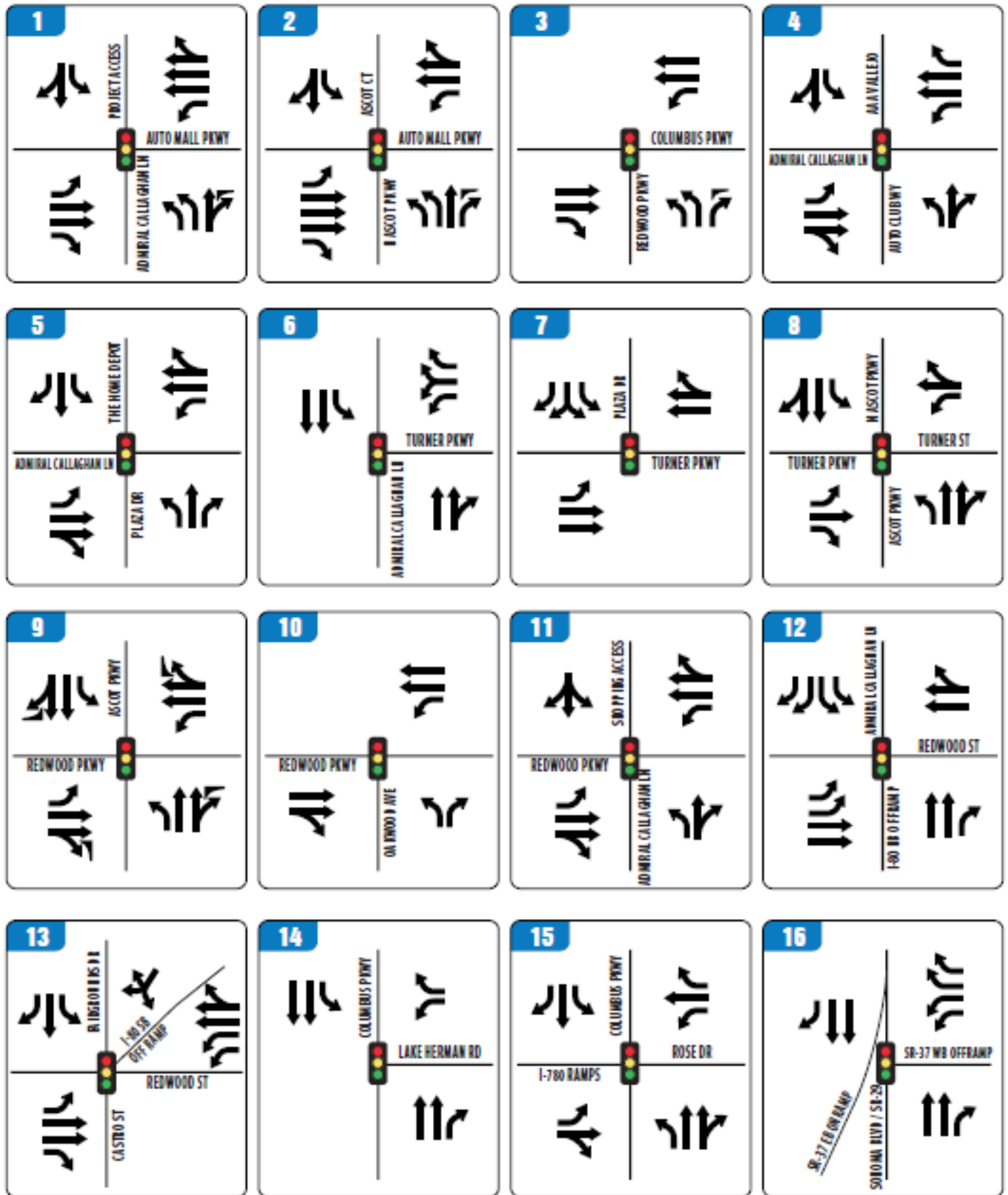


FIGURE 3 | LANE CONFIGURATIONS
 TRANSPORTATION IMPACT ANALYSIS
Scotts Valley Development Project
 City of Vallejo

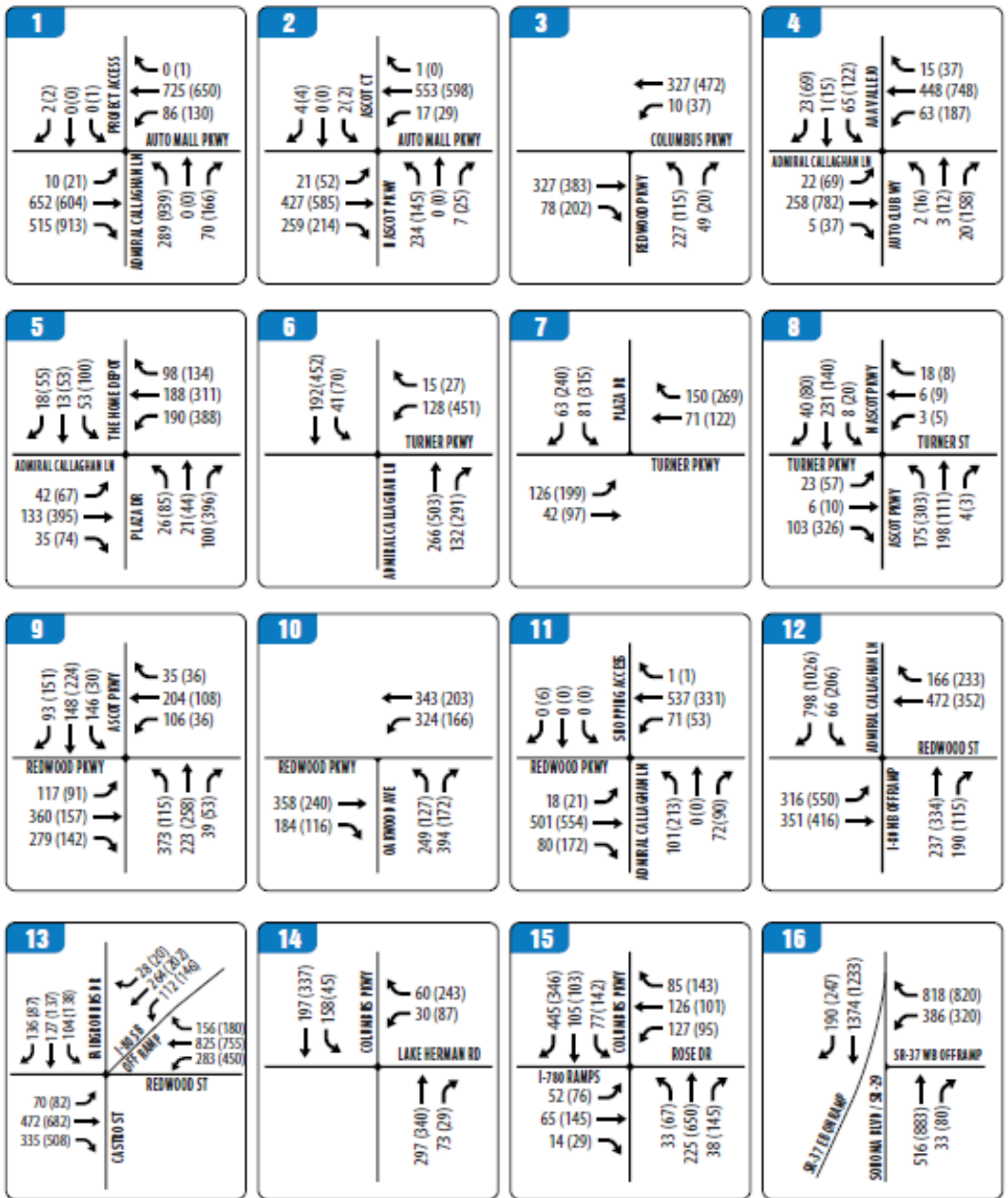


FIGURE 4 | EXISTING AM(PM) PEAK HOUR TRAFFIC VOLUMES
TRANSPORTATION IMPACT ANALYSIS

**TABLE 3
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS**

INTERSECTION		CONTROL	PEAK HOUR	EXISTING	
				Delay	LOS
1	AUTOMALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	12.5	B
			PM	21.5	C
2	AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY	Signalized	AM	11.9	B
			PM	12.1	B
3	COLUMBUS PARKWAY & REDWOOD PARKWAY	Signalized	AM	8.5	A
			PM	7.4	A
4	AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	8.3	A
			PM	17.0	B
5	PLAZA DRIVE & ADMIRAL CALLAGHAN LANE	Signalized	AM	16.0	B
			PM	44.5	D
6	TURNER PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	7.6	A
			PM	11.5	B
7	PLAZA DRIVE & TURNER PARKWAY	Signalized	AM	10.1	B
			PM	14.4	B
8	ASCOT PARKWAY & TURNER PARKWAY	Signalized	AM	14.0	B
			PM	21.2	C
9	ASCOT PARKWAY & REDWOOD PARKWAY	Signalized	AM	21.6	C
			PM	14.8	B
10	REDWOOD PARKWAY & OAKWOOD AVENUE	Signalized	AM	21.8	C
			PM	11.2	B
11	REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	9.0	A
			PM	11.8	B
12	ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	19.1	B
			PM	23.7	C
13	FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	29.9	C
			PM	31.6	D
14	COLUMBUS PARKWAY & LAKE HERMAN ROAD	Signalized	AM	8.5	A
			PM	10.2	B
15	COLUMBUS PARKWAY & ROSE DRIVE	Signalized	AM	18.0	B
			PM	21.4	C
16	SONOMA BOULEVARD (SR-29) & SR-37 WB OFFRAMP	Signalized	AM	21.6	C
			PM	17.6	B

SOURCE: Abrams Associates, 2024

NOTE: Delay results are presented in terms of seconds per vehicle.

Sidewalks are provided on most existing roadways in the study area with the exception of the north side of Auto Mall Parkway and Columbus Parkway. Bicycle lanes are provided on Redwood Parkway, Turner Parkway and Ascot Parkway. In addition, the Solano Bikeway (a Class I multi modal trail) extends north from the end of Admiral Callaghan Parkway along the project frontage and I-80 to McGary Road.

3.7 Transit Service

The major public transit operators that provide service within or adjacent to the study area include the San Francisco Bay Ferry, SolTrans and BART/Amtrak. These operators are described below.

San Francisco Bay Ferry - The San Francisco Bay Ferry/Vallejo Route offers ferry service daily between Vallejo and the San Francisco Ferry Building and San Francisco Pier 41. The Vallejo Ferry Terminal is located at 295 Mare Island Way approximately four miles from the project site. Parking is available at the Vallejo Ferry Terminal.

Bus Transit - Bus transit service in the project area is provided by SolTrans. SolTrans provides local and express bus service to the Solano County cities of Vallejo, Benicia, and Fairfield. Express bus service connects to the Contra Costa County communities of El Cerrito, Pleasant Hill, and Walnut Creek, with regional connections to BART. The following bus routes are proximate to the project site - SolTrans bus routes 7 and 38 within the City of Vallejo. Route 7 operates from approximately from 6:45 AM to 9:00 PM on weekdays, from approximately 8:45 AM to 7:00 PM on Saturdays, and from approximately 8:45 AM to 7:00 PM on Sundays. The route connects the Vallejo Transit Center with Gateway Place, and businesses, neighborhoods, and schools along Florida Street and Springs Road.

Near the project site, bus stops for Routes 7A, 7B, and 38 are located on Auto Mall Parkway west of St. John's Mine Road, which is about $\frac{3}{4}$ of a mile from the project site. Route 38 is a school tripper route that operates on weekday mornings. SolTrans ADA Paratransit bus service is also available to certified persons with disabilities unable to board a regular SolTrans fixed route bus, access a SolTrans bus stop, or otherwise navigate the regular fixed-route bus system due to a disabling condition as defined by the Americans with Disabilities Act (ADA). SolTrans Paratransit provides a shared ride, origin to destination bus service by advance appointment. Service operates parallel to the fixed route system, during the same hours and days.

BART/Amtrak - BART and Amtrak connections within Solano County can be made to Solano Express routes with connections to BART and/or Amtrak, which include the R and Y routes. The nearest BART/Amtrak station is located about 16 miles away in the City of Richmond.

3.8 Standards and Objectives

Existing policies, laws and regulations that have been used to guide the evaluation of potential off-site impacts from the proposed project are summarized below.

Caltrans - The California Department of Transportation (Caltrans) has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as U.S. 101. Any improvements to these roadways would require Caltrans' approval. As per Caltrans' Transportation Impact Study Guide, VMT analysis has now replaced level of service, the prior widely applied metric used for CEQA transportation analysis. Caltrans' primary review focus for a land use project's impact is now VMT.² Therefore, an analysis of level of service for freeways was not provided.

² *Vehicle Miles Traveled-Focused Transportation Impact Study Guide*, Caltrans, Sacramento, CA, May 20, 2020.

Vallejo General Plan - The Transportation and Circulation Element included in the City of Vallejo General Plan was prepared pursuant to Section 65302(b) of the California Government Code. The Transportation and Circulation Element addresses the location and extent of existing and planned transportation routes, terminals, and other local public utilities and facilities. The General Plan identifies roadway and transit goals and policies that have been adopted to ensure that the transportation system of the City will have adequate capacity to serve planned growth. These goals and policies are intended to provide a plan and implementation measures for an integrated, multi-modal transportation system that will safely and efficiently meet the transportation needs of all economic and social segments of the City.

Solano Transportation Authority Comprehensive Transportation Plan - The Comprehensive Transportation Plan (CTP) for Solano County identifies, plans, and prioritizes the transportation needs of Solano County through 2040. Solano County's transportation planning agency, the Solano Transportation Authority (STA), as the Transportation Planning and Congestion Management Agency for Solano County, developed the CTP 2040 in collaboration with its many transportation partners and the public. The CTP identifies overall policies as well as specific policies and projects for key plan elements including: arterials, highways, freeways, transit, and alternative modes.

Significance Criteria – For the purposes of this analysis a project would have a significant impact if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the off-reservation circulation system, taking into account all modes of transportation including mass transit and nonmotorized travel and relevant components of the circulation system, including, but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Consistent with Policy MTC 2.5 and Action MTC 2.5B in the Vallejo General Plan 2040, the advisory standard of the City of Vallejo is to maintain Level of Service (LOS) E during the peak hours “to be considered along with, but not to override, metrics for pedestrian, bicycle, transit and emergency access performance.” Please note this report also includes one intersection outside the Vallejo city limits (Columbus Parkway at Rose Drive). The applicable measures of effectiveness are summarized below:

Signalized Intersections - Project-related operational effects on the City's signalized study intersections are considered to result in significant effects if project-related traffic causes the Level of Service (LOS) rating to deteriorate to LOS F. If a signalized intersection is operating unacceptably before the addition of project trips, it would be considered a significant effect if the project causes the v/c ratio, as calculated with the HCM methodology, to increase by 0.01 or more at a signalized intersection operating at LOS F without the project. There is one study intersection outside the City limits. At Columbus Parkway at Rose Drive the Solano County/Caltrans standard of LOS D

applies and it would be considered to result in a significant effect if project-related traffic causes the Level of Service (LOS) rating to deteriorate to LOS E.

Unsignalized Intersections - Project-related operational effects on unsignalized intersections are considered to result in significant effects if project generated traffic causes the LOS at an unsignalized intersection to degrade to worse than LOS E. As with signalized intersections, if an intersection is operating unacceptably before the addition of project trips, it would be considered a significant effect if the project causes a stop-controlled intersection to fall to LOS F (for side-street stop-controlled intersections, for the worst side street movement or approach), or adds traffic to a stop-controlled intersection already operating at LOS F and the California Manual on Uniform Traffic Control Devices peak hour signal warrant is met. Again, for Columbus Parkway at Rose Drive the Solano County/Caltrans standard of LOS D applies.

- Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated off-reservation roads or highways.
- Substantially increase hazards to an off-reservation design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access for off-reservation responders.

4) TRANSPORTATION IMPACT ANALYSIS

4.1 Project Trip Generation

Casino Trip Generation – The trip generation forecasts for the Proposed Project are presented in **Table 4**. The peak-hour trip generation of the proposed casino was reviewed based on information published in Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021).³ However, as described below, more recent trip generation data available from surveys of existing Native American casinos is available, and this data was used to estimate the traffic that would be produced by the casino portion of the project. The ITE Trip Generation Manual is generally the standard reference from which to determine trip generation rates. However, the rates for a casino included in the latest edition of the ITE Trip Generation Manual are based on limited surveys of casino/video lottery establishments in other parts of the country taken as far back as the 1990's. In addition, the square footages of the surveyed facilities ranged from 600 to 2,400 square feet. Based on preliminary calculations and a comparison of the ITE rates with other studies (as described below) it was found that use of the ITE rates would be inappropriate and produced results that did not compare with the expected traffic of the proposed project.

The approach used for establishing trip generation rates for the casino was to investigate trip generation characteristics at other similar casinos based on the results of trip generation surveys and validate the results with traffic counts at the existing casino. For this project additional data on casino trip generation rates were obtained from the transportation impact analysis prepared for the Tejon Casino in Kern County.⁴ The trip generation rates were based on the fitted curve equations developed from traffic surveys conducted at three similar Native American casinos as part of the Tejon Casino Transportation Impact Analysis. This document includes extensive discussions on the research performed to determine an appropriate trip generation rate for Native American gaming facilities and on the actually developed trip rates for weekday daily, AM and PM peak of the street, as well as weekend peak hour conditions. The trip rates were verified to be conservative based on trip generation surveys conducted at the Graton Resort & Casino.⁵ Consistent with other casino traffic studies, the total casino traffic was also reduced by 10% to account for pass-by traffic (i.e. 90% of the casino trips were considered to be new trips to the area).⁶

³ *Trip Generation Manual, 11th Edition*, Institute of Transportation Engineers (ITE), Washington D.C., September, 2021.

⁴ *Transportation Impact Analysis of the Tejon Casino*, Linscott, Law, & Greenspan Engineers, San Diego, CA, October 30, 2019.

⁵ *Graton Resort and Casino Expansion Project Traffic Impact Study*, Abrams Associates Traffic Engineering, Walnut Creek, CA, March 29, 2023.

⁶ *Final Report – Phased Transportation Study for Proposed Urban Casinos in West Contra Costa County*, Dowling Associates, Inc., Oakland, CA, December 28, 2007.

**TABLE 4
PROJECT TRIP GENERATION CALCULATIONS**

Land Use	Size	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Tribal Casino Trip Rates - Trips per Square Foot		38.31	1.30	0.77	2.07	1.90	1.55	3.45
Unadjusted Casino Trip Generation	238,266 sq. ft.	9,128	311	182	493	452	370	822
Pass-By Traffic Reduction (10%)		913	31	18	49	45	37	82
Net New Off-Site Casino Trip Generation		8,215	280	164	444	407	333	740
ITE Single Family Detached Housing Trip Rates - Trips per Unit		11.31	0.23	0.69	0.92	0.60	0.35	0.95
Tribal Housing Trip Generation	24 units	271	6	16	22	15	8	23
ITE General Office Building Trip Rates - Trips per Square Foot		15.20	0.84	0.11	0.95	0.40	1.96	2.36
Tribal Offices Trip Generation	12,555 sq. ft.	191	11	1	12	5	25	30
Shared Traffic Reduction (50%)		95	6	0	6	3	12	15
Net New Off-Site Tribal Offices Trip Generation		95	6	0	6	2	13	15
Total Project Trip Generation		8,582	291	181	472	424	354	778

Tribal Housing and Tribal Administration Building Trip Generation - The trip generation for the Tribal housing and the Tribal administration building are based on trip generation rates using the fitted curve equations for Single Family Detached Housing (ITE Land Use Code 210) and General Office Building (ITE Land Use Code 710) from the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition. It was assumed that approximately two thirds of the traffic to and from the Tribal Administration Building would be shared with trips from the Tribal residences and the casino. All the rates used in the analysis are presented in **Table 4**, which also summarizes the estimated weekday a.m. and p.m. peak-hour trip generation of the Proposed Project. During the normal weekday commute peak hours the total trip generation for the Proposed Project is estimated to be approximately 472 AM peak hour trips (291 inbound and 181 outbound) and 778 PM peak hour trips (424 inbound and 354 outbound).

4.2 Project Trip Distribution

The trip distribution assumptions have been based on the project's proximity to the access freeway and other key travel routes in Solano County, the existing directional split at nearby intersections, and engineering judgement considering the overall land use patterns in the area. A figure presenting the distribution percentages assumed for the analysis is included in the technical appendix to this report. **Figure 5** shows the project trips that would be added at each the project study intersections.

4.3 Existing Plus Project Traffic Capacity Conditions (Scenario 2)

This scenario evaluates the existing conditions with the addition of traffic from the proposed project. The traffic volumes for each of the study intersections for Existing Plus Project conditions are shown in **Figure 6**. The capacity calculations for the Existing Plus Project scenario are shown in **Table 5**. The corresponding LOS analysis calculation sheets are presented in the appendix to this report. As shown in **Table 5**, all of the project study intersections would continue to have acceptable conditions (LOS E or better) during the weekday AM and PM peak hours under the existing plus project scenario) Please note this scenario represents average weekday conditions that assume there is no event being held at the theater. Friday Theater/Special Event conditions are analyzed in Section 4.12.

4.4 Existing Plus Project Queuing Conditions

A review was conducted of the 95th percentile queue lengths, as determined with Synchro software, to determine if the existing plus project queue lengths exceed the storage provided at the project study intersections. The instance of a queue exceeding available storage is not in itself a significant impact as the City has no significance criteria for queuing. However, project-related operational effects on queuing at an intersection are reported if project generated traffic causes the forecast queues to extend beyond the existing available turn pocket storage by more than one vehicle. When turn pocket storage is exceeded, safety and sight distance are reviewed to determine if improvements are warranted.

Please note that queue lengths for all approaches to the project study intersections under this scenario are reported in the detailed LOS calculations included in the technical appendix to this report. Based on a review of the existing plus project queue lengths there are three intersections where available storage is forecast to be exceeded. As shown in **Table 6**, at Auto Mall Parkway and Admiral Callaghan Lane (Intersection #1) the eastbound left turn pocket has about 230 feet of storage and the calculations indicate the existing plus project queue length is forecast to be about 383 feet during the PM peak hour. The project is also forecast to contribute to queues that already exceed existing storage on the northbound left turn from Admiral Callaghan Lane at Intersection #1, the westbound and southbound left turn movements at Intersection #5, and the southbound left turn movements at Intersection #13.

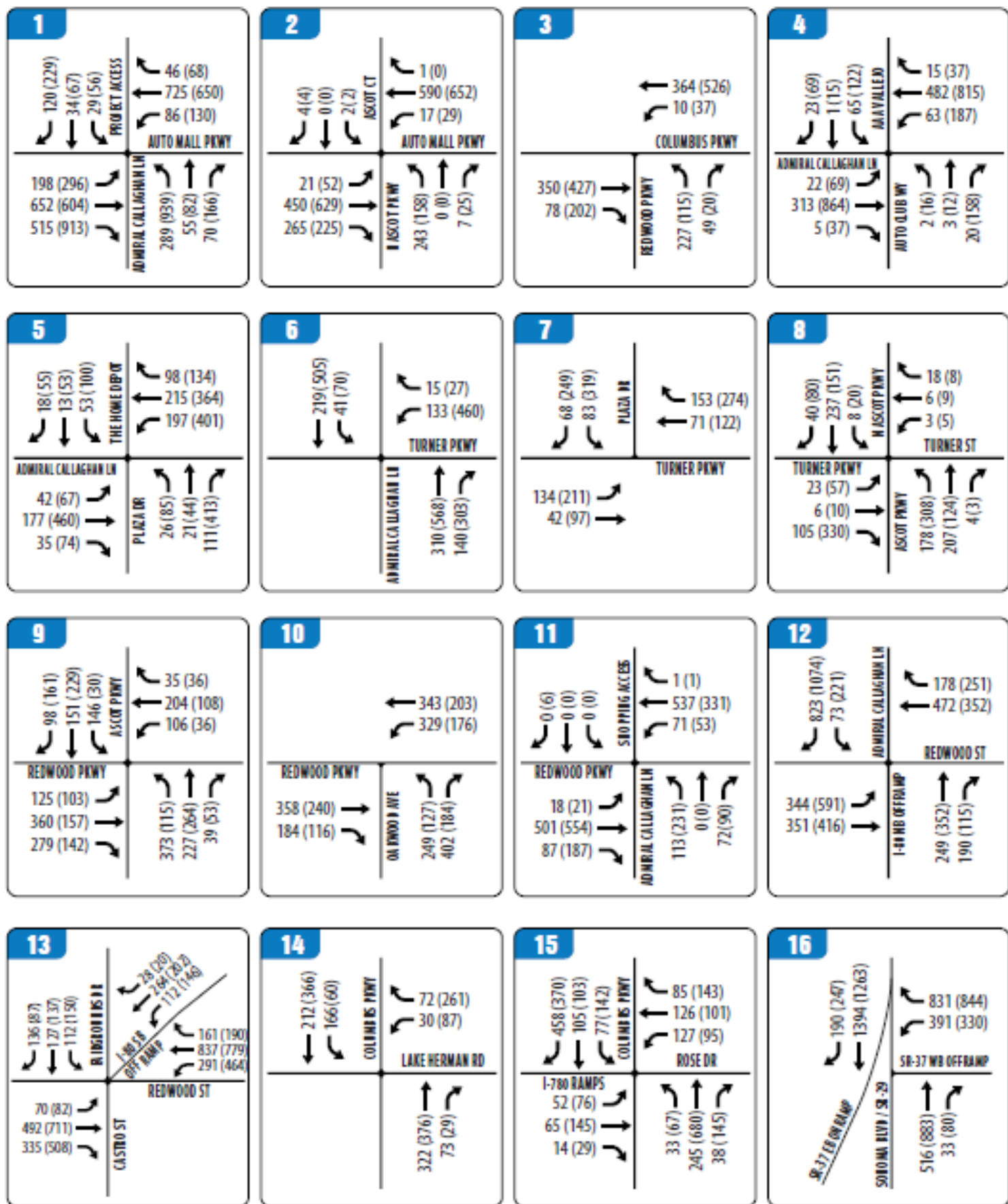


FIGURE 6 | EXISTING PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES
TRANSPORTATION IMPACT ANALYSIS

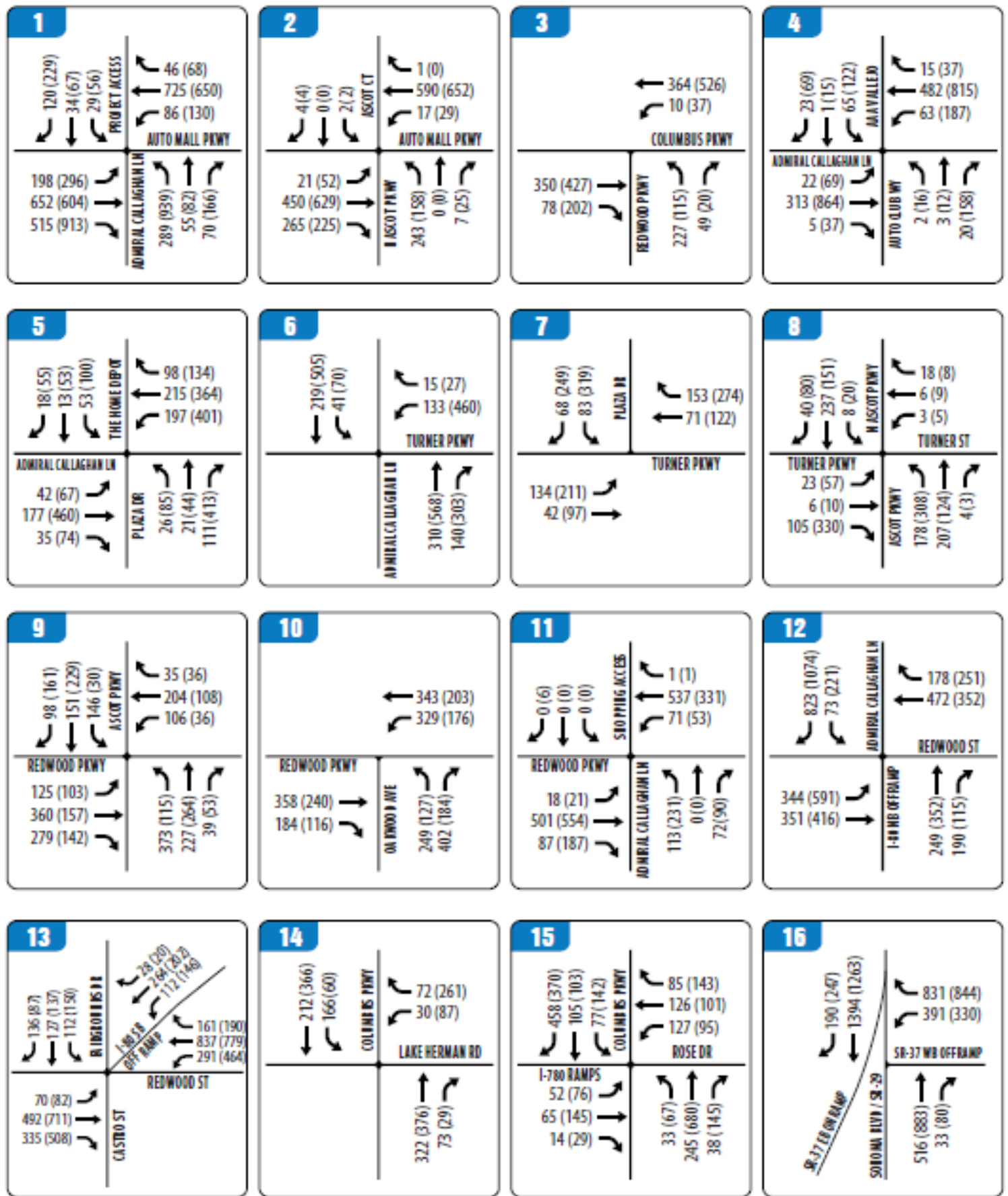


FIGURE 6 | EXISTING PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES
TRANSPORTATION IMPACT ANALYSIS

**TABLE 5
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS**

	INTERSECTION	CONTROL	PEAK HOUR	EXISTING		EXISTING PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	AUTOMALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	12.5	B	19.6	B
			PM	21.5	C	50.3	D
2	AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY	Signalized	AM	11.9	B	12.0	B
			PM	12.1	B	12.3	B
3	COLUMBUS PARKWAY & REDWOOD PARKWAY	Signalized	AM	8.5	A	8.4	A
			PM	7.4	A	7.3	A
4	AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	8.3	A	8.3	A
			PM	17.0	B	17.8	B
5	PLAZA DRIVE & ADMIRAL CALLAGHAN LANE	Signalized	AM	16.0	B	16.3	B
			PM	44.5	D	52.5	D
6	TURNER PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	7.6	A	7.6	A
			PM	11.5	B	11.8	B
7	PLAZA DRIVE & TURNER PARKWAY	Signalized	AM	10.1	B	10.3	B
			PM	14.4	B	14.8	B
8	ASCOT PARKWAY & TURNER PARKWAY	Signalized	AM	14.0	B	14.0	B
			PM	21.2	C	21.5	C
9	ASCOT PARKWAY & REDWOOD PARKWAY	Signalized	AM	21.6	C	21.7	C
			PM	14.8	B	15.1	B
10	REDWOOD PARKWAY & OAKWOOD AVENUE	Signalized	AM	21.8	C	22.4	C
			PM	11.2	B	11.5	B
11	REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	9.0	A	9.1	A
			PM	11.8	B	12.3	B
12	ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	19.1	B	19.9	B
			PM	23.7	C	25.7	C
13	FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	29.9	C	31.0	C
			PM	31.6	D	32.5	C
14	COLUMBUS PARKWAY & LAKE HERMAN ROAD	Signalized	AM	8.5	A	8.7	A
			PM	10.2	B	10.6	B
15	COLUMBUS PARKWAY & ROSE DRIVE	Signalized	AM	18.0	B	18.1	B
			PM	21.4	C	21.7	C
16	SONOMA BOULEVARD (SR-29) & SR-37 WB OFFRAMP	Signalized	AM	21.6	C	22.7	C
			PM	17.6	B	18.9	B

SOURCE: Abrams Associates, 2024 **NOTE:** Delay results are presented in terms of seconds per vehicle.

At Intersection #1 the queues would have the potential to create safety problems if they were to extend back into the SR 37/I-80 interchange. As discussed in Section 5.0, the proposed mitigation to address the queueing and intersection operations at Intersection #1 is to widen Auto Mall Parkway to provide for a dual eastbound left turn movement. In addition, a right turn overlap phase (i.e., a green arrow for southbound traffic turning right out of the site towards I-80) would also be required.

**TABLE 6
EXISTING PEAK HOUR QUEUING ANALYSIS**

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95 th % Queue (ft)		
					No Project	With Project	Delta
1	Auto Mall Parkway / Columbus Parkway & Admiral Callaghan Lane	EBL	230 ft	AM	21	193	172
				PM	41	383	342
		WBL	215 ft	AM	88	102	14
				PM	169	188	19
		NBL	425 ft	AM	114	136	22
				PM	405	480	75
		SBL	100 ft	AM	0	48	48
				PM	7	85	78
5	Admiral Callaghan Lane & Plaza Drive	EBL	250 ft	AM	42	44	2
				PM	103	104	1
		WBL	250 ft	AM	122	132	10
				PM	418	463	45
		NBL	200 ft	AM	30	32	2
				PM	117	118	1
		SBL	100 ft	AM	49	52	3
				PM	134	135	1
13	Redwood Street & Fairgrounds Drive / I-80 Southbound Ramps	EBL	160 ft	AM	141	141	0
				PM	122	122	0
		WBL	285 ft	AM	151	168	17
				PM	245	250	5
		SBL	125 ft	AM	129	150	21
				PM	180	193	13
		SWBL	150 ft	AM	138	139	1
				PM	186	186	0

4.5 Baseline Traffic Capacity Conditions (Scenario 3)

The Baseline scenario evaluates the existing conditions with the addition of traffic from reasonably foreseeable projects in the area and general baseline growth in traffic. For this analysis the baseline volumes were developed based on the assumption that the project completion date would be 2028 with a 10% growth in background traffic (representing a partial return to pre-covid conditions). This scenario also includes traffic from the approved (but not yet constructed) RSC Vallejo Apartment Project.⁷ The traffic volumes for each of the study intersections for the Baseline scenario are shown in **Figure 7**. **Table 7** summarizes the associated LOS computation results for the Baseline weekday AM and PM peak hour conditions. As shown in **Table 7**, all of the study intersections would continue to have acceptable conditions under the Baseline scenario during the weekday AM and PM peak hours.

⁷ RSC Vallejo Traffic Impact Analysis, Abrams Associates Traffic Engineering, Walnut Creek, CA, October 23, 2023.

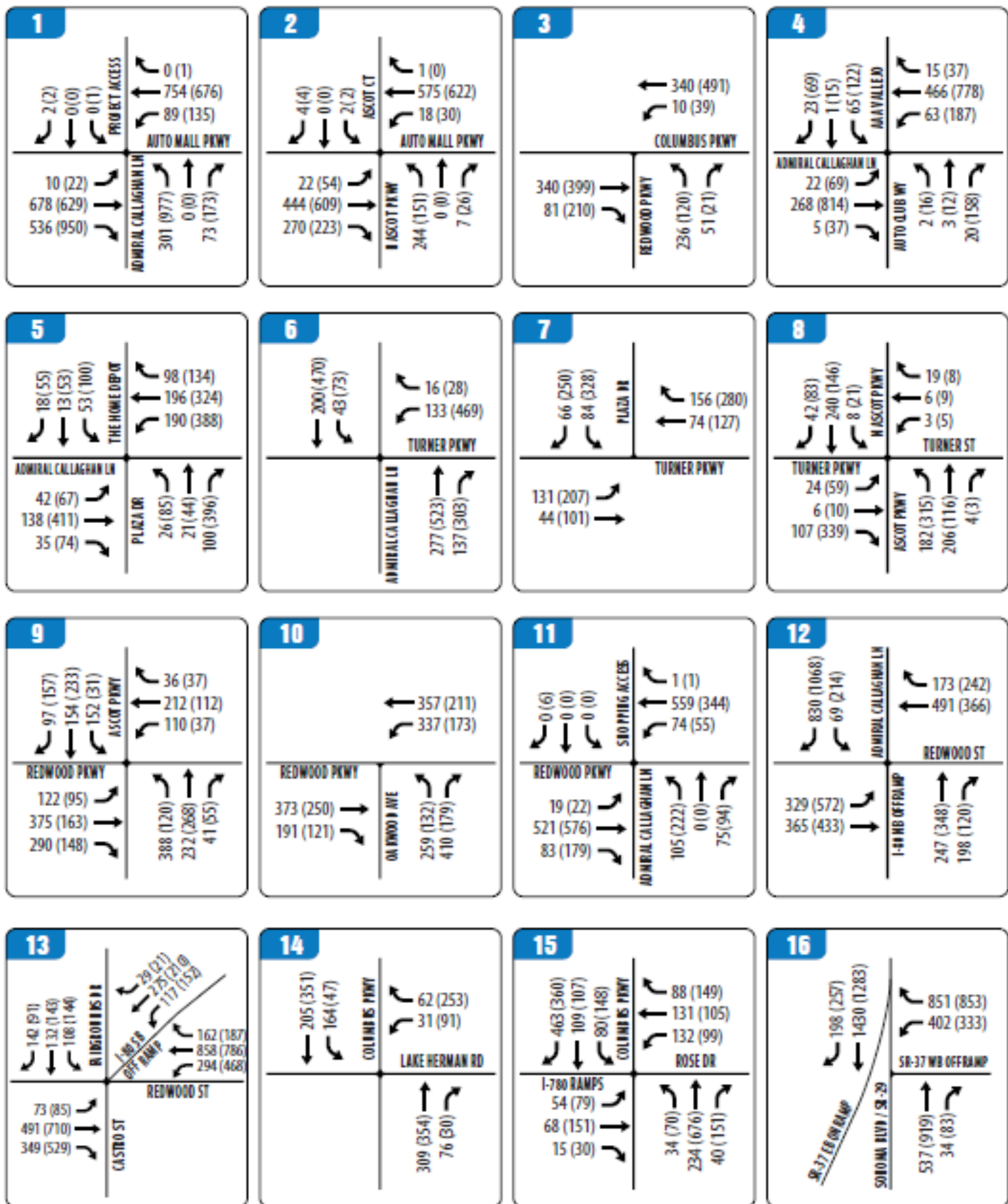


FIGURE 7 | BASELINE AM(PM) PEAK HOUR TRAFFIC VOLUMES
TRANSPORTATION IMPACT ANALYSIS

4.6 Baseline Plus Project Traffic Capacity Conditions (Scenario 4)

The Baseline plus proposed project traffic forecasts were developed by adding traffic from the project to the baseline traffic volumes. The traffic volumes for each of the study intersections for the Baseline Plus Project scenario are shown in **Figure 8**. **Table 7** summarizes the LOS results for the Baseline and Baseline Plus Project weekday AM and PM peak hour conditions. The corresponding LOS analysis calculation sheets are presented in the appendix to this report. As shown in **Table 7**, all of the study intersections would continue to have acceptable conditions under the Baseline Plus Project scenario during the weekday AM and PM peak hours. Please note this scenario represents average weekday conditions that assume there is no event being held at the proposed theater. Theater/Special Event conditions are analyzed in Section 4.12.

TABLE 7
BASELINE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

	INTERSECTION	CONTROL	PEAK HOUR	BASELINE		BASELINE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	AUTOMALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	12.7	B	20.0	B
			PM	22.5	C	54.2	D
2	AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY	Signalized	AM	12.1	B	12.2	B
			PM	12.3	B	12.4	B
3	COLUMBUS PARKWAY & REDWOOD PARKWAY	Signalized	AM	8.5	A	8.5	A
			PM	7.4	A	7.4	A
4	AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	8.3	A	8.3	A
			PM	17.3	B	18.1	B
5	PLAZA DRIVE & ADMIRAL CALLAGHAN LANE	Signalized	AM	16.0	B	16.3	B
			PM	44.6	D	53.7	D
6	TURNER PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	7.7	A	7.7	A
			PM	11.9	B	12.2	B
7	PLAZA DRIVE & TURNER PARKWAY	Signalized	AM	10.2	B	10.4	B
			PM	14.9	B	15.4	B
8	ASCOT PARKWAY & TURNER PARKWAY	Signalized	AM	14.1	B	14.1	B
			PM	22.0	C	22.4	C
9	ASCOT PARKWAY & REDWOOD PARKWAY	Signalized	AM	22.4	C	22.4	C
			PM	15.0	B	15.2	B
10	REDWOOD PARKWAY & OAKWOOD AVENUE	Signalized	AM	23.8	C	24.5	C
			PM	11.4	B	11.8	B
11	REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	9.1	A	9.2	A
			PM	12.2	B	12.7	B
12	ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	19.8	B	20.7	C
			PM	25.1	C	27.2	C
13	FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	32.2	C	45.9	D
			PM	33.0	C	33.9	C
14	COLUMBUS PARKWAY & LAKE HERMAN ROAD	Signalized	AM	8.6	A	8.8	A
			PM	10.4	B	10.8	B
15	COLUMBUS PARKWAY & ROSE DRIVE	Signalized	AM	18.5	B	18.6	B
			PM	22.4	C	22.7	C
16	SONOMA BOULEVARD (SR-29) & SR-37 WB OFFRAMP	Signalized	AM	24.8	C	26.1	C
			PM	19.7	B	21.4	C

SOURCE: Abrams Associates, 2024

NOTE: Delay results are presented in terms of seconds per vehicle.

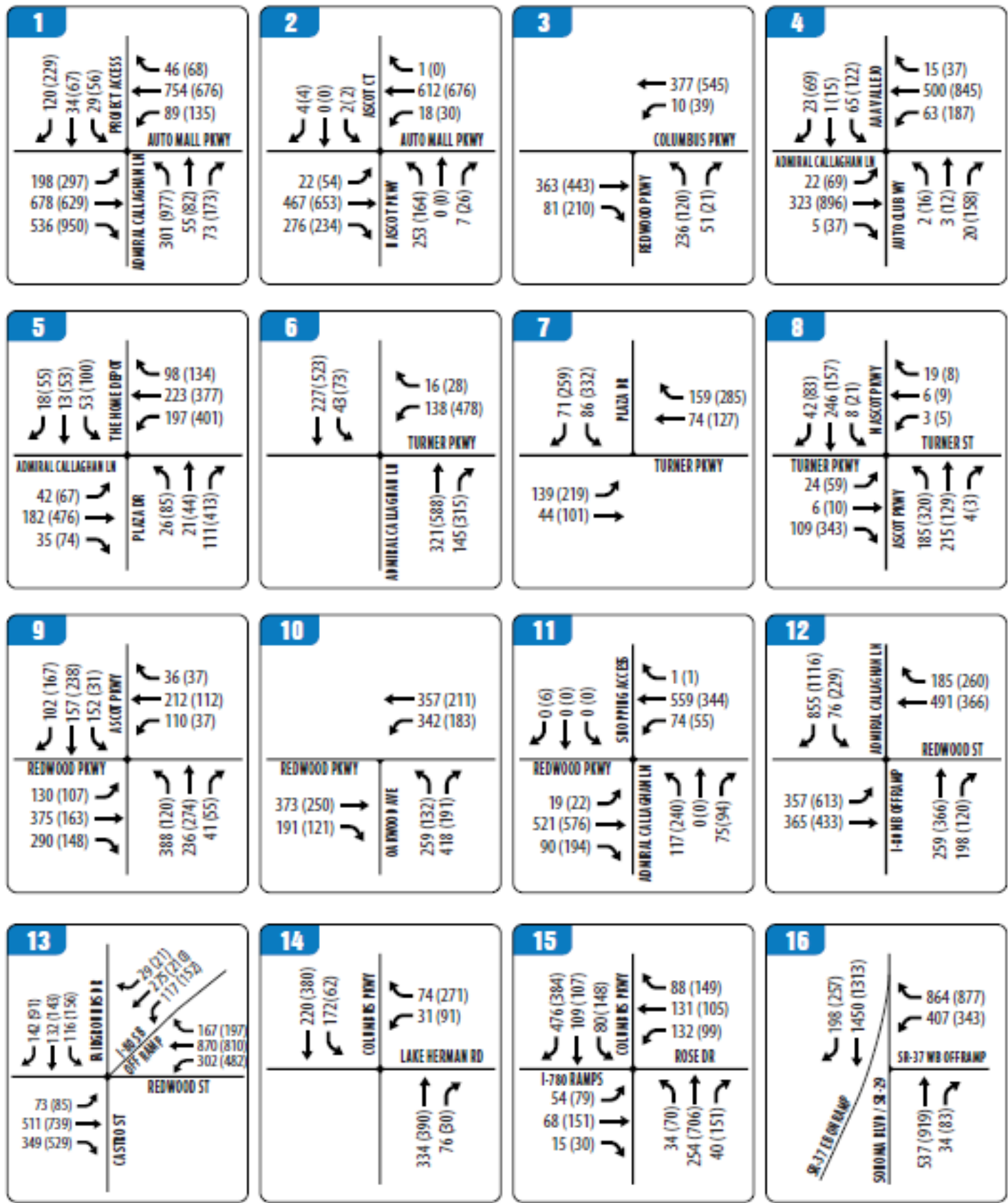


FIGURE 8 | BASELINE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES
 TRANSPORTATION IMPACT ANALYSIS

4.7 Baseline Plus Project Queuing Conditions

A review was conducted of the 95th percentile queue lengths, as determined with Synchro software, to determine if the existing plus project queue lengths exceed the storage provided at the project study intersections. The instance of a queue exceeding available storage is not in itself a significant impact as the City has no significance criteria for queuing. However, project-related operational effects on queuing at an intersection are reported if project generated traffic causes the forecast queues to extend beyond the existing available turn pocket storage by more than one vehicle. When turn pocket storage is exceeded, safety and sight distance are reviewed to determine if improvements are warranted.

Please note that queue lengths for all approaches to the project study intersections under this scenario are reported in the detailed LOS calculations included in the technical appendix to this report. Based on a review of the baseline plus project queue lengths there are three intersections where available storage is forecast to be exceeded during the AM and PM peak hours. As shown in **Table 8**, at the intersection of Auto Mall Parkway with Admiral Callaghan Lane (Intersection #1) the eastbound left turn pocket has about 230 feet of storage and the calculations indicate the existing plus project queue length is forecast to be about 394 feet during the PM peak hour. The project is also forecast to contribute to queues that already exceed existing storage on the northbound left turn from Admiral Callaghan Lane at Intersection #1, the westbound and southbound left turn movements at Intersection #5, and the southbound left turn movements at Intersection #13.

At Intersection #1 the queues would have the potential to create safety problems if they were to extend back into the SR 37/I-80 interchange. As discussed in Section 5.0, the proposed mitigation to address the queuing and intersection operations at Intersection #1 is to widen Auto Mall Parkway to provide for a dual eastbound left turn movement. In addition, a right turn overlap phase (i.e., a green arrow for southbound traffic turning right out of the site towards I-80) would also be required. As discussed in Section 5.0, the proposed mitigation to address the operations at Intersection #1 is to widen Auto Mall Parkway to provide for a dual eastbound left turn movement. In addition, a right turn overlap phase (i.e., a green arrow for southbound traffic turning right out of the site towards I-80) would also be required.

4.8 Cumulative Traffic Capacity Conditions (Scenario 5)

For the cumulative conditions, the intersection traffic volumes were based on the existing turning movements plus incremental 1% per year growth in background traffic based on the Solano Napa Activity Based Model and consistent with the most recent traffic study conducted in the area.⁸ Traffic was also added for planned projects in the area consistent with the traffic studies for those projects, including the RSC Vallejo Apartment Project and the Fairview at

⁸ *Fairview at Northgate Transportation Impact Analysis*, Fehr & Peers, Walnut Creek, CA, December, 2019.

**TABLE 8
BASELINE PEAK HOUR QUEUING ANALYSIS**

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95 th % Queue (ft)		
					No Project	With Project	Delta
1	Auto Mall Parkway / Columbus Parkway & Admiral Callaghan Lane	EBL	230 ft	AM	22	197	175
				PM	44	394	350
		WBL	215 ft	AM	93	108	15
				PM	178	193	15
		NBL	425 ft	AM	122	142	20
				PM	409	510	101
		SBL	100 ft	AM	0	49	49
				PM	7	85	78
5	Admiral Callaghan Lane & Plaza Drive	EBL	250 ft	AM	43	45	2
				PM	101	104	3
		WBL	250 ft	AM	122	133	11
				PM	403	466	63
		NBL	200 ft	AM	31	32	1
				PM	116	119	3
		SBL	100 ft	AM	50	52	2
				PM	132	136	4
13	Redwood Street & Fairgrounds Drive / I-80 Southbound Ramps	EBL	160 ft	AM	119	159	40
				PM	125	134	9
		WBL	285 ft	AM	170	174	4
				PM	256	263	7
		SBL	125 ft	AM	145	154	9
				PM	187	201	14
		SWBL	150 ft	AM	143	156	13
				PM	192	194	2

Northgate Project. In addition, the analysis of Intersections #12 and #13 accounts for future roadway improvements included as part of the planned Redwood Road Interchange Project.

Figure 9 presents the cumulative build-out traffic volumes for the project study intersections.

Table 9 summarizes the LOS results for the Cumulative (Year 2045) traffic conditions at each of the project study intersections. As shown on this table, the project study intersections would be forecast to continue to have acceptable conditions during the weekday AM and PM peak commute hours.

4.9 Cumulative Plus Project Traffic Capacity Conditions (Scenario 6)

Table 9 summarizes the LOS results for the Cumulative Plus Project (Year 2045) traffic conditions at each of the project study intersection. **Figure 10** presents the cumulative build-out traffic volumes including the traffic from the proposed project. As shown on this table, all of the signalized study intersections would continue to have acceptable conditions during the weekday

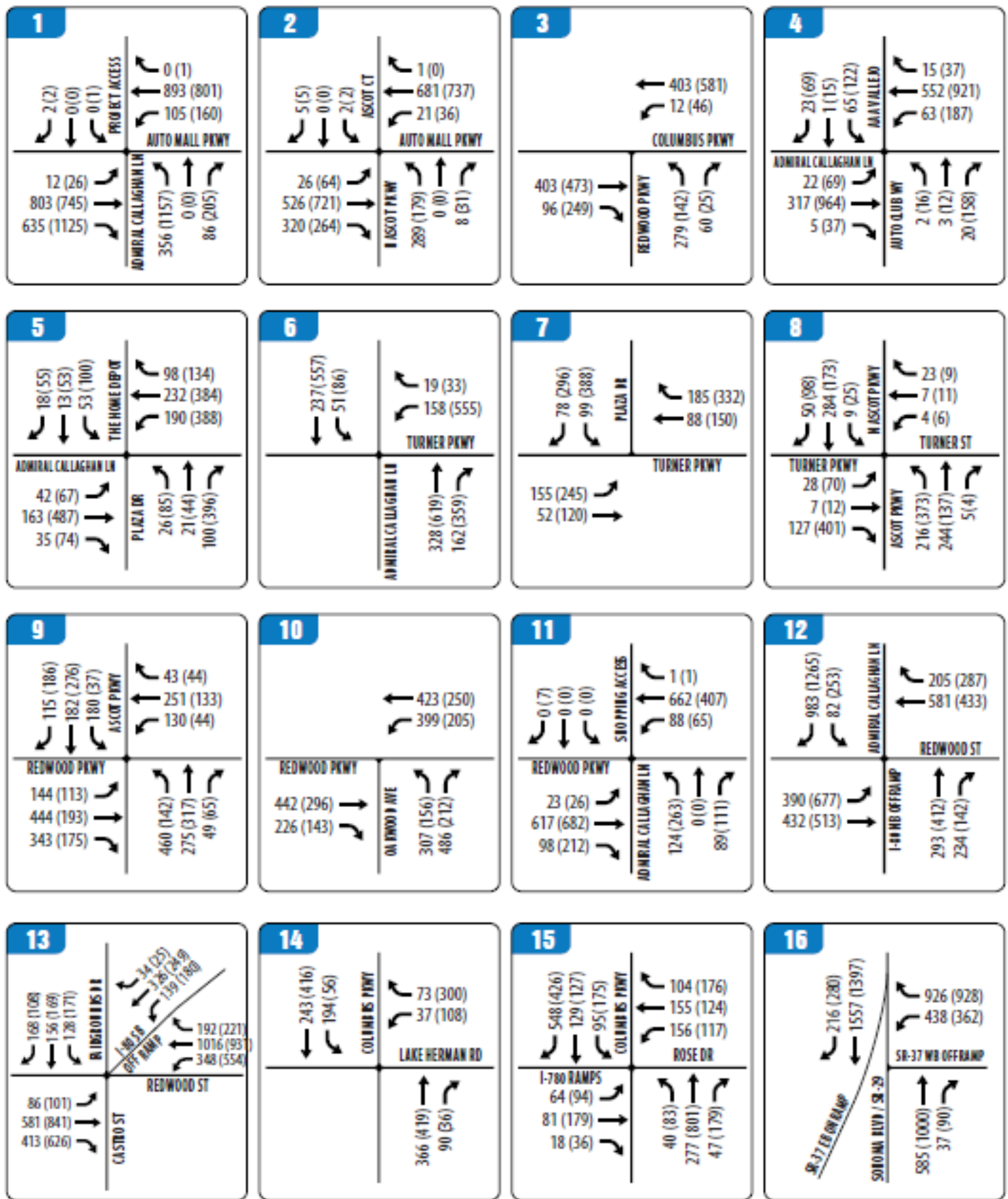


FIGURE 9 | CUMULATIVE AM(PM) PEAK HOUR TRAFFIC VOLUMES

TRANSPORTATION IMPACT ANALYSIS

Scotts Valley Development Project

City of Vallejo

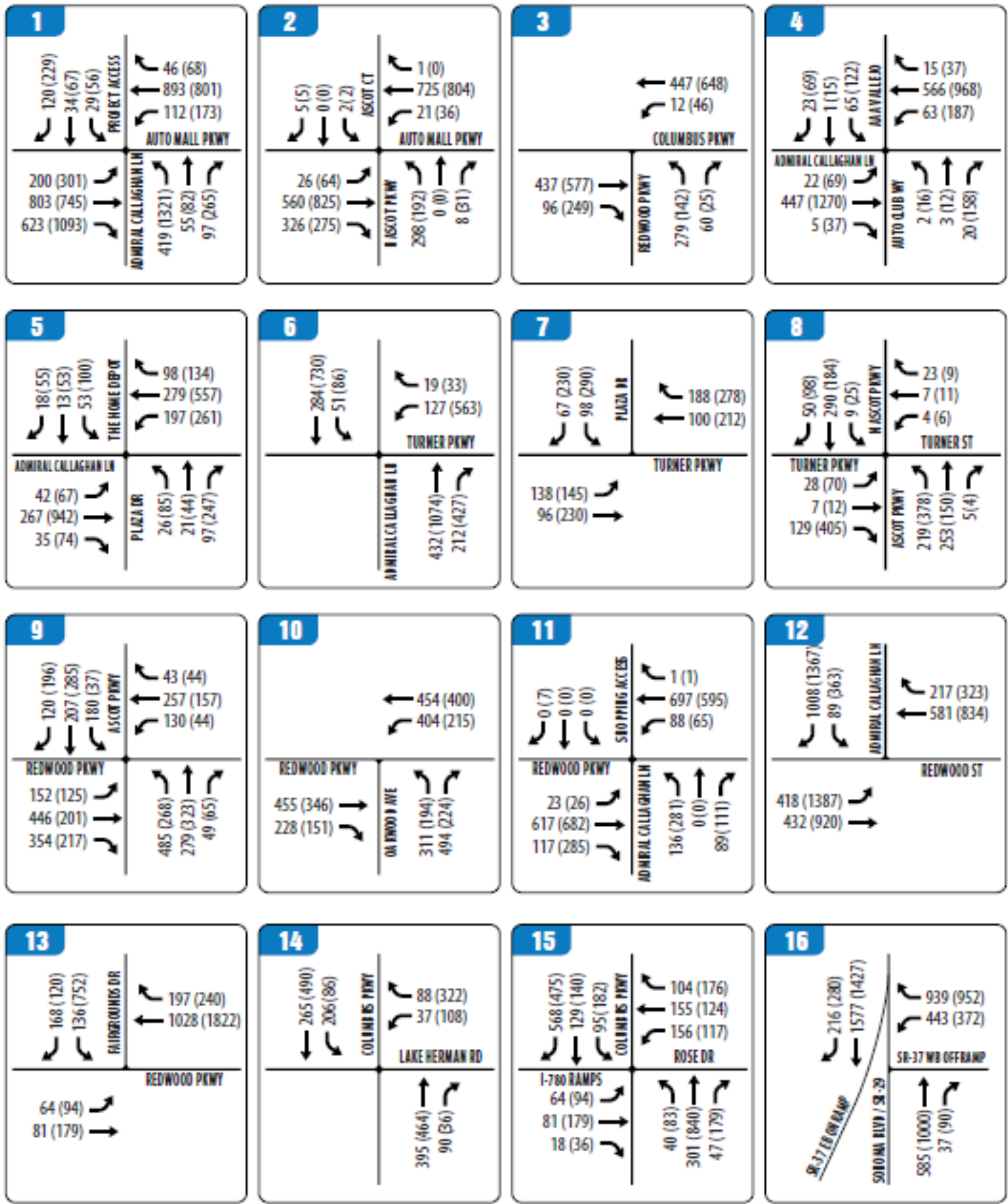


FIGURE 10 | CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES
 TRANSPORTATION IMPACT ANALYSIS

**TABLE 9
CUMULATIVE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS**

	INTERSECTION	CONTROL	PEAK HOUR	CUMULATIVE		CUMULATIVE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	AUTOMALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	14.0	B	21.4	C
			PM	32.0	C	73.9	E
2	AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY	Signalized	AM	12.8	B	13.0	B
			PM	13.0	B	13.2	B
3	COLUMBUS PARKWAY & REDWOOD PARKWAY	Signalized	AM	8.9	A	8.9	A
			PM	7.7	A	7.6	A
4	AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	8.3	A	8.3	A
			PM	22.3	C	24.0	C
5	PLAZA DRIVE & ADMIRAL CALLAGHAN LANE	Signalized	AM	16.1	B	16.4	B
			PM	32.4	C	37.3	D
6	TURNER PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	7.8	A	7.8	A
			PM	19.1	B	20.9	C
7	PLAZA DRIVE & TURNER PARKWAY	Signalized	AM	9.9	A	10.1	B
			PM	12.0	B	12.4	B
8	ASCOT PARKWAY & TURNER PARKWAY	Signalized	AM	14.9	B	14.9	B
			PM	28.1	C	28.8	C
9	ASCOT PARKWAY & REDWOOD PARKWAY	Signalized	AM	28.1	C	28.2	C
			PM	17.5	B	17.8	B
10	REDWOOD PARKWAY & OAKWOOD AVENUE	Signalized	AM	42.0	D	43.5	D
			PM	12.6	B	13.0	B
11	REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	9.8	A	10.0	B
			PM	14.5	B	15.2	B
12	ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	26.0	C	26.4	C
			PM	40.9	D	34.1	C
13	FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	31.2	C	31.2	C
			PM	65.8	E	31.0	C
14	COLUMBUS PARKWAY & LAKE HERMAN ROAD	Signalized	AM	9.2	A	9.5	A
			PM	11.3	B	11.8	B
15	COLUMBUS PARKWAY & ROSE DRIVE	Signalized	AM	21.6	C	21.8	C
			PM	29.4	C	30.2	C
16	SONOMA BOULEVARD (SR-29) & SR-37 WB OFFRAMP	Signalized	AM	33.9	C	35.8	D
			PM	26.5	C	28.9	C

SOURCE: Abrams Associates, 2024 **NOTE:** Delay results are presented in terms of seconds per vehicle.

peak hours. Please note this scenario represents average weekday conditions that assume there is no event being held at the proposed theater. Friday conditions are analyzed in Section 4.11 and Friday Theater/Special Event conditions are analyzed in Section 4.12.

4.10 Cumulative Plus Project Queuing Conditions

A review was conducted of the 95th percentile queue lengths, as determined with Synchro software, to determine if the existing plus project queue lengths exceed the storage provided at the project study intersections. The instance of a queue exceeding available storage is not in itself a significant impact as the City has no significance criteria for queuing. However, project-related operational effects on queuing at an intersection are reported if project generated traffic

causes the forecast queues to extend beyond the existing available turn pocket storage by more than one vehicle. When turn pocket storage is exceeded, safety and sight distance are reviewed to determine if improvements are warranted.

Please note that queue lengths for all approaches to the project study intersections under this scenario are reported in the detailed LOS calculations included in the technical appendix to this report. Based on a review of the cumulative plus project queue lengths there are three intersections where available storage is forecast to be exceeded during the AM and PM peak hours.

As shown in **Table 10**, at the intersection of Auto Mall Parkway with Admiral Callaghan Lane (Intersection #1) the eastbound left turn pocket has about 230 feet of storage and the calculations indicate the existing plus project queue length is forecast to be about 436 feet during the PM peak hour. As discussed in Section 5.0, the proposed mitigations to address the operations at this intersection are to widen Auto Mall Parkway to provide for a dual eastbound

**TABLE 10
CUMULATIVE PEAK HOUR QUEUING ANALYSIS**

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95 th % Queue (ft)		
					No Project	With Project	Delta
1	Auto Mall Parkway / Columbus Parkway & Admiral Callaghan Lane	EBL	230 ft	AM	22	193	171
				PM	42	403	361
		WBL	215 ft	AM	95	124	29
				PM	211	256	45
		NBL	425 ft	AM	135	180	45
				PM	444	660	216
		SBL	100 ft	AM	0	47	47
				PM	6	80	74
5	Admiral Callaghan Lane & Plaza Drive	EBL	250 ft	AM	45	46	1
				PM	99	101	2
		WBL	250 ft	AM	129	137	8
				PM	296	336	40
		NBL	200 ft	AM	32	33	1
				PM	114	116	2
		SBL	100 ft	AM	52	54	2
				PM	130	133	3
13	Redwood Street & Fairgrounds Drive / I-80 Southbound Ramps	EBL	160 ft	AM	100	101	1
				PM	125	125	0
		SBL	125 ft	AM	65	70	5
				PM	402	410	8

left turn movement. In addition, a right turn overlap phase (i.e., a green arrow for southbound traffic turning right out of the site towards I-80) would also be required. With the implementation of these mitigations the forecast queue for the eastbound left turn pocket under cumulative plus project conditions would be 219 feet.

The project is also forecast to contribute to queues that already exceed existing storage on the northbound and westbound left turns from Admiral Callaghan Lane at Intersection #1, the westbound and southbound left turn movements at Intersection #5, and the westbound and southbound left turn movements at Intersection #13. At Intersection #1 the queues would have the potential to create safety problems if they were to extend back into the SR 37/I-80 interchange. As discussed in Section 5.0, the proposed mitigation to address the queueing and intersection operations at Intersection #1 is to widen Auto Mall Parkway to provide for a dual eastbound left turn movement. In addition, a right turn overlap phase (i.e., a green arrow for southbound traffic turning right out of the site towards I-80) would also be required.

4.11 Friday Evening Cumulative Traffic Capacity Conditions

Traffic counts at all of the project study intersections were conducted from 4 PM to 10 PM on Friday, July 14th, 2023 and from 11:00 AM to 6:00 PM on Saturday July 15th, 2023. Saturday conditions were not analyzed as it was verified that the Friday evening counts provided the most conservative analysis because the counts indicated the Friday evening volumes were higher than the Saturday volumes at all of the project study intersections. The Friday evening peak hour recorded during the counts occurred from 5:00 PM to 6:00 PM. The same background and cumulative growth assumptions were applied but the project's trip generation was increased by 9% to account for Friday conditions, based on trip generation data from another recent casino study.⁹ A table presenting the Friday trip generation is included in the technical appendix to this report. **Table 11** summarizes the associated LOS computation results for cumulative Friday PM peak hour conditions with and without the proposed project.

Please note that the corresponding LOS analysis calculation sheets for all analysis scenarios are presented in the appendix to this report. Friday Evening cumulative and cumulative plus project conditions are presented in **Table 11**. As shown in **Table 11**, all project study intersections would continue to have acceptable operations (LOS E or better) under cumulative plus project conditions during the Friday PM peak hours.

⁹ *Traffic Evaluation of the Category 4 Casino*, David E. Wooster and Associates, Inc., Pittsburg, PA, February 25, 2021.

**TABLE 11
FRIDAY EVENING CUMULATIVE PLUS PROJECT INTERSECTION
LEVEL OF SERVICE CONDITIONS**

	INTERSECTION	CONTROL	FRIDAY CUMULATIVE		FRIDAY CUMULATIVE PLUS PROJECT	
			Delay	LOS	Delay	LOS
1	AUTOMALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	33.6	C	76.5	E
2	AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY	Signalized	12.8	B	13.0	B
3	COLUMBUS PARKWAY & REDWOOD PARKWAY	Signalized	7.6	A	7.5	A
4	AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE	Signalized	26.6	C	29.3	C
5	PLAZA DRIVE & ADMIRAL CALLAGHAN LANE	Signalized	36.6	D	43.1	D
6	TURNER PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	20.7	C	23.1	C
7	PLAZA DRIVE & TURNER PARKWAY	Signalized	13.1	B	13.5	B
8	ASCOT PARKWAY & TURNER PARKWAY	Signalized	29.1	C	30.0	C
9	ASCOT PARKWAY & REDWOOD PARKWAY	Signalized	19.2	B	19.6	B
10	REDWOOD PARKWAY & OAKWOOD AVENUE	Signalized	15.8	B	16.3	B
11	REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	14.3	B	15.0	B
12	ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET	Signalized	43.7	D	38.3	D
13	FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET	Signalized	70.6	E	73.3	E
14	COLUMBUS PARKWAY & LAKE HERMAN ROAD	Signalized	8.8	A	9.3	A
15	COLUMBUS PARKWAY & ROSE DRIVE	Signalized	27.1	C	27.6	C
16	SONOMA BOULEVARD (SR-29) & SR-37 WB OFFRAMP	Signalized	37.8	D	41.1	D

SOURCE: Abrams Associates, 2024

NOTE: Delay results are presented in terms of seconds per vehicle.

4.12 Friday Evening Concert/Special Event Traffic Capacity Conditions

The proposed conference/event space would be approximately 52,794 square feet and could accommodate a maximum of 2,500 guests. A table presenting the resulting trip generation forecasts for the theater and the detailed LOS calculations are included in the technical appendix to this report. The LOS analysis of special event conditions was based on a full capacity event with an average of 2.21 persons per vehicle and it was conservatively assumed that 80% of the pre-event theater traffic would occur during the PM peak commute hour. The trip generation forecasts for theater traffic are based on data from the Tachi Palace Hotel and Casino Expansion Traffic Impact Study.¹⁰

Table 12 summarizes the associated LOS computation results for the cumulative and cumulative plus project Friday PM peak hour conditions with a sold-out special event. Please note that the corresponding LOS analysis calculation sheets for all analysis scenarios are presented in the appendix to this report. For this analysis the results are presented in **Table 12**. As shown in this table, all of the signalized study intersections would continue to have acceptable conditions during the weekday peak hours, with the exception of Auto Mall Parkway at Admiral Callaghan Lane and the project entrance (Intersection #1). The addition of traffic from the proposed project (plus a full capacity event at the theater) would cause the level of service standard to be exceeded at this intersection. Mitigations to improve the operations at this intersection are discussed in Section 5.

4.13 Transit Impacts

The project would not result in degradation of the level of service (or a significant increase in delay) on any roadway segments currently being utilized by bus transit in the area and, as such, no significant impacts to bus transit are expected. Soltrans ridership was still (as of 2023) at only about 50% of pre-pandemic ridership.¹¹ Soltrans local routes use buses with approximately 40 seats (varying by a couple seats) and based on ridership surveys conducted on Thursday June 27, 2024 on the three routes that serve the site (Routes 7A, 7B, and 38) none of them are currently operating above 30% capacity. Therefore, the proposed project would not be expected to significantly impact the operating capacity any existing SolTrans bus routes. Although the proposed project does have the potential to increase patronage on bus lines in the area, no significant effects on transit capacity are anticipated given that the additional ridership would be added primarily in the non-peak directions. As a result, the project would not be expected to result in any significant impacts to bus transit service in the area.

¹⁰ *Tachi Palace Hotel and Casino Expansion Project Traffic Impact Study*, VRPA Technologies Inc., Fresno, CA, May, 2020. ⁵

¹¹ *SolTrans Short Range Transit Plan - 2022 Update*, Moore & Associates, Inc., Valencia, CA, 2022.

**TABLE 12
FRIDAY CUMULATIVE PLUS PROJECT AND SPECIAL EVENT INTERSECTION
LEVEL OF SERVICE CONDITIONS**

	INTERSECTION	CONTROL	FRIDAY CUMULATIVE		FRIDAY CUMULATIVE PLUS PROJECT PLUS THEATER	
			Delay	LOS	Delay	LOS
1	AUTOMALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	33.6	C	107.5	F
2	AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY	Signalized	12.8	B	13.1	B
3	COLUMBUS PARKWAY & REDWOOD PARKWAY	Signalized	7.6	A	7.4	A
4	AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE	Signalized	26.6	C	31.3	C
5	PLAZA DRIVE & ADMIRAL CALLAGHAN LANE	Signalized	36.6	D	47.8	D
6	TURNER PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	20.7	C	24.8	C
7	PLAZA DRIVE & TURNER PARKWAY	Signalized	13.1	B	13.8	B
8	ASCOT PARKWAY & TURNER PARKWAY	Signalized	29.1	C	30.1	C
9	ASCOT PARKWAY & REDWOOD PARKWAY	Signalized	19.2	B	19.8	B
10	REDWOOD PARKWAY & OAKWOOD AVENUE	Signalized	15.8	B	16.6	B
11	REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	14.3	B	15.4	B
12	ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET	Signalized	43.7	D	50.6	D
13	FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET	Signalized	70.6	E	73.5	E
14	COLUMBUS PARKWAY & LAKE HERMAN ROAD	Signalized	8.8	A	9.6	A
15	COLUMBUS PARKWAY & ROSE DRIVE	Signalized	27.1	C	27.9	C
16	SONOMA BOULEVARD (SR-29) & SR-37 WB OFFRAMP	Signalized	37.8	D	42.5	D

SOURCE: Abrams Associates, 2024

NOTE: Delay results are presented in terms of seconds per vehicle.

4.14 Pedestrians, Bicycles and Non-Motorized Vehicular Travel

The City does not have level of service standards for pedestrian or bicycle facilities. Nevertheless, use of existing facilities by the users of the project would not be expected to overcrowd those facilities or decrease their performance or safety. The project will add some pedestrians and bicyclists in the area but the volumes added would not be expected to significantly impact any existing facilities. In relation to the existing conditions, the proposed project would not cause substantial changes to the pedestrian or bicycle traffic in the area and would not significantly impact or require changes to the design of any existing bicycle or pedestrian facilities.

4.15 Site Access and Circulation

Based on the analysis of the proposed project with an event at the conference/event space, it was determined that excessive queuing could occur without improvements to the intersection of Auto Mall Parkway with Admiral Callaghan Lane and the proposed project entrance. At this intersection a dual eastbound left turn movement would be required for project ingress and a right turn overlap phase (a green arrow for traffic exiting the site towards I-80) would be required for egress to address the potential for significant on-site queuing after special events. The project would implement a Traffic Control Plan for any major special events at the theater. No other site circulation or access issues have been identified that would cause a traffic safety problem or any unusual traffic congestion or delay. Detailed LOS calculations for each of the project entrances under all scenarios are included in the appendix.

Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. The land use plan for the proposed project would include a main entrance on Auto Mall Parkway along with a secondary entrance for emergency vehicles only. All lane widths within the project would meet the minimum width that can accommodate an emergency vehicle; therefore, the width of the internal roadways would be adequate. In addition, with the above recommended improvements the addition of traffic from project traffic would not be forecast to result in any significant changes to emergency vehicle response times in the area. Therefore, subject to approval from the City and the fire department, the development of the proposed project is expected to have less-than-significant impacts regarding emergency vehicle access.

4.16 Parking

The proposed project would provide an adequate supply of off-street parking based on the City's requirements. The project is currently proposing to meet the City's parking requirements and based on a review of the proposed parking plan there would be no significant parking impacts expected to the surrounding properties.

4.17 Analysis of Alternative B – Reduced Intensity Alternative

Alternative B Trip Generation - This analysis evaluated the Reduced Intensity Alternative which consists of the same casino project but without the Tribal Housing and Offices. The proposed site plan for Alternative B is shown in **Figure 11**. The resulting trip generation calculations are shown in **Table 13**, using the trip generation methodology outlined in Section 4.1. The total trip generation reflects all vehicle trips at the project driveway.

**TABLE 13
REDUCED INTENSITY ALTERNATIVE TRIP GENERATION CALCULATIONS**

Land Use	Size	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Tribal Casino Trip Rates - Trips per Square Feet		38.31	1.30	0.77	2.07	1.90	1.55	3.45
Unadjusted Casino Trip Generation		9,128	311	182	493	452	370	822
Pass-By Traffic Reduction (10%)		913	31	18	49	45	37	82
Total Project Trip Generation	238,266 sq. ft.	8,215	280	164	444	407	333	740

For the purposes of determining the worst-case impacts on the surrounding streets, the trips generated by this proposed development are estimated for the peak commute hours of 8:00 a.m. to 9:00 a.m. and 4:30 p.m. to 5:30 p.m., representing the peak of “*adjacent street traffic*”. The Reduced Intensity Alternative is estimated to generate 444 a.m. peak-hour trips (280 inbound and 164 outbound) and 740 p.m. peak-hour trips (407 inbound and 333 outbound).

Alternative B Trip Distribution - The trip distribution assumptions have been based on the project’s proximity to the access freeway and other key travel routes in Solano County, the existing directional split at nearby intersections, and engineering judgement considering the overall land use patterns in the area. The distribution percentages assumed for Alternative B are the same as for the proposed project, which are presented in Figure A-1 in the technical appendix to this report. **Figure 12** shows the traffic that would be added at each of the study intersections under Alternative B.

Cumulative Plus Alternative B Traffic Capacity Conditions – **Table 14** summarizes the LOS results for the Cumulative Plus Project (Year 2045) traffic conditions at each of the project study are summarized in Table 14. **Figure 13** presents the cumulative build-out traffic volumes including the traffic from the Alternative B. As shown in **Table 14**, all of the study intersections would continue to have acceptable conditions during the cumulative weekday AM and PM peak commute hours. It should be noted that the cumulative scenario provides the most conservative analysis results and the existing and baseline scenarios were verified to also have no impacts.



FIGURE 11 | ALTERNATIVE B REDUCED INTENSITY ALTERNATIVE SITE PLAN

TRANSPORTATION IMPACT ANALYSIS

Scotts Valley Development Project

City of Vallejo



Abrams Associates
TRAFFIC ENGINEERING, INC.

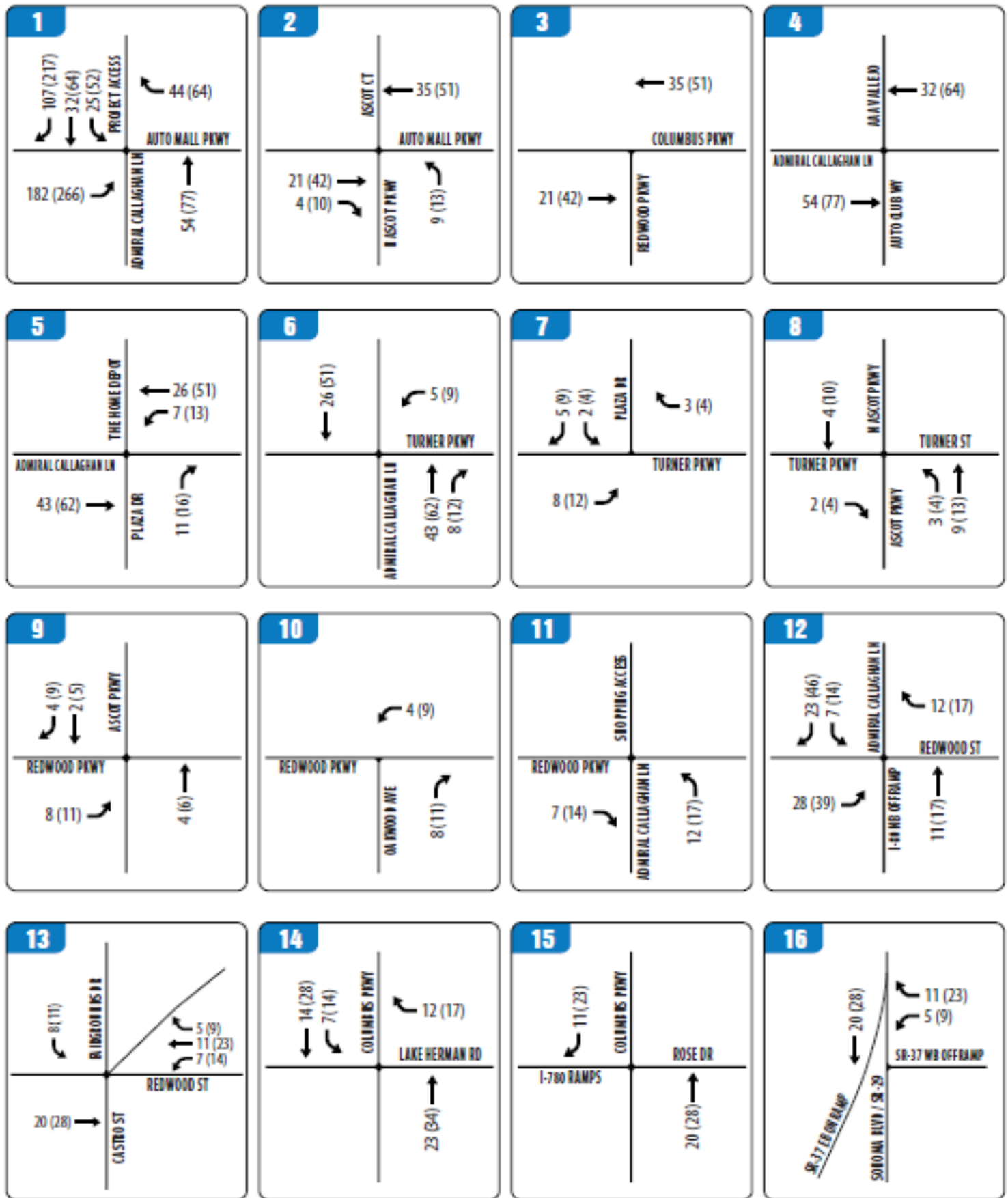


FIGURE 12 | ALTERNATIVE B AM(PM) PEAK HOUR TRIPS
 TRANSPORTATION IMPACT ANALYSIS
Scotts Valley Development Project
 City of Vallejo

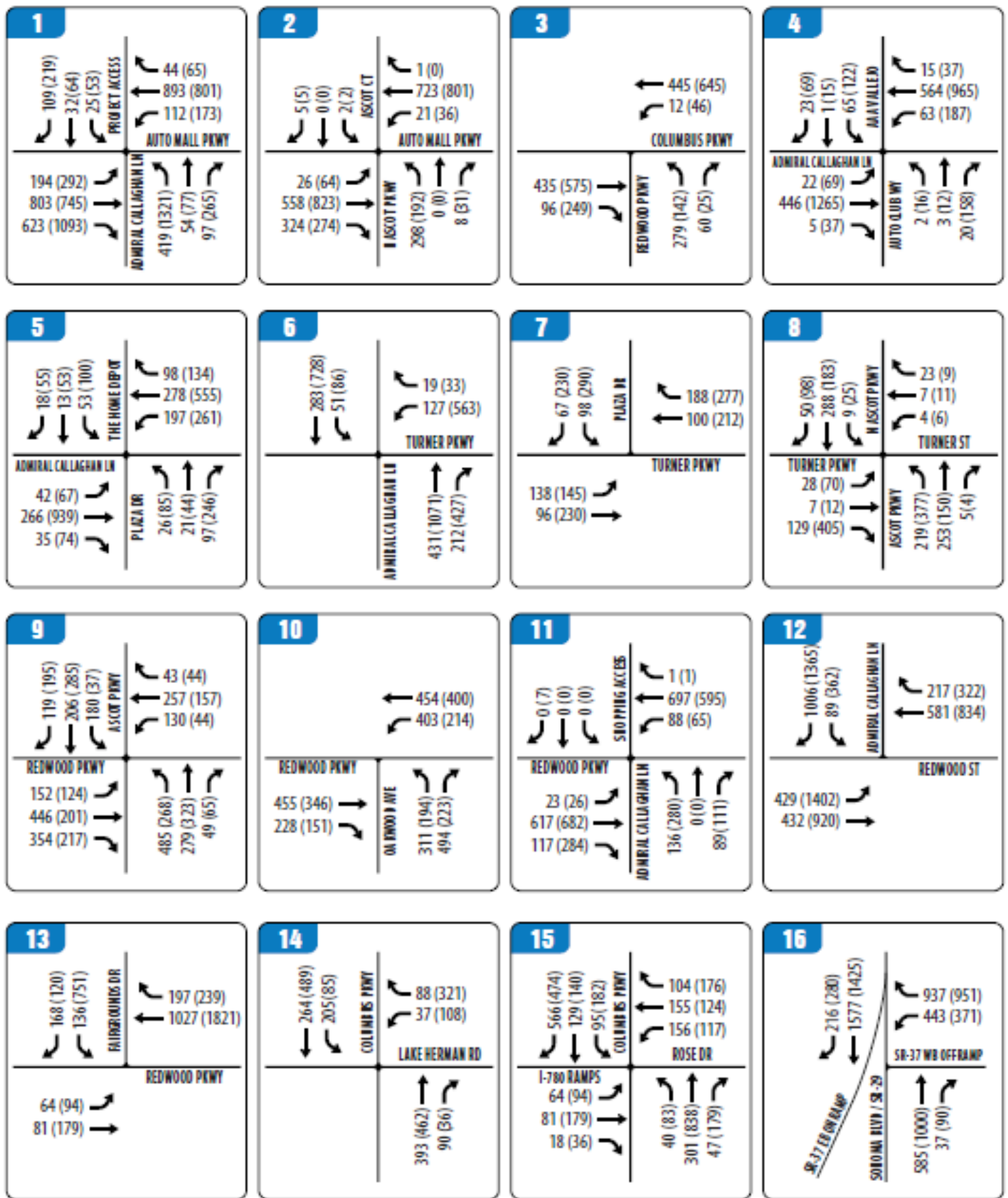


FIGURE 13 | ALT B CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES
TRANSPORTATION IMPACT ANALYSIS

TABLE 14
CUMULATIVE PLUS ALTERNATIVE B INTERSECTION LEVEL OF SERVICE CONDITIONS

	INTERSECTION	CONTROL	PEAK HOUR	CUMULATIVE		CUMULATIVE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	AUTOMALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	14.0	B	21.4	C
			PM	32.0	C	73.9	E
2	AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY	Signalized	AM	12.8	B	13.0	B
			PM	13.0	B	13.2	B
3	COLUMBUS PARKWAY & REDWOOD PARKWAY	Signalized	AM	8.9	A	8.9	A
			PM	7.7	A	7.6	A
4	AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	8.3	A	8.3	A
			PM	22.3	C	24.0	C
5	PLAZA DRIVE & ADMIRAL CALLAGHAN LANE	Signalized	AM	16.1	B	16.4	B
			PM	32.4	C	37.3	D
6	TURNER PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	7.8	A	7.8	A
			PM	19.1	B	20.9	C
7	PLAZA DRIVE & TURNER PARKWAY	Signalized	AM	9.9	A	10.1	B
			PM	12.0	B	12.4	B
8	ASCOT PARKWAY & TURNER PARKWAY	Signalized	AM	14.9	B	14.9	B
			PM	28.1	C	28.8	C
9	ASCOT PARKWAY & REDWOOD PARKWAY	Signalized	AM	28.1	C	28.2	C
			PM	17.5	B	17.8	B
10	REDWOOD PARKWAY & OAKWOOD AVENUE	Signalized	AM	42.0	D	43.5	D
			PM	12.6	B	13.0	B
11	REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	9.8	A	10.0	B
			PM	14.5	B	15.2	B
12	ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	26.0	C	26.4	C
			PM	40.9	D	34.1	C
13	FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	31.2	C	31.2	C
			PM	65.8	E	31.0	C
14	COLUMBUS PARKWAY & LAKE HERMAN ROAD	Signalized	AM	9.2	A	9.5	A
			PM	11.3	B	11.8	B
15	COLUMBUS PARKWAY & ROSE DRIVE	Signalized	AM	21.6	C	21.8	C
			PM	29.4	C	30.2	C
16	SONOMA BOULEVARD (SR-29) & SR-37 WB OFFRAMP	Signalized	AM	33.9	C	35.8	D
			PM	26.5	C	28.9	C

SOURCE: Abrams Associates, 2024

NOTE: Delay results are presented in terms of seconds per vehicle.

4.18 Analysis of Alternative C – Non-Gaming Alternative

Alternative C Trip Generation - This analysis also included evaluation of a development alternative that would involve construction of 50 tribal residences and three Tribal administration buildings with a total of 23,353 square feet of building space. This alternative would also include two commercial buildings with a total of 129,702 square feet of building space and two hotel buildings with a total of 264 hotel rooms. The proposed site plan for Alternative C is shown in **Figure 14**. The resulting trip generation calculations are shown in **Table 15**, using the trip generation methodology outlines in Section 4.1. For the hotel and shopping center uses the peak hour trip generation was based on trip rates published in Institute of Transportation Engineers (ITE) Trip Generation Manual (Eleventh Edition, 2021).

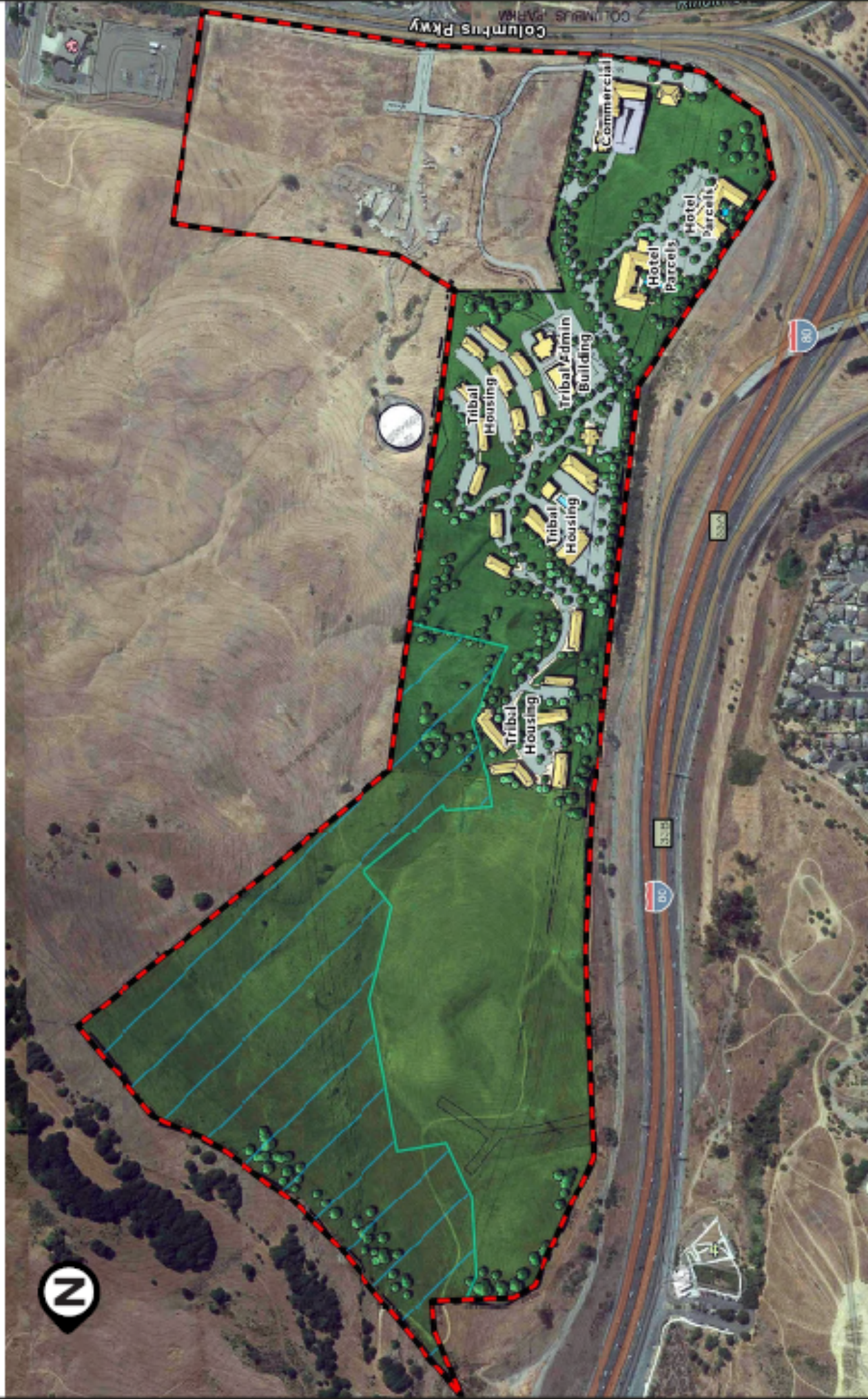


FIGURE 14 | ALTERNATIVE C NON GAMING ALTERNATIVE SITE PLAN

TRANSPORTATION IMPACT ANALYSIS

Scotts Valley Development Project

City of Vallejo



Abrams Associates
TRAFFIC ENGINEERING, INC.

**TABLE 15
NON-GAMING ALTERNATIVE TRIP GENERATION CALCULATIONS**

Land Use	Size	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
ITE Single Family Detached Housing Trip Rates - Trips per Unit		7.92	0.18	0.59	0.77	0.53	0.31	0.84
Tribal Housing Trip Generation	50 units	396	9	30	39	26	16	42
ITE General Office Building Trip Rates - Trips per Unit		15.20	0.84	0.11	0.95	0.40	1.96	2.36
Tribal Offices Trip Generation		355	19	3	22	9	46	55
Shared Traffic Reduction (50%)		177	10	1	11	5	23	28
Net New Off-Site Tribal Offices Trip Generation	23,353 sq. ft.	177	10	1	11	5	23	28
ITE Shopping Center Trip Rates - Trips per Unit		67.52	0.80	0.93	1.73	2.54	2.65	5.19
Commercial Trip Generation		8,757	104	120	224	330	343	673
Pass-By Traffic Reduction (34%)		5,780	68	79	148	218	227	444
Net New Off-Site Commercial Trip Generation	129,702 sq. ft.	2,978	69	55	124	85	81	166
ITE Hotel Trip Rates - Trips per Room		9.24	0.26	0.21	0.47	0.32	0.31	0.63
Hotel Trip Generation		2,439	69	55	124	85	81	166
Total Project Trip Generation		5,990	123	126	249	228	237	465

The pass-by reduction for the shopping center was based on the standard reduction as specified in the ITE Trip Generation Handbook (3rd, Edition, September, 2017). The total trip generation reflects all vehicle trips that would be counted at the project driveway. For the purposes of determining the worst-case impacts on the surrounding streets, the trips generated by this proposed development are estimated for the peak commute hours of 8:00 a.m. to 9:00 a.m. and 4:30 p.m. to 5:30 p.m., representing the peak hours of “*adjacent street traffic*”. The Reduced Intensity Alternative is estimated to generate a total of 249 a.m. peak-hour trips (123 inbound and 126 outbound) and 465 p.m. peak-hour trips (228 inbound and 237 outbound).

Alternative C Trip Distribution - The trip distribution assumptions have been based on the project's proximity to the access freeway and other key travel routes in Solano County, the existing directional split at nearby intersections, and engineering judgement considering the overall land use patterns in the area. The distribution percentages assumed for Alternative B are the same as for the proposed project, which are presented in Figure A-1 in the technical appendix to this report. **Figure 15** shows the traffic that would be added at each of the study intersections under Alternative C.

Cumulative Plus Alternative C Traffic Capacity Conditions - The LOS results for the Cumulative Plus Project (Year 2045) traffic conditions at each of the project study intersections are summarized in **Table 16**. **Figure 16** presents the cumulative build-out traffic volumes including the traffic from the Alternative C. As shown in **Table 16**, all of the study intersections would continue to have acceptable conditions during the cumulative weekday AM and PM peak commute hours. It should be noted that the cumulative scenario provides the most conservative analysis results and the existing and baseline scenarios were verified to also have no impacts.

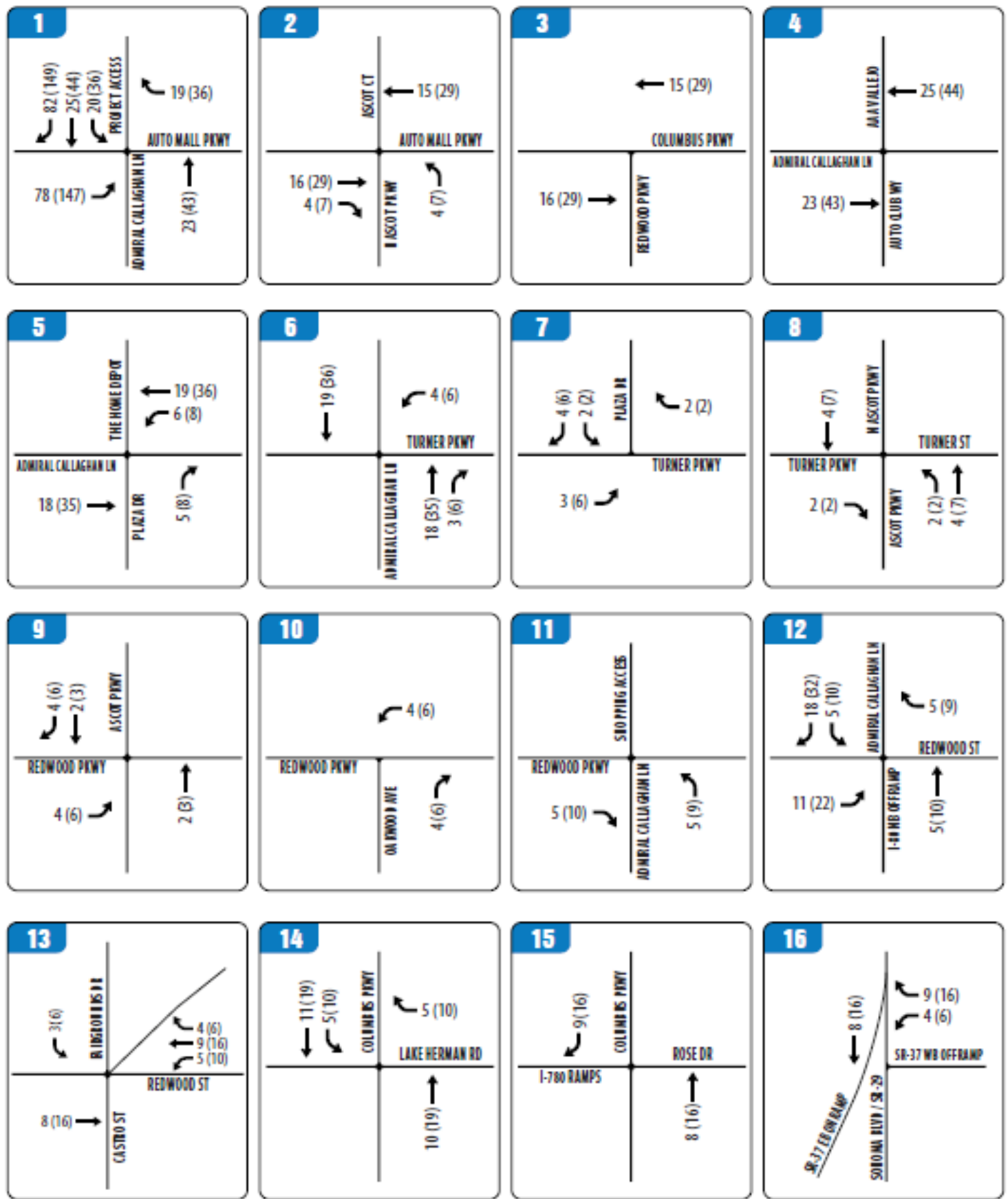


FIGURE 15 | ALTERNATIVE C AM(PM) PEAK HOUR TRIPS
 TRANSPORTATION IMPACT ANALYSIS
Scotts Valley Development Project
 City of Vallejo

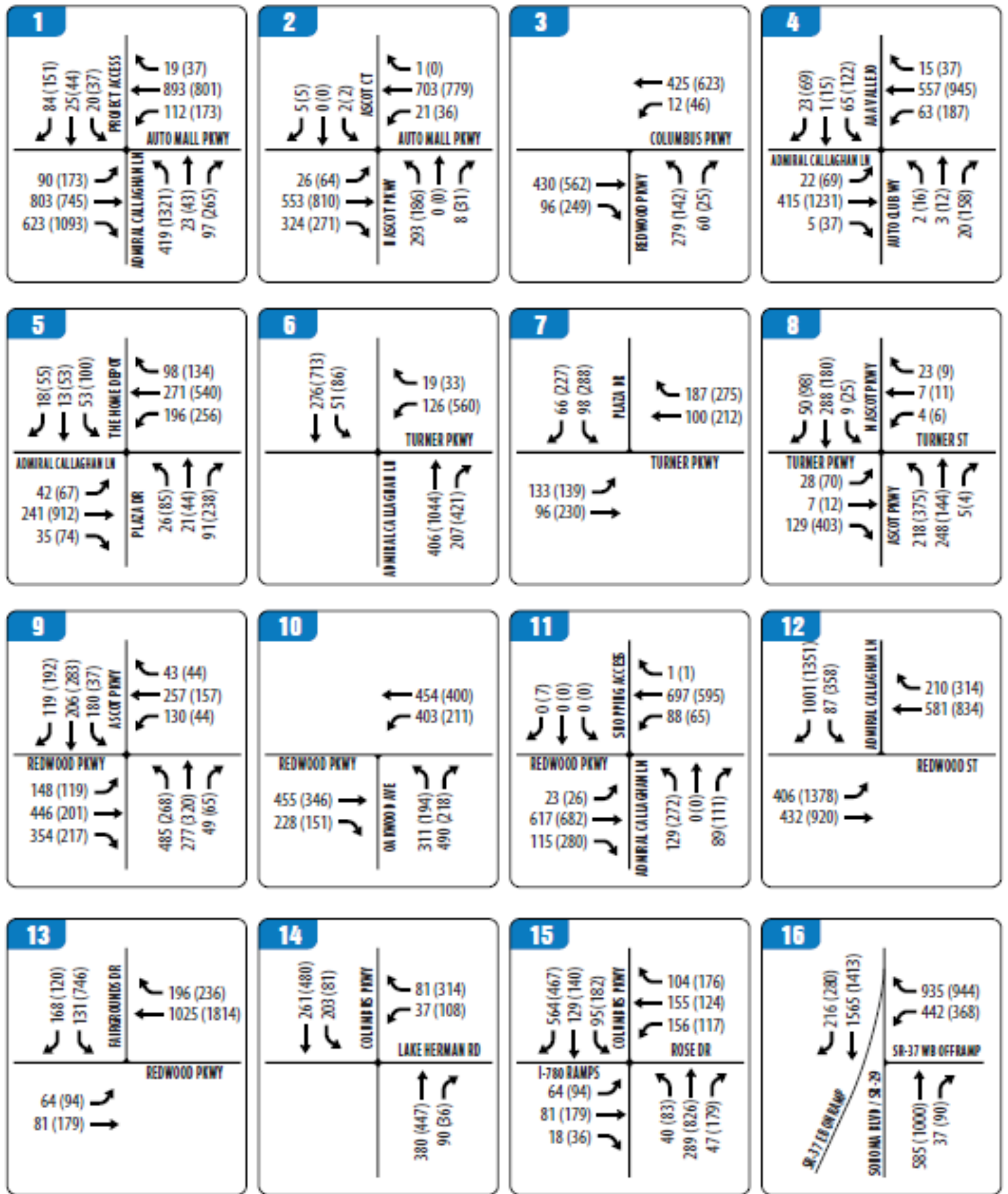


FIGURE 16 | ALT C CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES
TRANSPORTATION IMPACT ANALYSIS

TABLE 16
CUMULATIVE PLUS ALTERNATIVE C INTERSECTION LEVEL OF SERVICE CONDITIONS

	INTERSECTION	CONTROL	PEAK HOUR	CUMULATIVE		CUMULATIVE PLUS ALT C	
				Delay	LOS	Delay	LOS
1	AUTOMALL / COLUMBUS PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	14.0	B	18.6	B
			PM	32.0	C	53.1	D
2	AUTOMALL / COLUMBUS PARKWAY & N ASCOT PARKWAY	Signalized	AM	12.8	B	12.9	B
			PM	13.0	B	13.1	B
3	COLUMBUS PARKWAY & REDWOOD PARKWAY	Signalized	AM	8.9	A	8.9	A
			PM	7.7	A	7.6	A
4	AUTO CLUB WAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	8.3	A	8.2	A
			PM	22.3	C	23.1	C
5	PLAZA DRIVE & ADMIRAL CALLAGHAN LANE	Signalized	AM	16.1	B	16.2	B
			PM	32.4	C	34.9	C
6	TURNER PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	7.8	A	8.0	A
			PM	19.1	B	20.1	C
7	PLAZA DRIVE & TURNER PARKWAY	Signalized	AM	9.9	A	11.0	B
			PM	12.0	B	12.2	B
8	ASCOT PARKWAY & TURNER PARKWAY	Signalized	AM	14.9	B	14.9	B
			PM	28.1	C	28.5	C
9	ASCOT PARKWAY & REDWOOD PARKWAY	Signalized	AM	28.1	C	28.1	C
			PM	17.5	B	17.6	B
10	REDWOOD PARKWAY & OAKWOOD AVENUE	Signalized	AM	42.0	D	42.9	D
			PM	12.6	B	12.8	B
11	REDWOOD PARKWAY & ADMIRAL CALLAGHAN LANE	Signalized	AM	9.8	A	9.9	A
			PM	14.5	B	14.9	B
12	ADMIRAL CALLAGHAN LANE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	26.0	C	26.3	C
			PM	40.9	D	43.9	D
13	FAIRGROUNDS DRIVE / I-80 OFFRAMP & REDWOOD STREET	Signalized	AM	31.2	C	31.2	C
			PM	65.8	E	67.5	E
14	COLUMBUS PARKWAY & LAKE HERMAN ROAD	Signalized	AM	9.2	A	9.3	A
			PM	11.3	B	11.6	B
15	COLUMBUS PARKWAY & ROSE DRIVE	Signalized	AM	21.6	C	21.8	C
			PM	29.4	C	28.8	C
16	SONOMA BOULEVARD (SR-29) & SR-37 WB OFFRAMP	Signalized	AM	33.9	C	34.9	C
			PM	26.5	C	27.9	C

SOURCE: Abrams Associates, 2024

NOTE: Delay results are presented in terms of seconds per vehicle.

5) MITIGATION

The following is a summary of the proposed mitigation measures to address the transportation impacts of the project. Based on a detailed analysis of traffic operations with and without each of the proposed mitigations, implementation of the following mitigation measures would reduce some of the project impacts to a *less-than-significant* level.

Impact #1 Impacts to intersection operations - The project would contribute to LOS operations exceeding the established standards at the following intersection under future Friday conditions (Significant and Unavoidable):

Auto Mall Parkway at Admiral Callaghan Lane (Intersection #1)

The addition of traffic from the proposed project would contribute to this intersection exceeding the established LOS standards. The proposed mitigation (MM 1) would be required for the anticipated 2028 opening of the project, and would also be required for a 2028 opening of the project under Alternative B. For Alternative C, no LOS or queuing impacts were identified for the existing and baseline scenarios. However, mitigation measure #1 would still be required to address queuing under Cumulative Plus Project conditions for Alternative C. The proposed mitigation measure would be forecast to sufficiently mitigate both the LOS and queuing to acceptable levels in all plus project scenarios.

Mitigation Measures

MM 1 Auto Mall Parkway at Admiral Callaghan Lane and the Proposed Project Entrance – Widen Auto Mall Parkway to provide for a dual eastbound left turn movement. At this intersection a right turn overlap phase (i.e., a green arrow for southbound traffic turning right out of the site towards I-80) would also be required for traffic to exit the site efficiently. This mitigation is required for all alternatives except for Alternative C, where it is only required for cumulative plus project conditions.

Impact #2 Impacts related to conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or potential decreases to the performance or safety of such facilities.

The project would not result in degradation of the level of service (or a significant increase in delay) on any roadways currently being utilized by bus transit in the area and would not increase ridership beyond existing capacity. Soltrans local routes use buses with approximately 40 seats (varying by a couple seats) and based on surveys conducted of ridership on the three routes that serve the site

(Routes 7A, 7B, and 38) none of them are currently operating above 50% capacity. As such, no significant impacts to bus transit are expected. In addition, the project would not significantly impact or change the design of any existing transportation facility or create any new safety problems in the area. Therefore, the project's impacts on alternative transportation would be considered less than significant and no mitigations would be required.

Mitigation Measure(s)

None required.

Impact #3 Demolition and construction activities associated with the proposed project would result in an increase in traffic to and from the site and could lead to unsafe conditions near the project site.

The increase in traffic as a result of demolition and construction activities associated with the proposed project has been quantified assuming a worst-case single phase construction period of 18 months.

Heavy Equipment

Approximately 30 truck trips per day are estimated throughout the demolition and construction of the proposed project. Heavy equipment transport to and from the site could cause traffic impacts in the vicinity of the project site during construction. The project would implement a Traffic Control Plan. The requirements within the Traffic Control Plan include, but are not limited to, the following: truck drivers would be notified of and required to use the most direct routes; all site ingress and egress would occur only at the main driveway to the project site and construction activities may require installation of temporary traffic signals; specifically designated travel routes for large vehicles would be monitored and controlled by flaggers for large construction vehicle ingress and egress; warning signs indicating frequent truck entry and exit would be posted on Auto Mall Parkway; and any debris and mud on nearby streets caused by trucks would be monitored daily and may require instituting a street cleaning program. In addition, the ten loads of heavy equipment being hauled to and from the site each month would be short-term and temporary and, with implementation of a traffic control plan, the resulting impacts would therefore be considered less than significant.

Employees

The weekday work is expected to begin around 7:00 AM and end around 4:00 PM. The construction worker arrival peak would occur between 6:30 AM and 7:30 AM, and the departure peak would occur between 4:00 PM and 5:00 PM. These peak hours are slightly before the countywide commute peaks. It should be noted that

the number of trips generated during construction would not only be temporary, but would also be substantially less than the proposed project at buildout. Based on estimates of the number of construction workers (about 500), it is conservatively assumed the project could require parking for up to 500 worker vehicles during the peak construction period. Additionally, deliveries, visits, and other activities may generate peak non-worker parking demand of 40 to 50 trucks and automobiles per day. Therefore, up to 550 vehicle parking spaces may be required during the peak construction period for the construction employees. Because the construction of the project can be staged so that employee parking demand is met by using on-site parking, the impacts of construction-related employee traffic and parking are considered less-than-significant.

Construction Material Import/Export

The project would also require removal of existing debris as well as the importation of construction material, including raw materials for the building pads, the buildings, the parking area, and landscaping. During the maximum peak construction period, it is estimated material import and export could generate approximately 100 truck trips per day. These trips would be short-term and temporary and, with implementation of a traffic control plan, the resulting impacts would therefore be considered less than significant.

Traffic Control Plan

The Traffic Control Plan would indicate how parking for construction workers would be provided during construction to ensure a safe flow of traffic in the project area during construction. This analysis assumed construction of the entire project in one phase to identify the potential worst-case traffic effects. If the project is built in phases over time, the effects of each phase will be the same or less. Therefore, the demolition and construction activities associated with the proposed project or its individual phases would not lead to noticeable congestion in the vicinity of the site or the perception of decreased traffic safety resulting in a ***less-than-significant*** impact.

Mitigation Measure(s)

None required.

Impact #4 Impacts related to site access and circulation.

Based on the analysis of the proposed project under Friday conditions, it was determined that excessive queuing could occur without improvements to at the project entrance intersection with Auto Mall Parkway and Admiral Callaghan Lane. The queuing analysis for Alternatives B and C (included in the technical appendix)

verified that this queuing problem would also occur with both of the alternatives. The queuing problem was identified to occur under all scenarios for Alternative B, but it would only be required under cumulative conditions for Alternative C. The recommended improvement includes widening Auto Mall Parkway to allow for a dual westbound left turn movement into the site and a right turn overlap phase (a green arrow for traffic leaving the site towards I-80). This mitigation would address both the LOS impacts and also the potential for queuing problems before and after special events. The project would implement a Traffic Control Plan for any major special events at the theater. No other site circulation or access issues have been identified that would cause a traffic safety problem or any unusual traffic congestion or delay. Detailed LOS calculations for the project entrance under all scenarios are included in the technical appendix.

Mitigation Measure(s)

MM 1 (a) Auto Mall Parkway at Admiral Callaghan Lane and the Proposed Project Entrance – Widen Auto Mall Parkway to provide for a dual eastbound left turn movement. At this intersection a right turn overlap phase (i.e., a green arrow for southbound traffic turning right out of the site towards I-80) would also be required for traffic to exit the site efficiently.

Impact #5 Impacts regarding emergency vehicle access on and surrounding the proposed project site.

Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. The land use plan for the proposed project includes a main entrance and a secondary entrance on Auto Mall Parkway. All lane widths within the project would meet the minimum width (10 feet) that can accommodate an emergency vehicle; therefore, the width of the internal roadways would be adequate. In addition, with the proposed mitigations the addition of traffic from project traffic would not result in any significant changes to emergency vehicle response times in the area. Therefore, development of the project is expected to have **less-than-significant** impacts regarding emergency vehicle access.

Mitigation Measure(s)

None required.



Transportation Impact Analysis Technical Appendix

Scotts Valley Development Project

City of Vallejo

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Abrams Associates
TRAFFIC ENGINEERING, INC.

July 3, 2024

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- 6.) Queuing Analysis
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- 8.) HCM 6th Edition Synchro Level of Service Results
 - Weekday Existing Conditions
 - Weekday Baseline Conditions
 - Weekday Cumulative Conditions
 - Friday Conditions
 - Friday + Event Conditions
 - Alternative B Cumulative Conditions
 - Alternative C Cumulative Conditions



FIGURE A1 | PROJECT TRIP DISTRIBUTION
 TRANSPORTATION IMPACT ANALYSIS
Scotts Valley Development Project
 City of Vallejo

**TABLE A1
FRIDAY TRIP GENERATION CALCULATIONS**

Land Use	Size	PM Peak Hour		
		In	Out	Total
Tribal Casino Trip Rates - Trips per Square Foot		2.07	1.69	3.76
Unadjusted Casino Trip Generation	238,266 sq. ft.	493	403	896
Pass-By Traffic Reduction (10%)		50	40	90
Net New Off-Site Casino Trip Generation		50	40	90
ITE Single Family Detached Housing Trip Rates - Trips per Unit		0.60	0.35	0.95
Tribal Housing Trip Generation	24 units	15	8	23
ITE General Office Building Trip Rates - Trips per Square Foot		0.40	1.96	2.36
Tribal Offices Trip Generation	12,555 sq. ft.	5	25	30
Shared Traffic Reduction (50%)		3	12	15
Net New Off-Site Tribal Offices Trip Generation		2	13	15
Total Project Trip Generation		460	384	844

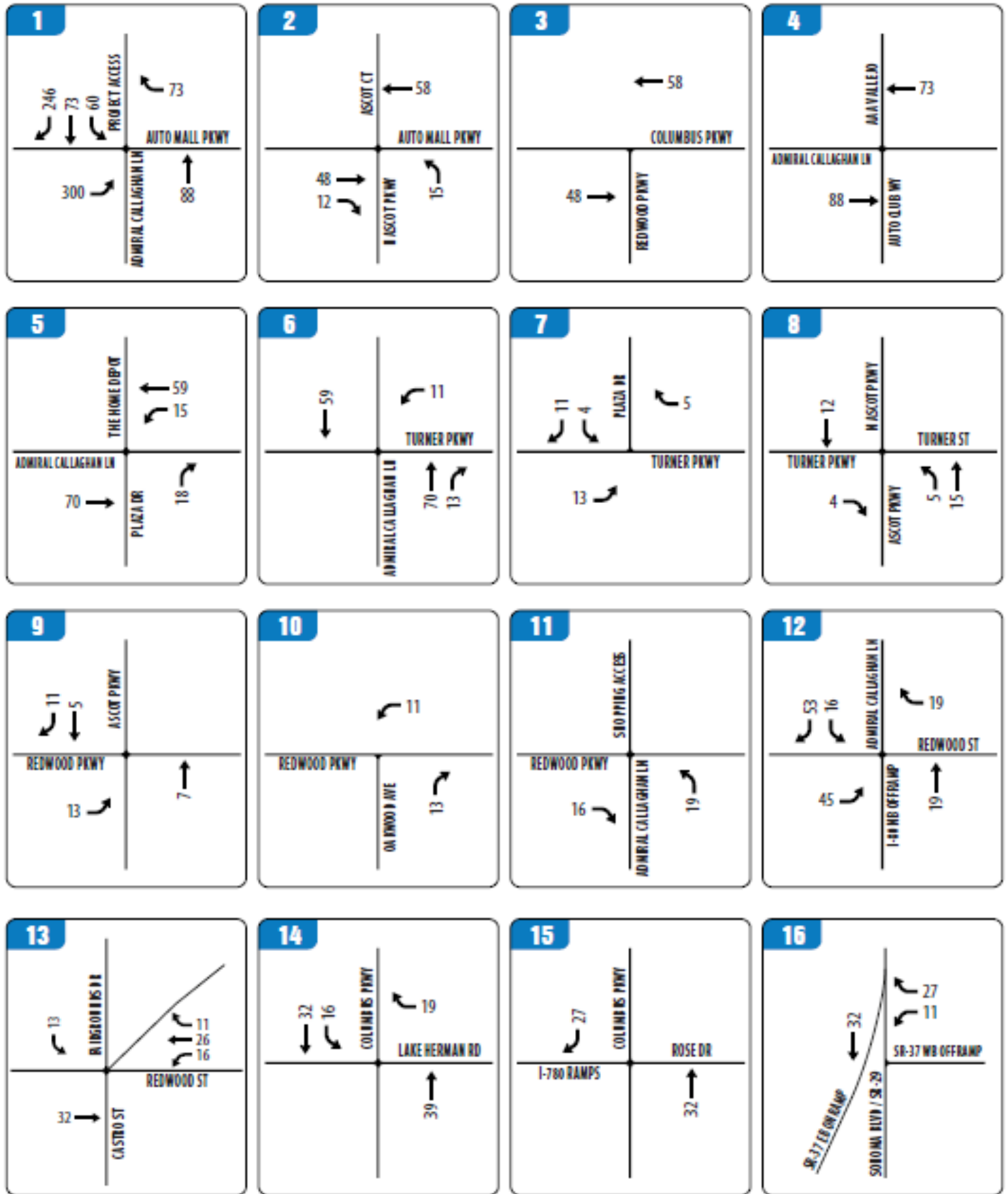


FIGURE A2 | FRIDAY PM PEAK HOUR TRIPS
 TRANSPORTATION IMPACT ANALYSIS
Scotts Valley Development Project
 City of Vallejo

TABLE A2
SPECIAL EVENT TRIP GENERATION CALCULATIONS

Land Use	Size	PM Peak Hour		
		In	Out	Total
Special Event Trip Rates - Trips per Square Feet		0.02	0.21	0.23
Special Event Trip Generation	2,500 seats	529	46	575
Peak Hour Traffic (80% of total)		423	37	460
Casino Shared Traffic (25%)		106	9	115
Special Event Trip Generation		317	28	345

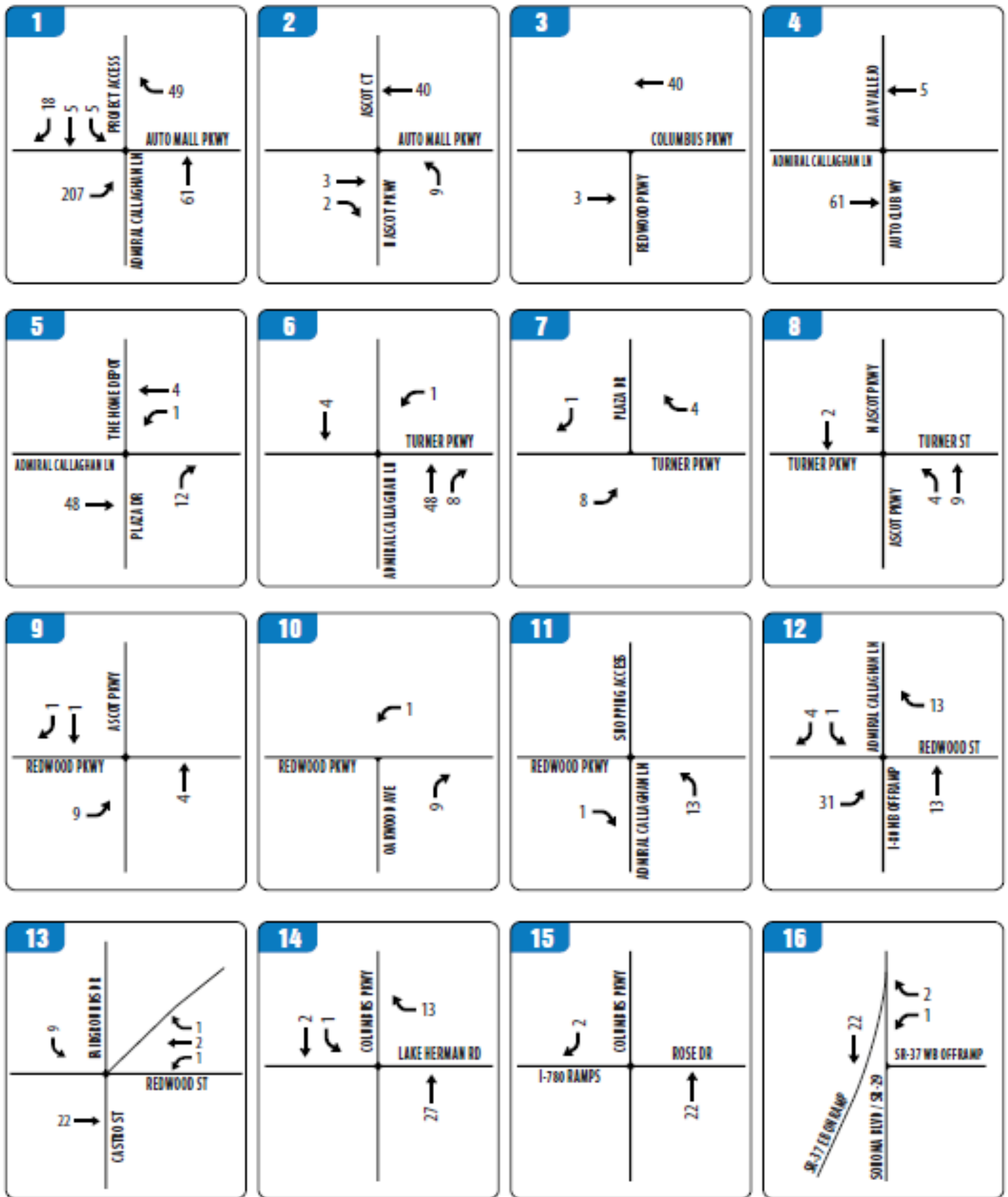


FIGURE A3 | FRIDAY PM EVENT PEAK HOUR TRIPS

TRANSPORTATION IMPACT ANALYSIS

Scotts Valley Casino

City of Vallejo

Scotts Valley Development – City of Vallejo

TABLE A1 EXISTING PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95 th % Queue (ft)		
					No Project	With Project	Delta
1	Auto Mall Parkway / Columbus Parkway & Admiral Callaghan Lane	EBL	230 ft	AM	21	193	172
				PM	41	383	342
		WBL	215 ft	AM	88	102	14
				PM	169	188	19
		NBL	425 ft	AM	114	136	22
				PM	405	480	75
		SBL	100 ft	AM	0	48	48
				PM	7	85	78
5	Admiral Callaghan Lane & Plaza Drive	EBL	250 ft	AM	42	44	2
				PM	103	104	1
		WBL	250 ft	AM	122	132	10
				PM	418	463	45
		NBL	200 ft	AM	30	32	2
				PM	117	118	1
		SBL	100 ft	AM	49	52	3
				PM	134	135	1
13	Redwood Street & Fairgrounds Drive / I-80 Southbound Ramps	EBL	160 ft	AM	141	141	0
				PM	122	122	0
		WBL	285 ft	AM	151	168	17
				PM	245	250	5
		SBL	125 ft	AM	129	150	21
				PM	180	193	13
		SWBL	150 ft	AM	138	139	1
				PM	186	186	0

Scotts Valley Development – City of Vallejo

TABLE A2 BASELINE PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95 th % Queue (ft)		
					No Project	With Project	Delta
1	Auto Mall Parkway / Columbus Parkway & Admiral Callaghan Lane	EBL	230 ft	AM	22	197	175
				PM	44	394	350
		WBL	215 ft	AM	93	108	15
				PM	178	193	15
		NBL	425 ft	AM	122	142	20
				PM	409	510	101
		SBL	100 ft	AM	0	49	49
				PM	7	85	78
5	Admiral Callaghan Lane & Plaza Drive	EBL	250 ft	AM	43	45	2
				PM	101	104	3
		WBL	250 ft	AM	122	133	11
				PM	403	466	63
		NBL	200 ft	AM	31	32	1
				PM	116	119	3
		SBL	100 ft	AM	50	52	2
				PM	132	136	4
13	Redwood Street & Fairgrounds Drive / I-80 Southbound Ramps	EBL	160 ft	AM	119	159	40
				PM	125	134	9
		WBL	285 ft	AM	170	174	4
				PM	256	263	7
		SBL	125 ft	AM	145	154	9
				PM	187	201	14
		SWBL	150 ft	AM	143	156	13
				PM	192	194	2

Scotts Valley Development – City of Vallejo

TABLE A3 CUMULATIVE PEAK HOUR QUEUING ANALYSIS

ID	Intersection	Turn Lane	Available Storage (ft)	Period	95 th % Queue (ft)		
					No Project	With Project	Delta
1	Auto Mall Parkway / Columbus Parkway & Admiral Callaghan Lane	EBL	230 ft	AM	28	211	183
				PM	49	436	387
		WBL	215 ft	AM	120	130	10
				PM	242	259	17
		NBL	425 ft	AM	160	175	15
				PM	548	650	102
		SBL	100 ft	AM	0	52	52
				PM	7	86	79
5	Admiral Callaghan Lane & Plaza Drive	EBL	250 ft	AM	43	45	2
				PM	103	105	2
		WBL	250 ft	AM	125	135	10
				PM	447	483	36
		NBL	200 ft	AM	31	33	2
				PM	118	120	2
		SBL	100 ft	AM	50	53	3
				PM	134	136	2
13	Redwood Street & Fairgrounds Drive / I-80 Southbound Ramps	EBL	160 ft	AM	161	168	7
				PM	166	168	2
		WBL	285 ft	AM	195	199	4
				PM	327	340	13
		SBL	125 ft	AM	169	178	9
				PM	235	259	24
		SWBL	150 ft	AM	170	170	0
				PM	250	250	0

**Scotts Valley Development
City of Vallejo**

**Columbus Parkway/ Auto Mall
2023-2018**

CASE ID	COLLISION DATE	COLLISION TIME	PRIMARY RD	SECONDARY RD	DISTANCE	DIRECTION	INTERSECTION	WEATHER 1	TYPE OF COLLISION	COLLISION SEVERITY	NUMBER KILLED	NUMBER INJURED	PCF VIOLATION CATEGORY	MOTOR VEHICLE INVOLVED WITH	ALCOHOL INVOLVED
2023															
82284545	20231013	1209	ADMIRAL CALLAGHAN	AUTO MALL PKWY	0	0	Y	Clear	Broadside	Injury (Complaint of Pain)	0	2	Traffic Signals and Signs	Other Motor Vehicle	0
2022															
81809553	20220601	1550	COLUMBUS PKWY	ADMIRAL CALLAGHAN	40	E	N	Clear	Rear End	Property Damage Only	0	0	Unsafe Speed	Other Motor Vehicle	0
2021															
81673205	20211201	1840	ADMIRAL CALLAGHAN	AUTO MALL PKWY	15	E	N	Clear	Rear End	Property Damage Only	0	0	Following too Closely	Other Motor Vehicle	0
81506271	20210522	2040	COLUMBUS PKWY	ADM CALLAGHAN	562	W	N	Clear	Broadside	Injury (Complaint of Pain)	0	1	Improper Turning	Other Motor Vehicle	0
91485226	20210512	2227	ADMIRAL CALLAGHAN	COLUMBUS PKWY	502	W	N	Clear	Hit Object	Property Damage Only	0	0	Other Improper Driving	Fixed Object	0
2020															
9098640	20200425	1448	ADMIRAL CALLAGHAN	AUTO MALL PKWY	0	0	Y	Clear	Rear End	Property Damage Only	0	0	Following too Closely	Other Motor Vehicle	0
9098570	20200315	1106	ADMIRAL CALLAGHAN	AUTO MALL PKWY	12	S	N	Raining	Hit Object	Property Damage Only	0	0	Improper Turning	Fixed Object	0
2019															
8894076	20190522	1644	COLUMBUS PKWY	ADMIRAL CALLAGHAN	15	W	N	Clear	Hit Object	Injury (Complaint of Pain)	0	1	Improper Turning	Fixed Object	0
2018															
8861898	20181023	1942	COLUMBUS PKWY	ADMIRAL CALLAGHAN	555	W	N	Clear	Rear End	Injury (Complaint of Pain)	0	1	Unsafe Speed	Other Motor Vehicle	0
9002889	20180905	1746	COLUMBUS PKWY	ADMIRAL CALLAGHAN	426	E	N	Clear	Overtaken	Injury (Other Visible)	0	1	Other than Driver (or Pedestrian)	Non-Collision	0
90657125	20180205	1635	I-80 E/B TO COLUMBUS	ADMIRAL CALLAGHAN	1000	W	N	Clear	Hit Object	Injury (Complaint of Pain)	0	1	Unsafe Speed	Fixed Object	0

Queues

Existing AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBR
Lane Group Flow (vph)	11	709	560	93	788	314	76	2
v/c Ratio	0.05	0.56	0.36	0.30	0.29	0.41	0.09	0.00
Control Delay	29.7	17.4	0.6	26.9	8.4	22.8	0.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	17.4	0.6	26.9	8.4	22.8	0.2	0.0
Queue Length 50th (ft)	3	88	0	25	33	41	0	0
Queue Length 95th (ft)	21	212	0	88	129	114	0	0
Internal Link Dist (ft)		1084			414		644	
Turn Bay Length (ft)	230			215		425		
Base Capacity (vph)	1021	2813	1568	575	3349	1477	1106	971
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.25	0.36	0.16	0.24	0.21	0.07	0.00

Intersection Summary

HCM 6th Signalized Intersection Summary

Existing AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑	↗
Traffic Volume (veh/h)	10	652	515	86	725	0	289	0	70	0	0	2
Future Volume (veh/h)	10	652	515	86	725	0	289	0	70	0	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	11	709	0	93	788	0	314	0	0	0	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	25	1187		139	2033	0	521	486		4	5	4
Arrive On Green	0.01	0.34	0.00	0.08	0.40	0.00	0.15	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	1767	3526	1572	1767	5233	0	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	11	709	0	93	788	0	314	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	0	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	0.3	7.0	0.0	2.1	4.6	0.0	3.6	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.3	7.0	0.0	2.1	4.6	0.0	3.6	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	25	1187		139	2033	0	521	486		4	5	4
V/C Ratio(X)	0.43	0.60		0.67	0.39	0.00	0.60	0.00		0.00	0.00	0.46
Avail Cap(c_a), veh/h	1160	3577		654	3689	0	1678	1130		781	1041	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	20.5	11.5	0.0	18.8	8.9	0.0	16.6	0.0	0.0	0.0	0.0	20.9
Incr Delay (d2), s/veh	11.3	0.5	0.0	5.4	0.1	0.0	1.1	0.0	0.0	0.0	0.0	61.9
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	0.2	2.0	0.0	0.9	1.2	0.0	1.3	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	12.0	0.0	24.1	9.0	0.0	17.7	0.0	0.0	0.0	0.0	82.7
LnGrp LOS	C	B		C	A	A	B	A		A	A	F
Approach Vol, veh/h		720			881			314				2
Approach Delay, s/veh		12.3			10.6			17.7				82.7
Approach LOS		B			B			B				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	15.5	7.8	18.6	10.9	4.6	5.1	21.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	25.5	15.5	42.5	20.5	23.5	27.5	30.5				
Max Q Clear Time (g_c+I1), s	0.0	0.0	4.1	9.0	5.6	2.1	2.3	6.6				
Green Ext Time (p_c), s	0.0	0.0	0.1	5.1	1.0	0.0	0.0	5.4				

Intersection Summary

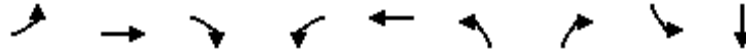
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Existing AM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	23	464	282	18	602	254	8	2	4
v/c Ratio	0.07	0.34	0.36	0.06	0.44	0.28	0.01	0.01	0.01
Control Delay	19.5	10.1	3.5	19.8	10.9	14.7	0.0	21.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	10.1	3.5	19.8	10.9	14.7	0.0	21.5	0.0
Queue Length 50th (ft)	3	23	0	3	32	16	0	0	0
Queue Length 95th (ft)	28	112	46	24	147	77	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	230		275	200		225		75	
Base Capacity (vph)	563	3302	1493	510	3291	2541	1471	402	1088
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.14	0.19	0.04	0.18	0.10	0.01	0.00	0.00
Intersection Summary									

HCM 6th Signalized Intersection Summary

2: N Ascot Parkway & Columbus Parkway

Existing AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	21	427	259	17	553	1	234	0	7	2	0	4
Future Volume (veh/h)	21	427	259	17	553	1	234	0	7	2	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	464	0	18	601	1	254	0	8	2	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	51	1084		41	1090	2	469	283	240	5	0	29
Arrive On Green	0.03	0.31	0.00	0.02	0.30	0.30	0.14	0.00	0.15	0.00	0.00	0.02
Sat Flow, veh/h	1767	3526	1572	1767	3611	6	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	23	464	0	18	293	309	254	0	8	2	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1854	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	0.4	3.7	0.0	0.4	4.9	4.9	2.4	0.0	0.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.4	3.7	0.0	0.4	4.9	4.9	2.4	0.0	0.2	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	1084		41	532	560	469	283	240	5	0	29
V/C Ratio(X)	0.45	0.43		0.44	0.55	0.55	0.54	0.00	0.03	0.40	0.00	0.14
Avail Cap(c_a), veh/h	530	4785		480	2342	2464	2400	1988	1685	379	0	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	9.7	0.0	16.9	10.2	10.2	14.1	0.0	12.6	17.4	0.0	16.9
Incr Delay (d2), s/veh	6.3	0.3	0.0	7.4	0.9	0.8	1.0	0.0	0.1	43.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.9	0.0	0.2	1.3	1.4	0.8	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	9.9	0.0	24.3	11.1	11.1	15.0	0.0	12.7	61.0	0.0	19.1
LnGrp LOS	C	A		C	B	B	B	A	B	E	A	B
Approach Vol, veh/h		487			620			262				6
Approach Delay, s/veh		10.5			11.5			15.0				33.1
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	9.8	5.3	15.3	9.3	5.1	5.5	15.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	37.5	9.5	47.5	24.5	20.5	10.5	46.5				
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.4	5.7	4.4	2.1	2.4	6.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.2	0.8	0.0	0.0	3.7				

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Existing AM
07/01/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	355	85	11	355	247	53
v/c Ratio	0.32	0.15	0.03	0.27	0.25	0.11
Control Delay	9.0	3.9	12.5	6.3	9.7	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	3.9	12.5	6.3	9.7	4.9
Queue Length 50th (ft)	14	0	1	14	10	0
Queue Length 95th (ft)	61	21	12	33	47	19
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3505	1568	1368	3505	3345	1543
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.05	0.01	0.10	0.07	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Existing AM
07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (veh/h)	327	78	10	327	227	49
Future Volume (veh/h)	327	78	10	327	227	49
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	355	85	11	355	247	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	841	375	280	1929	524	240
Arrive On Green	0.24	0.24	0.16	0.55	0.15	0.15
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	355	85	11	355	247	53
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	2.6	1.3	0.2	1.5	2.0	0.9
Cycle Q Clear(g_c), s	2.6	1.3	0.2	1.5	2.0	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	841	375	280	1929	524	240
V/C Ratio(X)	0.42	0.23	0.04	0.18	0.47	0.22
Avail Cap(c_a), veh/h	5462	2436	1207	8398	4512	2069
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.7	9.2	10.7	3.4	11.6	11.1
Incr Delay (d2), s/veh	0.3	0.3	0.1	0.0	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.3	0.0	0.1	0.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.0	9.5	10.7	3.5	12.3	11.6
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	440			366	300	
Approach Delay, s/veh	9.9			3.7	12.1	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.1	9.3	11.7		20.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		39.5	20.5	46.5		71.5
Max Q Clear Time (g_c+I1), s		4.0	2.2	4.6		3.5
Green Ext Time (p_c), s		1.0	0.0	2.6		2.4
Intersection Summary						
HCM 6th Ctrl Delay			8.5			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Existing AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	285	68	487	16	2	25	71	26
v/c Ratio	0.05	0.15	0.12	0.20	0.01	0.00	0.05	0.11	0.05
Control Delay	16.1	10.3	14.4	6.2	0.6	13.5	8.3	13.5	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	10.3	14.4	6.2	0.6	13.5	8.3	13.5	7.6
Queue Length 50th (ft)	4	25	12	22	0	0	1	12	0
Queue Length 95th (ft)	21	54	42	84	2	4	14	41	14
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	1099	3476	1330	3505	1568	1699	1476	1699	1456
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.08	0.05	0.14	0.01	0.00	0.02	0.04	0.02
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Existing AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	22	258	5	63	448	15	2	3	20	65	1	23
Future Volume (veh/h)	22	258	5	63	448	15	2	3	20	65	1	23
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	280	5	68	487	16	2	3	22	71	1	25
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1016	18	132	1167	520	416	22	161	417	7	174
Arrive On Green	0.03	0.29	0.29	0.07	0.33	0.33	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1767	3544	63	1767	3526	1572	1374	192	1410	1375	61	1521
Grp Volume(v), veh/h	24	139	146	68	487	16	2	0	25	71	0	26
Grp Sat Flow(s),veh/h/ln	1767	1763	1844	1767	1763	1572	1374	0	1602	1375	0	1582
Q Serve(g_s), s	0.3	1.6	1.6	1.0	2.8	0.2	0.0	0.0	0.4	1.3	0.0	0.4
Cycle Q Clear(g_c), s	0.3	1.6	1.6	1.0	2.8	0.2	0.4	0.0	0.4	1.6	0.0	0.4
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	54	506	529	132	1167	520	416	0	183	417	0	181
V/C Ratio(X)	0.44	0.28	0.28	0.51	0.42	0.03	0.00	0.00	0.14	0.17	0.00	0.14
Avail Cap(c_a), veh/h	1064	3183	3330	1681	7598	3389	2153	0	2208	2156	0	2180
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	0.00	1.00
Uniform Delay (d), s/veh	12.3	7.1	7.1	11.5	6.7	5.8	10.5	0.0	10.3	11.0	0.0	10.3
Incr Delay (d2), s/veh	5.6	0.3	0.3	3.1	0.2	0.0	0.0	0.0	0.3	0.2	0.0	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	0.2	0.4	0.4	0.4	0.6	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	7.4	7.4	14.5	6.9	5.8	10.5	0.0	10.6	11.2	0.0	10.6
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		309			571			27				97
Approach Delay, s/veh		8.2			7.8			10.6				11.0
Approach LOS		A			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.4	6.4	11.9		7.4	5.3	13.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		35.5	24.5	46.5		35.5	15.5	55.5				
Max Q Clear Time (g_c+I1), s		2.4	3.0	3.6		3.6	2.3	4.8				
Green Ext Time (p_c), s		0.1	0.1	1.8		0.3	0.0	3.8				
Intersection Summary												
HCM 6th Ctrl Delay				8.3								
HCM 6th LOS				A								

Queues

Existing AM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	183	207	311	28	23	109	58	14	20
v/c Ratio	0.16	0.27	0.44	0.17	0.10	0.08	0.31	0.19	0.04	0.05
Control Delay	23.4	18.9	20.7	9.7	23.9	24.0	6.6	23.1	21.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	18.9	20.7	9.7	23.9	24.0	6.6	23.1	21.0	0.2
Queue Length 50th (ft)	13	22	55	18	8	6	0	16	3	0
Queue Length 95th (ft)	42	54	122	63	30	27	29	49	19	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	548	1838	1295	2841	855	1126	1010	942	1186	1056
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.10	0.16	0.11	0.03	0.02	0.11	0.06	0.01	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Existing AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↑	↗	↗	↑	↗
Traffic Volume (veh/h)	42	133	35	190	188	98	26	21	100	53	13	18
Future Volume (veh/h)	42	133	35	190	188	98	26	21	100	53	13	18
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	46	145	38	207	204	107	28	23	109	58	14	20
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	89	364	93	282	544	274	209	265	225	167	221	187
Arrive On Green	0.05	0.13	0.13	0.16	0.24	0.24	0.12	0.14	0.14	0.09	0.12	0.12
Sat Flow, veh/h	1767	2783	708	1767	2270	1143	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	46	90	93	207	157	154	28	23	109	58	14	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1728	1767	1763	1650	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	1.8	1.9	4.2	2.8	3.0	0.5	0.4	2.4	1.2	0.3	0.4
Cycle Q Clear(g_c), s	1.0	1.8	1.9	4.2	2.8	3.0	0.5	0.4	2.4	1.2	0.3	0.4
Prop In Lane	1.00		0.41	1.00		0.69	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	231	226	282	422	395	209	265	225	167	221	187
V/C Ratio(X)	0.51	0.39	0.41	0.73	0.37	0.39	0.13	0.09	0.49	0.35	0.06	0.11
Avail Cap(c_a), veh/h	580	995	975	1554	1967	1841	905	1242	1053	997	1340	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	15.2	15.2	15.2	12.1	12.1	15.0	14.2	15.0	16.1	14.9	15.0
Incr Delay (d2), s/veh	4.5	1.1	1.2	3.7	0.5	0.6	0.3	0.1	1.6	1.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7	0.7	1.7	1.0	0.9	0.2	0.2	0.8	0.5	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	16.2	16.4	19.0	12.6	12.8	15.3	14.3	16.7	17.4	15.0	15.2
LnGrp LOS	C	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		229			518			160			92	
Approach Delay, s/veh		17.5			15.2			16.1			16.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	9.9	10.6	9.5	9.0	9.0	6.4	13.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	25.5	33.5	21.5	19.5	27.5	12.5	42.5				
Max Q Clear Time (g_c+I1), s	3.2	4.4	6.2	3.9	2.5	2.4	3.0	5.0				
Green Ext Time (p_c), s	0.1	0.4	0.6	0.9	0.0	0.1	0.0	2.0				

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

Queues
6: Admiral Callaghan Ln & Turner Parkway

Existing AM
07/01/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	141	14	432	45	209
v/c Ratio	0.14	0.03	0.27	0.09	0.10
Control Delay	12.3	8.5	7.7	13.6	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	8.5	7.7	13.6	4.4
Queue Length 50th (ft)	6	0	13	4	8
Queue Length 95th (ft)	32	10	61	29	18
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2979	1250	3330	1325	3505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.13	0.03	0.06
Intersection Summary					

HCM 6th Signalized Intersection Summary

6: Admiral Callaghan Ln & Turner Parkway

Existing AM
07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	128	15	266	132	41	192
Future Volume (veh/h)	128	15	266	132	41	192
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	139	16	289	143	45	209
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	459	204	677	326	94	1838
Arrive On Green	0.13	0.13	0.29	0.29	0.05	0.52
Sat Flow, veh/h	3534	1572	2399	1112	1767	3618
Grp Volume(v), veh/h	139	16	219	213	45	209
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1655	1767	1763
Q Serve(g_s), s	0.9	0.2	2.6	2.7	0.6	0.8
Cycle Q Clear(g_c), s	0.9	0.2	2.6	2.7	0.6	0.8
Prop In Lane	1.00	1.00		0.67	1.00	
Lane Grp Cap(c), veh/h	459	204	518	486	94	1838
V/C Ratio(X)	0.30	0.08	0.42	0.44	0.48	0.11
Avail Cap(c_a), veh/h	3902	1736	3859	3623	1472	11268
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	10.2	9.9	7.4	7.4	11.9	3.1
Incr Delay (d2), s/veh	0.4	0.2	0.6	0.6	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.6	0.6	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.5	10.0	7.9	8.0	15.6	3.2
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	155		432			254
Approach Delay, s/veh	10.5		8.0			5.4
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	5.9	12.1			18.0	7.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	21.5	56.5			82.5	28.5
Max Q Clear Time (g_c+I1), s	2.6	4.7			2.8	2.9
Green Ext Time (p_c), s	0.1	3.0			1.5	0.5

Intersection Summary

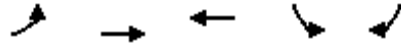
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Existing AM
07/01/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	137	46	240	107	49
v/c Ratio	0.29	0.03	0.30	0.15	0.14
Control Delay	13.4	3.6	6.4	11.6	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	3.6	6.4	11.6	6.6
Queue Length 50th (ft)	21	1	6	7	0
Queue Length 95th (ft)	56	5	27	22	19
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1752	3505	2980	3104	1326
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.01	0.08	0.03	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary

7: Turner Parkway & Plaza Drive

Existing AM
07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↕	↗		↖	↗	
Traffic Volume (veh/h)	126	42	71	150	81	63	
Future Volume (veh/h)	126	42	71	150	81	63	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	137	46	77	163	103	52	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	217	1783	355	317	467	208	
Arrive On Green	0.12	0.51	0.20	0.20	0.13	0.13	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	137	46	77	163	103	52	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	1.8	0.2	0.9	2.3	0.6	0.7	
Cycle Q Clear(g_c), s	1.8	0.2	0.9	2.3	0.6	0.7	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	217	1783	355	317	467	208	
V/C Ratio(X)	0.63	0.03	0.22	0.51	0.22	0.25	
Avail Cap(c_a), veh/h	2880	11135	2376	2120	4622	2056	
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	10.4	3.1	8.3	8.8	9.6	9.7	
Incr Delay (d2), s/veh	3.0	0.0	0.3	1.3	0.2	0.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.2	0.6	0.2	0.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.4	3.1	8.6	10.1	9.9	10.3	
LnGrp LOS	B	A	A	B	A	B	
Approach Vol, veh/h		183	240		155		
Approach Delay, s/veh		10.8	9.6		10.0		
Approach LOS		B	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				17.1	7.8	7.6	9.5
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				78.5	32.5	40.5	33.5
Max Q Clear Time (g_c+I1), s				2.2	2.7	3.8	4.3
Green Ext Time (p_c), s				0.3	0.5	0.4	1.5

Intersection Summary

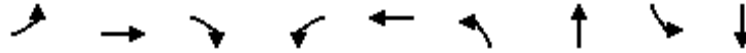
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Existing AM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	7	112	3	27	190	219	9	294
v/c Ratio	0.09	0.02	0.30	0.01	0.10	0.39	0.10	0.03	0.34
Control Delay	20.9	20.2	6.4	22.0	14.0	17.5	6.7	21.5	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	20.2	6.4	22.0	14.0	17.5	6.7	21.5	15.7
Queue Length 50th (ft)	5	1	0	1	1	34	7	2	26
Queue Length 95th (ft)	28	12	30	8	23	113	50	15	80
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	542	1231	1091	354	958	1490	3466	401	2793
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.10	0.01	0.03	0.13	0.06	0.02	0.11
Intersection Summary									

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

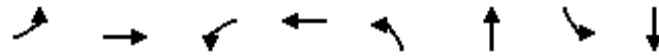
Existing AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	6	103	3	6	18	175	198	4	8	231	40
Future Volume (veh/h)	23	6	103	3	6	18	175	198	4	8	231	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	7	112	3	7	20	190	215	4	9	251	43
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	55	256	217	7	47	135	261	1125	21	21	549	93
Arrive On Green	0.03	0.14	0.14	0.00	0.11	0.11	0.15	0.32	0.32	0.01	0.18	0.18
Sat Flow, veh/h	1767	1856	1572	1767	424	1213	1767	3541	66	1767	3017	510
Grp Volume(v), veh/h	25	7	112	3	0	27	190	107	112	9	145	149
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1637	1767	1763	1844	1767	1763	1764
Q Serve(g_s), s	0.5	0.1	2.3	0.1	0.0	0.5	3.5	1.5	1.5	0.2	2.5	2.6
Cycle Q Clear(g_c), s	0.5	0.1	2.3	0.1	0.0	0.5	3.5	1.5	1.5	0.2	2.5	2.6
Prop In Lane	1.00		1.00	1.00		0.74	1.00		0.04	1.00		0.29
Lane Grp Cap(c), veh/h	55	256	217	7	0	182	261	560	586	21	321	321
V/C Ratio(X)	0.46	0.03	0.52	0.41	0.00	0.15	0.73	0.19	0.19	0.43	0.45	0.46
Avail Cap(c_a), veh/h	597	1389	1177	389	0	1033	1842	3131	3274	441	1733	1735
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	12.7	13.6	16.9	0.0	13.7	13.9	8.4	8.4	16.7	12.4	12.4
Incr Delay (d2), s/veh	5.9	0.0	1.9	33.5	0.0	0.4	3.9	0.2	0.2	12.9	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.7	0.1	0.0	0.2	1.3	0.4	0.4	0.1	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	12.8	15.5	50.4	0.0	14.1	17.7	8.6	8.6	29.6	13.4	13.5
LnGrp LOS	C	B	B	D	A	B	B	A	A	C	B	B
Approach Vol, veh/h		144			30			409			303	
Approach Delay, s/veh		16.5			17.7			12.8			13.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.9	15.3	4.6	9.2	9.5	10.7	5.6	8.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	60.5	7.5	25.5	35.5	33.5	11.5	21.5				
Max Q Clear Time (g_c+I1), s	2.2	3.5	2.1	4.3	5.5	4.6	2.5	2.5				
Green Ext Time (p_c), s	0.0	1.3	0.0	0.3	0.5	1.7	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.0									
HCM 6th LOS			B									

Queues
9: Ascot Parkway & Redwood Street

Existing AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	127	694	115	260	405	284	159	262
v/c Ratio	0.53	0.75	0.52	0.32	0.78	0.32	0.59	0.55
Control Delay	48.3	30.9	50.1	29.9	41.7	27.2	48.2	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	30.9	50.1	29.9	41.7	27.2	48.2	30.0
Queue Length 50th (ft)	68	148	62	59	209	64	85	46
Queue Length 95th (ft)	149	267	142	120	372	115	179	102
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	367	1207	300	1050	799	1622	400	876
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.57	0.38	0.25	0.51	0.18	0.40	0.30

Intersection Summary

HCM 6th Signalized Intersection Summary
9: Ascot Parkway & Redwood Street

Existing AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↗↘		↗	↗↘	
Traffic Volume (veh/h)	117	360	279	106	204	35	373	223	39	146	148	93
Future Volume (veh/h)	117	360	279	106	204	35	373	223	39	146	148	93
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	127	391	0	115	222	0	405	242	0	159	161	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	168	661		151	628		490	904		210	345	
Arrive On Green	0.09	0.19	0.00	0.09	0.18	0.00	0.28	0.26	0.00	0.12	0.10	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	127	391	0	115	222	0	405	242	0	159	161	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	3.6	5.2	0.0	3.3	2.8	0.0	11.0	2.8	0.0	4.5	2.2	0.0
Cycle Q Clear(g_c), s	3.6	5.2	0.0	3.3	2.8	0.0	11.0	2.8	0.0	4.5	2.2	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	168	661		151	628		490	904		210	345	
V/C Ratio(X)	0.76	0.59		0.76	0.35		0.83	0.27		0.76	0.47	
Avail Cap(c_a), veh/h	612	1964		501	1744		1330	2736		667	1413	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.6	19.0	0.0	22.9	18.4	0.0	17.3	15.2	0.0	21.8	21.8	0.0
Incr Delay (d2), s/veh	6.8	0.8	0.0	7.7	0.3	0.0	3.6	0.2	0.0	5.5	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.9	0.0	1.5	1.0	0.0	4.2	1.0	0.0	2.0	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	19.8	0.0	30.6	18.8	0.0	20.9	15.3	0.0	27.4	22.8	0.0
LnGrp LOS	C	B		C	B		C	B		C	C	
Approach Vol, veh/h		518			337			647			320	
Approach Delay, s/veh		22.2			22.8			18.8			25.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	17.6	8.9	14.1	18.7	9.5	9.4	13.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.3	39.7	14.5	28.5	38.5	20.5	17.7	25.3				
Max Q Clear Time (g_c+I1), s	6.5	4.8	5.3	7.2	13.0	4.2	5.6	4.8				
Green Ext Time (p_c), s	0.3	1.6	0.2	2.4	1.2	0.8	0.2	1.2				

Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Existing AM
07/01/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	589	352	373	271	428
v/c Ratio	0.65	0.69	0.17	0.62	0.60
Control Delay	26.5	32.8	6.6	33.6	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	32.8	6.6	33.6	7.0
Queue Length 50th (ft)	103	133	31	104	0
Queue Length 95th (ft)	223	306	70	245	77
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1480	1015	3192	963	1055
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.35	0.12	0.28	0.41

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

Existing AM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	↗
Traffic Volume (veh/h)	358	184	324	343	249	394
Future Volume (veh/h)	358	184	324	343	249	394
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	389	200	352	373	271	428
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	544	276	417	1918	566	503
Arrive On Green	0.24	0.24	0.24	0.54	0.32	0.32
Sat Flow, veh/h	2356	1148	1767	3618	1767	1572
Grp Volume(v), veh/h	302	287	352	373	271	428
Grp Sat Flow(s),veh/h/ln	1763	1649	1767	1763	1767	1572
Q Serve(g_s), s	10.4	10.6	12.6	3.6	8.2	16.8
Cycle Q Clear(g_c), s	10.4	10.6	12.6	3.6	8.2	16.8
Prop In Lane		0.70	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	423	396	417	1918	566	503
V/C Ratio(X)	0.71	0.73	0.84	0.19	0.48	0.85
Avail Cap(c_a), veh/h	786	735	1054	3914	1001	891
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	23.1	24.1	7.7	18.1	21.0
Incr Delay (d2), s/veh	2.2	2.5	4.8	0.0	0.6	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	4.1	5.4	1.1	3.2	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.3	25.7	28.9	7.7	18.7	25.2
LnGrp LOS	C	C	C	A	B	C
Approach Vol, veh/h	589			725	699	
Approach Delay, s/veh	25.5			18.0	22.7	
Approach LOS	C			B	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		25.7	20.1	20.4		40.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	39.5	29.5		73.5
Max Q Clear Time (g_c+I1), s		18.8	14.6	12.6		5.6
Green Ext Time (p_c), s		2.4	1.1	3.3		2.6
Intersection Summary						
HCM 6th Ctrl Delay			21.8			
HCM 6th LOS			C			

Queues
11: Admiral Callaghan Ln & Redwood Street

Existing AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	20	632	77	585	110	78
v/c Ratio	0.06	0.37	0.18	0.27	0.28	0.11
Control Delay	22.3	12.0	20.2	7.2	19.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	12.0	20.2	7.2	19.3	0.3
Queue Length 50th (ft)	5	67	18	32	25	0
Queue Length 95th (ft)	23	133	57	112	73	0
Internal Link Dist (ft)		424		851		1161
Turn Bay Length (ft)	125		125		75	
Base Capacity (vph)	678	3267	999	3475	1143	1358
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.19	0.08	0.17	0.10	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Existing AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	18	501	80	71	537	1	101	0	72	0	0	0
Future Volume (veh/h)	18	501	80	71	537	1	101	0	72	0	0	0
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	545	87	77	584	1	110	0	78	0	0	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	45	1058	168	139	1446	2	467	0	206	236	243	0
Arrive On Green	0.03	0.35	0.35	0.08	0.40	0.40	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1767	3046	485	1767	3611	6	1767	0	1572	1311	1856	0
Grp Volume(v), veh/h	20	315	317	77	285	300	110	0	78	0	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1768	1767	1763	1854	1767	0	1572	1311	1856	0
Q Serve(g_s), s	0.3	4.3	4.3	1.3	3.5	3.5	1.8	0.0	1.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	4.3	4.3	1.3	3.5	3.5	1.8	0.0	1.4	0.0	0.0	0.0
Prop In Lane	1.00		0.27	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	45	612	614	139	706	743	467	0	206	236	243	0
V/C Ratio(X)	0.44	0.51	0.52	0.55	0.40	0.40	0.24	0.00	0.38	0.00	0.00	0.00
Avail Cap(c_a), veh/h	667	2865	2874	1190	3386	3562	2355	0	1885	1636	2224	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	14.6	7.9	7.9	13.5	6.5	6.5	12.3	0.0	12.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.7	0.7	0.7	3.4	0.4	0.4	0.3	0.0	1.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	1.0	0.5	0.7	0.8	0.6	0.0	0.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	8.6	8.6	16.9	6.9	6.9	12.5	0.0	13.3	0.0	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	B	A	A	A
Approach Vol, veh/h		652			662			188				0
Approach Delay, s/veh		9.0			8.1			12.8				0.0
Approach LOS		A			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.5	6.9	15.1		8.5	5.3	16.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		36.5	20.5	49.5		36.5	11.5	58.5				
Max Q Clear Time (g_c+I1), s		3.8	3.3	6.3		0.0	2.3	5.5				
Green Ext Time (p_c), s		0.8	0.1	4.2		0.0	0.0	3.8				
Intersection Summary												
HCM 6th Ctrl Delay			9.0									
HCM 6th LOS			A									

Queues
12: Redwood Street & Admiral Callaghan Ln

Existing AM
07/01/2024



Lane Group	EBL	EBT	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	343	382	693	258	207	72	867
v/c Ratio	0.56	0.21	0.69	0.47	0.49	0.17	0.78
Control Delay	35.1	10.5	28.3	35.3	10.0	34.5	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	10.5	28.3	35.3	10.0	34.5	8.5
Queue Length 50th (ft)	73	42	134	56	0	15	0
Queue Length 95th (ft)	159	97	274	126	64	42	57
Internal Link Dist (ft)		852	424	1178			
Turn Bay Length (ft)	275				450	100	300
Base Capacity (vph)	937	2709	1517	927	567	1361	1625
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.14	0.46	0.28	0.37	0.05	0.53
Intersection Summary							

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Existing AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕			↖↗			↕	↗	↖↗		↖↗
Traffic Volume (veh/h)	316	351	0	0	472	166	0	237	190	66	0	798
Future Volume (veh/h)	316	351	0	0	472	166	0	237	190	66	0	798
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	1856	1856	0	0	1856	1856	0	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	343	382	0	0	513	180	0	258	207	72	0	867
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, %	3	3	0	0	3	3	0	3	3	3	0	3
Cap, veh/h	502	1813	0	0	740	258	0	665	297	205	0	0
Arrive On Green	0.15	0.51	0.00	0.00	0.29	0.29	0.00	0.19	0.19	0.06	0.00	0.00
Sat Flow, veh/h	3428	3618	0	0	2655	895	0	3618	1572	3428	72	
Grp Volume(v), veh/h	343	382	0	0	352	341	0	258	207	72	26.7	
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1694	0	1763	1572	1714	C	
Q Serve(g_s), s	5.4	3.4	0.0	0.0	10.1	10.2	0.0	3.6	7.0	1.1		
Cycle Q Clear(g_c), s	5.4	3.4	0.0	0.0	10.1	10.2	0.0	3.6	7.0	1.1		
Prop In Lane	1.00		0.00	0.00		0.53	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	502	1813	0	0	509	489	0	665	297	205		
V/C Ratio(X)	0.68	0.21	0.00	0.00	0.69	0.70	0.00	0.39	0.70	0.35		
Avail Cap(c_a), veh/h	1223	3564	0	0	1013	974	0	1209	539	1778		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.0	7.5	0.0	0.0	18.0	18.0	0.0	20.2	21.6	25.7		
Incr Delay (d2), s/veh	1.6	0.1	0.0	0.0	1.7	1.8	0.0	0.4	3.0	1.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.1	1.0	0.0	0.0	3.8	3.7	0.0	1.4	2.6	0.5		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	7.6	0.0	0.0	19.7	19.8	0.0	20.6	24.5	26.7		
LnGrp LOS	C	A	A	A	B	B	A	C	C	C		
Approach Vol, veh/h		725			693			465				
Approach Delay, s/veh		15.7			19.8			22.3				
Approach LOS		B			B			C				
Timer - Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	7.9	15.2		33.8			12.8	20.9				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	29.5	19.5		57.5			20.3	32.7				
Max Q Clear Time (g_c+I1), s	3.1	9.0		5.4			7.4	12.2				
Green Ext Time (p_c), s	0.2	1.7		2.7			1.0	4.2				

Intersection Summary

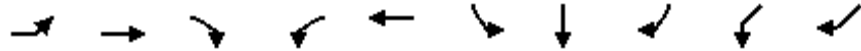
HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Queues

Existing AM

13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

06/13/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	SBL	SBT	SBR	SWL	SWR
Lane Group Flow (vph)	76	513	364	308	1067	113	138	148	122	317
v/c Ratio	0.64	0.46	0.48	0.61	0.77	0.47	0.54	0.43	0.38	0.80
Control Delay	71.1	26.4	5.1	43.0	27.6	45.0	46.8	11.0	39.6	37.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	26.4	5.1	43.0	27.6	45.0	46.8	11.0	39.6	37.7
Queue Length 50th (ft)	43	122	0	85	272	60	74	0	60	97
Queue Length 95th (ft)	#141	192	62	151	382	129	152	56	138	#286
Internal Link Dist (ft)		693			852		265		1072	
Turn Bay Length (ft)	150		200	285		125		125		
Base Capacity (vph)	118	1950	1033	693	2368	363	382	442	363	432
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.26	0.35	0.44	0.45	0.31	0.36	0.33	0.34	0.73

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Existing AM
 06/13/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL2	SWL	SWR
Lane Configurations	↘	↑↑	↗	↘↗	↑↓		↘	↑	↗		↘	↗
Traffic Volume (vph)	70	472	335	283	825	156	104	127	136	112	0	264
Future Volume (vph)	70	472	335	283	825	156	104	127	136	112	0	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3421		1752	1845	1568		1752	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3421		1752	1845	1568		1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	513	364	308	897	170	113	138	148	122	0	287
RTOR Reduction (vph)	0	0	246	0	0	0	0	0	127	0	0	111
Lane Group Flow (vph)	76	513	118	308	1067	0	113	138	21	0	122	206
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Prot	Prot	Prot
Protected Phases	5	2		1	6		4	4	4	8	8	8
Permitted Phases			2									
Actuated Green, G (s)	6.1	28.8	28.8	13.4	36.1		12.4	12.4	12.4		16.4	16.4
Effective Green, g (s)	6.1	28.8	28.8	13.4	36.1		12.4	12.4	12.4		16.4	16.4
Actuated g/C Ratio	0.07	0.32	0.32	0.15	0.41		0.14	0.14	0.14		0.18	0.18
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	120	1134	507	511	1387		244	257	218		322	288
v/s Ratio Prot	0.04	0.15		c0.09	c0.31		0.06	c0.07	0.01		0.07	c0.13
v/s Ratio Perm			0.08									
v/c Ratio	0.63	0.45	0.23	0.60	0.77		0.46	0.54	0.09		0.38	0.72
Uniform Delay, d1	40.4	23.9	22.0	35.3	22.9		35.2	35.6	33.4		31.8	34.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.4	0.3	0.2	2.0	2.6		1.4	2.2	0.2		0.7	8.2
Delay (s)	50.8	24.1	22.3	37.3	25.5		36.6	37.8	33.6		32.6	42.3
Level of Service	D	C	C	D	C		D	D	C		C	D
Approach Delay (s)		25.5			28.1			35.9			39.6	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.72	
Actuated Cycle Length (s)	89.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	65.5%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Existing AM
 06/13/2024



Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	28
Future Volume (vph)	28
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	30
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

Existing AM

14: Lake Herman Road & Columbus Parkway

07/01/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	33	65	323	79	172	214
v/c Ratio	0.08	0.16	0.28	0.14	0.30	0.09
Control Delay	16.3	7.0	12.4	5.0	14.0	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	7.0	12.4	5.0	14.0	2.8
Queue Length 50th (ft)	6	0	30	0	31	7
Queue Length 95th (ft)	26	24	64	23	78	16
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1384	1252	3315	1487	1690	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.10	0.05	0.10	0.06

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Existing AM
 07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↕↗	↶	↶	↕↗
Traffic Volume (veh/h)	30	60	297	73	158	197
Future Volume (veh/h)	30	60	297	73	158	197
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	33	65	323	79	172	214
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	170	151	825	368	307	2020
Arrive On Green	0.10	0.10	0.23	0.23	0.17	0.57
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	33	65	323	79	172	214
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	0.5	1.1	2.1	1.1	2.4	0.8
Cycle Q Clear(g_c), s	0.5	1.1	2.1	1.1	2.4	0.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	170	151	825	368	307	2020
V/C Ratio(X)	0.19	0.43	0.39	0.21	0.56	0.11
Avail Cap(c_a), veh/h	1786	1589	4989	2225	2630	10819
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	11.6	8.8	8.4	10.3	2.6
Incr Delay (d2), s/veh	0.6	1.9	0.3	0.3	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.5	0.2	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.9	13.5	9.1	8.7	11.9	2.7
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	98		402			386
Approach Delay, s/veh	13.0		9.0			6.8
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.2	10.9			20.1	7.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	40.5	38.5			83.5	27.5
Max Q Clear Time (g_c+I1), s	4.4	4.1			2.8	3.1
Green Ext Time (p_c), s	0.5	2.3			1.4	0.2
Intersection Summary						
HCM 6th Ctrl Delay			8.5			
HCM 6th LOS			A			

Queues

Existing AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	57	86	138	137	92	36	286	84	114	484
v/c Ratio	0.15	0.21	0.30	0.23	0.16	0.10	0.23	0.21	0.13	0.49
Control Delay	25.6	23.5	24.2	21.4	2.7	26.4	19.9	25.1	17.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	23.5	24.2	21.4	2.7	26.4	19.9	25.1	17.5	4.5
Queue Length 50th (ft)	17	23	40	39	0	11	41	25	22	0
Queue Length 95th (ft)	55	70	102	98	17	40	87	72	79	69
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	628	871	869	1144	1024	478	2791	724	1664	1462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.10	0.16	0.12	0.09	0.08	0.10	0.12	0.07	0.33

Intersection Summary

HCM 6th Signalized Intersection Summary

Existing AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↕		↖	↗	↖
Traffic Volume (veh/h)	52	65	14	127	126	85	33	225	38	77	105	445
Future Volume (veh/h)	52	65	14	127	126	85	33	225	38	77	105	445
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	71	15	138	137	92	36	245	41	84	114	484
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	98	155	33	184	283	240	70	1043	172	124	696	589
Arrive On Green	0.06	0.10	0.10	0.10	0.15	0.15	0.04	0.34	0.34	0.07	0.37	0.37
Sat Flow, veh/h	1767	1485	314	1767	1856	1572	1767	3029	500	1767	1856	1572
Grp Volume(v), veh/h	57	0	86	138	137	92	36	141	145	84	114	484
Grp Sat Flow(s),veh/h/ln	1767	0	1799	1767	1856	1572	1767	1763	1766	1767	1856	1572
Q Serve(g_s), s	1.5	0.0	2.1	3.6	3.2	2.5	1.0	2.7	2.8	2.2	2.0	13.3
Cycle Q Clear(g_c), s	1.5	0.0	2.1	3.6	3.2	2.5	1.0	2.7	2.8	2.2	2.0	13.3
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	98	0	187	184	283	240	70	607	608	124	696	589
V/C Ratio(X)	0.58	0.00	0.46	0.75	0.48	0.38	0.51	0.23	0.24	0.68	0.16	0.82
Avail Cap(c_a), veh/h	426	0	773	796	1186	1005	315	1644	1647	574	2003	1697
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	0.0	20.1	20.8	18.5	18.2	22.5	11.2	11.2	21.6	9.9	13.5
Incr Delay (d2), s/veh	5.3	0.0	1.8	6.0	1.3	1.0	5.7	0.2	0.2	6.2	0.1	2.9
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	0.9	1.7	1.3	0.9	0.5	0.9	0.9	1.0	0.7	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	0.0	21.9	26.8	19.8	19.2	28.1	11.3	11.4	27.9	10.0	16.4
LnGrp LOS	C	A	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		143			367			322			682	
Approach Delay, s/veh		24.0			22.3			13.2			16.7	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	20.9	9.5	9.5	6.4	22.4	7.2	11.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	44.5	21.5	20.5	8.5	51.5	11.5	30.5				
Max Q Clear Time (g_c+I1), s	4.2	4.8	5.6	4.1	3.0	15.3	3.5	5.2				
Green Ext Time (p_c), s	0.1	1.8	0.3	0.3	0.0	2.6	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Queues

Existing AM

16: Sonoma Blvd (SR-29) & SR-37 Ramps

07/01/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	420	889	561	36	1493	207
v/c Ratio	0.44	0.75	0.27	0.04	0.73	0.13
Control Delay	24.7	13.3	8.4	3.0	14.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	13.3	8.4	3.0	14.2	0.2
Queue Length 50th (ft)	75	61	56	0	218	0
Queue Length 95th (ft)	166	192	125	13	452	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	2346	2082	3329	1491	3329	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.43	0.17	0.02	0.45	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Existing AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔		↔↔		↑↑	↔		↑↑	↔
Traffic Volume (veh/h)	0	0	0	386	0	818	0	516	33	0	1374	190
Future Volume (veh/h)	0	0	0	386	0	818	0	516	33	0	1374	190
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				420	0	889	0	561	36	0	1493	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1276	0	1030	0	1880	839	0	1880	
Arrive On Green				0.37	0.00	0.37	0.00	0.53	0.53	0.00	0.53	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				420	0	889	0	561	36	0	1493	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				8.3	0.0	28.3	0.0	8.4	1.0	0.0	32.7	0.0
Cycle Q Clear(g_c), s				8.3	0.0	28.3	0.0	8.4	1.0	0.0	32.7	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1276	0	1030	0	1880	839	0	1880	
V/C Ratio(X)				0.33	0.00	0.86	0.00	0.30	0.04	0.00	0.79	
Avail Cap(c_a), veh/h				1673	0	1351	0	3127	1395	0	3127	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				21.4	0.0	27.7	0.0	12.3	10.6	0.0	18.0	0.0
Incr Delay (d2), s/veh				0.1	0.0	4.7	0.0	0.1	0.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.2	0.0	9.4	0.0	3.0	0.3	0.0	11.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.5	0.0	32.4	0.0	12.4	10.6	0.0	18.8	0.0
LnGrp LOS				C	A	C	A	B	B	A	B	
Approach Vol, veh/h					1309			597			1493	
Approach Delay, s/veh					28.9			12.3			18.8	
Approach LOS					C			B			B	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		55.3				55.3		40.0				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		84.5				84.5		46.5				
Max Q Clear Time (g_c+I1), s		10.4				34.7		30.3				
Green Ext Time (p_c), s		4.1				16.2		5.2				

Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

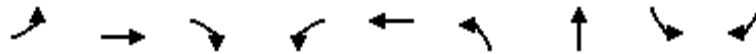
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Existing PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	23	657	992	141	708	1021	180	1	2
v/c Ratio	0.16	0.69	0.63	0.56	0.34	0.76	0.18	0.01	0.01
Control Delay	43.8	32.7	2.0	46.2	19.2	27.0	0.4	45.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	32.7	2.0	46.2	19.2	27.0	0.4	45.0	0.0
Queue Length 50th (ft)	12	164	0	69	79	223	0	1	0
Queue Length 95th (ft)	41	268	0	#169	172	405	0	7	0
Internal Link Dist (ft)		1084			414		644		
Turn Bay Length (ft)	230			215		425		100	
Base Capacity (vph)	537	1342	1568	293	2111	1637	1088	394	612
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.49	0.63	0.48	0.34	0.62	0.17	0.00	0.00

Intersection Summary

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

HCM 6th Signalized Intersection Summary

Existing PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	21	604	913	130	650	1	939	0	166	1	0	2
Future Volume (veh/h)	21	604	913	130	650	1	939	0	166	1	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	657	0	141	707	1	1021	0	0	1	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	46	913		181	1751	2	1243	540		134	8	6
Arrive On Green	0.03	0.26	0.00	0.10	0.34	0.34	0.36	0.00	0.00	0.08	0.00	0.00
Sat Flow, veh/h	1767	3526	1572	1767	5224	7	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	23	657	0	141	457	251	1021	0	0	1	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1854	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	0.8	11.2	0.0	5.1	6.9	6.9	17.9	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.8	11.2	0.0	5.1	6.9	6.9	17.9	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	913		181	1132	622	1243	540		134	8	6
V/C Ratio(X)	0.50	0.72		0.78	0.40	0.40	0.82	0.00		0.01	0.00	0.31
Avail Cap(c_a), veh/h	655	1631		358	1132	622	1995	1122		481	547	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	22.3	0.0	29.0	16.9	16.9	19.1	0.0	0.0	28.3	0.0	32.8
Incr Delay (d2), s/veh	8.1	1.1	0.0	7.1	0.2	0.4	1.5	0.0	0.0	0.0	0.0	25.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.3	0.0	2.4	2.4	2.6	6.7	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	23.4	0.0	36.1	17.1	17.3	20.7	0.0	0.0	28.3	0.0	58.6
LnGrp LOS	D	C		D	B	B	C	A		C	A	E
Approach Vol, veh/h		680			849			1021				3
Approach Delay, s/veh		24.0			20.3			20.7				48.5
Approach LOS		C			C			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	23.7	11.3	21.6	28.5	4.8	6.2	26.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	40.0	13.4	30.6	38.5	19.5	24.5	19.5				
Max Q Clear Time (g_c+I1), s	2.0	0.0	7.1	13.2	19.9	2.1	2.8	8.9				
Green Ext Time (p_c), s	0.0	0.0	0.2	3.9	4.1	0.0	0.0	3.1				

Intersection Summary

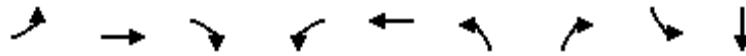
HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Existing PM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	57	636	233	32	650	158	27	2	4
v/c Ratio	0.15	0.32	0.24	0.09	0.37	0.19	0.04	0.01	0.01
Control Delay	21.3	9.9	3.1	22.4	12.2	19.4	0.1	24.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	9.9	3.1	22.4	12.2	19.4	0.1	24.5	0.0
Queue Length 50th (ft)	12	31	0	7	65	17	0	1	0
Queue Length 95th (ft)	52	149	40	35	160	55	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	857	3363	1514	609	3312	1790	1276	435	1015
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.19	0.15	0.05	0.20	0.09	0.02	0.00	0.00
Intersection Summary									

HCM 6th Signalized Intersection Summary
 2: N Ascot Parkway & Columbus Parkway

Existing PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↗↘	↑	↗	↘	↗	
Traffic Volume (veh/h)	52	585	214	29	598	0	145	0	25	2	0	4
Future Volume (veh/h)	52	585	214	29	598	0	145	0	25	2	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	636	0	32	650	0	158	0	27	2	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	105	1229		67	1152	0	364	263	223	5	0	61
Arrive On Green	0.06	0.35	0.00	0.04	0.33	0.00	0.11	0.00	0.14	0.00	0.00	0.04
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	57	636	0	32	650	0	158	0	27	2	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.2	5.5	0.0	0.7	5.8	0.0	1.7	0.0	0.6	0.0	0.0	0.1
Cycle Q Clear(g_c), s	1.2	5.5	0.0	0.7	5.8	0.0	1.7	0.0	0.6	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	1229		67	1152	0	364	263	223	5	0	61
V/C Ratio(X)	0.54	0.52		0.48	0.56	0.00	0.43	0.00	0.12	0.41	0.00	0.07
Avail Cap(c_a), veh/h	714	5007		484	4548	0	1563	1426	1209	345	0	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.5	9.9	0.0	18.1	10.7	0.0	16.1	0.0	14.4	19.1	0.0	17.8
Incr Delay (d2), s/veh	4.3	0.3	0.0	5.3	0.4	0.0	0.8	0.0	0.2	47.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	0.0	0.3	1.6	0.0	0.6	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	10.3	0.0	23.4	11.1	0.0	16.9	0.0	14.6	66.6	0.0	18.2
LnGrp LOS	C	B		C	B	A	B	A	B	E	A	B
Approach Vol, veh/h		693			682			185				6
Approach Delay, s/veh		11.2			11.7			16.6				34.4
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	9.9	5.9	17.9	8.6	6.0	6.8	17.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	29.5	10.5	54.5	17.5	19.5	15.5	49.5				
Max Q Clear Time (g_c+I1), s	2.0	2.6	2.7	7.5	3.7	2.1	3.2	7.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.6	0.4	0.0	0.1	4.7				

Intersection Summary

HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Existing PM
07/01/2024

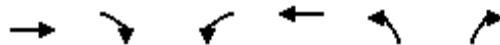


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	416	220	40	513	125	22
v/c Ratio	0.19	0.20	0.07	0.21	0.11	0.04
Control Delay	6.4	2.5	12.5	4.0	10.9	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	2.5	12.5	4.0	10.9	7.3
Queue Length 50th (ft)	17	0	4	22	6	0
Queue Length 95th (ft)	68	32	28	41	31	14
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3505	1568	1532	3505	3161	1459
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.14	0.03	0.15	0.04	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Existing PM
07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	383	202	37	472	115	20
Future Volume (veh/h)	383	202	37	472	115	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	416	220	40	513	125	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1036	462	281	2103	395	181
Arrive On Green	0.29	0.29	0.16	0.60	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	416	220	40	513	125	22
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	3.0	3.6	0.6	2.1	1.0	0.4
Cycle Q Clear(g_c), s	3.0	3.6	0.6	2.1	1.0	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1036	462	281	2103	395	181
V/C Ratio(X)	0.40	0.48	0.14	0.24	0.32	0.12
Avail Cap(c_a), veh/h	5812	2593	1443	9198	3238	1485
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	8.8	9.1	11.3	3.0	12.7	12.4
Incr Delay (d2), s/veh	0.3	0.8	0.2	0.1	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.8	0.2	0.1	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.1	9.8	11.5	3.0	13.1	12.7
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	636			553	147	
Approach Delay, s/veh	9.3			3.7	13.1	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.1	9.5	13.7		23.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		29.5	25.5	51.5		81.5
Max Q Clear Time (g_c+I1), s		3.0	2.6	5.6		4.1
Green Ext Time (p_c), s		0.4	0.1	3.6		3.6
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Existing PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	890	203	813	40	17	185	133	91
v/c Ratio	0.35	0.68	0.57	0.46	0.05	0.06	0.38	0.58	0.22
Control Delay	41.6	23.6	37.3	14.9	2.7	28.0	8.6	40.5	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	23.6	37.3	14.9	2.7	28.0	8.6	40.5	11.3
Queue Length 50th (ft)	30	165	80	125	0	6	4	52	5
Queue Length 95th (ft)	99	337	206	243	12	28	62	146	49
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	318	2398	648	2878	1297	626	861	499	824
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.37	0.31	0.28	0.03	0.03	0.21	0.27	0.11
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Existing PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	69	782	37	187	748	37	16	12	158	122	15	69
Future Volume (veh/h)	69	782	37	187	748	37	16	12	158	122	15	69
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	850	40	203	813	40	17	13	172	133	16	75
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	107	1240	58	262	1583	706	398	28	377	312	72	340
Arrive On Green	0.06	0.36	0.36	0.15	0.45	0.45	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1767	3428	161	1767	3526	1572	1295	112	1478	1189	284	1332
Grp Volume(v), veh/h	75	437	453	203	813	40	17	0	185	133	0	91
Grp Sat Flow(s),veh/h/ln	1767	1763	1827	1767	1763	1572	1295	0	1590	1189	0	1616
Q Serve(g_s), s	2.4	12.1	12.1	6.3	9.5	0.8	0.6	0.0	5.6	6.1	0.0	2.6
Cycle Q Clear(g_c), s	2.4	12.1	12.1	6.3	9.5	0.8	3.2	0.0	5.6	11.7	0.0	2.6
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	107	637	660	262	1583	706	398	0	406	312	0	412
V/C Ratio(X)	0.70	0.69	0.69	0.78	0.51	0.06	0.04	0.00	0.46	0.43	0.00	0.22
Avail Cap(c_a), veh/h	385	1458	1511	785	3715	1657	824	0	928	703	0	943
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	0.00	1.00
Uniform Delay (d), s/veh	26.4	15.6	15.6	23.5	11.3	8.9	18.1	0.0	18.0	23.0	0.0	16.9
Incr Delay (d2), s/veh	7.9	1.3	1.3	4.9	0.3	0.0	0.0	0.0	0.8	0.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	4.5	4.6	2.8	3.2	0.2	0.2	0.0	2.0	1.7	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	16.9	16.8	28.4	11.6	9.0	18.2	0.0	18.8	23.9	0.0	17.1
LnGrp LOS	C	B	B	C	B	A	B	A	B	C	A	B
Approach Vol, veh/h		965			1056			202			224	
Approach Delay, s/veh		18.2			14.7			18.8			21.2	
Approach LOS		B			B			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.1	13.0	25.3		19.1	8.0	30.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		33.5	25.5	47.5		33.5	12.5	60.5				
Max Q Clear Time (g_c+I1), s		7.6	8.3	14.1		13.7	4.4	11.5				
Green Ext Time (p_c), s		1.2	0.5	6.7		0.9	0.1	7.2				
Intersection Summary												
HCM 6th Ctrl Delay				17.0								
HCM 6th LOS				B								

Queues

Existing PM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	509	422	484	92	48	430	109	58	60
v/c Ratio	0.38	0.65	0.75	0.29	0.41	0.21	0.75	0.45	0.24	0.18
Control Delay	48.6	36.1	38.0	14.8	45.9	40.2	13.3	45.6	39.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	36.1	38.0	14.8	45.9	40.2	13.3	45.6	39.6	1.2
Queue Length 50th (ft)	36	124	198	71	46	24	0	54	28	0
Queue Length 95th (ft)	103	247	#418	150	117	66	95	134	74	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	246	1084	850	2179	419	586	791	419	586	590
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.47	0.50	0.22	0.22	0.08	0.54	0.26	0.10	0.10

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Existing PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	395	74	388	311	134	85	44	396	100	53	55
Future Volume (veh/h)	67	395	74	388	311	134	85	44	396	100	53	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	429	80	422	338	146	92	48	430	109	58	60
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	547	101	469	956	405	132	493	418	149	511	433
Arrive On Green	0.05	0.18	0.18	0.27	0.40	0.40	0.07	0.27	0.27	0.08	0.28	0.28
Sat Flow, veh/h	1767	2970	550	1767	2412	1023	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	73	253	256	422	245	239	92	48	430	109	58	60
Grp Sat Flow(s),veh/h/ln	1767	1763	1757	1767	1763	1671	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.7	12.3	12.5	20.7	8.8	9.0	4.6	1.8	23.9	5.4	2.1	2.6
Cycle Q Clear(g_c), s	3.7	12.3	12.5	20.7	8.8	9.0	4.6	1.8	23.9	5.4	2.1	2.6
Prop In Lane	1.00		0.31	1.00		0.61	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	325	324	469	699	663	132	493	418	149	511	433
V/C Ratio(X)	0.77	0.78	0.79	0.90	0.35	0.36	0.70	0.10	1.03	0.73	0.11	0.14
Avail Cap(c_a), veh/h	208	463	461	717	970	920	354	493	418	354	511	433
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	34.9	35.0	31.9	19.0	19.1	40.6	24.9	33.0	40.2	24.4	24.5
Incr Delay (d2), s/veh	12.6	5.4	5.9	10.0	0.3	0.3	6.5	0.1	51.7	6.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.7	5.8	9.9	3.5	3.5	2.2	0.8	14.8	2.6	0.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	40.4	40.9	41.8	19.3	19.4	47.1	25.0	84.7	46.9	24.5	24.7
LnGrp LOS	D	D	D	D	B	B	D	C	F	D	C	C
Approach Vol, veh/h		582			906			570			227	
Approach Delay, s/veh		42.4			29.8			73.6			35.3	
Approach LOS		D			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	28.4	28.4	21.1	11.2	29.3	9.3	40.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	23.9	36.5	23.6	18.0	23.9	10.6	49.5				
Max Q Clear Time (g_c+I1), s	7.4	25.9	22.7	14.5	6.6	4.6	5.7	11.0				
Green Ext Time (p_c), s	0.2	0.0	1.2	2.1	0.1	0.4	0.1	3.3				

Intersection Summary												
HCM 6th Ctrl Delay				44.5								
HCM 6th LOS				D								

Queues
6: Admiral Callaghan Ln & Turner Parkway

Existing PM
07/01/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	493	26	863	76	491
v/c Ratio	0.56	0.07	0.62	0.28	0.25
Control Delay	23.6	9.7	15.1	30.2	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	9.7	15.1	30.2	6.4
Queue Length 50th (ft)	78	0	106	25	36
Queue Length 95th (ft)	159	19	207	76	75
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2116	896	3008	518	3459
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.03	0.29	0.15	0.14
Intersection Summary					

HCM 6th Signalized Intersection Summary

6: Admiral Callaghan Ln & Turner Parkway

Existing PM
07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	451	27	503	291	70	452
Future Volume (veh/h)	451	27	503	291	70	452
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	490	29	547	316	76	491
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	761	339	878	506	122	2042
Arrive On Green	0.22	0.22	0.41	0.41	0.07	0.58
Sat Flow, veh/h	3534	1572	2245	1242	1767	3618
Grp Volume(v), veh/h	490	29	448	415	76	491
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1632	1767	1763
Q Serve(g_s), s	5.5	0.6	8.8	8.9	1.8	3.0
Cycle Q Clear(g_c), s	5.5	0.6	8.8	8.9	1.8	3.0
Prop In Lane	1.00	1.00		0.76	1.00	
Lane Grp Cap(c), veh/h	761	339	719	665	122	2042
V/C Ratio(X)	0.64	0.09	0.62	0.62	0.62	0.24
Avail Cap(c_a), veh/h	2702	1202	2313	2141	625	6235
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	13.7	10.3	10.3	19.9	4.5
Incr Delay (d2), s/veh	0.9	0.1	0.9	1.0	5.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.2	2.8	2.6	0.8	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.6	13.9	11.2	11.3	25.0	4.6
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	519		863			567
Approach Delay, s/veh	16.4		11.2			7.3
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.5	22.4			29.9	13.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	15.5	57.5			77.5	33.5
Max Q Clear Time (g_c+I1), s	3.8	10.9			5.0	7.5
Green Ext Time (p_c), s	0.1	7.0			3.8	1.9

Intersection Summary

HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Existing PM
07/01/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	216	105	425	415	188
v/c Ratio	0.48	0.06	0.52	0.48	0.37
Control Delay	19.7	5.3	8.9	16.8	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	5.3	8.9	16.8	5.8
Queue Length 50th (ft)	46	5	15	42	0
Queue Length 95th (ft)	120	16	56	97	43
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1510	3505	2184	2776	1214
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.03	0.19	0.15	0.15
Intersection Summary					

HCM 6th Signalized Intersection Summary

7: Turner Parkway & Plaza Drive

Existing PM
07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	199	97	122	269	315	240	
Future Volume (veh/h)	199	97	122	269	315	240	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	216	105	133	292	398	201	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	292	1965	494	440	774	344	
Arrive On Green	0.17	0.56	0.28	0.28	0.22	0.22	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	216	105	133	292	398	201	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	4.7	0.5	2.4	6.6	4.0	4.6	
Cycle Q Clear(g_c), s	4.7	0.5	2.4	6.6	4.0	4.6	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	292	1965	494	440	774	344	
V/C Ratio(X)	0.74	0.05	0.27	0.66	0.51	0.58	
Avail Cap(c_a), veh/h	1735	6441	1293	1153	3294	1466	
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	16.0	4.1	11.3	12.8	13.8	14.1	
Incr Delay (d2), s/veh	3.6	0.0	0.3	1.7	0.5	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.9	0.1	0.8	2.1	1.4	0.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.6	4.1	11.6	14.5	14.4	15.6	
LnGrp LOS	B	A	B	B	B	B	
Approach Vol, veh/h		321	425		599		
Approach Delay, s/veh		14.5	13.6		14.8		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				26.9	13.3	11.2	15.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				73.5	37.5	39.5	29.5
Max Q Clear Time (g_c+I1), s				2.5	6.6	6.7	8.6
Green Ext Time (p_c), s				0.7	2.2	0.6	2.7

Intersection Summary

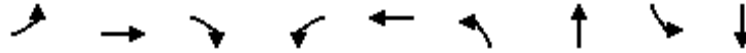
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Existing PM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	62	11	354	5	19	329	124	22	239
v/c Ratio	0.21	0.04	0.63	0.02	0.08	0.58	0.06	0.09	0.36
Control Delay	24.2	21.5	9.0	27.6	19.9	19.9	7.5	26.2	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	21.5	9.0	27.6	19.9	19.9	7.5	26.2	15.7
Queue Length 50th (ft)	13	2	0	1	2	64	4	5	17
Queue Length 95th (ft)	61	17	67	13	23	209	34	31	67
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	449	1296	1207	214	978	1511	3313	293	1775
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.01	0.29	0.02	0.02	0.22	0.04	0.08	0.13

Intersection Summary

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Existing PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	10	326	5	9	8	303	111	3	20	140	80
Future Volume (veh/h)	57	10	326	5	9	8	303	111	3	20	140	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	62	11	354	5	10	9	329	121	3	22	152	87
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	102	509	431	12	201	181	411	1184	29	46	288	156
Arrive On Green	0.06	0.27	0.27	0.01	0.22	0.22	0.23	0.34	0.34	0.03	0.13	0.13
Sat Flow, veh/h	1767	1856	1572	1767	900	810	1767	3516	87	1767	2207	1196
Grp Volume(v), veh/h	62	11	354	5	0	19	329	60	64	22	120	119
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1710	1767	1763	1840	1767	1763	1640
Q Serve(g_s), s	1.7	0.2	10.7	0.1	0.0	0.4	8.9	1.2	1.2	0.6	3.2	3.4
Cycle Q Clear(g_c), s	1.7	0.2	10.7	0.1	0.0	0.4	8.9	1.2	1.2	0.6	3.2	3.4
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.05	1.00		0.73
Lane Grp Cap(c), veh/h	102	509	431	12	0	382	411	594	620	46	230	214
V/C Ratio(X)	0.61	0.02	0.82	0.42	0.00	0.05	0.80	0.10	0.10	0.47	0.52	0.56
Avail Cap(c_a), veh/h	402	1156	979	192	0	862	1450	2004	2092	262	819	762
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	13.4	17.2	25.0	0.0	15.4	18.3	11.5	11.5	24.3	20.5	20.6
Incr Delay (d2), s/veh	5.8	0.0	3.9	22.1	0.0	0.1	3.7	0.1	0.1	7.3	1.8	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.1	3.8	0.1	0.0	0.2	3.5	0.4	0.4	0.3	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	13.4	21.1	47.1	0.0	15.5	22.0	11.6	11.6	31.6	22.3	22.9
LnGrp LOS	C	B	C	D	A	B	C	B	B	C	C	C
Approach Vol, veh/h		427			24			453			261	
Approach Delay, s/veh		22.1			22.1			19.1			23.4	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	21.5	4.8	18.4	16.3	11.1	7.4	15.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	57.5	5.5	31.5	41.5	23.5	11.5	25.5				
Max Q Clear Time (g_c+I1), s	2.6	3.2	2.1	12.7	10.9	5.4	3.7	2.4				
Green Ext Time (p_c), s	0.0	0.7	0.0	1.2	1.0	1.2	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

Queues
9: Ascot Parkway & Redwood Street

Existing PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	99	325	39	156	125	338	33	407
v/c Ratio	0.30	0.31	0.15	0.26	0.35	0.27	0.13	0.48
Control Delay	25.9	11.6	26.8	21.0	25.5	14.2	27.0	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	11.6	26.8	21.0	25.5	14.2	27.0	15.9
Queue Length 50th (ft)	29	18	12	18	37	30	10	41
Queue Length 95th (ft)	81	69	42	52	96	88	38	93
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	891	2158	458	1668	915	2913	419	2265
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.15	0.09	0.09	0.14	0.12	0.08	0.18

Intersection Summary

HCM 6th Signalized Intersection Summary
9: Ascot Parkway & Redwood Street

Existing PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	91	157	142	36	108	36	115	258	53	30	224	151
Future Volume (veh/h)	91	157	142	36	108	36	115	258	53	30	224	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		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	99	171	0	39	117	0	125	280	0	33	243	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	156	633		80	481		177	787		69	572	
Arrive On Green	0.09	0.18	0.00	0.05	0.14	0.00	0.10	0.22	0.00	0.04	0.16	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	99	171	0	39	117	0	125	280	0	33	243	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	1.9	1.5	0.0	0.8	1.0	0.0	2.4	2.4	0.0	0.6	2.2	0.0
Cycle Q Clear(g_c), s	1.9	1.5	0.0	0.8	1.0	0.0	2.4	2.4	0.0	0.6	2.2	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	156	633		80	481		177	787		69	572	
V/C Ratio(X)	0.64	0.27		0.49	0.24		0.70	0.36		0.48	0.42	
Avail Cap(c_a), veh/h	1133	3264		579	2159		1183	4770		529	3465	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.5	12.4	0.0	16.4	13.5	0.0	15.3	11.5	0.0	16.5	13.2	0.0
Incr Delay (d2), s/veh	4.2	0.2	0.0	4.6	0.3	0.0	5.0	0.3	0.0	5.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.5	0.0	0.3	0.3	0.0	1.0	0.7	0.0	0.3	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.7	12.6	0.0	21.0	13.8	0.0	20.3	11.8	0.0	21.5	13.7	0.0
LnGrp LOS	B	B		C	B		C	B		C	B	
Approach Vol, veh/h		270			156			405			276	
Approach Delay, s/veh		15.2			15.6			14.4			14.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	12.3	6.1	10.8	8.0	10.2	7.6	9.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	47.5	11.5	32.5	23.5	34.5	22.5	21.5				
Max Q Clear Time (g_c+I1), s	2.6	4.4	2.8	3.5	4.4	4.2	3.9	3.0				
Green Ext Time (p_c), s	0.0	1.9	0.0	1.0	0.3	1.5	0.2	0.5				

Intersection Summary

HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Existing PM
07/01/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	387	180	221	138	187
v/c Ratio	0.46	0.43	0.11	0.37	0.39
Control Delay	14.9	19.3	4.6	19.7	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	19.3	4.6	19.7	6.3
Queue Length 50th (ft)	35	38	10	29	0
Queue Length 95th (ft)	82	100	25	82	41
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	2497	1449	3505	1479	1353
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.12	0.06	0.09	0.14
Intersection Summary					

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

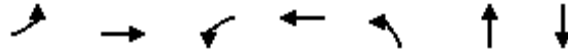
Existing PM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	240	116	166	203	127	172
Future Volume (veh/h)	240	116	166	203	127	172
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	261	126	180	221	138	187
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	550	258	248	1832	342	305
Arrive On Green	0.24	0.24	0.14	0.52	0.19	0.19
Sat Flow, veh/h	2423	1092	1767	3618	1767	1572
Grp Volume(v), veh/h	196	191	180	221	138	187
Grp Sat Flow(s),veh/h/ln	1763	1659	1767	1763	1767	1572
Q Serve(g_s), s	3.0	3.1	3.1	1.0	2.1	3.4
Cycle Q Clear(g_c), s	3.0	3.1	3.1	1.0	2.1	3.4
Prop In Lane		0.66	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	416	392	248	1832	342	305
V/C Ratio(X)	0.47	0.49	0.73	0.12	0.40	0.61
Avail Cap(c_a), veh/h	1824	1716	2053	8249	2110	1877
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	10.3	10.4	12.9	3.9	11.1	11.6
Incr Delay (d2), s/veh	0.8	0.9	4.0	0.0	0.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	1.2	0.1	0.7	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.1	11.3	16.9	3.9	11.8	13.6
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	387			401	325	
Approach Delay, s/veh	11.2			9.8	12.8	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.6	8.9	11.9		20.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	36.5	32.5		73.5
Max Q Clear Time (g_c+I1), s		5.4	5.1	5.1		3.0
Green Ext Time (p_c), s		1.0	0.5	2.3		1.5
Intersection Summary						
HCM 6th Ctrl Delay			11.2			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Existing PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	23	789	58	361	232	98	7
v/c Ratio	0.10	0.59	0.22	0.23	0.54	0.14	0.01
Control Delay	32.1	16.9	30.4	11.9	24.8	0.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	16.9	30.4	11.9	24.8	0.4	0.0
Queue Length 50th (ft)	7	111	19	28	70	0	0
Queue Length 95th (ft)	35	226	64	96	171	0	0
Internal Link Dist (ft)		424		851		1161	269
Turn Bay Length (ft)	125		125		75		
Base Capacity (vph)	306	2755	451	2972	1117	1318	1355
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.29	0.13	0.12	0.21	0.07	0.01
Intersection Summary							

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Existing PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Traffic Volume (veh/h)	21	554	172	53	331	1	213	0	90	0	0	6
Future Volume (veh/h)	21	554	172	53	331	1	213	0	90	0	0	6
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	602	187	58	360	1	232	0	98	0	0	7
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	50	989	307	105	1459	4	500	0	367	178	0	367
Arrive On Green	0.03	0.37	0.37	0.06	0.40	0.40	0.23	0.00	0.23	0.00	0.00	0.23
Sat Flow, veh/h	1767	2649	821	1767	3606	10	1397	0	1572	1287	0	1572
Grp Volume(v), veh/h	23	400	389	58	176	185	232	0	98	0	0	7
Grp Sat Flow(s),veh/h/ln	1767	1763	1708	1767	1763	1854	1397	0	1572	1287	0	1572
Q Serve(g_s), s	0.5	7.4	7.5	1.3	2.7	2.7	6.2	0.0	2.1	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.5	7.4	7.5	1.3	2.7	2.7	6.3	0.0	2.1	0.0	0.0	0.1
Prop In Lane	1.00		0.48	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	50	658	638	105	713	750	500	0	367	178	0	367
V/C Ratio(X)	0.46	0.61	0.61	0.55	0.25	0.25	0.46	0.00	0.27	0.00	0.00	0.02
Avail Cap(c_a), veh/h	371	2070	2005	546	2244	2360	1780	0	1808	1357	0	1808
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	0.00	0.00	1.00
Uniform Delay (d), s/veh	19.4	10.3	10.3	18.5	8.0	8.0	14.4	0.0	12.7	0.0	0.0	11.9
Incr Delay (d2), s/veh	6.5	0.9	0.9	4.5	0.2	0.2	0.7	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.2	2.1	0.6	0.7	0.8	1.7	0.0	0.6	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	11.2	11.2	23.0	8.1	8.1	15.0	0.0	13.1	0.0	0.0	12.0
LnGrp LOS	C	B	B	C	A	A	B	A	B	A	A	B
Approach Vol, veh/h		812			419			330				7
Approach Delay, s/veh		11.6			10.2			14.5				12.0
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.0	6.9	19.6		14.0	5.6	20.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		46.5	12.5	47.5		46.5	8.5	51.5				
Max Q Clear Time (g_c+I1), s		8.3	3.3	9.5		2.1	2.5	4.7				
Green Ext Time (p_c), s		1.3	0.1	5.6		0.0	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay				11.8								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Existing PM
07/01/2024



Lane Group	EBL	EBT	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	598	452	636	363	125	224	1115
v/c Ratio	0.76	0.25	0.77	0.61	0.34	0.39	0.80
Control Delay	41.7	14.1	35.6	42.4	10.1	38.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	14.1	35.6	42.4	10.1	38.3	7.5
Queue Length 50th (ft)	170	73	151	105	0	62	0
Queue Length 95th (ft)	287	140	272	186	52	110	58
Internal Link Dist (ft)		852	424	1178			
Turn Bay Length (ft)	275				450	100	300
Base Capacity (vph)	1053	2270	1030	848	474	1053	1624
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.20	0.62	0.43	0.26	0.21	0.69
Intersection Summary							

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Existing PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑			↑↓			↑↑	↖	↖↗		↖↗
Traffic Volume (veh/h)	550	416	0	0	352	233	0	334	115	206	0	1026
Future Volume (veh/h)	550	416	0	0	352	233	0	334	115	206	0	1026
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	1856	1856	0	0	1856	1856	0	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	598	452	0	0	383	253	0	363	125	224	0	1115
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, %	3	3	0	0	3	3	0	3	3	3	0	3
Cap, veh/h	763	1901	0	0	512	333	0	563	251	348	0	0
Arrive On Green	0.22	0.54	0.00	0.00	0.25	0.25	0.00	0.16	0.16	0.10	0.00	0.00
Sat Flow, veh/h	3428	3618	0	0	2138	1333	0	3618	1572	3428	224	
Grp Volume(v), veh/h	598	452	0	0	329	307	0	363	125	224	31.2	
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1616	0	1763	1572	1714	C	
Q Serve(g_s), s	11.1	4.6	0.0	0.0	11.7	11.9	0.0	6.5	4.9	4.3		
Cycle Q Clear(g_c), s	11.1	4.6	0.0	0.0	11.7	11.9	0.0	6.5	4.9	4.3		
Prop In Lane	1.00		0.00	0.00		0.83	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	763	1901	0	0	441	404	0	563	251	348		
V/C Ratio(X)	0.78	0.24	0.00	0.00	0.75	0.76	0.00	0.64	0.50	0.64		
Avail Cap(c_a), veh/h	1393	2996	0	0	664	609	0	1120	500	1393		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	24.8	8.2	0.0	0.0	23.4	23.5	0.0	26.6	26.0	29.2		
Incr Delay (d2), s/veh	1.8	0.1	0.0	0.0	2.5	3.0	0.0	1.2	1.5	2.0		
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		
%ile BackOfQ(50%),veh/ln	4.4	1.5	0.0	0.0	4.8	4.5	0.0	2.7	1.9	1.8		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	8.3	0.0	0.0	25.9	26.5	0.0	27.9	27.5	31.2		
LnGrp LOS	C	A	A	A	C	C	A	C	C	C		
Approach Vol, veh/h		1050			636			488				
Approach Delay, s/veh		18.7			26.2			27.8				
Approach LOS		B			C			C				
Timer - Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	11.4	15.3		41.0			19.6	21.4				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	27.5	21.5		57.5			27.5	25.5				
Max Q Clear Time (g_c+I1), s	6.3	8.5		6.6			13.1	13.9				
Green Ext Time (p_c), s	0.7	2.3		3.3			2.0	3.0				

Intersection Summary

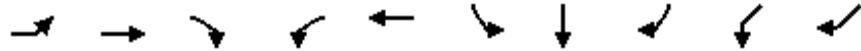
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Queues

Existing PM

13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

06/13/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	SBL	SBT	SBR	SWL	SWR
Lane Group Flow (vph)	89	741	552	489	1017	150	149	95	159	242
v/c Ratio	0.49	0.67	0.66	0.73	0.67	0.60	0.57	0.28	0.61	0.69
Control Delay	56.4	32.9	8.7	45.9	26.2	53.8	51.8	4.7	52.7	30.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	32.9	8.7	45.9	26.2	53.8	51.8	4.7	52.7	30.8
Queue Length 50th (ft)	54	208	25	148	272	90	89	0	95	62
Queue Length 95th (ft)	122	321	140	245	413	180	178	20	186	166
Internal Link Dist (ft)		693			852		265		1072	
Turn Bay Length (ft)	150		200	285		125		125		
Base Capacity (vph)	235	1517	960	867	1883	344	362	417	389	454
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.49	0.57	0.56	0.54	0.44	0.41	0.23	0.41	0.53

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Existing PM
 06/13/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL2	SWL	SWR
Lane Configurations												
Traffic Volume (vph)	82	682	508	450	755	180	138	137	87	146	0	202
Future Volume (vph)	82	682	508	450	755	180	138	137	87	146	0	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3404		1752	1845	1568		1752	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3404		1752	1845	1568		1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	741	552	489	821	196	150	149	95	159	0	220
RTOR Reduction (vph)	0	0	333	0	0	0	0	0	82	0	0	116
Lane Group Flow (vph)	89	741	219	489	1017	0	150	149	13	0	159	126
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Prot	Prot	Prot
Protected Phases	5	2		1	6		4	4	4	8	8	8
Permitted Phases			2									
Actuated Green, G (s)	8.1	32.0	32.0	19.1	43.0		13.7	13.7	13.7		14.4	14.4
Effective Green, g (s)	8.1	32.0	32.0	19.1	43.0		13.7	13.7	13.7		14.4	14.4
Actuated g/C Ratio	0.08	0.33	0.33	0.20	0.44		0.14	0.14	0.14		0.15	0.15
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	146	1153	516	668	1505		246	260	221		259	232
v/s Ratio Prot	0.05	0.21		c0.14	c0.30		c0.09	0.08	0.01		c0.09	0.08
v/s Ratio Perm			0.14									
v/c Ratio	0.61	0.64	0.42	0.73	0.68		0.61	0.57	0.06		0.61	0.54
Uniform Delay, d1	43.0	27.7	25.4	36.6	21.6		39.2	39.0	36.2		38.8	38.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.0	1.2	0.6	4.1	1.2		4.2	3.0	0.1		4.3	2.6
Delay (s)	50.1	29.0	26.0	40.8	22.8		43.5	42.1	36.3		43.1	40.9
Level of Service	D	C	C	D	C		D	D	D		D	D
Approach Delay (s)		29.1			28.6			41.2			41.8	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.69	
Actuated Cycle Length (s)	97.2	Sum of lost time (s) 18.0
Intersection Capacity Utilization	62.8%	ICU Level of Service B
Analysis Period (min)	15	

c Critical Lane Group



Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	20
Future Volume (vph)	20
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	22
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

Existing PM

14: Lake Herman Road & Columbus Parkway

07/01/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	264	370	32	49	366
v/c Ratio	0.21	0.44	0.33	0.06	0.12	0.24
Control Delay	13.4	5.4	10.8	5.8	14.2	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	5.4	10.8	5.8	14.2	5.5
Queue Length 50th (ft)	9	0	16	0	5	15
Queue Length 95th (ft)	49	43	67	14	32	34
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1736	1556	3369	1508	1431	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.17	0.11	0.02	0.03	0.10

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Existing PM
 07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	87	243	340	29	45	337
Future Volume (veh/h)	87	243	340	29	45	337
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	95	264	370	32	49	366
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	421	375	785	350	254	1756
Arrive On Green	0.24	0.24	0.22	0.22	0.14	0.50
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	95	264	370	32	49	366
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	1.5	5.2	3.1	0.6	0.8	2.0
Cycle Q Clear(g_c), s	1.5	5.2	3.1	0.6	0.8	2.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	421	375	785	350	254	1756
V/C Ratio(X)	0.23	0.70	0.47	0.09	0.19	0.21
Avail Cap(c_a), veh/h	2252	2004	3976	1773	1268	6971
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	10.5	11.9	11.5	10.5	12.9	4.8
Incr Delay (d2), s/veh	0.3	2.4	0.4	0.1	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	0.9	0.1	0.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.7	14.3	12.0	10.6	13.2	4.9
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	359		402			415
Approach Delay, s/veh	13.4		11.9			5.8
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.4	12.1			21.5	12.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	24.5	38.5			67.5	43.5
Max Q Clear Time (g_c+I1), s	2.8	5.1			4.0	7.2
Green Ext Time (p_c), s	0.1	2.5			2.5	1.2
Intersection Summary						
HCM 6th Ctrl Delay			10.2			
HCM 6th LOS			B			

Queues

Existing PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	83	190	103	110	155	73	865	154	112	376
v/c Ratio	0.42	0.60	0.47	0.32	0.37	0.39	0.70	0.56	0.13	0.41
Control Delay	49.6	44.5	49.3	38.4	9.3	49.9	28.3	47.3	19.1	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	44.5	49.3	38.4	9.3	49.9	28.3	47.3	19.1	3.6
Queue Length 50th (ft)	43	94	53	53	0	38	209	79	39	0
Queue Length 95th (ft)	114	207	134	127	56	104	353	181	87	55
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	280	519	322	572	593	255	1982	434	1216	1162
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.37	0.32	0.19	0.26	0.29	0.44	0.35	0.09	0.32

Intersection Summary

HCM 6th Signalized Intersection Summary

Existing PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	145	29	95	101	143	67	650	145	142	103	346
Future Volume (veh/h)	76	145	29	95	101	143	67	650	145	142	103	346
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	83	158	32	103	110	155	73	707	158	154	112	376
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	111	223	45	135	300	255	105	1017	227	201	761	645
Arrive On Green	0.06	0.15	0.15	0.08	0.16	0.16	0.06	0.36	0.36	0.11	0.41	0.41
Sat Flow, veh/h	1767	1498	303	1767	1856	1572	1767	2864	640	1767	1856	1572
Grp Volume(v), veh/h	83	0	190	103	110	155	73	435	430	154	112	376
Grp Sat Flow(s),veh/h/ln	1767	0	1801	1767	1856	1572	1767	1763	1740	1767	1856	1572
Q Serve(g_s), s	2.7	0.0	5.9	3.4	3.1	5.4	2.4	12.4	12.4	5.0	2.2	10.9
Cycle Q Clear(g_c), s	2.7	0.0	5.9	3.4	3.1	5.4	2.4	12.4	12.4	5.0	2.2	10.9
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	111	0	268	135	300	255	105	626	618	201	761	645
V/C Ratio(X)	0.74	0.00	0.71	0.76	0.37	0.61	0.70	0.69	0.70	0.77	0.15	0.58
Avail Cap(c_a), veh/h	378	0	689	435	769	652	345	1363	1346	586	1687	1430
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	23.8	26.7	22.0	22.9	27.2	16.2	16.2	25.3	10.9	13.5
Incr Delay (d2), s/veh	9.4	0.0	3.4	8.7	0.7	2.3	8.1	1.4	1.4	6.0	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.6	1.7	1.3	2.0	1.2	4.7	4.6	2.3	0.8	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	0.0	27.3	35.3	22.7	25.3	35.3	17.6	17.7	31.3	11.0	14.3
LnGrp LOS	D	A	C	D	C	C	D	B	B	C	B	B
Approach Vol, veh/h		273			368			938			642	
Approach Delay, s/veh		30.1			27.3			19.0			17.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	25.4	9.0	13.3	8.0	28.6	8.2	14.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	45.5	14.5	22.5	11.5	53.5	12.6	24.4				
Max Q Clear Time (g_c+I1), s	7.0	14.4	5.4	7.9	4.4	12.9	4.7	7.4				
Green Ext Time (p_c), s	0.3	6.5	0.1	0.8	0.1	2.1	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Queues

Existing PM

16: Sonoma Blvd (SR-29) & SR-37 Ramps

07/01/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	348	891	960	87	1340	268
v/c Ratio	0.27	0.77	0.53	0.10	0.75	0.17
Control Delay	21.4	25.7	16.8	3.5	21.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	25.7	16.8	3.5	21.2	0.2
Queue Length 50th (ft)	65	192	172	0	283	0
Queue Length 95th (ft)	139	390	336	26	541	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	2307	1929	2903	1313	2903	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.46	0.33	0.07	0.46	0.17
Intersection Summary						

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Existing PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔		↔		↕	↗		↕	↗
Traffic Volume (veh/h)	0	0	0	320	0	820	0	883	80	0	1233	247
Future Volume (veh/h)	0	0	0	320	0	820	0	883	80	0	1233	247
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				348	0	891	0	960	87	0	1340	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1330	0	1073	0	1760	785	0	1760	
Arrive On Green				0.39	0.00	0.39	0.00	0.50	0.50	0.00	0.50	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				348	0	891	0	960	87	0	1340	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				5.5	0.0	23.2	0.0	14.9	2.3	0.0	24.5	0.0
Cycle Q Clear(g_c), s				5.5	0.0	23.2	0.0	14.9	2.3	0.0	24.5	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1330	0	1073	0	1760	785	0	1760	
V/C Ratio(X)				0.26	0.00	0.83	0.00	0.55	0.11	0.00	0.76	
Avail Cap(c_a), veh/h				2431	0	1963	0	3297	1470	0	3297	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				16.6	0.0	22.0	0.0	13.7	10.6	0.0	16.1	0.0
Incr Delay (d2), s/veh				0.1	0.0	1.7	0.0	0.3	0.1	0.0	0.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	7.0	0.0	5.2	0.7	0.0	8.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				16.7	0.0	23.7	0.0	14.0	10.6	0.0	16.8	0.0
LnGrp LOS				B	A	C	A	B	B	A	B	
Approach Vol, veh/h					1239			1047			1340	
Approach Delay, s/veh					21.8			13.7			16.8	
Approach LOS					C			B			B	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		44.3				44.3		35.4				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.5				74.5		56.5				
Max Q Clear Time (g_c+I1), s		16.9				26.5		25.2				
Green Ext Time (p_c), s		8.4				13.3		5.7				

Intersection Summary

HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

Notes

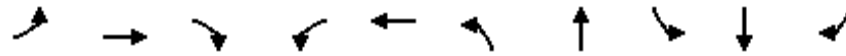
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Existing +Project AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	215	709	560	93	838	314	136	32	37	130
v/c Ratio	0.56	0.49	0.36	0.37	0.58	0.49	0.38	0.17	0.18	0.25
Control Delay	34.1	19.6	0.6	37.2	24.4	31.9	24.5	38.8	38.5	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	19.6	0.6	37.2	24.4	31.9	24.5	38.8	38.5	12.9
Queue Length 50th (ft)	88	135	0	39	119	67	35	14	16	22
Queue Length 95th (ft)	193	234	0	102	204	136	105	48	53	71
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	789	2396	1568	429	2410	1101	684	512	656	874
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.30	0.36	0.22	0.35	0.29	0.20	0.06	0.06	0.15

Intersection Summary

HCM 6th Signalized Intersection Summary

Existing +Project AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑	↗
Traffic Volume (veh/h)	198	652	515	86	725	46	289	55	70	29	34	120
Future Volume (veh/h)	198	652	515	86	725	46	289	55	70	29	34	120
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	215	709	0	93	788	50	314	60	0	32	37	130
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	277	1264		121	1317	83	477	294		159	203	418
Arrive On Green	0.16	0.36	0.00	0.07	0.27	0.27	0.14	0.16	0.00	0.09	0.11	0.11
Sat Flow, veh/h	1767	3526	1572	1767	4869	308	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	215	709	0	93	546	292	314	60	0	32	37	130
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1800	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	6.5	9.0	0.0	2.9	7.8	7.8	4.8	1.6	0.0	0.9	1.0	3.7
Cycle Q Clear(g_c), s	6.5	9.0	0.0	2.9	7.8	7.8	4.8	1.6	0.0	0.9	1.0	3.7
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	1264		121	913	487	477	294		159	203	418
V/C Ratio(X)	0.78	0.56		0.77	0.60	0.60	0.66	0.20		0.20	0.18	0.31
Avail Cap(c_a), veh/h	908	2764		494	1857	990	1267	819		589	753	884
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	14.3	0.0	25.4	17.6	17.6	22.6	20.3	0.0	23.4	22.5	16.3
Incr Delay (d2), s/veh	4.6	0.4	0.0	9.6	0.6	1.2	1.6	0.3	0.0	0.6	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.0	0.0	1.4	2.6	2.9	1.9	0.7	0.0	0.4	0.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	14.7	0.0	35.0	18.2	18.8	24.2	20.7	0.0	24.0	22.9	16.7
LnGrp LOS	C	B		D	B	B	C	C		C	C	B
Approach Vol, veh/h		924			931			374			199	
Approach Delay, s/veh		17.6			20.1			23.6			19.0	
Approach LOS		B			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	13.3	8.3	24.4	12.2	10.6	13.2	19.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	24.5	15.5	43.5	20.5	22.5	28.5	30.5				
Max Q Clear Time (g_c+I1), s	2.9	3.6	4.9	11.0	6.8	5.7	8.5	9.8				
Green Ext Time (p_c), s	0.0	0.2	0.1	5.1	0.9	0.5	0.5	5.2				

Intersection Summary

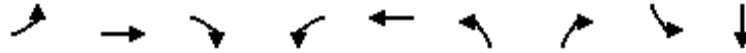
HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Existing +Project AM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	23	489	288	18	642	264	8	2	4
v/c Ratio	0.07	0.35	0.36	0.06	0.46	0.29	0.01	0.01	0.01
Control Delay	20.1	10.2	3.5	20.4	11.1	15.1	0.0	22.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	10.2	3.5	20.4	11.1	15.1	0.0	22.0	0.0
Queue Length 50th (ft)	3	25	0	3	35	18	0	0	0
Queue Length 95th (ft)	29	118	46	24	160	81	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	549	3288	1489	497	3278	2489	1466	392	1063
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.15	0.19	0.04	0.20	0.11	0.01	0.01	0.00
Intersection Summary									

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Existing +Project AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	21	450	265	17	590	1	243	0	7	2	0	4
Future Volume (veh/h)	21	450	265	17	590	1	243	0	7	2	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	489	0	18	641	1	264	0	8	2	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	50	1127		40	1134	2	481	289	245	5	0	29
Arrive On Green	0.03	0.32	0.00	0.02	0.31	0.31	0.14	0.00	0.16	0.00	0.00	0.02
Sat Flow, veh/h	1767	3526	1572	1767	3612	6	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	23	489	0	18	313	329	264	0	8	2	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1855	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	0.5	4.0	0.0	0.4	5.3	5.3	2.6	0.0	0.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.5	4.0	0.0	0.4	5.3	5.3	2.6	0.0	0.2	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	50	1127		40	553	582	481	289	245	5	0	29
V/C Ratio(X)	0.46	0.43		0.45	0.57	0.57	0.55	0.00	0.03	0.41	0.00	0.14
Avail Cap(c_a), veh/h	515	4644		466	2273	2392	2329	1930	1635	368	0	894
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.2	9.7	0.0	17.4	10.3	10.3	14.4	0.0	12.9	18.0	0.0	17.4
Incr Delay (d2), s/veh	6.3	0.3	0.0	7.5	0.9	0.9	1.0	0.0	0.1	46.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	0.0	0.2	1.5	1.6	0.9	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	10.0	0.0	24.9	11.2	11.2	15.4	0.0	13.0	64.5	0.0	19.6
LnGrp LOS	C	A		C	B	B	B	A	B	E	A	B
Approach Vol, veh/h		512			660			272				6
Approach Delay, s/veh		10.6			11.6			15.4				34.6
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.1	5.3	16.0	9.6	5.2	5.5	15.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	37.5	9.5	47.5	24.5	20.5	10.5	46.5				
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.4	6.0	4.6	2.1	2.5	7.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.4	0.9	0.0	0.0	4.0				

Intersection Summary

HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Existing +Project AM
07/01/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	380	85	11	396	247	53
v/c Ratio	0.33	0.15	0.03	0.30	0.26	0.11
Control Delay	9.0	3.9	12.8	6.4	10.1	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	3.9	12.8	6.4	10.1	5.1
Queue Length 50th (ft)	16	0	1	17	10	0
Queue Length 95th (ft)	65	21	12	37	48	19
Internal Link Dist (ft)	1748			2821	1766	
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3505	1568	1339	3505	3336	1539
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.05	0.01	0.11	0.07	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary
 3: Redwood Street & Columbus Parkway

Existing +Project AM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	350	78	10	364	227	49
Future Volume (veh/h)	350	78	10	364	227	49
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	380	85	11	396	247	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	873	390	280	1952	521	239
Arrive On Green	0.25	0.25	0.16	0.55	0.15	0.15
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	380	85	11	396	247	53
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	2.8	1.3	0.2	1.7	2.0	0.9
Cycle Q Clear(g_c), s	2.8	1.3	0.2	1.7	2.0	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	873	390	280	1952	521	239
V/C Ratio(X)	0.44	0.22	0.04	0.20	0.47	0.22
Avail Cap(c_a), veh/h	5366	2394	1186	8252	4433	2033
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.7	9.1	10.9	3.4	11.8	11.4
Incr Delay (d2), s/veh	0.3	0.3	0.1	0.1	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	0.0	0.1	0.6	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.0	9.4	10.9	3.5	12.5	11.8
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	465			407	300	
Approach Delay, s/veh	9.9			3.7	12.4	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.1	9.3	12.1		21.4
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		39.5	20.5	46.5		71.5
Max Q Clear Time (g_c+I1), s		4.0	2.2	4.8		3.7
Green Ext Time (p_c), s		1.0	0.0	2.8		2.7
Intersection Summary						
HCM 6th Ctrl Delay			8.4			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Existing +Project AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	345	68	524	16	2	25	71	26
v/c Ratio	0.05	0.18	0.12	0.22	0.01	0.00	0.05	0.12	0.05
Control Delay	16.5	10.3	14.8	6.1	0.5	14.0	8.4	13.8	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	10.3	14.8	6.1	0.5	14.0	8.4	13.8	7.8
Queue Length 50th (ft)	4	31	12	24	0	0	1	12	0
Queue Length 95th (ft)	22	64	43	90	2	4	15	42	15
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	1091	3469	1318	3505	1568	1680	1459	1680	1440
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.10	0.05	0.15	0.01	0.00	0.02	0.04	0.02
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Existing +Project AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	22	313	5	63	482	15	2	3	20	65	1	23
Future Volume (veh/h)	22	313	5	63	482	15	2	3	20	65	1	23
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	340	5	68	524	16	2	3	22	71	1	25
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1073	16	131	1218	543	407	22	159	409	7	172
Arrive On Green	0.03	0.30	0.30	0.07	0.35	0.35	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1767	3557	52	1767	3526	1572	1374	192	1410	1375	61	1521
Grp Volume(v), veh/h	24	168	177	68	524	16	2	0	25	71	0	26
Grp Sat Flow(s),veh/h/ln	1767	1763	1846	1767	1763	1572	1374	0	1602	1375	0	1582
Q Serve(g_s), s	0.4	1.9	2.0	1.0	3.0	0.2	0.0	0.0	0.4	1.3	0.0	0.4
Cycle Q Clear(g_c), s	0.4	1.9	2.0	1.0	3.0	0.2	0.4	0.0	0.4	1.7	0.0	0.4
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	54	532	557	131	1218	543	407	0	181	409	0	179
V/C Ratio(X)	0.44	0.32	0.32	0.52	0.43	0.03	0.00	0.00	0.14	0.17	0.00	0.15
Avail Cap(c_a), veh/h	1037	3103	3249	1639	7406	3303	2098	0	2152	2101	0	2125
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	0.00	1.00
Uniform Delay (d), s/veh	12.6	7.1	7.1	11.8	6.6	5.7	10.8	0.0	10.6	11.3	0.0	10.6
Incr Delay (d2), s/veh	5.6	0.3	0.3	3.1	0.2	0.0	0.0	0.0	0.3	0.2	0.0	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	0.2	0.5	0.5	0.4	0.6	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	7.5	7.4	14.9	6.9	5.7	10.8	0.0	10.9	11.5	0.0	10.9
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		369			608			27				97
Approach Delay, s/veh		8.2			7.8			10.9				11.4
Approach LOS		A			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.5	6.5	12.5		7.5	5.3	13.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		35.5	24.5	46.5		35.5	15.5	55.5				
Max Q Clear Time (g_c+I1), s		2.4	3.0	4.0		3.7	2.4	5.0				
Green Ext Time (p_c), s		0.1	0.1	2.2		0.3	0.0	4.1				
Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

Queues
5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Existing +Project AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	230	214	341	28	23	121	58	14	20
v/c Ratio	0.16	0.32	0.45	0.20	0.11	0.08	0.34	0.19	0.04	0.05
Control Delay	24.8	20.1	21.6	11.6	25.4	25.1	8.1	24.5	21.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	20.1	21.6	11.6	25.4	25.1	8.1	24.5	21.9	0.2
Queue Length 50th (ft)	13	31	59	35	8	7	0	16	3	0
Queue Length 95th (ft)	44	71	132	74	32	28	36	52	19	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	530	1786	1261	2793	827	1098	989	911	1156	1033
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.13	0.17	0.12	0.03	0.02	0.12	0.06	0.01	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Existing +Project AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	177	35	197	215	98	26	21	111	53	13	18
Future Volume (veh/h)	42	177	35	197	215	98	26	21	111	53	13	18
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	46	192	38	214	234	107	28	23	121	58	14	20
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	89	415	81	290	606	268	207	264	223	164	219	185
Arrive On Green	0.05	0.14	0.14	0.16	0.25	0.25	0.12	0.14	0.14	0.09	0.12	0.12
Sat Flow, veh/h	1767	2944	571	1767	2377	1052	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	46	113	117	214	172	169	28	23	121	58	14	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1753	1767	1763	1666	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	2.3	2.4	4.5	3.1	3.3	0.6	0.4	2.8	1.2	0.3	0.4
Cycle Q Clear(g_c), s	1.0	2.3	2.4	4.5	3.1	3.3	0.6	0.4	2.8	1.2	0.3	0.4
Prop In Lane	1.00		0.33	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	248	247	290	449	425	207	264	223	164	219	185
V/C Ratio(X)	0.52	0.46	0.47	0.74	0.38	0.40	0.14	0.09	0.54	0.35	0.06	0.11
Avail Cap(c_a), veh/h	564	968	963	1512	1914	1809	880	1209	1024	971	1303	1105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	15.4	15.5	15.6	12.0	12.1	15.5	14.6	15.6	16.6	15.3	15.4
Incr Delay (d2), s/veh	4.6	1.3	1.4	3.7	0.5	0.6	0.3	0.1	2.0	1.3	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.9	0.9	1.8	1.1	1.1	0.2	0.2	1.0	0.5	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	16.7	16.9	19.2	12.6	12.7	15.8	14.7	17.6	17.9	15.5	15.7
LnGrp LOS	C	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		276			555			172			92	
Approach Delay, s/veh		17.8			15.2			17.0			17.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	10.1	10.9	10.0	9.1	9.1	6.5	14.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	25.5	33.5	21.5	19.5	27.5	12.5	42.5				
Max Q Clear Time (g_c+I1), s	3.2	4.8	6.5	4.4	2.6	2.4	3.0	5.3				
Green Ext Time (p_c), s	0.1	0.4	0.6	1.1	0.0	0.1	0.0	2.2				

Intersection Summary

HCM 6th Ctrl Delay	16.3
HCM 6th LOS	B

Queues
6: Admiral Callaghan Ln & Turner Parkway

Existing +Project AM
07/01/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	147	14	489	45	238
v/c Ratio	0.15	0.03	0.29	0.10	0.11
Control Delay	13.1	8.9	8.0	14.6	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	8.9	8.0	14.6	4.3
Queue Length 50th (ft)	7	0	17	5	9
Queue Length 95th (ft)	35	12	72	31	20
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2935	1232	3340	1273	3505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.15	0.04	0.07
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Existing +Project AM
07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	133	15	310	140	41	219
Future Volume (veh/h)	133	15	310	140	41	219
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	145	16	337	152	45	238
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	460	204	749	332	94	1888
Arrive On Green	0.13	0.13	0.32	0.32	0.05	0.54
Sat Flow, veh/h	3534	1572	2470	1052	1767	3618
Grp Volume(v), veh/h	145	16	248	241	45	238
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1666	1767	1763
Q Serve(g_s), s	1.0	0.2	3.0	3.1	0.7	0.9
Cycle Q Clear(g_c), s	1.0	0.2	3.0	3.1	0.7	0.9
Prop In Lane	1.00	1.00		0.63	1.00	
Lane Grp Cap(c), veh/h	460	204	556	525	94	1888
V/C Ratio(X)	0.32	0.08	0.45	0.46	0.48	0.13
Avail Cap(c_a), veh/h	3743	1665	3701	3498	1412	10809
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	10.6	10.3	7.3	7.4	12.4	3.1
Incr Delay (d2), s/veh	0.4	0.2	0.6	0.6	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.7	0.7	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.0	10.4	7.9	8.0	16.1	3.1
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	161		489			283
Approach Delay, s/veh	11.0		8.0			5.2
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	5.9	13.0			18.9	8.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	21.5	56.5			82.5	28.5
Max Q Clear Time (g_c+I1), s	2.7	5.1			2.9	3.0
Green Ext Time (p_c), s	0.1	3.4			1.7	0.5

Intersection Summary

HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Existing +Project AM
07/01/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	146	46	243	112	52
v/c Ratio	0.30	0.03	0.30	0.15	0.15
Control Delay	13.5	3.6	6.4	11.5	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	3.6	6.4	11.5	6.6
Queue Length 50th (ft)	23	1	6	7	0
Queue Length 95th (ft)	60	5	28	23	20
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1749	3505	2963	3156	1351
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.01	0.08	0.04	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary

7: Turner Parkway & Plaza Drive

Existing +Project AM
07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑↑	↑↗		↙↘	↘	
Traffic Volume (veh/h)	134	42	71	153	83	68	
Future Volume (veh/h)	134	42	71	153	83	68	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	146	46	77	166	108	55	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	224	1793	359	320	477	212	
Arrive On Green	0.13	0.51	0.20	0.20	0.13	0.13	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	146	46	77	166	108	55	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	2.0	0.2	0.9	2.4	0.7	0.8	
Cycle Q Clear(g_c), s	2.0	0.2	0.9	2.4	0.7	0.8	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	224	1793	359	320	477	212	
V/C Ratio(X)	0.65	0.03	0.21	0.52	0.23	0.26	
Avail Cap(c_a), veh/h	2835	10961	2339	2086	4549	2024	
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	10.5	3.1	8.4	9.0	9.7	9.8	
Incr Delay (d2), s/veh	3.2	0.0	0.3	1.3	0.2	0.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	0.6	0.2	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.7	3.1	8.7	10.3	10.0	10.4	
LnGrp LOS	B	A	A	B	A	B	
Approach Vol, veh/h		192	243		163		
Approach Delay, s/veh		11.1	9.8		10.1		
Approach LOS		B	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				17.3	7.9	7.7	9.6
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				78.5	32.5	40.5	33.5
Max Q Clear Time (g_c+I1), s				2.2	2.8	4.0	4.4
Green Ext Time (p_c), s				0.3	0.5	0.4	1.5

Intersection Summary

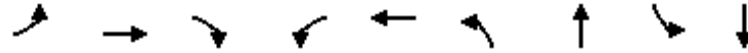
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Existing +Project AM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	7	114	3	27	193	229	9	301
v/c Ratio	0.09	0.02	0.31	0.01	0.10	0.40	0.10	0.03	0.35
Control Delay	21.1	20.3	6.6	22.3	14.1	17.6	6.6	21.8	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	20.3	6.6	22.3	14.1	17.6	6.6	21.8	15.8
Queue Length 50th (ft)	5	1	0	1	1	35	7	2	27
Queue Length 95th (ft)	28	12	30	8	22	115	51	15	82
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	539	1224	1086	351	952	1481	3461	398	2779
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.10	0.01	0.03	0.13	0.07	0.02	0.11

Intersection Summary

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

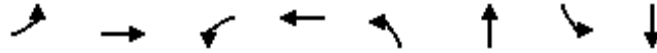
Existing +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	6	105	3	6	18	178	207	4	8	237	40
Future Volume (veh/h)	23	6	105	3	6	18	178	207	4	8	237	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	7	114	3	7	20	193	225	4	9	258	43
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	55	256	217	7	47	135	265	1142	20	21	559	92
Arrive On Green	0.03	0.14	0.14	0.00	0.11	0.11	0.15	0.32	0.32	0.01	0.18	0.18
Sat Flow, veh/h	1767	1856	1572	1767	424	1213	1767	3544	63	1767	3030	498
Grp Volume(v), veh/h	25	7	114	3	0	27	193	112	117	9	149	152
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1637	1767	1763	1844	1767	1763	1766
Q Serve(g_s), s	0.5	0.1	2.3	0.1	0.0	0.5	3.6	1.6	1.6	0.2	2.6	2.6
Cycle Q Clear(g_c), s	0.5	0.1	2.3	0.1	0.0	0.5	3.6	1.6	1.6	0.2	2.6	2.6
Prop In Lane	1.00		1.00	1.00		0.74	1.00		0.03	1.00		0.28
Lane Grp Cap(c), veh/h	55	256	217	7	0	182	265	568	594	21	325	326
V/C Ratio(X)	0.46	0.03	0.53	0.41	0.00	0.15	0.73	0.20	0.20	0.43	0.46	0.47
Avail Cap(c_a), veh/h	591	1377	1167	386	0	1024	1826	3103	3247	437	1718	1721
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	12.8	13.8	17.1	0.0	13.8	13.9	8.4	8.4	16.9	12.5	12.5
Incr Delay (d2), s/veh	5.9	0.0	2.0	33.5	0.0	0.4	3.8	0.2	0.2	12.9	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	0.1	0.0	0.2	1.4	0.4	0.4	0.1	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	12.9	15.7	50.6	0.0	14.2	17.8	8.6	8.6	29.8	13.5	13.6
LnGrp LOS	C	B	B	D	A	B	B	A	A	C	B	B
Approach Vol, veh/h		146			30			422			310	
Approach Delay, s/veh		16.7			17.8			12.8			14.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.9	15.6	4.6	9.2	9.7	10.8	5.6	8.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	60.5	7.5	25.5	35.5	33.5	11.5	21.5				
Max Q Clear Time (g_c+I1), s	2.2	3.6	2.1	4.3	5.6	4.6	2.5	2.5				
Green Ext Time (p_c), s	0.0	1.3	0.0	0.3	0.5	1.7	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.0									
HCM 6th LOS			B									

Queues
9: Ascot Parkway & Redwood Street

Existing +Project AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	136	694	115	260	405	289	159	271
v/c Ratio	0.55	0.75	0.52	0.32	0.78	0.32	0.59	0.56
Control Delay	48.6	31.0	50.2	30.3	41.8	27.4	48.4	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	31.0	50.2	30.3	41.8	27.4	48.4	29.3
Queue Length 50th (ft)	73	148	62	60	210	65	85	46
Queue Length 95th (ft)	158	267	142	120	372	117	180	103
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	367	1206	300	1045	798	1620	400	881
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.58	0.38	0.25	0.51	0.18	0.40	0.31
Intersection Summary								

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Existing +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	125	360	279	106	204	35	373	227	39	146	151	98
Future Volume (veh/h)	125	360	279	106	204	35	373	227	39	146	151	98
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	136	391	0	115	222	0	405	247	0	159	164	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	180	661		151	604		490	906		210	346	
Arrive On Green	0.10	0.19	0.00	0.09	0.17	0.00	0.28	0.26	0.00	0.12	0.10	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	136	391	0	115	222	0	405	247	0	159	164	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	3.8	5.2	0.0	3.3	2.9	0.0	11.0	2.9	0.0	4.5	2.3	0.0
Cycle Q Clear(g_c), s	3.8	5.2	0.0	3.3	2.9	0.0	11.0	2.9	0.0	4.5	2.3	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	180	661		151	604		490	906		210	346	
V/C Ratio(X)	0.76	0.59		0.76	0.37		0.83	0.27		0.76	0.47	
Avail Cap(c_a), veh/h	611	1963		501	1743		1329	2734		666	1412	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.4	19.0	0.0	22.9	18.8	0.0	17.3	15.2	0.0	21.8	21.8	0.0
Incr Delay (d2), s/veh	6.4	0.8	0.0	7.7	0.4	0.0	3.6	0.2	0.0	5.6	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.9	0.0	1.5	1.1	0.0	4.2	1.0	0.0	2.0	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	19.8	0.0	30.6	19.1	0.0	20.9	15.4	0.0	27.4	22.8	0.0
LnGrp LOS	C	B		C	B		C	B		C	C	
Approach Vol, veh/h		527			337			652			323	
Approach Delay, s/veh		22.2			23.1			18.8			25.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	17.6	8.9	14.1	18.7	9.5	9.7	13.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.3	39.7	14.5	28.5	38.5	20.5	17.7	25.3				
Max Q Clear Time (g_c+I1), s	6.5	4.9	5.3	7.2	13.0	4.3	5.8	4.9				
Green Ext Time (p_c), s	0.3	1.6	0.2	2.4	1.2	0.8	0.2	1.2				

Intersection Summary

HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Existing +Project AM
07/01/2024

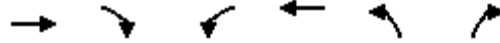


Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	589	358	373	271	437
v/c Ratio	0.65	0.69	0.17	0.62	0.61
Control Delay	26.7	33.0	6.6	33.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	33.0	6.6	33.8	7.0
Queue Length 50th (ft)	104	137	31	105	0
Queue Length 95th (ft)	224	312	70	246	78
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1471	1009	3185	957	1055
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.35	0.12	0.28	0.41

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

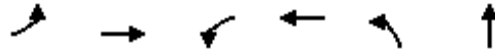
Existing +Project AM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	358	184	329	343	249	402
Future Volume (veh/h)	358	184	329	343	249	402
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	389	200	358	373	271	437
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	539	274	421	1914	573	510
Arrive On Green	0.24	0.24	0.24	0.54	0.32	0.32
Sat Flow, veh/h	2356	1148	1767	3618	1767	1572
Grp Volume(v), veh/h	302	287	358	373	271	437
Grp Sat Flow(s),veh/h/ln	1763	1649	1767	1763	1767	1572
Q Serve(g_s), s	10.7	10.9	13.1	3.7	8.3	17.6
Cycle Q Clear(g_c), s	10.7	10.9	13.1	3.7	8.3	17.6
Prop In Lane		0.70	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	420	393	421	1914	573	510
V/C Ratio(X)	0.72	0.73	0.85	0.19	0.47	0.86
Avail Cap(c_a), veh/h	766	717	1028	3818	976	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.8	23.8	24.7	7.9	18.3	21.5
Incr Delay (d2), s/veh	2.3	2.6	4.9	0.0	0.6	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	4.2	5.6	1.2	3.3	6.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.1	26.5	29.6	8.0	18.9	25.8
LnGrp LOS	C	C	C	A	B	C
Approach Vol, veh/h	589			731	708	
Approach Delay, s/veh	26.3			18.5	23.2	
Approach LOS	C			B	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		26.5	20.7	20.7		41.4
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	39.5	29.5		73.5
Max Q Clear Time (g_c+I1), s		19.6	15.1	12.9		5.7
Green Ext Time (p_c), s		2.4	1.1	3.3		2.6
Intersection Summary						
HCM 6th Ctrl Delay			22.4			
HCM 6th LOS			C			

Queues
11: Admiral Callaghan Ln & Redwood Street

Existing +Project AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	20	640	77	585	123	78
v/c Ratio	0.06	0.38	0.19	0.27	0.30	0.10
Control Delay	23.0	12.2	20.8	7.5	19.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	12.2	20.8	7.5	19.7	0.3
Queue Length 50th (ft)	5	71	18	33	29	0
Queue Length 95th (ft)	24	139	59	115	81	0
Internal Link Dist (ft)		424		851		1161
Turn Bay Length (ft)	125		125		75	
Base Capacity (vph)	668	3232	984	3456	1128	1346
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.20	0.08	0.17	0.11	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Existing +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	18	501	87	71	537	1	113	0	72	0	0	0
Future Volume (veh/h)	18	501	87	71	537	1	113	0	72	0	0	0
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	545	95	77	584	1	123	0	78	0	0	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	45	1050	182	138	1453	2	470	0	210	234	247	0
Arrive On Green	0.03	0.35	0.35	0.08	0.40	0.40	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1767	3003	522	1767	3611	6	1767	0	1572	1311	1856	0
Grp Volume(v), veh/h	20	319	321	77	285	300	123	0	78	0	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1762	1767	1763	1854	1767	0	1572	1311	1856	0
Q Serve(g_s), s	0.3	4.4	4.5	1.3	3.5	3.5	2.0	0.0	1.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	4.4	4.5	1.3	3.5	3.5	2.0	0.0	1.4	0.0	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	45	616	616	138	709	746	470	0	210	234	247	0
V/C Ratio(X)	0.44	0.52	0.52	0.56	0.40	0.40	0.26	0.00	0.37	0.00	0.00	0.00
Avail Cap(c_a), veh/h	660	2835	2834	1177	3351	3525	2330	0	1865	1614	2201	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	14.8	7.9	8.0	13.7	6.6	6.6	12.4	0.0	12.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.7	0.7	0.7	3.5	0.4	0.3	0.3	0.0	1.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.1	1.1	0.5	0.7	0.8	0.6	0.0	0.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	8.6	8.6	17.1	6.9	6.9	12.7	0.0	13.3	0.0	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	B	A	A	A
Approach Vol, veh/h		660			662			201				0
Approach Delay, s/veh		9.0			8.1			12.9				0.0
Approach LOS		A			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.6	6.9	15.3		8.6	5.3	16.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		36.5	20.5	49.5		36.5	11.5	58.5				
Max Q Clear Time (g_c+I1), s		4.0	3.3	6.5		0.0	2.3	5.5				
Green Ext Time (p_c), s		0.8	0.1	4.3		0.0	0.0	3.8				
Intersection Summary												
HCM 6th Ctrl Delay			9.1									
HCM 6th LOS			A									

Queues
12: Redwood Street & Admiral Callaghan Ln

Existing +Project AM
07/01/2024



Lane Group	EBL	EBT	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	374	382	706	271	207	79	895
v/c Ratio	0.60	0.20	0.71	0.48	0.49	0.18	0.79
Control Delay	36.5	10.9	29.4	36.0	9.8	35.3	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	10.9	29.4	36.0	9.8	35.3	8.5
Queue Length 50th (ft)	84	45	145	62	0	18	0
Queue Length 95th (ft)	176	102	286	134	64	45	57
Internal Link Dist (ft)		852	424	1178			
Turn Bay Length (ft)	275				450	100	300
Base Capacity (vph)	909	2644	1472	900	556	1320	1619
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.14	0.48	0.30	0.37	0.06	0.55
Intersection Summary							

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Existing +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑			↑↑	↔	↔↔		↔↔
Traffic Volume (veh/h)	344	351	0	0	472	178	0	249	190	73	0	823
Future Volume (veh/h)	344	351	0	0	472	178	0	249	190	73	0	823
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	1856	1856	0	0	1856	1856	0	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	374	382	0	0	513	193	0	271	207	79	0	895
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, %	3	3	0	0	3	3	0	3	3	3	0	3
Cap, veh/h	532	1839	0	0	728	273	0	661	295	211	0	0
Arrive On Green	0.16	0.52	0.00	0.00	0.29	0.29	0.00	0.19	0.19	0.06	0.00	0.00
Sat Flow, veh/h	3428	3618	0	0	2602	940	0	3618	1572	3428	79	
Grp Volume(v), veh/h	374	382	0	0	360	346	0	271	207	79	27.6	
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1686	0	1763	1572	1714	C	
Q Serve(g_s), s	6.1	3.4	0.0	0.0	10.7	10.8	0.0	4.0	7.3	1.3		
Cycle Q Clear(g_c), s	6.1	3.4	0.0	0.0	10.7	10.8	0.0	4.0	7.3	1.3		
Prop In Lane	1.00		0.00	0.00		0.56	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	532	1839	0	0	512	489	0	661	295	211		
V/C Ratio(X)	0.70	0.21	0.00	0.00	0.70	0.71	0.00	0.41	0.70	0.37		
Avail Cap(c_a), veh/h	1182	3443	0	0	979	937	0	1168	521	1718		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.6	7.6	0.0	0.0	18.6	18.7	0.0	21.1	22.4	26.5		
Incr Delay (d2), s/veh	1.7	0.1	0.0	0.0	1.8	1.9	0.0	0.4	3.0	1.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.4	1.0	0.0	0.0	4.1	4.0	0.0	1.6	2.7	0.5		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	7.6	0.0	0.0	20.4	20.6	0.0	21.5	25.4	27.6		
LnGrp LOS	C	A	A	A	C	C	A	C	C	C		
Approach Vol, veh/h		756			706			478				
Approach Delay, s/veh		16.4			20.5			23.2				
Approach LOS		B			C			C				
Timer - Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	8.1	15.5		35.2			13.6	21.6				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	29.5	19.5		57.5			20.3	32.7				
Max Q Clear Time (g_c+I1), s	3.3	9.3		5.4			8.1	12.8				
Green Ext Time (p_c), s	0.2	1.8		2.7			1.1	4.3				

Intersection Summary

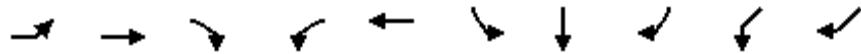
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Queues

Existing +Project AM

13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

06/13/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	SBL	SBT	SBR	SWL	SWR
Lane Group Flow (vph)	76	535	364	316	1085	122	138	148	122	317
v/c Ratio	0.47	0.48	0.49	0.61	0.76	0.50	0.54	0.43	0.38	0.80
Control Delay	58.1	28.1	5.4	46.7	29.8	50.9	51.5	11.8	41.4	38.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	28.1	5.4	46.7	29.8	50.9	51.5	11.8	41.4	38.5
Queue Length 50th (ft)	45	133	0	95	306	72	81	0	67	108
Queue Length 95th (ft)	#112	221	65	168	464	150	167	59	139	240
Internal Link Dist (ft)		693			852		265		1072	
Turn Bay Length (ft)	150		200	285		125		125		
Base Capacity (vph)	192	1651	931	694	1935	364	383	443	515	557
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.32	0.39	0.46	0.56	0.34	0.36	0.33	0.24	0.57

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Existing +Project AM
 06/13/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL2	SWL	SWR
Lane Configurations												
Traffic Volume (vph)	70	492	335	291	837	161	112	127	136	112	0	264
Future Volume (vph)	70	492	335	291	837	161	112	127	136	112	0	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3420		1752	1845	1568		1752	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3420		1752	1845	1568		1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	535	364	316	910	175	122	138	148	122	0	287
RTOR Reduction (vph)	0	0	242	0	0	0	0	0	128	0	0	111
Lane Group Flow (vph)	76	535	122	316	1085	0	122	138	20	0	122	206
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Prot	Prot	Prot
Protected Phases	5	2		1	6		4	4	4	8	8	8
Permitted Phases			2									
Actuated Green, G (s)	6.7	31.6	31.6	14.3	39.2		13.0	13.0	13.0		17.2	17.2
Effective Green, g (s)	6.7	31.6	31.6	14.3	39.2		13.0	13.0	13.0		17.2	17.2
Actuated g/C Ratio	0.07	0.34	0.34	0.15	0.42		0.14	0.14	0.14		0.18	0.18
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	124	1177	526	516	1424		242	254	216		320	286
v/s Ratio Prot	0.04	0.15		c0.09	c0.32		0.07	c0.07	0.01		0.07	c0.13
v/s Ratio Perm			0.08									
v/c Ratio	0.61	0.45	0.23	0.61	0.76		0.50	0.54	0.09		0.38	0.72
Uniform Delay, d1	42.4	24.5	22.5	37.3	23.5		37.6	37.8	35.4		33.8	36.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.7	0.3	0.2	2.2	2.5		1.7	2.4	0.2		0.8	8.4
Delay (s)	51.1	24.8	22.7	39.5	25.9		39.2	40.2	35.6		34.5	44.6
Level of Service	D	C	C	D	C		D	D	D		C	D
Approach Delay (s)		26.1			29.0			38.2			41.8	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.72	
Actuated Cycle Length (s)	94.1	Sum of lost time (s) 18.0
Intersection Capacity Utilization	66.0%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group



Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	28
Future Volume (vph)	28
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	30
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
14: Lake Herman Road & Columbus Parkway

Existing +Project AM
07/01/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	33	78	350	79	180	230
v/c Ratio	0.09	0.19	0.31	0.14	0.32	0.11
Control Delay	17.0	7.1	13.3	5.0	15.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	7.1	13.3	5.0	15.0	3.2
Queue Length 50th (ft)	6	0	33	0	33	8
Queue Length 95th (ft)	27	27	70	23	83	17
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1281	1168	3273	1469	1674	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.07	0.11	0.05	0.11	0.07
Intersection Summary						

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Existing +Project AM
 07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	72	322	73	166	212
Future Volume (veh/h)	30	72	322	73	166	212
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	33	78	350	79	180	230
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	182	162	855	381	309	2035
Arrive On Green	0.10	0.10	0.24	0.24	0.17	0.58
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	33	78	350	79	180	230
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	0.5	1.3	2.4	1.1	2.6	0.8
Cycle Q Clear(g_c), s	0.5	1.3	2.4	1.1	2.6	0.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	182	162	855	381	309	2035
V/C Ratio(X)	0.18	0.48	0.41	0.21	0.58	0.11
Avail Cap(c_a), veh/h	1726	1536	4822	2151	2542	10457
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	11.5	11.9	9.0	8.5	10.7	2.7
Incr Delay (d2), s/veh	0.5	2.2	0.3	0.3	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.4	0.5	0.2	0.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.0	14.1	9.3	8.8	12.4	2.7
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	111		429			410
Approach Delay, s/veh	13.5		9.2			7.0
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.4	11.3			20.8	7.4
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	40.5	38.5			83.5	27.5
Max Q Clear Time (g_c+I1), s	4.6	4.4			2.8	3.3
Green Ext Time (p_c), s	0.5	2.5			1.5	0.3
Intersection Summary						
HCM 6th Ctrl Delay			8.7			
HCM 6th LOS			A			

Queues

Existing +Project AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	57	86	138	137	92	36	307	84	114	498
v/c Ratio	0.16	0.21	0.30	0.23	0.16	0.10	0.25	0.21	0.13	0.50
Control Delay	25.9	23.7	24.4	21.7	2.7	26.8	20.1	25.4	17.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	23.7	24.4	21.7	2.7	26.8	20.1	25.4	17.5	4.5
Queue Length 50th (ft)	17	23	41	39	0	11	44	25	22	0
Queue Length 95th (ft)	55	70	103	99	17	40	94	72	79	70
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	625	866	864	1137	1018	474	2777	721	1655	1458
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.10	0.16	0.12	0.09	0.08	0.11	0.12	0.07	0.34

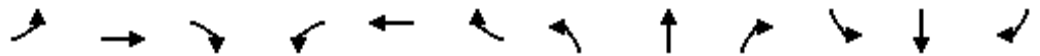
Intersection Summary

HCM 6th Signalized Intersection Summary

Existing +Project AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	65	14	127	126	85	33	245	38	77	105	458
Future Volume (veh/h)	52	65	14	127	126	85	33	245	38	77	105	458
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	71	15	138	137	92	36	266	41	84	114	498
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	98	152	32	184	281	238	70	1081	165	123	710	602
Arrive On Green	0.06	0.10	0.10	0.10	0.15	0.15	0.04	0.35	0.35	0.07	0.38	0.38
Sat Flow, veh/h	1767	1485	314	1767	1856	1572	1767	3067	467	1767	1856	1572
Grp Volume(v), veh/h	57	0	86	138	137	92	36	151	156	84	114	498
Grp Sat Flow(s),veh/h/ln	1767	0	1799	1767	1856	1572	1767	1763	1771	1767	1856	1572
Q Serve(g_s), s	1.5	0.0	2.2	3.7	3.3	2.6	1.0	3.0	3.0	2.3	2.0	13.9
Cycle Q Clear(g_c), s	1.5	0.0	2.2	3.7	3.3	2.6	1.0	3.0	3.0	2.3	2.0	13.9
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	98	0	184	184	281	238	70	621	625	123	710	602
V/C Ratio(X)	0.58	0.00	0.47	0.75	0.49	0.39	0.51	0.24	0.25	0.68	0.16	0.83
Avail Cap(c_a), veh/h	419	0	760	783	1167	989	310	1617	1625	565	1970	1670
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	0.0	20.5	21.1	18.9	18.6	22.8	11.1	11.1	22.0	9.8	13.5
Incr Delay (d2), s/veh	5.4	0.0	1.8	6.0	1.3	1.0	5.7	0.2	0.2	6.4	0.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.9	1.7	1.4	0.9	0.5	1.0	1.0	1.1	0.7	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	0.0	22.4	27.1	20.2	19.6	28.6	11.3	11.4	28.5	9.9	16.5
LnGrp LOS	C	A	C	C	C	B	C	B	B	C	A	B
Approach Vol, veh/h		143			367			343			696	
Approach Delay, s/veh		24.5			22.7			13.1			16.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.6	9.5	9.5	6.4	23.1	7.2	11.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	44.5	21.5	20.5	8.5	51.5	11.5	30.5				
Max Q Clear Time (g_c+I1), s	4.3	5.0	5.7	4.2	3.0	15.9	3.5	5.3				
Green Ext Time (p_c), s	0.1	1.9	0.3	0.3	0.0	2.7	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Queues
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Existing +Project AM
 07/01/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	425	903	561	36	1515	207
v/c Ratio	0.44	0.75	0.27	0.04	0.74	0.13
Control Delay	25.3	13.9	8.7	3.1	14.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	13.9	8.7	3.1	14.7	0.2
Queue Length 50th (ft)	79	67	57	0	232	0
Queue Length 95th (ft)	173	206	128	13	479	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	2286	2044	3293	1475	3293	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.44	0.17	0.02	0.46	0.13
Intersection Summary						

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Existing +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔		↔↔		↑↑	↔		↑↑	↔
Traffic Volume (veh/h)	0	0	0	391	0	831	0	516	33	0	1394	190
Future Volume (veh/h)	0	0	0	391	0	831	0	516	33	0	1394	190
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				425	0	903	0	561	36	0	1515	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1282	0	1035	0	1888	842	0	1888	
Arrive On Green				0.37	0.00	0.37	0.00	0.54	0.54	0.00	0.54	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				425	0	903	0	561	36	0	1515	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				8.8	0.0	30.1	0.0	8.7	1.1	0.0	34.7	0.0
Cycle Q Clear(g_c), s				8.8	0.0	30.1	0.0	8.7	1.1	0.0	34.7	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1282	0	1035	0	1888	842	0	1888	
V/C Ratio(X)				0.33	0.00	0.87	0.00	0.30	0.04	0.00	0.80	
Avail Cap(c_a), veh/h				1607	0	1298	0	3004	1340	0	3004	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				22.2	0.0	28.9	0.0	12.7	11.0	0.0	18.8	0.0
Incr Delay (d2), s/veh				0.2	0.0	5.7	0.0	0.1	0.0	0.0	0.9	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.4	0.0	10.2	0.0	3.2	0.4	0.0	12.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.3	0.0	34.5	0.0	12.8	11.0	0.0	19.6	0.0
LnGrp LOS				C	A	C	A	B	B	A	B	
Approach Vol, veh/h					1328			597			1515	
Approach Delay, s/veh					30.6			12.7			19.6	
Approach LOS					C			B			B	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		57.6				57.6		41.6				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		84.5				84.5		46.5				
Max Q Clear Time (g_c+I1), s		10.7				36.7		32.1				
Green Ext Time (p_c), s		4.1				16.4		5.0				

Intersection Summary

HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

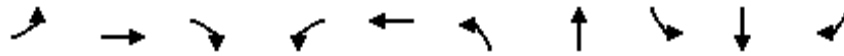
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Existing +Project PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	322	657	992	141	781	1021	269	61	73	249
v/c Ratio	0.83	0.64	0.63	0.68	0.82	0.87	0.42	0.40	0.43	0.43
Control Delay	59.1	37.1	2.0	63.9	49.7	42.0	19.9	55.4	55.2	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.1	37.1	2.0	63.9	49.7	42.0	19.9	55.4	55.2	18.3
Queue Length 50th (ft)	218	217	0	97	196	343	92	42	50	79
Queue Length 95th (ft)	#383	295	0	#188	#280	#480	174	85	97	149
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	424	1066	1568	232	968	1295	712	312	356	613
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.62	0.63	0.61	0.81	0.79	0.38	0.20	0.21	0.41

Intersection Summary

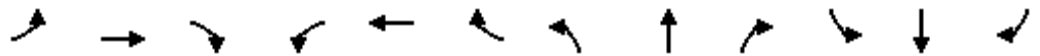
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Existing +Project PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↗		↘	↑	↗
Traffic Volume (veh/h)	296	604	913	130	650	68	939	82	166	56	67	229
Future Volume (veh/h)	296	604	913	130	650	68	939	82	166	56	67	229
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	322	657	0	141	707	74	1021	89	0	61	73	249
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	351	968		169	799	83	1105	771		93	270	541
Arrive On Green	0.20	0.27	0.00	0.10	0.17	0.17	0.32	0.42	0.00	0.05	0.15	0.15
Sat Flow, veh/h	1767	3526	1572	1767	4661	484	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	322	657	0	141	511	270	1021	89	0	61	73	249
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1768	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	19.8	18.5	0.0	8.7	16.4	16.6	32.0	3.3	0.0	3.8	3.9	13.7
Cycle Q Clear(g_c), s	19.8	18.5	0.0	8.7	16.4	16.6	32.0	3.3	0.0	3.8	3.9	13.7
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	351	968		169	579	303	1105	771		93	270	541
V/C Ratio(X)	0.92	0.68		0.83	0.88	0.89	0.92	0.12		0.66	0.27	0.46
Avail Cap(c_a), veh/h	389	970		213	592	310	1187	771		286	325	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	36.0	0.0	49.4	45.0	45.1	36.4	20.0	0.0	51.7	42.3	28.4
Incr Delay (d2), s/veh	24.7	1.9	0.0	19.7	14.4	25.6	11.5	0.1	0.0	7.6	0.5	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	10.8	8.0	0.0	4.7	7.8	9.2	14.9	1.4	0.0	1.9	1.8	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.3	37.9	0.0	69.1	59.4	70.6	47.9	20.0	0.0	59.3	42.8	29.0
LnGrp LOS	E	D		E	E	E	D	C		E	D	C
Approach Vol, veh/h		979			922			1110			383	
Approach Delay, s/veh		47.9			64.2			45.6			36.5	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	50.7	15.2	35.0	40.4	20.7	26.6	23.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	40.0	13.4	30.6	38.5	19.5	24.5	19.5				
Max Q Clear Time (g_c+I1), s	5.8	5.3	10.7	20.5	34.0	15.7	21.8	18.6				
Green Ext Time (p_c), s	0.1	0.5	0.1	3.0	1.9	0.5	0.3	0.4				

Intersection Summary

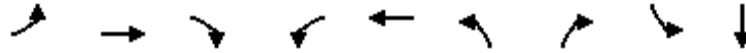
HCM 6th Ctrl Delay	50.3
HCM 6th LOS	D

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Existing +Project PM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	57	684	245	32	709	172	27	2	4
v/c Ratio	0.15	0.34	0.24	0.09	0.40	0.21	0.04	0.01	0.01
Control Delay	22.4	9.9	2.9	23.6	12.3	20.0	0.1	26.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	9.9	2.9	23.6	12.3	20.0	0.1	26.0	0.0
Queue Length 50th (ft)	13	34	0	7	74	19	0	1	0
Queue Length 95th (ft)	55	164	40	37	178	62	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	838	3335	1504	589	3286	1749	1251	421	989
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.21	0.16	0.05	0.22	0.10	0.02	0.00	0.00
Intersection Summary									

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Existing +Project PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↗↘	↑	↗	↘	↗	
Traffic Volume (veh/h)	52	629	225	29	652	0	158	0	25	2	0	4
Future Volume (veh/h)	52	629	225	29	652	0	158	0	25	2	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	684	0	32	709	0	172	0	27	2	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	104	1294		66	1219	0	365	264	224	5	0	60
Arrive On Green	0.06	0.37	0.00	0.04	0.35	0.00	0.11	0.00	0.14	0.00	0.00	0.04
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	57	684	0	32	709	0	172	0	27	2	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.3	6.1	0.0	0.7	6.6	0.0	1.9	0.0	0.6	0.0	0.0	0.1
Cycle Q Clear(g_c), s	1.3	6.1	0.0	0.7	6.6	0.0	1.9	0.0	0.6	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	104	1294		66	1219	0	365	264	224	5	0	60
V/C Ratio(X)	0.55	0.53		0.48	0.58	0.00	0.47	0.00	0.12	0.41	0.00	0.07
Avail Cap(c_a), veh/h	686	4810		465	4369	0	1502	1370	1161	332	0	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.3	9.9	0.0	18.8	10.7	0.0	16.8	0.0	15.0	19.9	0.0	18.5
Incr Delay (d2), s/veh	4.5	0.3	0.0	5.4	0.4	0.0	0.9	0.0	0.2	47.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.6	0.0	0.3	1.8	0.0	0.7	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	10.3	0.0	24.2	11.1	0.0	17.7	0.0	15.2	67.5	0.0	19.0
LnGrp LOS	C	B		C	B	A	B	A	B	E	A	B
Approach Vol, veh/h		741			741			199				6
Approach Delay, s/veh		11.2			11.7			17.4				35.1
Approach LOS		B			B			B				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.2	6.0	19.2	8.8	6.0	6.8	18.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	29.5	10.5	54.5	17.5	19.5	15.5	49.5				
Max Q Clear Time (g_c+I1), s	2.0	2.6	2.7	8.1	3.9	2.1	3.3	8.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	5.0	0.4	0.0	0.1	5.2				

Intersection Summary

HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Existing +Project PM
07/01/2024



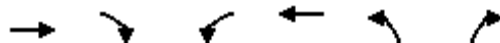
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	464	220	40	572	125	22
v/c Ratio	0.27	0.25	0.09	0.27	0.14	0.05
Control Delay	8.8	3.0	14.9	4.6	13.6	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	3.0	14.9	4.6	13.6	8.5
Queue Length 50th (ft)	19	0	4	25	6	0
Queue Length 95th (ft)	76	32	29	45	31	14
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3505	1568	1433	3505	2951	1364
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.03	0.16	0.04	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Existing +Project PM

07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	427	202	37	526	115	20
Future Volume (veh/h)	427	202	37	526	115	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	464	220	40	572	125	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1065	475	278	2120	393	180
Arrive On Green	0.30	0.30	0.16	0.60	0.11	0.11
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	464	220	40	572	125	22
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	3.4	3.6	0.6	2.4	1.1	0.4
Cycle Q Clear(g_c), s	3.4	3.6	0.6	2.4	1.1	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1065	475	278	2120	393	180
V/C Ratio(X)	0.44	0.46	0.14	0.27	0.32	0.12
Avail Cap(c_a), veh/h	5733	2557	1423	9072	3193	1465
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	8.9	9.0	11.5	3.0	12.9	12.6
Incr Delay (d2), s/veh	0.3	0.7	0.2	0.1	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.8	0.2	0.1	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	9.7	11.7	3.1	13.3	12.9
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	684			612	147	
Approach Delay, s/veh	9.3			3.6	13.3	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.1	9.5	14.1		23.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		29.5	25.5	51.5		81.5
Max Q Clear Time (g_c+I1), s		3.1	2.6	5.6		4.4
Green Ext Time (p_c), s		0.4	0.1	4.0		4.1
Intersection Summary						
HCM 6th Ctrl Delay			7.3			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Existing +Project PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	979	203	886	40	17	185	133	91
v/c Ratio	0.36	0.71	0.58	0.49	0.05	0.06	0.38	0.60	0.22
Control Delay	44.3	24.4	39.7	15.1	2.5	29.6	8.9	44.0	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	24.4	39.7	15.1	2.5	29.6	8.9	44.0	11.8
Queue Length 50th (ft)	33	194	87	144	0	6	5	56	6
Queue Length 95th (ft)	102	385	215	271	12	29	64	152	50
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	303	2292	618	2768	1250	597	828	466	789
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.43	0.33	0.32	0.03	0.03	0.22	0.29	0.12
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Existing +Project PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	69	864	37	187	815	37	16	12	158	122	15	69
Future Volume (veh/h)	69	864	37	187	815	37	16	12	158	122	15	69
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	939	40	203	886	40	17	13	172	133	16	75
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	103	1323	56	259	1664	742	385	28	372	299	72	336
Arrive On Green	0.06	0.38	0.38	0.15	0.47	0.47	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1767	3445	147	1767	3526	1572	1295	112	1478	1189	284	1332
Grp Volume(v), veh/h	75	480	499	203	886	40	17	0	185	133	0	91
Grp Sat Flow(s),veh/h/ln	1767	1763	1829	1767	1763	1572	1295	0	1590	1189	0	1616
Q Serve(g_s), s	2.6	14.3	14.3	6.9	11.0	0.9	0.7	0.0	6.1	6.6	0.0	2.8
Cycle Q Clear(g_c), s	2.6	14.3	14.3	6.9	11.0	0.9	3.4	0.0	6.1	12.7	0.0	2.8
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	103	677	702	259	1664	742	385	0	401	299	0	407
V/C Ratio(X)	0.73	0.71	0.71	0.78	0.53	0.05	0.04	0.00	0.46	0.45	0.00	0.22
Avail Cap(c_a), veh/h	356	1350	1401	726	3438	1534	758	0	858	641	0	873
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	0.00	1.00
Uniform Delay (d), s/veh	28.7	16.2	16.2	25.5	11.6	8.9	19.7	0.0	19.6	25.0	0.0	18.4
Incr Delay (d2), s/veh	9.3	1.4	1.3	5.2	0.3	0.0	0.0	0.0	0.8	1.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.4	5.6	3.1	3.7	0.3	0.2	0.0	2.2	1.8	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	17.6	17.5	30.7	11.8	8.9	19.8	0.0	20.5	26.1	0.0	18.7
LnGrp LOS	D	B	B	C	B	A	B	A	C	C	A	B
Approach Vol, veh/h		1054			1129			202			224	
Approach Delay, s/veh		19.0			15.1			20.4			23.1	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.1	13.6	28.3		20.1	8.1	33.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		33.5	25.5	47.5		33.5	12.5	60.5				
Max Q Clear Time (g_c+I1), s		8.1	8.9	16.3		14.7	4.6	13.0				
Green Ext Time (p_c), s		1.2	0.5	7.5		0.9	0.1	8.0				
Intersection Summary												
HCM 6th Ctrl Delay				17.8								
HCM 6th LOS				B								

Queues

Existing +Project PM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	580	436	542	92	48	449	109	58	60
v/c Ratio	0.40	0.69	0.77	0.32	0.43	0.21	0.77	0.47	0.24	0.19
Control Delay	50.6	37.8	39.9	15.4	48.0	41.4	13.7	47.7	40.8	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	37.8	39.9	15.4	48.0	41.4	13.7	47.7	40.8	1.3
Queue Length 50th (ft)	39	150	221	87	49	25	0	58	30	0
Queue Length 95th (ft)	104	#304	#463	177	118	66	97	135	74	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	233	1026	803	2113	396	554	785	396	554	566
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.57	0.54	0.26	0.23	0.09	0.57	0.28	0.10	0.11

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Existing +Project PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	↖
Traffic Volume (veh/h)	67	460	74	401	364	134	85	44	413	100	53	55
Future Volume (veh/h)	67	460	74	401	364	134	85	44	413	100	53	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	500	80	436	396	146	92	48	449	109	58	60
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	609	97	480	1059	386	130	471	399	147	489	414
Arrive On Green	0.05	0.20	0.20	0.27	0.42	0.42	0.07	0.25	0.25	0.08	0.26	0.26
Sat Flow, veh/h	1767	3046	485	1767	2531	922	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	73	288	292	436	274	268	92	48	449	109	58	60
Grp Sat Flow(s),veh/h/ln	1767	1763	1768	1767	1763	1690	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.8	14.7	14.9	22.5	10.1	10.3	4.8	1.9	23.9	5.7	2.2	2.8
Cycle Q Clear(g_c), s	3.8	14.7	14.9	22.5	10.1	10.3	4.8	1.9	23.9	5.7	2.2	2.8
Prop In Lane	1.00		0.27	1.00		0.55	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	353	354	480	738	707	130	471	399	147	489	414
V/C Ratio(X)	0.78	0.82	0.82	0.91	0.37	0.38	0.71	0.10	1.13	0.74	0.12	0.14
Avail Cap(c_a), veh/h	199	442	443	685	926	888	338	471	399	338	489	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	36.0	36.1	33.1	18.9	18.9	42.6	26.9	35.1	42.2	26.4	26.6
Incr Delay (d2), s/veh	12.7	9.4	9.9	12.2	0.3	0.3	6.9	0.1	83.7	7.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	7.1	7.3	11.0	4.1	4.0	2.3	0.8	18.2	2.7	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	45.4	45.9	45.4	19.2	19.2	49.5	27.0	118.9	49.3	26.5	26.7
LnGrp LOS	E	D	D	D	B	B	D	C	F	D	C	C
Approach Vol, veh/h		653			978			589			227	
Approach Delay, s/veh		46.9			30.9			100.5			37.5	
Approach LOS		D			C			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	28.4	30.1	23.3	11.4	29.3	9.5	43.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	23.9	36.5	23.6	18.0	23.9	10.6	49.5				
Max Q Clear Time (g_c+I1), s	7.7	25.9	24.5	16.9	6.8	4.8	5.8	12.3				
Green Ext Time (p_c), s	0.2	0.0	1.1	2.0	0.1	0.4	0.0	3.7				

Intersection Summary												
HCM 6th Ctrl Delay											52.5	
HCM 6th LOS											D	

Queues
6: Admiral Callaghan Ln & Turner Parkway

Existing +Project PM
07/01/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	503	26	946	76	549
v/c Ratio	0.57	0.07	0.65	0.30	0.27
Control Delay	25.7	10.3	16.2	33.2	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	10.3	16.2	33.2	6.6
Queue Length 50th (ft)	89	0	131	27	44
Queue Length 95th (ft)	176	20	250	81	88
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2015	854	2891	486	3406
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.03	0.33	0.16	0.16
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Existing +Project PM
07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←	→	↑↓		←	↑↑
Traffic Volume (veh/h)	460	27	568	303	70	505
Future Volume (veh/h)	460	27	568	303	70	505
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	500	29	617	329	76	549
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	756	336	958	511	118	2095
Arrive On Green	0.21	0.21	0.43	0.43	0.07	0.59
Sat Flow, veh/h	3534	1572	2314	1184	1767	3618
Grp Volume(v), veh/h	500	29	490	456	76	549
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1642	1767	1763
Q Serve(g_s), s	6.1	0.7	10.3	10.3	2.0	3.5
Cycle Q Clear(g_c), s	6.1	0.7	10.3	10.3	2.0	3.5
Prop In Lane	1.00	1.00		0.72	1.00	
Lane Grp Cap(c), veh/h	756	336	760	708	118	2095
V/C Ratio(X)	0.66	0.09	0.64	0.64	0.64	0.26
Avail Cap(c_a), veh/h	2527	1124	2163	2015	584	5830
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	16.9	14.8	10.5	10.5	21.3	4.6
Incr Delay (d2), s/veh	1.0	0.1	0.9	1.0	5.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.2	3.3	3.0	0.9	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.9	14.9	11.4	11.5	27.0	4.6
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	529		946			625
Approach Delay, s/veh	17.7		11.5			7.4
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.6	24.7			32.3	14.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	15.5	57.5			77.5	33.5
Max Q Clear Time (g_c+I1), s	4.0	12.3			5.5	8.1
Green Ext Time (p_c), s	0.1	7.9			4.3	2.0

Intersection Summary

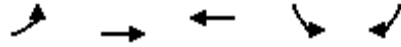
HCM 6th Ctrl Delay	11.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Existing +Project PM
07/01/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	229	105	431	426	192
v/c Ratio	0.50	0.06	0.53	0.48	0.38
Control Delay	20.3	5.5	9.2	17.0	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	5.5	9.2	17.0	5.8
Queue Length 50th (ft)	49	5	15	44	0
Queue Length 95th (ft)	128	16	57	101	45
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1481	3505	2143	2721	1195
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.03	0.20	0.16	0.16

Intersection Summary

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Existing +Project PM
07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	211	97	122	274	319	249	
Future Volume (veh/h)	211	97	122	274	319	249	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	229	105	133	298	408	206	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	308	1986	495	442	778	346	
Arrive On Green	0.17	0.56	0.28	0.28	0.22	0.22	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	229	105	133	298	408	206	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	5.1	0.6	2.4	7.0	4.2	4.9	
Cycle Q Clear(g_c), s	5.1	0.6	2.4	7.0	4.2	4.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	308	1986	495	442	778	346	
V/C Ratio(X)	0.74	0.05	0.27	0.67	0.52	0.59	
Avail Cap(c_a), veh/h	1679	6232	1251	1116	3187	1418	
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	16.3	4.1	11.6	13.3	14.3	14.5	
Incr Delay (d2), s/veh	3.6	0.0	0.3	1.8	0.5	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.1	0.1	0.8	2.2	1.5	4.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.9	4.1	11.9	15.1	14.8	16.2	
LnGrp LOS	B	A	B	B	B	B	
Approach Vol, veh/h		334	431		614		
Approach Delay, s/veh		14.9	14.1		15.3		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				27.9	13.7	11.7	16.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				73.5	37.5	39.5	29.5
Max Q Clear Time (g_c+I1), s				2.6	6.9	7.1	9.0
Green Ext Time (p_c), s				0.7	2.3	0.7	2.7

Intersection Summary

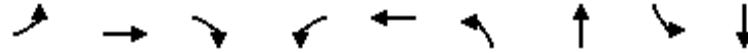
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Existing +Project PM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	62	11	359	5	19	335	138	22	251
v/c Ratio	0.22	0.04	0.64	0.02	0.08	0.59	0.07	0.09	0.37
Control Delay	24.9	22.1	9.2	28.2	20.4	20.2	7.5	27.0	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	22.1	9.2	28.2	20.4	20.2	7.5	27.0	16.8
Queue Length 50th (ft)	13	2	0	1	2	67	5	5	20
Queue Length 95th (ft)	62	18	68	13	23	216	38	32	75
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	442	1274	1194	211	962	1495	3304	288	1747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.01	0.30	0.02	0.02	0.22	0.04	0.08	0.14

Intersection Summary

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Existing +Project PM
 07/01/2024



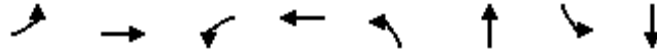
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	10	330	5	9	8	308	124	3	20	151	80
Future Volume (veh/h)	57	10	330	5	9	8	308	124	3	20	151	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	62	11	359	5	10	9	335	135	3	22	164	87
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	101	513	435	12	204	183	416	1208	27	46	303	153
Arrive On Green	0.06	0.28	0.28	0.01	0.23	0.23	0.24	0.34	0.34	0.03	0.13	0.13
Sat Flow, veh/h	1767	1856	1572	1767	900	810	1767	3526	78	1767	2267	1145
Grp Volume(v), veh/h	62	11	359	5	0	19	335	67	71	22	126	125
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1710	1767	1763	1841	1767	1763	1649
Q Serve(g_s), s	1.8	0.2	11.1	0.1	0.0	0.4	9.3	1.3	1.4	0.6	3.4	3.7
Cycle Q Clear(g_c), s	1.8	0.2	11.1	0.1	0.0	0.4	9.3	1.3	1.4	0.6	3.4	3.7
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.04	1.00		0.69
Lane Grp Cap(c), veh/h	101	513	435	12	0	387	416	604	631	46	235	220
V/C Ratio(X)	0.62	0.02	0.83	0.42	0.00	0.05	0.81	0.11	0.11	0.48	0.53	0.57
Avail Cap(c_a), veh/h	393	1130	958	188	0	843	1418	1960	2047	256	801	749
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.8	13.6	17.5	25.6	0.0	15.7	18.7	11.6	11.6	24.8	20.9	21.0
Incr Delay (d2), s/veh	6.0	0.0	4.0	22.1	0.0	0.1	3.7	0.1	0.1	7.4	1.9	2.3
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	0.1	4.0	0.1	0.0	0.2	3.7	0.5	0.5	0.3	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	13.6	21.6	47.7	0.0	15.7	22.4	11.7	11.7	32.2	22.8	23.3
LnGrp LOS	C	B	C	D	A	B	C	B	B	C	C	C
Approach Vol, veh/h		432			24			473			273	
Approach Delay, s/veh		22.6			22.4			19.3			23.8	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	22.2	4.8	18.8	16.7	11.4	7.4	16.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	57.5	5.5	31.5	41.5	23.5	11.5	25.5				
Max Q Clear Time (g_c+I1), s	2.6	3.4	2.1	13.1	11.3	5.7	3.8	2.4				
Green Ext Time (p_c), s	0.0	0.8	0.0	1.3	1.0	1.2	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Queues
9: Ascot Parkway & Redwood Street

Existing +Project PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	112	325	39	156	125	345	33	424
v/c Ratio	0.33	0.31	0.15	0.27	0.35	0.28	0.13	0.49
Control Delay	26.3	11.5	27.5	21.5	26.0	14.5	27.6	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	11.5	27.5	21.5	26.0	14.5	27.6	15.9
Queue Length 50th (ft)	33	18	12	19	37	32	10	42
Queue Length 95th (ft)	90	70	43	53	97	92	39	97
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	883	2137	453	1650	906	2880	414	2241
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.15	0.09	0.09	0.14	0.12	0.08	0.19
Intersection Summary								

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Existing +Project PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↗↘		↗	↗↘	
Traffic Volume (veh/h)	103	157	142	36	108	36	115	264	53	30	229	161
Future Volume (veh/h)	103	157	142	36	108	36	115	264	53	30	229	161
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	112	171	0	39	117	0	125	287	0	33	249	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	166	650		79	477		176	792		69	578	
Arrive On Green	0.09	0.18	0.00	0.04	0.14	0.00	0.10	0.22	0.00	0.04	0.16	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	112	171	0	39	117	0	125	287	0	33	249	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	2.2	1.5	0.0	0.8	1.1	0.0	2.4	2.4	0.0	0.6	2.3	0.0
Cycle Q Clear(g_c), s	2.2	1.5	0.0	0.8	1.1	0.0	2.4	2.4	0.0	0.6	2.3	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	166	650		79	477		176	792		69	578	
V/C Ratio(X)	0.67	0.26		0.49	0.25		0.71	0.36		0.48	0.43	
Avail Cap(c_a), veh/h	1120	3227		572	2135		1170	4716		523	3426	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.6	12.4	0.0	16.6	13.7	0.0	15.5	11.6	0.0	16.7	13.4	0.0
Incr Delay (d2), s/veh	4.7	0.2	0.0	4.6	0.3	0.0	5.2	0.3	0.0	5.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.5	0.0	0.4	0.3	0.0	1.0	0.7	0.0	0.3	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.2	12.6	0.0	21.2	14.0	0.0	20.7	11.9	0.0	21.7	13.9	0.0
LnGrp LOS	C	B		C	B		C	B		C	B	
Approach Vol, veh/h		283			156			412			282	
Approach Delay, s/veh		15.6			15.8			14.6			14.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	12.5	6.1	11.0	8.0	10.3	7.8	9.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	47.5	11.5	32.5	23.5	34.5	22.5	21.5				
Max Q Clear Time (g_c+I1), s	2.6	4.4	2.8	3.5	4.4	4.3	4.2	3.1				
Green Ext Time (p_c), s	0.0	1.9	0.0	1.0	0.3	1.6	0.2	0.5				

Intersection Summary

HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Existing +Project PM
07/01/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	387	191	221	138	200
v/c Ratio	0.46	0.45	0.11	0.37	0.41
Control Delay	15.1	19.5	4.6	20.0	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	19.5	4.6	20.0	6.3
Queue Length 50th (ft)	36	41	11	30	0
Queue Length 95th (ft)	83	105	25	83	43
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	2474	1436	3505	1466	1344
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.13	0.06	0.09	0.15
Intersection Summary					

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

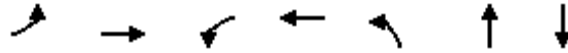
Existing +Project PM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	240	116	176	203	127	184
Future Volume (veh/h)	240	116	176	203	127	184
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	261	126	191	221	138	200
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	542	254	263	1835	357	317
Arrive On Green	0.23	0.23	0.15	0.52	0.20	0.20
Sat Flow, veh/h	2423	1092	1767	3618	1767	1572
Grp Volume(v), veh/h	196	191	191	221	138	200
Grp Sat Flow(s),veh/h/ln	1763	1659	1767	1763	1767	1572
Q Serve(g_s), s	3.1	3.2	3.3	1.0	2.2	3.8
Cycle Q Clear(g_c), s	3.1	3.2	3.3	1.0	2.2	3.8
Prop In Lane		0.66	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	410	386	263	1835	357	317
V/C Ratio(X)	0.48	0.50	0.73	0.12	0.39	0.63
Avail Cap(c_a), veh/h	1769	1664	1991	7999	2046	1820
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	10.7	10.8	13.2	4.0	11.2	11.8
Incr Delay (d2), s/veh	0.9	1.0	3.8	0.0	0.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	1.2	0.1	0.7	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.6	11.8	17.0	4.0	11.9	13.9
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	387			412	338	
Approach Delay, s/veh	11.7			10.0	13.1	
Approach LOS	B			B	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		11.0	9.3	12.0		21.4
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	36.5	32.5		73.5
Max Q Clear Time (g_c+I1), s		5.8	5.3	5.2		3.0
Green Ext Time (p_c), s		1.1	0.5	2.3		1.5
Intersection Summary						
HCM 6th Ctrl Delay			11.5			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Existing +Project PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	23	805	58	361	251	98	7
v/c Ratio	0.11	0.60	0.23	0.23	0.57	0.14	0.01
Control Delay	33.8	17.6	31.9	12.4	25.6	0.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	17.6	31.9	12.4	25.6	0.4	0.0
Queue Length 50th (ft)	8	118	19	30	78	0	0
Queue Length 95th (ft)	36	240	67	100	190	0	0
Internal Link Dist (ft)		424		851		1161	269
Turn Bay Length (ft)	125		125		75		
Base Capacity (vph)	296	2698	435	2912	1096	1298	1338
Starvation Cap Reductn	0	1	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.30	0.13	0.12	0.23	0.08	0.01
Intersection Summary							

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Existing +Project PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	21	554	187	53	331	1	231	0	90	0	0	6
Future Volume (veh/h)	21	554	187	53	331	1	231	0	90	0	0	6
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	602	203	58	360	1	251	0	98	0	0	7
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	49	971	327	103	1462	4	510	0	387	171	0	387
Arrive On Green	0.03	0.37	0.37	0.06	0.41	0.41	0.25	0.00	0.25	0.00	0.00	0.25
Sat Flow, veh/h	1767	2590	872	1767	3606	10	1397	0	1572	1287	0	1572
Grp Volume(v), veh/h	23	409	396	58	176	185	251	0	98	0	0	7
Grp Sat Flow(s),veh/h/ln	1767	1763	1699	1767	1763	1854	1397	0	1572	1287	0	1572
Q Serve(g_s), s	0.5	8.0	8.0	1.3	2.8	2.8	7.0	0.0	2.1	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.5	8.0	8.0	1.3	2.8	2.8	7.1	0.0	2.1	0.0	0.0	0.1
Prop In Lane	1.00		0.51	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	661	637	103	715	751	510	0	387	171	0	387
V/C Ratio(X)	0.46	0.62	0.62	0.56	0.25	0.25	0.49	0.00	0.25	0.00	0.00	0.02
Avail Cap(c_a), veh/h	357	1989	1917	525	2157	2268	1710	0	1737	1276	0	1737
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	0.00	0.00	1.00
Uniform Delay (d), s/veh	20.1	10.7	10.7	19.3	8.3	8.3	14.7	0.0	12.8	0.0	0.0	12.0
Incr Delay (d2), s/veh	6.6	1.0	1.0	4.7	0.2	0.2	0.7	0.0	0.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.4	2.4	0.6	0.8	0.8	1.9	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	11.7	11.7	24.0	8.4	8.4	15.5	0.0	13.1	0.0	0.0	12.0
LnGrp LOS	C	B	B	C	A	A	B	A	B	A	A	B
Approach Vol, veh/h		828			419			349				7
Approach Delay, s/veh		12.1			10.6			14.8				12.0
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.9	7.0	20.3		14.9	5.7	21.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		46.5	12.5	47.5		46.5	8.5	51.5				
Max Q Clear Time (g_c+I1), s		9.1	3.3	10.0		2.1	2.5	4.8				
Green Ext Time (p_c), s		1.4	0.1	5.8		0.0	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay				12.3								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Existing +Project PM
07/01/2024



Lane Group	EBL	EBT	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	642	452	656	383	125	240	1167
v/c Ratio	0.78	0.25	0.79	0.64	0.34	0.41	0.81
Control Delay	43.7	14.6	36.7	44.4	10.2	39.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	14.6	36.7	44.4	10.2	39.3	7.5
Queue Length 50th (ft)	192	76	161	118	0	71	0
Queue Length 95th (ft)	#317	143	278	198	53	117	58
Internal Link Dist (ft)		852	424	1178			
Turn Bay Length (ft)	275				450	100	300
Base Capacity (vph)	1010	2177	1004	814	460	1010	1640
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.21	0.65	0.47	0.27	0.24	0.71

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Existing +Project PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕			↖↗			↕	↖	↖↗		↖↗
Traffic Volume (veh/h)	591	416	0	0	352	251	0	352	115	221	0	1074
Future Volume (veh/h)	591	416	0	0	352	251	0	352	115	221	0	1074
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	1856	1856	0	0	1856	1856	0	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	642	452	0	0	383	273	0	383	125	240	0	1167
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, %	3	3	0	0	3	3	0	3	3	3	0	3
Cap, veh/h	798	1926	0	0	497	350	0	571	255	360	0	0
Arrive On Green	0.23	0.55	0.00	0.00	0.25	0.25	0.00	0.16	0.16	0.10	0.00	0.00
Sat Flow, veh/h	3428	3618	0	0	2070	1391	0	3618	1572	3428	240	
Grp Volume(v), veh/h	642	452	0	0	341	315	0	383	125	240	33.3	
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1605	0	1763	1572	1714	C	
Q Serve(g_s), s	12.8	4.8	0.0	0.0	13.0	13.2	0.0	7.4	5.2	4.9		
Cycle Q Clear(g_c), s	12.8	4.8	0.0	0.0	13.0	13.2	0.0	7.4	5.2	4.9		
Prop In Lane	1.00		0.00	0.00		0.87	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	798	1926	0	0	443	403	0	571	255	360		
V/C Ratio(X)	0.80	0.23	0.00	0.00	0.77	0.78	0.00	0.67	0.49	0.67		
Avail Cap(c_a), veh/h	1305	2807	0	0	622	567	0	1049	468	1305		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	26.2	8.5	0.0	0.0	25.1	25.2	0.0	28.5	27.6	31.1		
Incr Delay (d2), s/veh	2.0	0.1	0.0	0.0	3.8	4.6	0.0	1.4	1.5	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		
%ile BackOfQ(50%),veh/ln	5.1	1.6	0.0	0.0	5.5	5.2	0.0	3.1	2.0	2.1		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	8.6	0.0	0.0	28.9	29.8	0.0	29.8	29.0	33.3		
LnGrp LOS	C	A	A	A	C	C	A	C	C	C		
Approach Vol, veh/h		1094			656			508				
Approach Delay, s/veh		20.1			29.3			29.6				
Approach LOS		C			C			C				
Timer - Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	12.1	16.2		44.0			21.3	22.6				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	27.5	21.5		57.5			27.5	25.5				
Max Q Clear Time (g_c+I1), s	6.9	9.4		6.8			14.8	15.2				
Green Ext Time (p_c), s	0.8	2.3		3.3			2.0	2.9				

Intersection Summary

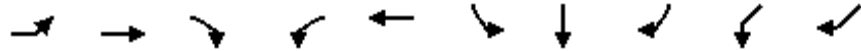
HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Queues

Existing +Project PM

13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

06/13/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	SBL	SBT	SBR	SWL	SWR
Lane Group Flow (vph)	89	773	552	504	1054	163	149	95	159	242
v/c Ratio	0.50	0.70	0.67	0.74	0.69	0.64	0.56	0.28	0.62	0.70
Control Delay	57.4	34.6	9.2	46.3	27.0	55.5	51.3	4.6	53.8	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	34.6	9.2	46.3	27.0	55.5	51.3	4.6	53.8	31.4
Queue Length 50th (ft)	56	228	28	160	295	102	92	0	99	65
Queue Length 95th (ft)	122	345	149	250	436	193	177	20	186	166
Internal Link Dist (ft)		693			852		265		1072	
Turn Bay Length (ft)	150		200	285		125		125		
Base Capacity (vph)	230	1430	929	882	1825	343	361	416	380	447
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.54	0.59	0.57	0.58	0.48	0.41	0.23	0.42	0.54

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Existing +Project PM
 06/13/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL2	SWL	SWR
Lane Configurations												
Traffic Volume (vph)	82	711	508	464	779	190	150	137	87	146	0	202
Future Volume (vph)	82	711	508	464	779	190	150	137	87	146	0	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3402		1752	1845	1568		1752	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3402		1752	1845	1568		1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	773	552	504	847	207	163	149	95	159	0	220
RTOR Reduction (vph)	0	0	329	0	0	0	0	0	81	0	0	116
Lane Group Flow (vph)	89	773	223	504	1054	0	163	149	14	0	159	126
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Prot	Prot	Prot
Protected Phases	5	2		1	6		4	4	4	8	8	8
Permitted Phases			2									
Actuated Green, G (s)	8.2	32.6	32.6	19.8	44.2		14.3	14.3	14.3		14.5	14.5
Effective Green, g (s)	8.2	32.6	32.6	19.8	44.2		14.3	14.3	14.3		14.5	14.5
Actuated g/C Ratio	0.08	0.33	0.33	0.20	0.45		0.14	0.14	0.14		0.15	0.15
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	144	1151	515	678	1515		252	265	226		256	229
v/s Ratio Prot	0.05	0.22		c0.15	c0.31		c0.09	0.08	0.01		c0.09	0.08
v/s Ratio Perm			0.14									
v/c Ratio	0.62	0.67	0.43	0.74	0.70		0.65	0.56	0.06		0.62	0.55
Uniform Delay, d1	44.0	28.7	26.1	37.3	22.1		40.1	39.5	36.7		39.8	39.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.7	1.6	0.6	4.4	1.4		5.6	2.7	0.1		4.6	2.7
Delay (s)	51.7	30.2	26.7	41.7	23.5		45.7	42.3	36.8		44.4	42.0
Level of Service	D	C	C	D	C		D	D	D		D	D
Approach Delay (s)		30.2			29.4			42.3			43.0	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.71	
Actuated Cycle Length (s)	99.2	Sum of lost time (s) 18.0
Intersection Capacity Utilization	64.3%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group



Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	20
Future Volume (vph)	20
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	22
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

14: Lake Herman Road & Columbus Parkway















Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	284	409	32	65	398
v/c Ratio	0.23	0.48	0.38	0.06	0.17	0.24
Control Delay	15.4	5.9	12.4	5.9	15.8	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	5.9	12.4	5.9	15.8	5.1
Queue Length 50th (ft)	17	0	37	0	12	17
Queue Length 95th (ft)	52	46	76	14	40	37
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1720	1544	3317	1485	1301	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.18	0.12	0.02	0.05	0.11

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Existing +Project PM
 07/01/2024

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	87	261	376	29	60	366
Future Volume (veh/h)	87	261	376	29	60	366
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	95	284	409	32	65	398
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	442	393	825	368	245	1757
Arrive On Green	0.25	0.25	0.23	0.23	0.14	0.50
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	95	284	409	32	65	398
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	1.5	5.9	3.6	0.6	1.2	2.3
Cycle Q Clear(g_c), s	1.5	5.9	3.6	0.6	1.2	2.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	442	393	825	368	245	1757
V/C Ratio(X)	0.22	0.72	0.50	0.09	0.27	0.23
Avail Cap(c_a), veh/h	2150	1913	3796	1693	1211	6655
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	10.6	12.3	11.9	10.7	13.8	5.1
Incr Delay (d2), s/veh	0.2	2.5	0.5	0.1	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.7	1.0	0.1	0.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.9	14.8	12.3	10.8	14.4	5.1
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	379		441			463
Approach Delay, s/veh	13.8		12.2			6.4
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.4	12.9			22.3	13.4
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	24.5	38.5			67.5	43.5
Max Q Clear Time (g_c+I1), s	3.2	5.6			4.3	7.9
Green Ext Time (p_c), s	0.1	2.8			2.7	1.2
Intersection Summary						
HCM 6th Ctrl Delay			10.6			
HCM 6th LOS			B			

Queues

Existing +Project PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	83	190	103	110	155	73	897	154	112	402
v/c Ratio	0.42	0.60	0.47	0.33	0.38	0.39	0.71	0.56	0.13	0.43
Control Delay	50.5	45.3	50.2	39.1	9.4	50.7	28.6	48.3	19.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	45.3	50.2	39.1	9.4	50.7	28.6	48.3	19.0	3.6
Queue Length 50th (ft)	45	97	55	55	0	39	223	82	39	0
Queue Length 95th (ft)	115	208	134	127	56	104	370	182	87	56
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	275	510	317	562	585	251	1951	426	1202	1161
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.37	0.32	0.20	0.26	0.29	0.46	0.36	0.09	0.35

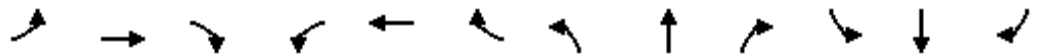
Intersection Summary

HCM 6th Signalized Intersection Summary

Existing +Project PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	145	29	95	101	143	67	680	145	142	103	370
Future Volume (veh/h)	76	145	29	95	101	143	67	680	145	142	103	370
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	83	158	32	103	110	155	73	739	158	154	112	402
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	110	221	45	135	300	254	103	1051	225	201	777	659
Arrive On Green	0.06	0.15	0.15	0.08	0.16	0.16	0.06	0.36	0.36	0.11	0.42	0.42
Sat Flow, veh/h	1767	1498	303	1767	1856	1572	1767	2889	618	1767	1856	1572
Grp Volume(v), veh/h	83	0	190	103	110	155	73	451	446	154	112	402
Grp Sat Flow(s),veh/h/ln	1767	0	1801	1767	1856	1572	1767	1763	1744	1767	1856	1572
Q Serve(g_s), s	2.8	0.0	6.1	3.4	3.2	5.5	2.4	13.2	13.2	5.1	2.2	12.0
Cycle Q Clear(g_c), s	2.8	0.0	6.1	3.4	3.2	5.5	2.4	13.2	13.2	5.1	2.2	12.0
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	110	0	266	135	300	254	103	641	635	201	777	659
V/C Ratio(X)	0.75	0.00	0.71	0.77	0.37	0.61	0.71	0.70	0.70	0.77	0.14	0.61
Avail Cap(c_a), veh/h	370	0	673	425	752	637	337	1331	1317	572	1648	1396
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	24.5	27.3	22.5	23.5	27.8	16.4	16.4	25.9	10.8	13.7
Incr Delay (d2), s/veh	9.9	0.0	3.6	8.7	0.7	2.4	8.5	1.4	1.4	6.1	0.1	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	1.4	0.0	2.7	1.7	1.4	2.1	1.2	5.0	4.9	2.4	0.8	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	0.0	28.0	36.0	23.3	25.9	36.3	17.8	17.8	32.0	10.9	14.6
LnGrp LOS	D	A	C	D	C	C	D	B	B	C	B	B
Approach Vol, veh/h		273			368			970			668	
Approach Delay, s/veh		31.0			27.9			19.2			18.0	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	26.4	9.1	13.4	8.0	29.7	8.3	14.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	45.5	14.5	22.5	11.5	53.5	12.6	24.4				
Max Q Clear Time (g_c+I1), s	7.1	15.2	5.4	8.1	4.4	14.0	4.8	7.5				
Green Ext Time (p_c), s	0.3	6.7	0.1	0.8	0.1	2.2	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Queues

16: Sonoma Blvd (SR-29) & SR-37 Ramps



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	359	917	960	87	1373	268
v/c Ratio	0.28	0.79	0.53	0.10	0.76	0.17
Control Delay	22.1	27.3	17.3	3.6	22.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	27.3	17.3	3.6	22.5	0.2
Queue Length 50th (ft)	71	211	182	0	311	0
Queue Length 95th (ft)	147	422	347	27	580	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	2208	1854	2812	1275	2812	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.49	0.34	0.07	0.49	0.17

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Existing +Project PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖↗		↖↗		↕	↖		↕	↖
Traffic Volume (veh/h)	0	0	0	330	0	844	0	883	80	0	1263	247
Future Volume (veh/h)	0	0	0	330	0	844	0	883	80	0	1263	247
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				359	0	917	0	960	87	0	1373	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1348	0	1088	0	1768	789	0	1768	
Arrive On Green				0.39	0.00	0.39	0.00	0.50	0.50	0.00	0.50	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				359	0	917	0	960	87	0	1373	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				6.1	0.0	25.7	0.0	15.9	2.5	0.0	27.2	0.0
Cycle Q Clear(g_c), s				6.1	0.0	25.7	0.0	15.9	2.5	0.0	27.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1348	0	1088	0	1768	789	0	1768	
V/C Ratio(X)				0.27	0.00	0.84	0.00	0.54	0.11	0.00	0.78	
Avail Cap(c_a), veh/h				2267	0	1830	0	3073	1371	0	3073	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				17.6	0.0	23.5	0.0	14.6	11.2	0.0	17.4	0.0
Incr Delay (d2), s/veh				0.1	0.0	1.9	0.0	0.3	0.1	0.0	0.8	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.2	0.0	7.9	0.0	5.7	0.8	0.0	9.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				17.7	0.0	25.4	0.0	14.9	11.3	0.0	18.1	0.0
LnGrp LOS				B	A	C	A	B	B	A	B	
Approach Vol, veh/h					1276			1047			1373	
Approach Delay, s/veh					23.2			14.6			18.1	
Approach LOS					C			B			B	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		47.4				47.4		38.1				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.5				74.5		56.5				
Max Q Clear Time (g_c+I1), s		17.9				29.2		27.7				
Green Ext Time (p_c), s		8.4				13.7		5.9				

Intersection Summary

HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

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

Queues

Baseline AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBR
Lane Group Flow (vph)	11	737	583	97	820	327	79	2
v/c Ratio	0.05	0.57	0.37	0.31	0.30	0.43	0.10	0.01
Control Delay	31.1	17.7	0.7	27.9	8.3	23.6	0.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.1	17.7	0.7	27.9	8.3	23.6	0.3	0.0
Queue Length 50th (ft)	3	95	0	27	36	46	0	0
Queue Length 95th (ft)	22	226	0	93	134	122	0	0
Internal Link Dist (ft)		1084			414		644	
Turn Bay Length (ft)	230			215		425		
Base Capacity (vph)	232	2746	1568	589	4515	1558	1046	762
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.27	0.37	0.16	0.18	0.21	0.08	0.00

Intersection Summary

HCM 6th Signalized Intersection Summary

Baseline AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑	↗
Traffic Volume (veh/h)	10	678	536	89	754	0	301	0	73	0	0	2
Future Volume (veh/h)	10	678	536	89	754	0	301	0	73	0	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	11	737	0	97	820	0	327	0	0	0	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	25	1212		141	2073	0	536	489		4	5	4
Arrive On Green	0.01	0.34	0.00	0.08	0.41	0.00	0.16	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	1767	3526	1572	1767	5233	0	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	11	737	0	97	820	0	327	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	0	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	0.3	7.5	0.0	2.3	4.9	0.0	3.8	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.3	7.5	0.0	2.3	4.9	0.0	3.8	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	25	1212		141	2073	0	536	489		4	5	4
V/C Ratio(X)	0.43	0.61		0.69	0.40	0.00	0.61	0.00		0.00	0.00	0.46
Avail Cap(c_a), veh/h	266	3475		676	6168	0	1789	1076		738	882	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	11.7	0.0	19.3	9.0	0.0	17.0	0.0	0.0	0.0	0.0	21.5
Incr Delay (d2), s/veh	11.3	0.5	0.0	5.9	0.1	0.0	1.1	0.0	0.0	0.0	0.0	61.9
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	0.2	2.2	0.0	1.0	1.2	0.0	1.4	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	12.2	0.0	25.2	9.1	0.0	18.1	0.0	0.0	0.0	0.0	83.4
LnGrp LOS	C	B		C	A	A	B	A		A	A	F
Approach Vol, veh/h		748			917			327				2
Approach Delay, s/veh		12.5			10.8			18.1				83.4
Approach LOS		B			B			B				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	15.9	7.9	19.3	11.2	4.6	5.1	22.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	25.0	16.5	42.5	22.5	20.5	6.5	52.5				
Max Q Clear Time (g_c+I1), s	0.0	0.0	4.3	9.5	5.8	2.1	2.3	6.9				
Green Ext Time (p_c), s	0.0	0.0	0.2	5.3	1.0	0.0	0.0	6.3				

Intersection Summary

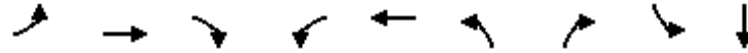
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Baseline AM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	24	483	293	20	626	265	8	2	4
v/c Ratio	0.07	0.35	0.37	0.06	0.45	0.29	0.01	0.01	0.01
Control Delay	20.0	10.2	3.5	20.2	11.1	14.9	0.0	22.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	10.2	3.5	20.2	11.1	14.9	0.0	22.0	0.0
Queue Length 50th (ft)	3	25	0	3	34	18	0	0	0
Queue Length 95th (ft)	30	117	46	26	156	81	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	553	3281	1487	553	3281	2505	1467	395	1074
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.15	0.20	0.04	0.19	0.11	0.01	0.01	0.00

Intersection Summary

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Baseline AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗		↗↗	↑	↘	↘	↗	
Traffic Volume (veh/h)	22	444	270	18	575	1	244	0	7	2	0	4
Future Volume (veh/h)	22	444	270	18	575	1	244	0	7	2	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	483	0	20	625	1	265	0	8	2	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	52	1103		45	1114	2	483	290	246	5	0	29
Arrive On Green	0.03	0.31	0.00	0.03	0.31	0.31	0.14	0.00	0.16	0.00	0.00	0.02
Sat Flow, veh/h	1767	3526	1572	1767	3611	6	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	24	483	0	20	305	321	265	0	8	2	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1855	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	0.5	3.9	0.0	0.4	5.2	5.2	2.6	0.0	0.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.5	3.9	0.0	0.4	5.2	5.2	2.6	0.0	0.2	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	1103		45	544	572	483	290	246	5	0	29
V/C Ratio(X)	0.46	0.44		0.45	0.56	0.56	0.55	0.00	0.03	0.41	0.00	0.14
Avail Cap(c_a), veh/h	518	4579		518	2290	2409	2346	1944	1647	370	0	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	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.1	9.8	0.0	17.2	10.4	10.4	14.3	0.0	12.8	17.8	0.0	17.3
Incr Delay (d2), s/veh	6.1	0.3	0.0	6.9	0.9	0.9	1.0	0.0	0.1	45.8	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	0.0	0.2	1.4	1.5	0.9	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	10.1	0.0	24.1	11.3	11.2	15.3	0.0	12.9	63.6	0.0	19.5
LnGrp LOS	C	B		C	B	B	B	A	B	E	A	B
Approach Vol, veh/h		507			646			273				6
Approach Delay, s/veh		10.7			11.6			15.2				34.2
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.1	5.4	15.7	9.5	5.1	5.6	15.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	37.5	10.5	46.5	24.5	20.5	10.5	46.5				
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.4	5.9	4.6	2.1	2.5	7.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.3	0.9	0.0	0.0	3.9				

Intersection Summary

HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Baseline AM
07/01/2024

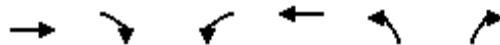


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	370	88	11	370	257	55
v/c Ratio	0.32	0.15	0.03	0.28	0.26	0.11
Control Delay	9.1	3.9	12.8	6.4	10.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	3.9	12.8	6.4	10.0	5.0
Queue Length 50th (ft)	15	0	1	15	11	0
Queue Length 95th (ft)	64	22	12	35	49	19
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3505	1568	1343	3505	3350	1546
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.06	0.01	0.11	0.08	0.04
Intersection Summary						

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Baseline AM
07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	340	81	10	340	236	51
Future Volume (veh/h)	340	81	10	340	236	51
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	370	88	11	370	257	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	858	383	278	1933	538	247
Arrive On Green	0.24	0.24	0.16	0.55	0.16	0.16
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	370	88	11	370	257	55
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	2.7	1.4	0.2	1.6	2.1	0.9
Cycle Q Clear(g_c), s	2.7	1.4	0.2	1.6	2.1	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	858	383	278	1933	538	247
V/C Ratio(X)	0.43	0.23	0.04	0.19	0.48	0.22
Avail Cap(c_a), veh/h	5256	2344	1187	8144	4550	2087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.8	9.3	10.9	3.5	11.7	11.2
Incr Delay (d2), s/veh	0.3	0.3	0.1	0.0	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	0.0	0.1	0.6	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.1	9.6	11.0	3.5	12.4	11.7
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	458			381	312	
Approach Delay, s/veh	10.0			3.7	12.3	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.3	9.3	11.9		21.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		40.5	20.5	45.5		70.5
Max Q Clear Time (g_c+I1), s		4.1	2.2	4.7		3.6
Green Ext Time (p_c), s		1.1	0.0	2.7		2.5
Intersection Summary						
HCM 6th Ctrl Delay			8.5			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Baseline AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	296	68	507	16	2	25	71	26
v/c Ratio	0.05	0.15	0.12	0.21	0.01	0.00	0.05	0.11	0.05
Control Delay	16.2	10.3	14.5	6.2	0.5	14.0	8.3	13.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	10.3	14.5	6.2	0.5	14.0	8.3	13.6	7.7
Queue Length 50th (ft)	4	26	12	23	0	0	1	12	0
Queue Length 95th (ft)	22	56	42	87	2	4	15	42	15
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	1123	3472	1327	3505	1568	1694	1471	1694	1452
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.09	0.05	0.14	0.01	0.00	0.02	0.04	0.02
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Baseline AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	22	268	5	63	466	15	2	3	20	65	1	23
Future Volume (veh/h)	22	268	5	63	466	15	2	3	20	65	1	23
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	291	5	68	507	16	2	3	22	71	1	25
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1045	18	132	1194	533	411	22	160	413	7	173
Arrive On Green	0.03	0.29	0.29	0.07	0.34	0.34	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1767	3547	61	1767	3526	1572	1374	192	1410	1375	61	1521
Grp Volume(v), veh/h	24	144	152	68	507	16	2	0	25	71	0	26
Grp Sat Flow(s),veh/h/ln	1767	1763	1845	1767	1763	1572	1374	0	1602	1375	0	1582
Q Serve(g_s), s	0.3	1.6	1.6	1.0	2.9	0.2	0.0	0.0	0.4	1.3	0.0	0.4
Cycle Q Clear(g_c), s	0.3	1.6	1.6	1.0	2.9	0.2	0.4	0.0	0.4	1.6	0.0	0.4
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	54	520	544	132	1194	533	411	0	182	413	0	180
V/C Ratio(X)	0.44	0.28	0.28	0.52	0.42	0.03	0.00	0.00	0.14	0.17	0.00	0.14
Avail Cap(c_a), veh/h	1117	3140	3286	1658	7360	3283	2123	0	2178	2126	0	2151
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	0.00	1.00
Uniform Delay (d), s/veh	12.4	7.1	7.1	11.6	6.7	5.8	10.6	0.0	10.4	11.2	0.0	10.4
Incr Delay (d2), s/veh	5.6	0.3	0.3	3.1	0.2	0.0	0.0	0.0	0.3	0.2	0.0	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	0.2	0.4	0.4	0.4	0.6	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	7.4	7.4	14.7	6.9	5.8	10.6	0.0	10.8	11.4	0.0	10.8
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		320			591			27				97
Approach Delay, s/veh		8.2			7.8			10.7				11.2
Approach LOS		A			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.5	6.4	12.2		7.5	5.3	13.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		35.5	24.5	46.5		35.5	16.5	54.5				
Max Q Clear Time (g_c+I1), s		2.4	3.0	3.6		3.6	2.3	4.9				
Green Ext Time (p_c), s		0.1	0.1	1.8		0.3	0.0	4.0				
Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

Queues

Baseline AM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	188	207	320	28	23	109	58	14	20
v/c Ratio	0.16	0.28	0.44	0.18	0.10	0.08	0.31	0.19	0.04	0.05
Control Delay	23.5	19.0	20.7	9.9	24.0	24.1	6.5	23.2	21.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	19.0	20.7	9.9	24.0	24.1	6.5	23.2	21.1	0.2
Queue Length 50th (ft)	13	23	55	20	8	6	0	16	3	0
Queue Length 95th (ft)	43	56	122	66	31	27	29	50	19	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	547	1837	1293	2843	854	1124	1009	941	1184	1055
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.10	0.16	0.11	0.03	0.02	0.11	0.06	0.01	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Baseline AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	138	35	190	196	98	26	21	100	53	13	18
Future Volume (veh/h)	42	138	35	190	196	98	26	21	100	53	13	18
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	46	150	38	207	213	107	28	23	109	58	14	20
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	89	367	90	282	552	267	209	265	225	167	221	187
Arrive On Green	0.05	0.13	0.13	0.16	0.24	0.24	0.12	0.14	0.14	0.09	0.12	0.12
Sat Flow, veh/h	1767	2803	691	1767	2304	1114	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	46	93	95	207	161	159	28	23	109	58	14	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1731	1767	1763	1655	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	1.8	1.9	4.2	2.9	3.1	0.5	0.4	2.4	1.2	0.3	0.4
Cycle Q Clear(g_c), s	1.0	1.8	1.9	4.2	2.9	3.1	0.5	0.4	2.4	1.2	0.3	0.4
Prop In Lane	1.00		0.40	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	231	227	282	423	397	209	265	225	167	221	187
V/C Ratio(X)	0.51	0.40	0.42	0.73	0.38	0.40	0.13	0.09	0.49	0.35	0.06	0.11
Avail Cap(c_a), veh/h	580	995	977	1554	1967	1846	905	1242	1053	997	1340	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	15.2	15.2	15.2	12.1	12.2	15.0	14.2	15.0	16.2	14.9	15.0
Incr Delay (d2), s/veh	4.5	1.1	1.2	3.7	0.6	0.7	0.3	0.1	1.6	1.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7	0.7	1.7	1.0	1.0	0.2	0.2	0.8	0.5	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	16.3	16.5	19.0	12.7	12.8	15.3	14.3	16.7	17.4	15.0	15.2
LnGrp LOS	C	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		234			527			160			92	
Approach Delay, s/veh		17.5			15.2			16.1			16.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	9.9	10.6	9.5	9.0	9.0	6.4	13.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	25.5	33.5	21.5	19.5	27.5	12.5	42.5				
Max Q Clear Time (g_c+I1), s	3.2	4.4	6.2	3.9	2.5	2.4	3.0	5.1				
Green Ext Time (p_c), s	0.1	0.4	0.6	0.9	0.0	0.1	0.0	2.1				

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

Queues
6: Admiral Callaghan Ln & Turner Parkway

Baseline AM
07/01/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	147	15	450	47	217
v/c Ratio	0.15	0.04	0.28	0.10	0.11
Control Delay	12.5	8.5	7.9	13.8	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	8.5	7.9	13.8	4.4
Queue Length 50th (ft)	6	0	14	5	8
Queue Length 95th (ft)	34	12	65	30	18
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2994	1257	3330	1355	3505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.14	0.03	0.06
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Baseline AM
07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	133	16	277	137	43	200
Future Volume (veh/h)	133	16	277	137	43	200
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	145	17	301	149	47	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	466	207	691	334	98	1855
Arrive On Green	0.13	0.13	0.30	0.30	0.06	0.53
Sat Flow, veh/h	3534	1572	2397	1113	1767	3618
Grp Volume(v), veh/h	145	17	229	221	47	217
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1655	1767	1763
Q Serve(g_s), s	1.0	0.2	2.7	2.8	0.7	0.8
Cycle Q Clear(g_c), s	1.0	0.2	2.7	2.8	0.7	0.8
Prop In Lane	1.00	1.00		0.67	1.00	
Lane Grp Cap(c), veh/h	466	207	528	496	98	1855
V/C Ratio(X)	0.31	0.08	0.43	0.45	0.48	0.12
Avail Cap(c_a), veh/h	3963	1763	3651	3428	1511	10921
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	10.3	10.0	7.4	7.4	12.1	3.1
Incr Delay (d2), s/veh	0.4	0.2	0.6	0.6	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.7	0.7	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.7	10.2	8.0	8.1	15.7	3.2
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h			450			264
Approach Delay, s/veh			8.0			5.4
Approach LOS			A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.0	12.4			18.3	8.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	22.5	54.5			81.5	29.5
Max Q Clear Time (g_c+I1), s	2.7	4.8			2.8	3.0
Green Ext Time (p_c), s	0.1	3.1			1.6	0.5

Intersection Summary

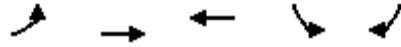
HCM 6th Ctrl Delay			7.7			
HCM 6th LOS			A			

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Baseline AM
07/01/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	142	48	250	112	51
v/c Ratio	0.29	0.03	0.30	0.15	0.14
Control Delay	13.5	3.6	6.4	11.6	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	3.6	6.4	11.6	6.6
Queue Length 50th (ft)	22	1	6	7	0
Queue Length 95th (ft)	58	5	28	23	20
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1749	3505	2962	3156	1349
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.01	0.08	0.04	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Baseline AM
07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	131	44	74	156	84	66	
Future Volume (veh/h)	131	44	74	156	84	66	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	142	48	80	170	107	54	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	220	1801	368	328	473	210	
Arrive On Green	0.12	0.51	0.21	0.21	0.13	0.13	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	142	48	80	170	107	54	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	1.9	0.2	1.0	2.4	0.7	0.8	
Cycle Q Clear(g_c), s	1.9	0.2	1.0	2.4	0.7	0.8	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	220	1801	368	328	473	210	
V/C Ratio(X)	0.64	0.03	0.22	0.52	0.23	0.26	
Avail Cap(c_a), veh/h	2825	10924	2331	2079	4534	2017	
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	10.6	3.1	8.3	8.9	9.8	9.8	
Incr Delay (d2), s/veh	3.1	0.0	0.3	1.3	0.2	0.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.3	0.6	0.2	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.7	3.1	8.6	10.2	10.0	10.5	
LnGrp LOS	B	A	A	B	B	B	
Approach Vol, veh/h		190	250		161		
Approach Delay, s/veh		11.0	9.7		10.2		
Approach LOS		B	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				17.4	7.9	7.7	9.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				78.5	32.5	40.5	33.5
Max Q Clear Time (g_c+I1), s				2.2	2.8	3.9	4.4
Green Ext Time (p_c), s				0.3	0.5	0.4	1.6

Intersection Summary

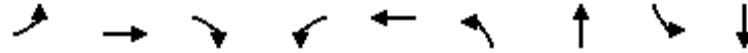
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Baseline AM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	7	116	3	28	198	228	9	307
v/c Ratio	0.09	0.02	0.31	0.01	0.10	0.40	0.10	0.03	0.35
Control Delay	21.3	20.5	6.8	22.7	14.0	17.7	6.6	22.0	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	20.5	6.8	22.7	14.0	17.7	6.6	22.0	16.0
Queue Length 50th (ft)	5	1	0	1	1	36	7	2	28
Queue Length 95th (ft)	29	13	32	8	23	118	51	15	85
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	536	1218	1082	349	944	1499	3454	396	2701
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.11	0.01	0.03	0.13	0.07	0.02	0.11
Intersection Summary									

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Baseline AM
 07/01/2024



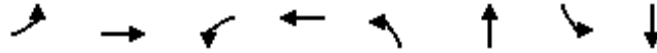
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	6	107	3	6	19	182	206	4	8	240	42
Future Volume (veh/h)	24	6	107	3	6	19	182	206	4	8	240	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	26	7	116	3	7	21	198	224	4	9	261	46
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	258	219	7	45	136	272	1160	21	21	557	97
Arrive On Green	0.03	0.14	0.14	0.00	0.11	0.11	0.15	0.33	0.33	0.01	0.19	0.19
Sat Flow, veh/h	1767	1856	1572	1767	409	1226	1767	3544	63	1767	3003	522
Grp Volume(v), veh/h	26	7	116	3	0	28	198	111	117	9	152	155
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1635	1767	1763	1844	1767	1763	1762
Q Serve(g_s), s	0.5	0.1	2.4	0.1	0.0	0.5	3.7	1.6	1.6	0.2	2.7	2.7
Cycle Q Clear(g_c), s	0.5	0.1	2.4	0.1	0.0	0.5	3.7	1.6	1.6	0.2	2.7	2.7
Prop In Lane	1.00		1.00	1.00		0.75	1.00		0.03	1.00		0.30
Lane Grp Cap(c), veh/h	56	258	219	7	0	182	272	577	604	21	327	327
V/C Ratio(X)	0.46	0.03	0.53	0.41	0.00	0.15	0.73	0.19	0.19	0.43	0.46	0.47
Avail Cap(c_a), veh/h	584	1360	1153	381	0	1010	1854	3066	3208	432	1647	1646
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	12.9	13.9	17.3	0.0	14.0	14.0	8.4	8.4	17.1	12.6	12.7
Incr Delay (d2), s/veh	5.8	0.0	2.0	33.5	0.0	0.4	3.7	0.2	0.2	13.0	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	0.1	0.0	0.2	1.4	0.4	0.4	0.1	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	13.0	15.9	50.8	0.0	14.4	17.8	8.6	8.6	30.0	13.6	13.7
LnGrp LOS	C	B	B	D	A	B	B	A	A	C	B	B
Approach Vol, veh/h		149			31			426			316	
Approach Delay, s/veh		16.9			17.9			12.8			14.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.9	15.9	4.6	9.3	9.8	11.0	5.6	8.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	60.5	7.5	25.5	36.5	32.5	11.5	21.5				
Max Q Clear Time (g_c+I1), s	2.2	3.6	2.1	4.4	5.7	4.7	2.5	2.5				
Green Ext Time (p_c), s	0.0	1.3	0.0	0.3	0.6	1.8	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Queues
9: Ascot Parkway & Redwood Street

Baseline AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	133	723	120	269	422	297	165	272
v/c Ratio	0.56	0.77	0.56	0.32	0.80	0.33	0.60	0.57
Control Delay	50.3	32.2	53.1	30.6	43.1	27.8	48.8	30.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	32.2	53.1	30.6	43.1	27.8	48.8	30.9
Queue Length 50th (ft)	76	166	69	65	231	71	94	51
Queue Length 95th (ft)	156	281	147	123	387	120	183	105
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	335	1174	271	1013	774	1570	408	891
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.62	0.44	0.27	0.55	0.19	0.40	0.31

Intersection Summary

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Baseline AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Traffic Volume (veh/h)	122	375	290	110	212	36	388	232	41	152	154	97
Future Volume (veh/h)	122	375	290	110	212	36	388	232	41	152	154	97
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	133	408	0	120	230	0	422	252	0	165	167	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	175	672		157	636		505	918		217	344	
Arrive On Green	0.10	0.19	0.00	0.09	0.18	0.00	0.29	0.26	0.00	0.12	0.10	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	133	408	0	120	230	0	422	252	0	165	167	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	3.9	5.6	0.0	3.5	3.1	0.0	12.0	3.0	0.0	4.8	2.4	0.0
Cycle Q Clear(g_c), s	3.9	5.6	0.0	3.5	3.1	0.0	12.0	3.0	0.0	4.8	2.4	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	175	672		157	636		505	918		217	344	
V/C Ratio(X)	0.76	0.61		0.76	0.36		0.84	0.27		0.76	0.49	
Avail Cap(c_a), veh/h	553	1884		447	1673		1276	2625		673	1421	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.4	19.8	0.0	23.8	19.2	0.0	17.9	15.7	0.0	22.6	22.8	0.0
Incr Delay (d2), s/veh	6.6	0.9	0.0	7.5	0.3	0.0	3.7	0.2	0.0	5.5	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.1	0.0	1.7	1.1	0.0	4.7	1.1	0.0	2.1	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	20.6	0.0	31.3	19.5	0.0	21.6	15.9	0.0	28.1	23.9	0.0
LnGrp LOS	C	C		C	B		C	B		C	C	
Approach Vol, veh/h		541			350			674			332	
Approach Delay, s/veh		23.0			23.5			19.5			26.0	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	18.4	9.2	14.7	19.7	9.7	9.8	14.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.3	39.7	13.5	28.5	38.5	21.5	16.7	25.3				
Max Q Clear Time (g_c+I1), s	6.8	5.0	5.5	7.6	14.0	4.4	5.9	5.1				
Green Ext Time (p_c), s	0.3	1.6	0.2	2.5	1.3	0.8	0.2	1.3				

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Baseline AM
07/01/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	613	366	388	282	446
v/c Ratio	0.67	0.71	0.18	0.63	0.61
Control Delay	28.5	34.4	7.0	34.7	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	34.4	7.0	34.7	6.9
Queue Length 50th (ft)	117	150	36	116	0
Queue Length 95th (ft)	246	329	77	261	79
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1418	970	3129	921	1036
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	0.38	0.12	0.31	0.43

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

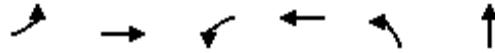
Baseline AM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	373	191	337	357	259	410
Future Volume (veh/h)	373	191	337	357	259	410
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	405	208	366	388	282	446
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	548	278	426	1926	579	515
Arrive On Green	0.24	0.24	0.24	0.55	0.33	0.33
Sat Flow, veh/h	2356	1148	1767	3618	1767	1572
Grp Volume(v), veh/h	314	299	366	388	282	446
Grp Sat Flow(s),veh/h/ln	1763	1649	1767	1763	1767	1572
Q Serve(g_s), s	11.8	12.0	14.2	4.0	9.1	19.0
Cycle Q Clear(g_c), s	11.8	12.0	14.2	4.0	9.1	19.0
Prop In Lane		0.70	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	427	399	426	1926	579	515
V/C Ratio(X)	0.74	0.75	0.86	0.20	0.49	0.87
Avail Cap(c_a), veh/h	727	680	977	3625	927	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	25.1	25.9	8.3	19.2	22.6
Incr Delay (d2), s/veh	2.5	2.8	5.1	0.1	0.6	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.7	6.1	1.3	3.6	7.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.5	27.9	31.1	8.3	19.9	28.3
LnGrp LOS	C	C	C	A	B	C
Approach Vol, veh/h	613			754	728	
Approach Delay, s/veh	27.7			19.4	25.0	
Approach LOS	C			B	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		27.9	21.7	21.8		43.6
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	39.5	29.5		73.5
Max Q Clear Time (g_c+I1), s		21.0	16.2	14.0		6.0
Green Ext Time (p_c), s		2.4	1.1	3.3		2.8
Intersection Summary						
HCM 6th Ctrl Delay			23.8			
HCM 6th LOS			C			

Queues
11: Admiral Callaghan Ln & Redwood Street

Baseline AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	21	656	80	609	114	82
v/c Ratio	0.06	0.38	0.19	0.28	0.29	0.11
Control Delay	22.9	12.1	20.7	7.3	19.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	12.1	20.7	7.3	19.9	0.3
Queue Length 50th (ft)	5	72	19	34	27	0
Queue Length 95th (ft)	25	142	60	118	77	0
Internal Link Dist (ft)		424		851		1161
Turn Bay Length (ft)	125		125		75	
Base Capacity (vph)	666	3260	1016	3479	1097	1321
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.20	0.08	0.18	0.10	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Baseline AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	19	521	83	74	559	1	105	0	75	0	0	0
Future Volume (veh/h)	19	521	83	74	559	1	105	0	75	0	0	0
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	21	566	90	80	608	1	114	0	82	0	0	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	47	1081	171	142	1474	2	463	0	206	231	243	0
Arrive On Green	0.03	0.35	0.35	0.08	0.41	0.41	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1767	3048	483	1767	3611	6	1767	0	1572	1306	1856	0
Grp Volume(v), veh/h	21	327	329	80	297	312	114	0	82	0	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1769	1767	1763	1854	1767	0	1572	1306	1856	0
Q Serve(g_s), s	0.4	4.6	4.6	1.4	3.7	3.7	1.9	0.0	1.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	4.6	4.6	1.4	3.7	3.7	1.9	0.0	1.5	0.0	0.0	0.0
Prop In Lane	1.00		0.27	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	47	625	627	142	719	757	463	0	206	231	243	0
V/C Ratio(X)	0.45	0.52	0.53	0.56	0.41	0.41	0.25	0.00	0.40	0.00	0.00	0.00
Avail Cap(c_a), veh/h	653	2862	2871	1221	3429	3607	2192	0	1744	1508	2058	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	14.9	8.0	8.0	13.8	6.6	6.6	12.5	0.0	12.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.5	0.7	0.7	3.5	0.4	0.4	0.3	0.0	1.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.1	1.1	0.5	0.8	0.8	0.6	0.0	0.5	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	8.6	8.6	17.3	6.9	6.9	12.8	0.0	13.6	0.0	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	B	A	A	A
Approach Vol, veh/h		677			689			196				0
Approach Delay, s/veh		9.0			8.1			13.2				0.0
Approach LOS		A			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.6	7.0	15.5		8.6	5.3	17.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		34.5	21.5	50.5		34.5	11.5	60.5				
Max Q Clear Time (g_c+I1), s		3.9	3.4	6.6		0.0	2.4	5.7				
Green Ext Time (p_c), s		0.8	0.2	4.4		0.0	0.0	4.0				
Intersection Summary												
HCM 6th Ctrl Delay			9.1									
HCM 6th LOS			A									

Queues
12: Redwood Street & Admiral Callaghan Ln

Baseline AM
07/01/2024



Lane Group	EBL	EBT	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	358	397	722	268	215	75	902
v/c Ratio	0.58	0.21	0.71	0.48	0.50	0.17	0.79
Control Delay	36.7	10.9	29.3	36.0	9.9	35.2	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	10.9	29.3	36.0	9.9	35.2	8.6
Queue Length 50th (ft)	80	46	148	61	0	17	0
Queue Length 95th (ft)	170	106	292	133	66	43	57
Internal Link Dist (ft)		852	424	1178			
Turn Bay Length (ft)	275				450	100	300
Base Capacity (vph)	884	2654	1512	893	559	1323	1625
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.15	0.48	0.30	0.38	0.06	0.56
Intersection Summary							

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Baseline AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑			↑↑	↔	↔↔		↔↔
Traffic Volume (veh/h)	329	365	0	0	491	173	0	247	198	69	0	830
Future Volume (veh/h)	329	365	0	0	491	173	0	247	198	69	0	830
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	1856	1856	0	0	1856	1856	0	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	358	397	0	0	534	188	0	268	215	75	0	902
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, %	3	3	0	0	3	3	0	3	3	3	0	3
Cap, veh/h	512	1836	0	0	756	265	0	674	301	205	0	0
Arrive On Green	0.15	0.52	0.00	0.00	0.30	0.30	0.00	0.19	0.19	0.06	0.00	0.00
Sat Flow, veh/h	3428	3618	0	0	2652	897	0	3618	1572	3428	75	
Grp Volume(v), veh/h	358	397	0	0	367	355	0	268	215	75	27.8	
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1694	0	1763	1572	1714	C	
Q Serve(g_s), s	5.9	3.6	0.0	0.0	11.0	11.1	0.0	3.9	7.6	1.2		
Cycle Q Clear(g_c), s	5.9	3.6	0.0	0.0	11.0	11.1	0.0	3.9	7.6	1.2		
Prop In Lane	1.00		0.00	0.00		0.53	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	512	1836	0	0	521	500	0	674	301	205		
V/C Ratio(X)	0.70	0.22	0.00	0.00	0.71	0.71	0.00	0.40	0.71	0.37		
Avail Cap(c_a), veh/h	1141	3437	0	0	998	959	0	1150	513	1709		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.9	7.7	0.0	0.0	18.6	18.6	0.0	20.9	22.4	26.7		
Incr Delay (d2), s/veh	1.7	0.1	0.0	0.0	1.8	1.9	0.0	0.4	3.2	1.1		
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		
%ile BackOfQ(50%),veh/ln	2.3	1.1	0.0	0.0	4.2	4.1	0.0	1.5	2.9	0.5		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	7.7	0.0	0.0	20.3	20.5	0.0	21.3	25.6	27.8		
LnGrp LOS	C	A	A	A	C	C	A	C	C	C		
Approach Vol, veh/h		755			722			483				
Approach Delay, s/veh		16.2			20.4			23.2				
Approach LOS		B			C			C				
Timer - Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	8.0	15.8		35.3			13.3	22.0				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	29.5	19.3		57.7			19.7	33.5				
Max Q Clear Time (g_c+I1), s	3.2	9.6		5.6			7.9	13.1				
Green Ext Time (p_c), s	0.2	1.7		2.8			1.0	4.4				

Intersection Summary

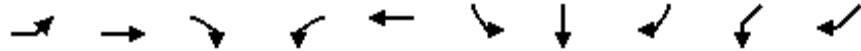
HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Queues

Baseline AM

13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

06/13/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	SBL	SBT	SBR	SWL	SWR
Lane Group Flow (vph)	79	534	379	320	1109	117	143	154	127	331
v/c Ratio	0.49	0.48	0.50	0.62	0.78	0.49	0.57	0.44	0.38	0.81
Control Delay	60.7	28.8	5.4	48.1	31.0	51.4	53.2	11.8	41.6	40.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	28.8	5.4	48.1	31.0	51.4	53.2	11.8	41.6	40.2
Queue Length 50th (ft)	50	140	0	103	331	73	90	0	73	125
Queue Length 95th (ft)	#119	221	67	170	478	145	172	60	143	#265
Internal Link Dist (ft)		693			852		265		1072	
Turn Bay Length (ft)	150		200	285		125		125		
Base Capacity (vph)	186	1593	919	681	1877	353	371	439	500	545
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.34	0.41	0.47	0.59	0.33	0.39	0.35	0.25	0.61

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Baseline AM
 06/13/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL2	SWL	SWR
Lane Configurations												
Traffic Volume (vph)	73	491	349	294	858	162	108	132	142	117	0	275
Future Volume (vph)	73	491	349	294	858	162	108	132	142	117	0	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3421		1752	1845	1568		1752	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3421		1752	1845	1568		1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	534	379	320	933	176	117	143	154	127	0	299
RTOR Reduction (vph)	0	0	252	0	0	0	0	0	133	0	0	110
Lane Group Flow (vph)	79	534	127	320	1109	0	117	143	21	0	127	221
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Prot	Prot	Prot
Protected Phases	5	2		1	6		4	4	4	8	8	8
Permitted Phases			2									
Actuated Green, G (s)	6.7	32.5	32.5	14.6	40.4		13.3	13.3	13.3		18.4	18.4
Effective Green, g (s)	6.7	32.5	32.5	14.6	40.4		13.3	13.3	13.3		18.4	18.4
Actuated g/C Ratio	0.07	0.34	0.34	0.15	0.42		0.14	0.14	0.14		0.19	0.19
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	121	1176	526	512	1427		240	253	215		333	298
v/s Ratio Prot	0.05	0.15		c0.09	c0.32		0.07	c0.08	0.01		0.07	c0.14
v/s Ratio Perm			0.08									
v/c Ratio	0.65	0.45	0.24	0.62	0.78		0.49	0.57	0.10		0.38	0.74
Uniform Delay, d1	43.9	25.2	23.2	38.5	24.3		38.6	39.0	36.5		34.2	37.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	12.0	0.3	0.2	2.4	2.7		1.6	2.9	0.2		0.7	9.5
Delay (s)	55.9	25.5	23.5	40.9	27.1		40.2	41.9	36.7		35.0	46.5
Level of Service	E	C	C	D	C		D	D	D		C	D
Approach Delay (s)		27.1			30.2			39.5			43.3	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	29
Future Volume (vph)	29
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	32
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

14: Lake Herman Road & Columbus Parkway

07/01/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	67	336	83	178	223
v/c Ratio	0.08	0.16	0.29	0.14	0.30	0.09
Control Delay	16.6	7.1	12.4	4.9	14.0	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	7.1	12.4	4.9	14.0	2.8
Queue Length 50th (ft)	6	0	32	0	32	7
Queue Length 95th (ft)	27	25	67	23	82	17
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1350	1224	3290	1477	1696	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.05	0.10	0.06	0.10	0.06

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Baseline AM
 07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	62	309	76	164	205
Future Volume (veh/h)	31	62	309	76	164	205
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	34	67	336	83	178	223
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	173	154	842	376	308	2032
Arrive On Green	0.10	0.10	0.24	0.24	0.17	0.58
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	34	67	336	83	178	223
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	0.5	1.1	2.2	1.2	2.6	0.8
Cycle Q Clear(g_c), s	0.5	1.1	2.2	1.2	2.6	0.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	173	154	842	376	308	2032
V/C Ratio(X)	0.20	0.44	0.40	0.22	0.58	0.11
Avail Cap(c_a), veh/h	1697	1510	4918	2193	2657	10793
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	11.5	11.7	8.8	8.4	10.5	2.6
Incr Delay (d2), s/veh	0.6	1.9	0.3	0.3	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.5	0.2	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.0	13.7	9.1	8.7	12.2	2.7
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	101		419			401
Approach Delay, s/veh	13.1		9.1			6.9
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.3	11.1			20.4	7.2
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	41.5	38.5			84.5	26.5
Max Q Clear Time (g_c+I1), s	4.6	4.2			2.8	3.1
Green Ext Time (p_c), s	0.5	2.4			1.5	0.2
Intersection Summary						
HCM 6th Ctrl Delay			8.6			
HCM 6th LOS			A			

Queues

Baseline AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	59	90	143	142	96	37	297	87	118	503
v/c Ratio	0.16	0.22	0.31	0.24	0.16	0.11	0.24	0.22	0.14	0.50
Control Delay	26.1	24.0	24.6	21.7	2.9	27.0	20.2	25.6	17.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	24.0	24.6	21.7	2.9	27.0	20.2	25.6	17.7	4.6
Queue Length 50th (ft)	18	25	43	41	0	11	43	26	23	0
Queue Length 95th (ft)	56	73	107	102	19	42	92	75	83	71
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	623	861	884	1156	1033	474	2710	718	1629	1443
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.10	0.16	0.12	0.09	0.08	0.11	0.12	0.07	0.35

Intersection Summary

HCM 6th Signalized Intersection Summary

Baseline AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	68	15	132	131	88	34	234	40	80	109	463
Future Volume (veh/h)	54	68	15	132	131	88	34	234	40	80	109	463
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	59	74	16	143	142	96	37	254	43	87	118	503
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	99	149	32	191	283	240	71	1073	179	125	715	606
Arrive On Green	0.06	0.10	0.10	0.11	0.15	0.15	0.04	0.35	0.35	0.07	0.39	0.39
Sat Flow, veh/h	1767	1478	320	1767	1856	1572	1767	3023	505	1767	1856	1572
Grp Volume(v), veh/h	59	0	90	143	142	96	37	147	150	87	118	503
Grp Sat Flow(s),veh/h/ln	1767	0	1798	1767	1856	1572	1767	1763	1765	1767	1856	1572
Q Serve(g_s), s	1.6	0.0	2.3	3.9	3.5	2.7	1.0	2.9	3.0	2.4	2.1	14.2
Cycle Q Clear(g_c), s	1.6	0.0	2.3	3.9	3.5	2.7	1.0	2.9	3.0	2.4	2.1	14.2
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	99	0	182	191	283	240	71	626	626	125	715	606
V/C Ratio(X)	0.59	0.00	0.50	0.75	0.50	0.40	0.52	0.23	0.24	0.70	0.17	0.83
Avail Cap(c_a), veh/h	413	0	748	807	1187	1006	305	1557	1559	556	1903	1612
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	21.0	21.3	19.1	18.8	23.2	11.2	11.2	22.4	9.9	13.7
Incr Delay (d2), s/veh	5.6	0.0	2.1	5.8	1.4	1.1	5.7	0.2	0.2	6.8	0.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.0	1.8	1.4	1.0	0.5	1.0	1.0	1.1	0.7	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	0.0	23.0	27.1	20.5	19.9	28.9	11.4	11.4	29.2	10.0	16.7
LnGrp LOS	C	A	C	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		149			381			334			708	
Approach Delay, s/veh		25.1			22.9			13.3			17.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	22.0	9.8	9.5	6.5	23.5	7.3	12.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	43.5	22.5	20.5	8.5	50.5	11.5	31.5				
Max Q Clear Time (g_c+I1), s	4.4	5.0	5.9	4.3	3.0	16.2	3.6	5.5				
Green Ext Time (p_c), s	0.1	1.9	0.3	0.3	0.0	2.7	0.1	1.1				

Intersection Summary

HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Queues

Baseline AM

16: Sonoma Blvd (SR-29) & SR-37 Ramps

07/01/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	437	925	584	37	1554	215
v/c Ratio	0.44	0.78	0.28	0.04	0.75	0.14
Control Delay	27.1	16.5	9.5	3.3	16.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	16.5	9.5	3.3	16.2	0.2
Queue Length 50th (ft)	88	90	67	0	268	0
Queue Length 95th (ft)	194	253	151	14	560	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	2122	1928	3176	1424	3176	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.48	0.18	0.03	0.49	0.14

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Baseline AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖↗		↖↗		↕	↖		↕	↖
Traffic Volume (veh/h)	0	0	0	402	0	851	0	537	34	0	1430	198
Future Volume (veh/h)	0	0	0	402	0	851	0	537	34	0	1430	198
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				437	0	925	0	584	37	0	1554	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1287	0	1039	0	1902	848	0	1902	
Arrive On Green				0.38	0.00	0.38	0.00	0.54	0.54	0.00	0.54	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				437	0	925	0	584	37	0	1554	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				9.7	0.0	33.2	0.0	9.7	1.2	0.0	38.4	0.0
Cycle Q Clear(g_c), s				9.7	0.0	33.2	0.0	9.7	1.2	0.0	38.4	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1287	0	1039	0	1902	848	0	1902	
V/C Ratio(X)				0.34	0.00	0.89	0.00	0.31	0.04	0.00	0.82	
Avail Cap(c_a), veh/h				1505	0	1215	0	2813	1255	0	2813	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				23.7	0.0	31.0	0.0	13.5	11.5	0.0	20.1	0.0
Incr Delay (d2), s/veh				0.2	0.0	7.6	0.0	0.1	0.0	0.0	1.2	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.8	0.0	11.6	0.0	3.6	0.4	0.0	14.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.8	0.0	38.6	0.0	13.5	11.5	0.0	21.3	0.0
LnGrp LOS				C	A	D	A	B	B	A	C	
Approach Vol, veh/h					1362			621			1554	
Approach Delay, s/veh					33.9			13.4			21.3	
Approach LOS					C			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		61.6				61.6		44.3				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		84.5				84.5		46.5				
Max Q Clear Time (g_c+I1), s		11.7				40.4		35.2				
Green Ext Time (p_c), s		4.3				16.7		4.6				

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

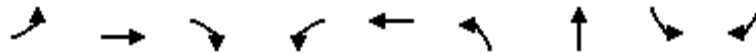
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Baseline PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	24	684	1033	147	736	1062	188	1	2
v/c Ratio	0.20	0.71	0.66	0.58	0.34	0.79	0.20	0.01	0.01
Control Delay	47.7	33.8	2.2	47.4	18.8	28.6	0.5	45.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	33.8	2.2	47.4	18.8	28.6	0.5	45.0	0.0
Queue Length 50th (ft)	13	174	0	75	82	253	0	1	0
Queue Length 95th (ft)	44	296	0	#178	181	409	0	7	0
Internal Link Dist (ft)		1084			414		644		
Turn Bay Length (ft)	230			215		425		100	
Base Capacity (vph)	126	1175	1568	294	2292	1749	1080	384	490
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.58	0.66	0.50	0.32	0.61	0.17	0.00	0.00

Intersection Summary

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

HCM 6th Signalized Intersection Summary

Baseline PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑	↗
Traffic Volume (veh/h)	22	629	950	135	676	1	977	0	173	1	0	2
Future Volume (veh/h)	22	629	950	135	676	1	977	0	173	1	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	684	0	147	735	1	1062	0	0	1	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	47	912		187	1765	2	1280	567		127	8	6
Arrive On Green	0.03	0.26	0.00	0.11	0.34	0.34	0.37	0.00	0.00	0.07	0.00	0.00
Sat Flow, veh/h	1767	3526	1572	1767	5224	7	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	24	684	0	147	475	261	1062	0	0	1	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1854	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	0.9	12.4	0.0	5.7	7.6	7.6	19.6	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.9	12.4	0.0	5.7	7.6	7.6	19.6	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	47	912		187	1141	626	1280	567		127	8	6
V/C Ratio(X)	0.51	0.75		0.79	0.42	0.42	0.83	0.00		0.01	0.00	0.31
Avail Cap(c_a), veh/h	150	1391		350	1715	941	2075	1136		456	492	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.5	23.8	0.0	30.4	17.8	17.8	19.8	0.0	0.0	30.1	0.0	34.6
Incr Delay (d2), s/veh	8.3	1.3	0.0	7.1	0.2	0.4	1.6	0.0	0.0	0.0	0.0	25.8
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	4.8	0.0	2.6	2.7	3.0	7.4	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	25.0	0.0	37.5	18.0	18.2	21.4	0.0	0.0	30.1	0.0	60.5
LnGrp LOS	D	C		D	B	B	C	A		C	A	E
Approach Vol, veh/h		708			883			1062				3
Approach Delay, s/veh		25.6			21.3			21.4				50.3
Approach LOS		C			C			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	25.8	11.9	22.5	30.5	4.8	6.4	28.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	42.7	13.8	27.5	42.2	18.5	5.9	35.4				
Max Q Clear Time (g_c+I1), s	2.0	0.0	7.7	14.4	21.6	2.1	2.9	9.6				
Green Ext Time (p_c), s	0.0	0.0	0.2	3.6	4.4	0.0	0.0	4.7				

Intersection Summary

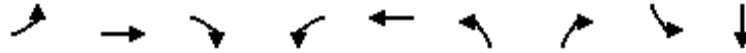
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Baseline PM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	59	662	242	33	676	164	28	2	4
v/c Ratio	0.15	0.33	0.24	0.09	0.38	0.20	0.04	0.01	0.01
Control Delay	21.7	10.0	3.0	22.8	12.3	19.6	0.1	25.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	10.0	3.0	22.8	12.3	19.6	0.1	25.0	0.0
Queue Length 50th (ft)	13	32	0	7	69	18	0	1	0
Queue Length 95th (ft)	54	157	40	37	169	58	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	848	3333	1503	657	3289	1770	1281	428	1028
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.20	0.16	0.05	0.21	0.09	0.02	0.00	0.00
Intersection Summary									

HCM 6th Signalized Intersection Summary
 2: N Ascot Parkway & Columbus Parkway

Baseline PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	609	223	30	622	0	151	0	26	2	0	4
Future Volume (veh/h)	54	609	223	30	622	0	151	0	26	2	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	59	662	0	33	676	0	164	0	28	2	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	107	1257		68	1179	0	364	265	225	5	0	62
Arrive On Green	0.06	0.36	0.00	0.04	0.33	0.00	0.11	0.00	0.14	0.00	0.00	0.04
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	59	662	0	33	676	0	164	0	28	2	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.3	5.8	0.0	0.7	6.2	0.0	1.8	0.0	0.6	0.0	0.0	0.1
Cycle Q Clear(g_c), s	1.3	5.8	0.0	0.7	6.2	0.0	1.8	0.0	0.6	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	1257		68	1179	0	364	265	225	5	0	62
V/C Ratio(X)	0.55	0.53		0.48	0.57	0.00	0.45	0.00	0.12	0.41	0.00	0.06
Avail Cap(c_a), veh/h	699	4723		519	4364	0	1531	1444	1224	338	0	823
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	10.0	0.0	18.5	10.7	0.0	16.4	0.0	14.7	19.5	0.0	18.1
Incr Delay (d2), s/veh	4.4	0.3	0.0	5.3	0.4	0.0	0.9	0.0	0.2	47.5	0.0	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	0.6	1.6	0.0	0.3	1.7	0.0	0.6	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	10.3	0.0	23.7	11.2	0.0	17.3	0.0	14.9	67.1	0.0	18.6
LnGrp LOS	C	B		C	B	A	B	A	B	E	A	B
Approach Vol, veh/h		721			709			192				6
Approach Delay, s/veh		11.3			11.8			17.0				34.7
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.1	6.0	18.5	8.7	6.0	6.9	17.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	30.5	11.5	52.5	17.5	20.5	15.5	48.5				
Max Q Clear Time (g_c+I1), s	2.0	2.6	2.7	7.8	3.8	2.1	3.3	8.2				
Green Ext Time (p_c), s	0.0	0.1	0.0	4.8	0.4	0.0	0.1	4.9				

Intersection Summary

HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Baseline PM
07/01/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	434	228	42	534	130	23
v/c Ratio	0.25	0.26	0.09	0.25	0.14	0.05
Control Delay	8.9	3.1	14.7	4.6	13.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	3.1	14.7	4.6	13.4	8.2
Queue Length 50th (ft)	18	0	4	23	6	0
Queue Length 95th (ft)	72	33	29	43	32	14
Internal Link Dist (ft)	1748			2821	1766	
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3505	1568	1437	3505	2987	1380
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.15	0.03	0.15	0.04	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary
 3: Redwood Street & Columbus Parkway

Baseline PM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Volume (veh/h)	399	210	39	491	120	21
Future Volume (veh/h)	399	210	39	491	120	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	434	228	42	534	130	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1059	472	277	2113	400	184
Arrive On Green	0.30	0.30	0.16	0.60	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	434	228	42	534	130	23
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	3.1	3.8	0.7	2.3	1.1	0.4
Cycle Q Clear(g_c), s	3.1	3.8	0.7	2.3	1.1	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1059	472	277	2113	400	184
V/C Ratio(X)	0.41	0.48	0.15	0.25	0.32	0.13
Avail Cap(c_a), veh/h	5619	2506	1422	8957	3300	1514
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	8.8	9.1	11.5	3.0	12.8	12.5
Incr Delay (d2), s/veh	0.3	0.8	0.3	0.1	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.9	0.2	0.1	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.1	9.8	11.8	3.1	13.3	12.8
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	662			576	153	
Approach Delay, s/veh	9.4			3.7	13.2	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.2	9.5	14.0		23.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		30.5	25.5	50.5		80.5
Max Q Clear Time (g_c+I1), s		3.1	2.7	5.8		4.3
Green Ext Time (p_c), s		0.5	0.1	3.8		3.8
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Baseline PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	925	203	846	40	17	185	133	91
v/c Ratio	0.35	0.69	0.57	0.47	0.05	0.06	0.38	0.60	0.22
Control Delay	42.0	23.7	38.2	15.1	2.6	28.8	8.8	42.3	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	23.7	38.2	15.1	2.6	28.8	8.8	42.3	11.5
Queue Length 50th (ft)	32	177	83	133	0	6	5	54	6
Queue Length 95th (ft)	98	351	208	257	12	28	63	148	49
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	336	2258	661	2763	1247	632	867	499	832
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.41	0.31	0.31	0.03	0.03	0.21	0.27	0.11
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Baseline PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	814	37	187	778	37	16	12	158	122	15	69
Future Volume (veh/h)	69	814	37	187	778	37	16	12	158	122	15	69
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	885	40	203	846	40	17	13	172	133	16	75
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	106	1270	57	261	1612	719	393	28	376	307	72	338
Arrive On Green	0.06	0.37	0.37	0.15	0.46	0.46	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1767	3435	155	1767	3526	1572	1295	112	1478	1189	284	1332
Grp Volume(v), veh/h	75	454	471	203	846	40	17	0	185	133	0	91
Grp Sat Flow(s),veh/h/ln	1767	1763	1828	1767	1763	1572	1295	0	1590	1189	0	1616
Q Serve(g_s), s	2.5	12.9	12.9	6.5	10.1	0.8	0.6	0.0	5.8	6.3	0.0	2.6
Cycle Q Clear(g_c), s	2.5	12.9	12.9	6.5	10.1	0.8	3.2	0.0	5.8	12.1	0.0	2.6
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	106	651	675	261	1612	719	393	0	404	307	0	411
V/C Ratio(X)	0.71	0.70	0.70	0.78	0.52	0.06	0.04	0.00	0.46	0.43	0.00	0.22
Avail Cap(c_a), veh/h	404	1358	1408	793	3492	1557	821	0	928	700	0	944
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	0.00	1.00
Uniform Delay (d), s/veh	27.3	15.8	15.8	24.2	11.4	8.9	18.7	0.0	18.6	23.7	0.0	17.4
Incr Delay (d2), s/veh	8.4	1.4	1.3	5.0	0.3	0.0	0.0	0.0	0.8	1.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	4.8	5.0	2.9	3.4	0.3	0.2	0.0	2.0	1.7	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	17.2	17.1	29.2	11.7	9.0	18.7	0.0	19.4	24.7	0.0	17.7
LnGrp LOS	D	B	B	C	B	A	B	A	B	C	A	B
Approach Vol, veh/h		1000			1089			202				224
Approach Delay, s/veh		18.5			14.9			19.3				21.8
Approach LOS		B			B			B				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.5	13.2	26.3		19.5	8.0	31.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		34.5	26.5	45.5		34.5	13.5	58.5				
Max Q Clear Time (g_c+I1), s		7.8	8.5	14.9		14.1	4.5	12.1				
Green Ext Time (p_c), s		1.2	0.5	6.9		0.9	0.1	7.5				
Intersection Summary												
HCM 6th Ctrl Delay				17.3								
HCM 6th LOS				B								

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	527	422	498	92	48	430	109	58	60
v/c Ratio	0.38	0.67	0.75	0.30	0.42	0.21	0.75	0.45	0.24	0.18
Control Delay	47.9	36.5	37.8	15.1	45.6	39.8	13.3	45.3	39.0	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	36.5	37.8	15.1	45.6	39.8	13.3	45.3	39.0	1.2
Queue Length 50th (ft)	37	128	202	75	46	24	0	55	29	0
Queue Length 95th (ft)	101	#258	403	155	116	65	94	132	73	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	245	991	843	2124	416	628	817	416	628	623
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.53	0.50	0.23	0.22	0.08	0.53	0.26	0.09	0.10

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Baseline PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	411	74	388	324	134	85	44	396	100	53	55
Future Volume (veh/h)	67	411	74	388	324	134	85	44	396	100	53	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	447	80	422	352	146	92	48	430	109	58	60
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	549	98	467	964	393	130	512	434	147	530	449
Arrive On Green	0.05	0.18	0.18	0.26	0.39	0.39	0.07	0.28	0.28	0.08	0.29	0.29
Sat Flow, veh/h	1767	2991	532	1767	2443	996	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	73	262	265	422	252	246	92	48	430	109	58	60
Grp Sat Flow(s),veh/h/ln	1767	1763	1760	1767	1763	1676	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.8	13.3	13.5	21.6	9.5	9.7	4.8	1.8	25.5	5.6	2.2	2.6
Cycle Q Clear(g_c), s	3.8	13.3	13.5	21.6	9.5	9.7	4.8	1.8	25.5	5.6	2.2	2.6
Prop In Lane	1.00		0.30	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	324	323	467	696	662	130	512	434	147	530	449
V/C Ratio(X)	0.78	0.81	0.82	0.90	0.36	0.37	0.71	0.09	0.99	0.74	0.11	0.13
Avail Cap(c_a), veh/h	200	409	409	690	898	854	340	512	434	340	530	449
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	36.6	36.7	33.2	20.0	20.1	42.3	25.2	33.7	41.8	24.6	24.8
Incr Delay (d2), s/veh	12.6	9.3	10.0	11.2	0.3	0.3	6.8	0.1	40.7	7.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	6.5	6.6	10.4	3.8	3.8	2.3	0.8	14.3	2.7	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	45.9	46.7	44.4	20.3	20.4	49.1	25.2	74.4	48.9	24.7	24.9
LnGrp LOS	E	D	D	D	C	C	D	C	E	D	C	C
Approach Vol, veh/h		600			920			570			227	
Approach Delay, s/veh		47.5			31.4			66.2			36.4	
Approach LOS		D			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	30.3	29.2	21.7	11.4	31.2	9.5	41.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	25.8	36.5	21.7	18.0	25.8	10.6	47.6				
Max Q Clear Time (g_c+I1), s	7.6	27.5	23.6	15.5	6.8	4.6	5.8	11.7				
Green Ext Time (p_c), s	0.2	0.0	1.1	1.7	0.1	0.4	0.1	3.4				

Intersection Summary

HCM 6th Ctrl Delay	44.6
HCM 6th LOS	D

Queues
6: Admiral Callaghan Ln & Turner Parkway

Baseline PM
07/01/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	513	27	897	79	511
v/c Ratio	0.57	0.07	0.63	0.30	0.26
Control Delay	24.7	9.9	15.8	32.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	9.9	15.8	32.0	6.6
Queue Length 50th (ft)	88	0	118	27	40
Queue Length 95th (ft)	175	21	229	82	82
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2091	886	2872	530	3413
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.03	0.31	0.15	0.15
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Baseline PM
07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	469	28	523	303	73	470
Future Volume (veh/h)	469	28	523	303	73	470
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	510	30	568	329	79	511
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	775	345	893	517	123	2057
Arrive On Green	0.22	0.22	0.42	0.42	0.07	0.58
Sat Flow, veh/h	3534	1572	2243	1244	1767	3618
Grp Volume(v), veh/h	510	30	466	431	79	511
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1632	1767	1763
Q Serve(g_s), s	6.0	0.7	9.6	9.6	2.0	3.2
Cycle Q Clear(g_c), s	6.0	0.7	9.6	9.6	2.0	3.2
Prop In Lane	1.00	1.00		0.76	1.00	
Lane Grp Cap(c), veh/h	775	345	732	678	123	2057
V/C Ratio(X)	0.66	0.09	0.64	0.64	0.64	0.25
Avail Cap(c_a), veh/h	2673	1189	2145	1985	639	5913
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	16.2	14.2	10.6	10.6	20.7	4.6
Incr Delay (d2), s/veh	1.0	0.1	0.9	1.0	5.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.2	3.0	2.8	0.9	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.2	14.3	11.5	11.6	26.2	4.7
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	540		897			590
Approach Delay, s/veh	17.0		11.6			7.6
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	23.4			31.1	14.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	16.5	55.5			76.5	34.5
Max Q Clear Time (g_c+I1), s	4.0	11.6			5.2	8.0
Green Ext Time (p_c), s	0.1	7.4			4.0	2.0

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Baseline PM
07/01/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	225	110	442	433	196
v/c Ratio	0.49	0.06	0.54	0.49	0.38
Control Delay	20.4	5.6	9.3	17.1	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	5.6	9.3	17.1	5.7
Queue Length 50th (ft)	49	6	16	45	0
Queue Length 95th (ft)	127	17	58	103	45
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1476	3505	2142	2715	1193
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.03	0.21	0.16	0.16

Intersection Summary

HCM 6th Signalized Intersection Summary

7: Turner Parkway & Plaza Drive

Baseline PM
07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	207	101	127	280	328	250	
Future Volume (veh/h)	207	101	127	280	328	250	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	225	110	138	304	415	210	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	302	1985	502	448	787	350	
Arrive On Green	0.17	0.56	0.28	0.28	0.22	0.22	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	225	110	138	304	415	210	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	5.1	0.6	2.6	7.2	4.3	5.0	
Cycle Q Clear(g_c), s	5.1	0.6	2.6	7.2	4.3	5.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	302	1985	502	448	787	350	
V/C Ratio(X)	0.74	0.06	0.27	0.68	0.53	0.60	
Avail Cap(c_a), veh/h	1662	6170	1238	1105	3156	1404	
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	16.5	4.1	11.6	13.3	14.4	14.6	
Incr Delay (d2), s/veh	3.6	0.0	0.3	1.8	0.6	1.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.1	0.1	0.9	2.3	1.5	4.5	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.2	4.1	11.9	15.1	14.9	16.3	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		335	442		625		
Approach Delay, s/veh		14.9	14.1		15.4		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				28.2	13.8	11.7	16.5
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				73.5	37.5	39.5	29.5
Max Q Clear Time (g_c+I1), s				2.6	7.0	7.1	9.2
Green Ext Time (p_c), s				0.8	2.3	0.7	2.8

Intersection Summary

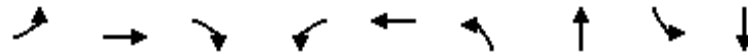
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Baseline PM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	11	368	5	19	342	129	23	249
v/c Ratio	0.22	0.04	0.65	0.02	0.08	0.60	0.07	0.10	0.37
Control Delay	24.9	22.1	9.2	28.4	20.5	20.2	9.1	27.0	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	22.1	9.2	28.4	20.5	20.2	9.1	27.0	16.3
Queue Length 50th (ft)	14	2	0	1	2	68	5	5	18
Queue Length 95th (ft)	65	18	69	13	23	221	36	33	73
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	480	1274	1196	211	924	1493	3300	287	1748
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.01	0.31	0.02	0.02	0.23	0.04	0.08	0.14

Intersection Summary

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

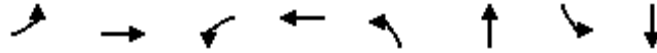
Baseline PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	10	339	5	9	8	315	116	3	21	146	83
Future Volume (veh/h)	59	10	339	5	9	8	315	116	3	21	146	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	64	11	368	5	10	9	342	126	3	23	159	90
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	102	522	442	12	207	187	422	1209	29	48	292	157
Arrive On Green	0.06	0.28	0.28	0.01	0.23	0.23	0.24	0.34	0.34	0.03	0.13	0.13
Sat Flow, veh/h	1767	1856	1572	1767	900	810	1767	3520	84	1767	2214	1190
Grp Volume(v), veh/h	64	11	368	5	0	19	342	63	66	23	125	124
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1710	1767	1763	1841	1767	1763	1641
Q Serve(g_s), s	1.9	0.2	11.6	0.1	0.0	0.5	9.6	1.3	1.3	0.7	3.5	3.7
Cycle Q Clear(g_c), s	1.9	0.2	11.6	0.1	0.0	0.5	9.6	1.3	1.3	0.7	3.5	3.7
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.05	1.00		0.72
Lane Grp Cap(c), veh/h	102	522	442	12	0	394	422	606	632	48	233	217
V/C Ratio(X)	0.63	0.02	0.83	0.42	0.00	0.05	0.81	0.10	0.10	0.48	0.54	0.57
Avail Cap(c_a), veh/h	419	1108	939	184	0	794	1390	1922	2006	251	785	731
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	13.7	17.8	26.1	0.0	15.8	19.0	11.8	11.8	25.3	21.4	21.5
Incr Delay (d2), s/veh	6.2	0.0	4.1	22.2	0.0	0.1	3.8	0.1	0.1	7.3	1.9	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	4.2	0.1	0.0	0.2	3.9	0.4	0.5	0.4	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	13.7	21.9	48.3	0.0	15.8	22.7	11.9	11.9	32.6	23.3	23.9
LnGrp LOS	C	B	C	D	A	B	C	B	B	C	C	C
Approach Vol, veh/h		443			24			471			272	
Approach Delay, s/veh		22.9			22.6			19.8			24.3	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	22.6	4.9	19.3	17.1	11.5	7.5	16.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	57.5	5.5	31.5	41.5	23.5	12.5	24.5				
Max Q Clear Time (g_c+I1), s	2.7	3.3	2.1	13.6	11.6	5.7	3.9	2.5				
Green Ext Time (p_c), s	0.0	0.7	0.0	1.3	1.0	1.2	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			C									

Queues
9: Ascot Parkway & Redwood Street

Baseline PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	338	40	162	130	351	34	424
v/c Ratio	0.31	0.33	0.15	0.27	0.36	0.28	0.13	0.49
Control Delay	26.5	11.7	27.5	21.7	26.1	14.2	27.7	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	11.7	27.5	21.7	26.1	14.2	27.7	16.4
Queue Length 50th (ft)	31	19	12	20	39	32	10	44
Queue Length 95th (ft)	85	72	44	55	100	93	40	100
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	804	2051	451	1642	928	2962	412	2280
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.16	0.09	0.10	0.14	0.12	0.08	0.19
Intersection Summary								

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Baseline PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	95	163	148	37	112	37	120	268	55	31	233	157
Future Volume (veh/h)	95	163	148	37	112	37	120	268	55	31	233	157
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	103	177	0	40	122	0	130	291	0	34	253	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	159	634		81	479		180	802		71	585	
Arrive On Green	0.09	0.18	0.00	0.05	0.14	0.00	0.10	0.23	0.00	0.04	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	103	177	0	40	122	0	130	291	0	34	253	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	2.0	1.5	0.0	0.8	1.1	0.0	2.5	2.5	0.0	0.7	2.3	0.0
Cycle Q Clear(g_c), s	2.0	1.5	0.0	0.8	1.1	0.0	2.5	2.5	0.0	0.7	2.3	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	159	634		81	479		180	802		71	585	
V/C Ratio(X)	0.65	0.28		0.49	0.25		0.72	0.36		0.48	0.43	
Avail Cap(c_a), veh/h	1020	3027		572	2134		1219	4913		522	3523	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.6	12.6	0.0	16.5	13.7	0.0	15.5	11.6	0.0	16.7	13.3	0.0
Incr Delay (d2), s/veh	4.4	0.2	0.0	4.6	0.3	0.0	5.4	0.3	0.0	5.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.5	0.0	0.4	0.4	0.0	1.1	0.7	0.0	0.3	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.0	12.8	0.0	21.1	14.0	0.0	20.9	11.8	0.0	21.6	13.8	0.0
LnGrp LOS	C	B		C	B		C	B		C	B	
Approach Vol, veh/h		280			162			421			287	
Approach Delay, s/veh		15.5			15.8			14.6			14.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	12.6	6.1	10.9	8.1	10.4	7.7	9.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	49.5	11.5	30.5	24.5	35.5	20.5	21.5				
Max Q Clear Time (g_c+I1), s	2.7	4.5	2.8	3.5	4.5	4.3	4.0	3.1				
Green Ext Time (p_c), s	0.0	2.0	0.0	1.0	0.3	1.6	0.2	0.6				

Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Baseline PM
07/01/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	404	188	229	143	195
v/c Ratio	0.48	0.45	0.11	0.38	0.40
Control Delay	15.2	19.8	4.6	20.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	19.8	4.6	20.2	6.3
Queue Length 50th (ft)	38	41	11	31	0
Queue Length 95th (ft)	87	106	27	87	43
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	2523	1395	3505	1454	1334
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.13	0.07	0.10	0.15
Intersection Summary					

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

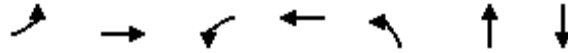
Baseline PM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	250	121	173	211	132	179
Future Volume (veh/h)	250	121	173	211	132	179
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	272	132	188	229	143	195
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	558	263	259	1850	351	312
Arrive On Green	0.24	0.24	0.15	0.52	0.20	0.20
Sat Flow, veh/h	2417	1097	1767	3618	1767	1572
Grp Volume(v), veh/h	204	200	188	229	143	195
Grp Sat Flow(s),veh/h/ln	1763	1658	1767	1763	1767	1572
Q Serve(g_s), s	3.2	3.4	3.3	1.1	2.3	3.7
Cycle Q Clear(g_c), s	3.2	3.4	3.3	1.1	2.3	3.7
Prop In Lane		0.66	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	423	398	259	1850	351	312
V/C Ratio(X)	0.48	0.50	0.73	0.12	0.41	0.62
Avail Cap(c_a), veh/h	1815	1707	1928	7963	2036	1812
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	10.6	10.7	13.3	3.9	11.4	11.9
Incr Delay (d2), s/veh	0.9	1.0	3.9	0.0	0.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.0	1.2	0.2	0.7	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.5	11.7	17.1	4.0	12.1	14.0
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	404			417	338	
Approach Delay, s/veh	11.6			9.9	13.2	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		11.0	9.3	12.3		21.6
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	35.5	33.5		73.5
Max Q Clear Time (g_c+I1), s		5.7	5.3	5.4		3.1
Green Ext Time (p_c), s		1.1	0.5	2.5		1.6
Intersection Summary						
HCM 6th Ctrl Delay			11.4			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Baseline PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	24	821	60	375	241	102	7
v/c Ratio	0.11	0.61	0.23	0.24	0.56	0.15	0.01
Control Delay	33.6	17.4	31.7	12.1	25.8	0.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	17.4	31.7	12.1	25.8	0.5	0.0
Queue Length 50th (ft)	8	121	20	31	75	0	0
Queue Length 95th (ft)	37	244	68	101	184	0	0
Internal Link Dist (ft)		424		851		1161	269
Turn Bay Length (ft)	125		125		75		
Base Capacity (vph)	297	2733	436	2945	1085	1287	1328
Starvation Cap Reductn	0	6	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.30	0.14	0.13	0.22	0.08	0.01
Intersection Summary							

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Baseline PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	22	576	179	55	344	1	222	0	94	0	0	6
Future Volume (veh/h)	22	576	179	55	344	1	222	0	94	0	0	6
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	626	195	60	374	1	241	0	102	0	0	7
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	51	1008	314	106	1485	4	500	0	376	171	0	376
Arrive On Green	0.03	0.38	0.38	0.06	0.41	0.41	0.24	0.00	0.24	0.00	0.00	0.24
Sat Flow, veh/h	1767	2647	823	1767	3607	10	1397	0	1572	1282	0	1572
Grp Volume(v), veh/h	24	417	404	60	183	192	241	0	102	0	0	7
Grp Sat Flow(s),veh/h/ln	1767	1763	1707	1767	1763	1854	1397	0	1572	1282	0	1572
Q Serve(g_s), s	0.6	8.1	8.1	1.4	2.9	2.9	6.7	0.0	2.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.6	8.1	8.1	1.4	2.9	2.9	6.9	0.0	2.2	0.0	0.0	0.1
Prop In Lane	1.00		0.48	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	671	650	106	726	763	500	0	376	171	0	376
V/C Ratio(X)	0.47	0.62	0.62	0.57	0.25	0.25	0.48	0.00	0.27	0.00	0.00	0.02
Avail Cap(c_a), veh/h	356	2029	1965	524	2196	2309	1675	0	1698	1249	0	1698
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	0.00	0.00	1.00
Uniform Delay (d), s/veh	20.1	10.6	10.6	19.3	8.1	8.1	14.9	0.0	13.0	0.0	0.0	12.3
Incr Delay (d2), s/veh	6.5	0.9	1.0	4.7	0.2	0.2	0.7	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.4	2.4	0.6	0.8	0.8	1.9	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	11.5	11.6	24.0	8.3	8.3	15.6	0.0	13.4	0.0	0.0	12.3
LnGrp LOS	C	B	B	C	A	A	B	A	B	A	A	B
Approach Vol, veh/h		845			435			343				7
Approach Delay, s/veh		12.0			10.5			15.0				12.3
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.6	7.0	20.5		14.6	5.7	21.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		45.5	12.5	48.5		45.5	8.5	52.5				
Max Q Clear Time (g_c+I1), s		8.9	3.4	10.1		2.1	2.6	4.9				
Green Ext Time (p_c), s		1.4	0.1	5.9		0.0	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay				12.2								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Baseline PM
07/01/2024



Lane Group	EBL	EBT	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	622	471	661	378	130	233	1161
v/c Ratio	0.78	0.26	0.79	0.63	0.35	0.40	0.81
Control Delay	43.3	14.5	37.6	44.2	10.2	39.1	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	14.5	37.6	44.2	10.2	39.1	7.5
Queue Length 50th (ft)	185	79	165	115	0	68	0
Queue Length 95th (ft)	304	149	#296	196	54	114	57
Internal Link Dist (ft)		852	424	1178			
Turn Bay Length (ft)	275				450	100	300
Base Capacity (vph)	1014	2186	997	817	465	1014	1638
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.22	0.66	0.46	0.28	0.23	0.71

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Baseline PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑			↑↑	↔	↔↔		↔↔
Traffic Volume (veh/h)	572	433	0	0	366	242	0	348	120	214	0	1068
Future Volume (veh/h)	572	433	0	0	366	242	0	348	120	214	0	1068
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	1856	1856	0	0	1856	1856	0	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	622	471	0	0	398	263	0	378	130	233	0	1161
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, %	3	3	0	0	3	3	0	3	3	3	0	3
Cap, veh/h	780	1920	0	0	518	339	0	570	254	353	0	0
Arrive On Green	0.23	0.54	0.00	0.00	0.25	0.25	0.00	0.16	0.16	0.10	0.00	0.00
Sat Flow, veh/h	3428	3618	0	0	2136	1335	0	3618	1572	3428	233	
Grp Volume(v), veh/h	622	471	0	0	343	318	0	378	130	233	32.7	
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1615	0	1763	1572	1714	C	
Q Serve(g_s), s	12.1	5.0	0.0	0.0	12.8	13.0	0.0	7.1	5.4	4.6		
Cycle Q Clear(g_c), s	12.1	5.0	0.0	0.0	12.8	13.0	0.0	7.1	5.4	4.6		
Prop In Lane	1.00		0.00	0.00		0.83	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	780	1920	0	0	447	410	0	570	254	353		
V/C Ratio(X)	0.80	0.25	0.00	0.00	0.77	0.78	0.00	0.66	0.51	0.66		
Avail Cap(c_a), veh/h	1330	2859	0	0	634	581	0	1069	477	1330		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	25.8	8.5	0.0	0.0	24.5	24.6	0.0	27.9	27.2	30.6		
Incr Delay (d2), s/veh	1.9	0.1	0.0	0.0	3.6	4.3	0.0	1.3	1.6	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		
%ile BackOfQ(50%),veh/ln	4.8	1.6	0.0	0.0	5.4	5.1	0.0	3.0	2.0	1.9		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	8.5	0.0	0.0	28.1	28.9	0.0	29.2	28.7	32.7		
LnGrp LOS	C	A	A	A	C	C	A	C	C	C		
Approach Vol, veh/h		1093			661			508				
Approach Delay, s/veh		19.5			28.5			29.1				
Approach LOS		B			C			C				
Timer - Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	11.8	16.0		43.1			20.6	22.5				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	27.5	21.5		57.5			27.5	25.5				
Max Q Clear Time (g_c+I1), s	6.6	9.1		7.0			14.1	15.0				
Green Ext Time (p_c), s	0.7	2.3		3.4			2.0	3.0				

Intersection Summary

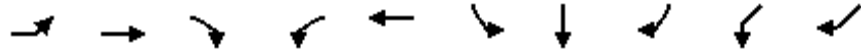
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Queues

Baseline PM

13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

06/13/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	SBL	SBT	SBR	SWL	SWR
Lane Group Flow (vph)	92	772	575	509	1057	157	155	99	165	251
v/c Ratio	0.53	0.68	0.69	0.76	0.69	0.63	0.59	0.29	0.63	0.72
Control Delay	59.6	33.9	10.2	47.8	26.6	55.4	53.0	5.3	54.5	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	33.9	10.2	47.8	26.6	55.4	53.0	5.3	54.5	33.1
Queue Length 50th (ft)	58	228	39	162	297	98	96	0	103	71
Queue Length 95th (ft)	125	340	173	256	432	187	183	23	192	177
Internal Link Dist (ft)		693			852		265		1072	
Turn Bay Length (ft)	150		200	285		125		125		
Base Capacity (vph)	211	1452	936	837	1837	340	358	413	376	443
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.53	0.61	0.61	0.58	0.46	0.43	0.24	0.44	0.57

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Baseline PM
 06/13/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL2	SWL	SWR
Lane Configurations												
Traffic Volume (vph)	85	710	529	468	786	187	144	143	91	152	0	210
Future Volume (vph)	85	710	529	468	786	187	144	143	91	152	0	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3404		1752	1845	1568		1752	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3404		1752	1845	1568		1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	772	575	509	854	203	157	155	99	165	0	228
RTOR Reduction (vph)	0	0	327	0	0	0	0	0	85	0	0	116
Lane Group Flow (vph)	92	772	248	509	1057	0	157	155	14	0	165	135
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Prot	Prot	Prot
Protected Phases	5	2		1	6		4	4	4	8	8	8
Permitted Phases			2									
Actuated Green, G (s)	8.0	33.3	33.3	19.7	45.0		14.2	14.2	14.2		14.8	14.8
Effective Green, g (s)	8.0	33.3	33.3	19.7	45.0		14.2	14.2	14.2		14.8	14.8
Actuated g/C Ratio	0.08	0.33	0.33	0.20	0.45		0.14	0.14	0.14		0.15	0.15
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	140	1167	522	669	1531		248	261	222		259	232
v/s Ratio Prot	0.05	0.22		c0.15	c0.31		c0.09	0.08	0.01		c0.09	0.09
v/s Ratio Perm			0.16									
v/c Ratio	0.66	0.66	0.48	0.76	0.69		0.63	0.59	0.06		0.64	0.58
Uniform Delay, d1	44.7	28.5	26.4	37.9	21.9		40.4	40.2	37.1		40.1	39.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.6	1.4	0.7	5.1	1.4		5.2	3.6	0.1		5.1	3.7
Delay (s)	55.3	30.0	27.1	43.0	23.3		45.6	43.8	37.3		45.1	43.4
Level of Service	E	C	C	D	C		D	D	D		D	D
Approach Delay (s)		30.4			29.7			42.9			44.1	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	21
Future Volume (vph)	21
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	23
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

14: Lake Herman Road & Columbus Parkway



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	99	275	385	33	51	382
v/c Ratio	0.22	0.45	0.34	0.06	0.13	0.25
Control Delay	13.6	5.4	10.9	5.8	14.5	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	5.4	10.9	5.8	14.5	5.6
Queue Length 50th (ft)	9	0	17	0	5	16
Queue Length 95th (ft)	52	45	71	14	33	36
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1737	1557	3316	1485	1415	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.18	0.12	0.02	0.04	0.11

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Baseline PM
 07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	91	253	354	30	47	351
Future Volume (veh/h)	91	253	354	30	47	351
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	99	275	385	33	51	382
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	434	386	798	356	249	1751
Arrive On Green	0.25	0.25	0.23	0.23	0.14	0.50
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	99	275	385	33	51	382
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	1.6	5.6	3.3	0.6	0.9	2.1
Cycle Q Clear(g_c), s	1.6	5.6	3.3	0.6	0.9	2.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	434	386	798	356	249	1751
V/C Ratio(X)	0.23	0.71	0.48	0.09	0.20	0.22
Avail Cap(c_a), veh/h	2254	2005	3789	1690	1241	6719
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	10.5	12.0	11.7	10.7	13.3	5.0
Incr Delay (d2), s/veh	0.3	2.4	0.5	0.1	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.6	0.9	0.2	0.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.8	14.5	12.2	10.8	13.7	5.0
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	374		418			433
Approach Delay, s/veh	13.5		12.1			6.0
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.4	12.4			21.8	13.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	24.5	37.5			66.5	44.5
Max Q Clear Time (g_c+I1), s	2.9	5.3			4.1	7.6
Green Ext Time (p_c), s	0.1	2.6			2.6	1.2
Intersection Summary						
HCM 6th Ctrl Delay			10.4			
HCM 6th LOS			B			

Queues

Baseline PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	86	197	108	114	162	76	899	161	116	391
v/c Ratio	0.43	0.62	0.48	0.33	0.38	0.40	0.72	0.58	0.14	0.42
Control Delay	51.4	46.2	50.6	39.2	9.2	51.4	29.6	48.9	19.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	46.2	50.6	39.2	9.2	51.4	29.6	48.9	19.7	3.7
Queue Length 50th (ft)	48	104	59	58	0	42	230	88	42	0
Queue Length 95th (ft)	118	215	139	130	57	108	378	189	93	57
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	275	502	333	571	597	260	1860	428	1163	1133
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.39	0.32	0.20	0.27	0.29	0.48	0.38	0.10	0.35

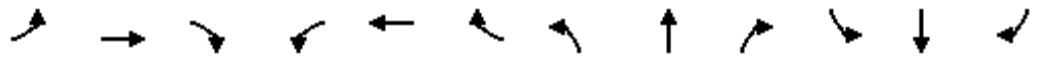
Intersection Summary

HCM 6th Signalized Intersection Summary

Baseline PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	151	30	99	105	149	70	676	151	148	107	360
Future Volume (veh/h)	79	151	30	99	105	149	70	676	151	148	107	360
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	86	164	33	108	114	162	76	735	164	161	116	391
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	112	226	45	141	311	263	104	1033	230	209	779	660
Arrive On Green	0.06	0.15	0.15	0.08	0.17	0.17	0.06	0.36	0.36	0.12	0.42	0.42
Sat Flow, veh/h	1767	1500	302	1767	1856	1572	1767	2864	639	1767	1856	1572
Grp Volume(v), veh/h	86	0	197	108	114	162	76	452	447	161	116	391
Grp Sat Flow(s),veh/h/ln	1767	0	1801	1767	1856	1572	1767	1763	1741	1767	1856	1572
Q Serve(g_s), s	3.0	0.0	6.5	3.7	3.4	5.9	2.6	13.7	13.7	5.5	2.4	11.9
Cycle Q Clear(g_c), s	3.0	0.0	6.5	3.7	3.4	5.9	2.6	13.7	13.7	5.5	2.4	11.9
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	112	0	271	141	311	263	104	636	628	209	779	660
V/C Ratio(X)	0.77	0.00	0.73	0.76	0.37	0.62	0.73	0.71	0.71	0.77	0.15	0.59
Avail Cap(c_a), veh/h	365	0	654	442	755	640	345	1255	1240	568	1555	1318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	25.1	27.9	22.9	23.9	28.7	17.0	17.0	26.5	11.1	13.9
Incr Delay (d2), s/veh	10.6	0.0	3.7	8.3	0.7	2.3	9.4	1.5	1.5	6.0	0.1	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	1.5	0.0	2.9	1.8	1.4	2.2	1.3	5.2	5.1	2.5	0.9	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	0.0	28.8	36.2	23.6	26.3	38.0	18.5	18.5	32.5	11.2	14.7
LnGrp LOS	D	A	C	D	C	C	D	B	B	C	B	B
Approach Vol, veh/h		283			384			975			668	
Approach Delay, s/veh		31.9			28.3			20.0			18.4	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	26.8	9.5	13.8	8.1	30.5	8.4	14.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.9	44.1	15.5	22.5	12.1	51.9	12.8	25.2				
Max Q Clear Time (g_c+I1), s	7.5	15.7	5.7	8.5	4.6	13.9	5.0	7.9				
Green Ext Time (p_c), s	0.3	6.7	0.2	0.9	0.1	2.2	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay			22.4									
HCM 6th LOS			C									

Queues

16: Sonoma Blvd (SR-29) & SR-37 Ramps



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	362	927	999	90	1395	279
v/c Ratio	0.28	0.80	0.55	0.11	0.77	0.18
Control Delay	22.8	29.3	18.0	3.5	23.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	29.3	18.0	3.5	23.2	0.2
Queue Length 50th (ft)	75	230	201	0	333	0
Queue Length 95th (ft)	151	443	365	27	594	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	2119	1780	2739	1245	2739	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.52	0.36	0.07	0.51	0.18

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Baseline PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔		↔		↕	↗		↕	↗
Traffic Volume (veh/h)	0	0	0	333	0	853	0	919	83	0	1283	257
Future Volume (veh/h)	0	0	0	333	0	853	0	919	83	0	1283	257
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				362	0	927	0	999	90	0	1395	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1352	0	1092	0	1777	793	0	1777	
Arrive On Green				0.39	0.00	0.39	0.00	0.50	0.50	0.00	0.50	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				362	0	927	0	999	90	0	1395	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				6.3	0.0	27.1	0.0	17.4	2.7	0.0	28.8	0.0
Cycle Q Clear(g_c), s				6.3	0.0	27.1	0.0	17.4	2.7	0.0	28.8	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1352	0	1092	0	1777	793	0	1777	
V/C Ratio(X)				0.27	0.00	0.85	0.00	0.56	0.11	0.00	0.78	
Avail Cap(c_a), veh/h				2183	0	1762	0	2960	1320	0	2960	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				18.2	0.0	24.5	0.0	15.2	11.6	0.0	18.1	0.0
Incr Delay (d2), s/veh				0.1	0.0	2.3	0.0	0.3	0.1	0.0	0.8	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.4	0.0	8.4	0.0	6.2	0.9	0.0	10.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				18.3	0.0	26.8	0.0	15.5	11.6	0.0	18.8	0.0
LnGrp LOS				B	A	C	A	B	B	A	B	
Approach Vol, veh/h					1289			1089			1395	
Approach Delay, s/veh					24.4			15.2			18.8	
Approach LOS					C			B			B	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		49.2				49.2		39.5				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.5				74.5		56.5				
Max Q Clear Time (g_c+I1), s		19.4				30.8		29.1				
Green Ext Time (p_c), s		8.9				13.9		5.9				

Intersection Summary

HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Notes

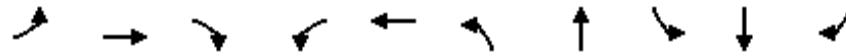
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Baseline +Project AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	215	737	583	97	870	327	139	32	37	130
v/c Ratio	0.57	0.51	0.37	0.38	0.59	0.51	0.39	0.17	0.19	0.25
Control Delay	34.9	20.1	0.7	38.0	24.8	32.3	24.7	39.7	39.4	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	20.1	0.7	38.0	24.8	32.3	24.7	39.7	39.4	13.3
Queue Length 50th (ft)	90	144	0	42	126	71	36	14	16	23
Queue Length 95th (ft)	197	250	0	108	215	142	108	49	54	73
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	776	2403	1568	422	2448	1083	647	503	616	860
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.31	0.37	0.23	0.36	0.30	0.21	0.06	0.06	0.15

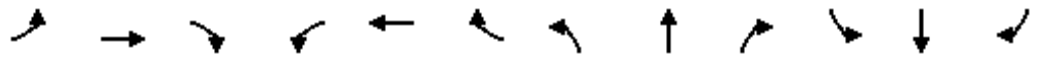
Intersection Summary

HCM 6th Signalized Intersection Summary

Baseline +Project AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↗		↘	↑	↗
Traffic Volume (veh/h)	198	678	536	89	754	46	301	55	73	29	34	120
Future Volume (veh/h)	198	678	536	89	754	46	301	55	73	29	34	120
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	215	737	0	97	820	50	327	60	0	32	37	130
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	276	1274		127	1353	82	487	302		155	201	416
Arrive On Green	0.16	0.36	0.00	0.07	0.28	0.28	0.14	0.16	0.00	0.09	0.11	0.11
Sat Flow, veh/h	1767	3526	1572	1767	4882	297	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	215	737	0	97	566	304	327	60	0	32	37	130
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1802	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	6.6	9.6	0.0	3.1	8.3	8.3	5.1	1.6	0.0	1.0	1.0	3.8
Cycle Q Clear(g_c), s	6.6	9.6	0.0	3.1	8.3	8.3	5.1	1.6	0.0	1.0	1.0	3.8
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	276	1274		127	936	499	487	302		155	201	416
V/C Ratio(X)	0.78	0.58		0.77	0.61	0.61	0.67	0.20		0.21	0.18	0.31
Avail Cap(c_a), veh/h	885	2758		481	1870	998	1235	766		575	701	840
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	14.7	0.0	25.9	17.9	17.9	23.1	20.6	0.0	24.1	23.1	16.8
Incr Delay (d2), s/veh	4.7	0.4	0.0	9.2	0.6	1.2	1.6	0.3	0.0	0.6	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	3.2	0.0	1.5	2.8	3.1	2.0	0.7	0.0	0.4	0.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	15.1	0.0	35.1	18.5	19.1	24.7	20.9	0.0	24.8	23.5	17.2
LnGrp LOS	C	B		D	B	B	C	C		C	C	B
Approach Vol, veh/h		952			967			387			199	
Approach Delay, s/veh		18.0			20.4			24.2			19.6	
Approach LOS		B			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	13.7	8.6	25.1	12.6	10.7	13.4	20.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	23.5	15.5	44.5	20.5	21.5	28.5	31.5				
Max Q Clear Time (g_c+I1), s	3.0	3.6	5.1	11.6	7.1	5.8	8.6	10.3				
Green Ext Time (p_c), s	0.0	0.2	0.1	5.3	1.0	0.5	0.5	5.4				

Intersection Summary

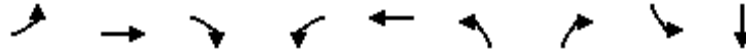
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Baseline +Project AM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	24	508	300	20	666	275	8	2	4
v/c Ratio	0.08	0.35	0.37	0.06	0.47	0.31	0.01	0.01	0.01
Control Delay	20.9	10.2	3.4	21.0	11.2	15.5	0.0	22.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	10.2	3.4	21.0	11.2	15.5	0.0	22.5	0.0
Queue Length 50th (ft)	4	27	0	3	37	19	0	0	0
Queue Length 95th (ft)	30	124	47	27	168	86	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	537	3289	1490	486	3279	2433	1452	383	1003
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.15	0.20	0.04	0.20	0.11	0.01	0.01	0.00
Intersection Summary									

HCM 6th Signalized Intersection Summary

2: N Ascot Parkway & Columbus Parkway

Baseline +Project AM

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	22	467	276	18	612	1	253	0	7	2	0	4
Future Volume (veh/h)	22	467	276	18	612	1	253	0	7	2	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	508	0	20	665	1	275	0	8	2	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	52	1146		44	1158	2	493	296	250	5	0	28
Arrive On Green	0.03	0.33	0.00	0.03	0.32	0.32	0.14	0.00	0.16	0.00	0.00	0.02
Sat Flow, veh/h	1767	3526	1572	1767	3612	5	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	24	508	0	20	325	341	275	0	8	2	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1855	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	0.5	4.2	0.0	0.4	5.7	5.7	2.8	0.0	0.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.5	4.2	0.0	0.4	5.7	5.7	2.8	0.0	0.2	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	1146		44	565	595	493	296	250	5	0	28
V/C Ratio(X)	0.46	0.44		0.45	0.57	0.57	0.56	0.00	0.03	0.41	0.00	0.14
Avail Cap(c_a), veh/h	503	4634		455	2269	2387	2276	1835	1555	359	0	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.6	9.8	0.0	17.7	10.4	10.4	14.7	0.0	13.1	18.4	0.0	17.8
Incr Delay (d2), s/veh	6.2	0.3	0.0	7.0	0.9	0.9	1.0	0.0	0.1	47.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.0	0.2	1.6	1.7	0.9	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	10.1	0.0	24.7	11.4	11.3	15.7	0.0	13.2	65.8	0.0	20.1
LnGrp LOS	C	B		C	B	B	B	A	B	E	A	C
Approach Vol, veh/h		532			686			283				6
Approach Delay, s/veh		10.7			11.7			15.6				35.3
Approach LOS		B			B			B				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.4	5.4	16.5	9.8	5.2	5.6	16.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	36.5	9.5	48.5	24.5	19.5	10.5	47.5				
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.4	6.2	4.8	2.1	2.5	7.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.5	0.9	0.0	0.0	4.2				

Intersection Summary

HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Baseline +Project AM
07/01/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	395	88	11	410	257	55
v/c Ratio	0.34	0.15	0.03	0.31	0.26	0.11
Control Delay	9.1	3.8	13.0	6.5	10.2	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	3.8	13.0	6.5	10.2	5.1
Queue Length 50th (ft)	17	0	1	17	11	0
Queue Length 95th (ft)	68	22	12	39	50	19
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3505	1568	1323	3505	3326	1535
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.06	0.01	0.12	0.08	0.04
Intersection Summary						

HCM 6th Signalized Intersection Summary
 3: Redwood Street & Columbus Parkway

Baseline +Project AM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	363	81	10	377	236	51
Future Volume (veh/h)	363	81	10	377	236	51
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	395	88	11	410	257	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	891	397	277	1954	534	245
Arrive On Green	0.25	0.25	0.16	0.55	0.16	0.16
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	395	88	11	410	257	55
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	2.9	1.4	0.2	1.8	2.1	0.9
Cycle Q Clear(g_c), s	2.9	1.4	0.2	1.8	2.1	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	891	397	277	1954	534	245
V/C Ratio(X)	0.44	0.22	0.04	0.21	0.48	0.22
Avail Cap(c_a), veh/h	5280	2355	1167	8119	4362	2001
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.8	9.2	11.1	3.5	12.0	11.5
Incr Delay (d2), s/veh	0.3	0.3	0.1	0.1	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	0.0	0.1	0.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.1	9.5	11.2	3.5	12.6	11.9
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	483			421	312	
Approach Delay, s/veh	10.0			3.7	12.5	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.3	9.4	12.3		21.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		39.5	20.5	46.5		71.5
Max Q Clear Time (g_c+I1), s		4.1	2.2	4.9		3.8
Green Ext Time (p_c), s		1.1	0.0	2.9		2.8
Intersection Summary						
HCM 6th Ctrl Delay			8.5			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Baseline +Project AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	356	68	543	16	2	25	71	26
v/c Ratio	0.05	0.18	0.13	0.22	0.01	0.00	0.05	0.12	0.05
Control Delay	16.7	10.2	15.0	6.1	0.5	14.0	8.6	14.1	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	10.2	15.0	6.1	0.5	14.0	8.6	14.1	7.9
Queue Length 50th (ft)	4	32	12	25	0	0	1	12	0
Queue Length 95th (ft)	22	66	43	94	2	5	15	42	15
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	1088	3492	1287	3505	1568	1645	1430	1645	1411
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.10	0.05	0.15	0.01	0.00	0.02	0.04	0.02
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Baseline +Project AM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↷		↶	↶↷	↶	↶	↷		↶	↷	
Traffic Volume (veh/h)	22	323	5	63	500	15	2	3	20	65	1	23
Future Volume (veh/h)	22	323	5	63	500	15	2	3	20	65	1	23
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	351	5	68	543	16	2	3	22	71	1	25
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1100	16	131	1243	555	403	22	159	404	7	171
Arrive On Green	0.03	0.31	0.31	0.07	0.35	0.35	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1767	3559	51	1767	3526	1572	1374	192	1410	1375	61	1521
Grp Volume(v), veh/h	24	174	182	68	543	16	2	0	25	71	0	26
Grp Sat Flow(s),veh/h/ln	1767	1763	1846	1767	1763	1572	1374	0	1602	1375	0	1582
Q Serve(g_s), s	0.4	2.0	2.0	1.0	3.2	0.2	0.0	0.0	0.4	1.3	0.0	0.4
Cycle Q Clear(g_c), s	0.4	2.0	2.0	1.0	3.2	0.2	0.4	0.0	0.4	1.7	0.0	0.4
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	54	545	571	131	1243	555	403	0	180	404	0	178
V/C Ratio(X)	0.44	0.32	0.32	0.52	0.44	0.03	0.00	0.00	0.14	0.18	0.00	0.15
Avail Cap(c_a), veh/h	1023	3194	3345	1551	7441	3319	2019	0	2064	2022	0	2039
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	0.00	1.00
Uniform Delay (d), s/veh	12.8	7.1	7.1	11.9	6.6	5.7	10.9	0.0	10.7	11.5	0.0	10.7
Incr Delay (d2), s/veh	5.6	0.3	0.3	3.2	0.2	0.0	0.0	0.0	0.3	0.2	0.0	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	0.2	0.5	0.5	0.4	0.7	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.4	7.4	7.4	15.1	6.9	5.7	10.9	0.0	11.1	11.7	0.0	11.1
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		380			627			27				97
Approach Delay, s/veh		8.1			7.7			11.0				11.5
Approach LOS		A			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.5	6.5	12.8		7.5	5.3	13.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		34.5	23.5	48.5		34.5	15.5	56.5				
Max Q Clear Time (g_c+I1), s		2.4	3.0	4.0		3.7	2.4	5.2				
Green Ext Time (p_c), s		0.1	0.1	2.3		0.3	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

Queues
5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Baseline +Project AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	236	214	349	28	23	121	58	14	20
v/c Ratio	0.16	0.33	0.45	0.21	0.11	0.08	0.34	0.19	0.04	0.05
Control Delay	24.9	20.2	21.7	11.8	25.5	25.2	8.0	24.6	22.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	20.2	21.7	11.8	25.5	25.2	8.0	24.6	22.0	0.2
Queue Length 50th (ft)	13	32	59	36	8	7	0	17	3	0
Queue Length 95th (ft)	45	73	133	77	32	28	36	52	19	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	528	1782	1258	2791	824	1097	987	908	1154	1031
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.13	0.17	0.13	0.03	0.02	0.12	0.06	0.01	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Baseline +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	182	35	197	223	98	26	21	111	53	13	18
Future Volume (veh/h)	42	182	35	197	223	98	26	21	111	53	13	18
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	46	198	38	214	242	107	28	23	121	58	14	20
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	89	423	80	290	617	265	207	263	223	164	218	185
Arrive On Green	0.05	0.14	0.14	0.16	0.26	0.26	0.12	0.14	0.14	0.09	0.12	0.12
Sat Flow, veh/h	1767	2960	558	1767	2403	1030	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	46	116	120	214	176	173	28	23	121	58	14	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1755	1767	1763	1670	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	2.4	2.5	4.5	3.2	3.4	0.6	0.4	2.8	1.2	0.3	0.4
Cycle Q Clear(g_c), s	1.0	2.4	2.5	4.5	3.2	3.4	0.6	0.4	2.8	1.2	0.3	0.4
Prop In Lane	1.00		0.32	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	252	251	290	453	429	207	263	223	164	218	185
V/C Ratio(X)	0.52	0.46	0.48	0.74	0.39	0.40	0.14	0.09	0.54	0.35	0.06	0.11
Avail Cap(c_a), veh/h	562	965	961	1507	1908	1807	877	1205	1021	967	1299	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	15.4	15.5	15.6	12.0	12.1	15.6	14.6	15.7	16.7	15.4	15.5
Incr Delay (d2), s/veh	4.6	1.3	1.4	3.7	0.5	0.6	0.3	0.1	2.1	1.3	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.9	0.9	1.8	1.1	1.1	0.2	0.2	1.0	0.5	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	16.8	16.9	19.3	12.6	12.7	15.9	14.8	17.7	18.0	15.5	15.7
LnGrp LOS	C	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		282			563			172				92
Approach Delay, s/veh		17.8			15.2			17.0				17.1
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	10.1	10.9	10.1	9.1	9.1	6.5	14.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	25.5	33.5	21.5	19.5	27.5	12.5	42.5				
Max Q Clear Time (g_c+I1), s	3.2	4.8	6.5	4.5	2.6	2.4	3.0	5.4				
Green Ext Time (p_c), s	0.1	0.4	0.6	1.2	0.0	0.1	0.0	2.3				

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

Queues
6: Admiral Callaghan Ln & Turner Parkway

Baseline +Project AM
07/01/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	152	15	507	47	247
v/c Ratio	0.16	0.04	0.30	0.10	0.12
Control Delay	13.3	8.9	8.1	14.9	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	8.9	8.1	14.9	4.3
Queue Length 50th (ft)	8	0	18	5	10
Queue Length 95th (ft)	37	12	76	32	21
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2952	1239	3340	1261	3505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.15	0.04	0.07
Intersection Summary					

HCM 6th Signalized Intersection Summary

6: Admiral Callaghan Ln & Turner Parkway

Baseline +Project AM

07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	138	16	321	145	43	227
Future Volume (veh/h)	138	16	321	145	43	227
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	150	17	349	158	47	247
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	464	206	762	339	97	1905
Arrive On Green	0.13	0.13	0.32	0.32	0.05	0.54
Sat Flow, veh/h	3534	1572	2466	1055	1767	3618
Grp Volume(v), veh/h	150	17	258	249	47	247
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1666	1767	1763
Q Serve(g_s), s	1.1	0.3	3.2	3.3	0.7	0.9
Cycle Q Clear(g_c), s	1.1	0.3	3.2	3.3	0.7	0.9
Prop In Lane	1.00	1.00		0.63	1.00	
Lane Grp Cap(c), veh/h	464	206	566	535	97	1905
V/C Ratio(X)	0.32	0.08	0.46	0.47	0.48	0.13
Avail Cap(c_a), veh/h	3805	1693	3571	3374	1387	10487
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	10.8	10.5	7.4	7.4	12.6	3.1
Incr Delay (d2), s/veh	0.4	0.2	0.6	0.6	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.8	0.8	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.2	10.6	8.0	8.1	16.3	3.1
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	167		507			294
Approach Delay, s/veh	11.1		8.0			5.2
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.0	13.3			19.3	8.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	21.5	55.5			81.5	29.5
Max Q Clear Time (g_c+I1), s	2.7	5.3			2.9	3.1
Green Ext Time (p_c), s	0.1	3.6			1.8	0.5

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Baseline +Project AM
07/01/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	151	48	253	117	53
v/c Ratio	0.31	0.03	0.30	0.16	0.15
Control Delay	13.5	3.6	6.4	11.5	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	3.6	6.4	11.5	6.6
Queue Length 50th (ft)	24	1	6	7	0
Queue Length 95th (ft)	62	5	29	24	21
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1745	3505	2947	3053	1310
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.01	0.09	0.04	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Baseline +Project AM
07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	139	44	74	159	86	71	
Future Volume (veh/h)	139	44	74	159	86	71	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	151	48	80	173	112	57	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	227	1811	371	331	482	214	
Arrive On Green	0.13	0.51	0.21	0.21	0.14	0.14	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	151	48	80	173	112	57	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	2.1	0.2	1.0	2.5	0.7	0.8	
Cycle Q Clear(g_c), s	2.1	0.2	1.0	2.5	0.7	0.8	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	227	1811	371	331	482	214	
V/C Ratio(X)	0.67	0.03	0.22	0.52	0.23	0.27	
Avail Cap(c_a), veh/h	2783	10761	2296	2048	4466	1987	
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	10.7	3.1	8.4	9.0	9.9	10.0	
Incr Delay (d2), s/veh	3.3	0.0	0.3	1.3	0.2	0.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.3	0.7	0.2	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	14.0	3.1	8.7	10.3	10.2	10.6	
LnGrp LOS	B	A	A	B	B	B	
Approach Vol, veh/h		199	253		169		
Approach Delay, s/veh		11.4	9.8		10.3		
Approach LOS		B	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				17.7	8.0	7.8	9.9
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				78.5	32.5	40.5	33.5
Max Q Clear Time (g_c+I1), s				2.2	2.8	4.1	4.5
Green Ext Time (p_c), s				0.3	0.6	0.4	1.6

Intersection Summary

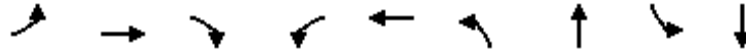
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Baseline +Project AM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	7	118	3	28	201	238	9	313
v/c Ratio	0.09	0.02	0.32	0.01	0.10	0.41	0.10	0.03	0.36
Control Delay	21.5	20.8	7.1	22.7	14.2	17.8	6.5	22.2	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	20.8	7.1	22.7	14.2	17.8	6.5	22.2	16.1
Queue Length 50th (ft)	5	1	0	1	1	37	7	2	29
Queue Length 95th (ft)	30	12	33	8	23	121	53	15	86
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	485	1213	1077	346	980	1532	3448	393	2687
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.11	0.01	0.03	0.13	0.07	0.02	0.12
Intersection Summary									

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Baseline +Project AM
 07/01/2024



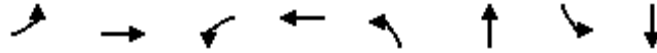
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	6	109	3	6	19	185	215	4	8	246	42
Future Volume (veh/h)	24	6	109	3	6	19	185	215	4	8	246	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	26	7	118	3	7	21	201	234	4	9	267	46
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	258	219	7	46	137	276	1175	20	21	565	96
Arrive On Green	0.03	0.14	0.14	0.00	0.11	0.11	0.16	0.33	0.33	0.01	0.19	0.19
Sat Flow, veh/h	1767	1856	1572	1767	409	1226	1767	3547	61	1767	3014	512
Grp Volume(v), veh/h	26	7	118	3	0	28	201	116	122	9	155	158
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1635	1767	1763	1845	1767	1763	1763
Q Serve(g_s), s	0.5	0.1	2.4	0.1	0.0	0.5	3.8	1.7	1.7	0.2	2.7	2.8
Cycle Q Clear(g_c), s	0.5	0.1	2.4	0.1	0.0	0.5	3.8	1.7	1.7	0.2	2.7	2.8
Prop In Lane	1.00		1.00	1.00		0.75	1.00		0.03	1.00		0.29
Lane Grp Cap(c), veh/h	56	258	219	7	0	182	276	584	611	21	330	330
V/C Ratio(X)	0.46	0.03	0.54	0.41	0.00	0.15	0.73	0.20	0.20	0.43	0.47	0.48
Avail Cap(c_a), veh/h	529	1350	1144	378	0	1049	1840	3042	3183	428	1634	1635
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	13.0	14.0	17.4	0.0	14.1	14.1	8.4	8.4	17.2	12.7	12.7
Incr Delay (d2), s/veh	5.8	0.0	2.1	33.5	0.0	0.4	3.7	0.2	0.2	13.0	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	0.1	0.0	0.2	1.4	0.4	0.5	0.1	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	13.1	16.1	50.9	0.0	14.5	17.8	8.6	8.6	30.2	13.7	13.8
LnGrp LOS	C	B	B	D	A	B	B	A	A	C	B	B
Approach Vol, veh/h		151			31			439			322	
Approach Delay, s/veh		17.1			18.0			12.8			14.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.9	16.1	4.6	9.4	10.0	11.1	5.6	8.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	60.5	7.5	25.5	36.5	32.5	10.5	22.5				
Max Q Clear Time (g_c+I1), s	2.2	3.7	2.1	4.4	5.8	4.8	2.5	2.5				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.6	1.8	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Queues
9: Ascot Parkway & Redwood Street

Baseline +Project AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	141	723	120	269	422	302	165	282
v/c Ratio	0.57	0.77	0.56	0.33	0.80	0.33	0.60	0.58
Control Delay	49.8	32.3	53.1	31.3	43.2	27.8	48.9	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	32.3	53.1	31.3	43.2	27.8	48.9	30.2
Queue Length 50th (ft)	80	166	69	65	232	72	94	51
Queue Length 95th (ft)	163	281	147	125	389	123	183	105
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	359	1174	271	969	773	1570	407	896
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.62	0.44	0.28	0.55	0.19	0.41	0.31
Intersection Summary								

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Baseline +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	130	375	290	110	212	36	388	236	41	152	157	102
Future Volume (veh/h)	130	375	290	110	212	36	388	236	41	152	157	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	141	408	0	120	230	0	422	257	0	165	171	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	186	671		157	614		504	923		217	349	
Arrive On Green	0.11	0.19	0.00	0.09	0.17	0.00	0.29	0.26	0.00	0.12	0.10	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	141	408	0	120	230	0	422	257	0	165	171	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	4.2	5.7	0.0	3.6	3.1	0.0	12.0	3.1	0.0	4.8	2.5	0.0
Cycle Q Clear(g_c), s	4.2	5.7	0.0	3.6	3.1	0.0	12.0	3.1	0.0	4.8	2.5	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	186	671		157	614		504	923		217	349	
V/C Ratio(X)	0.76	0.61		0.76	0.37		0.84	0.28		0.76	0.49	
Avail Cap(c_a), veh/h	591	1879		446	1589		1272	2617		671	1417	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.3	19.8	0.0	23.8	19.5	0.0	17.9	15.7	0.0	22.7	22.8	0.0
Incr Delay (d2), s/veh	6.3	0.9	0.0	7.5	0.4	0.0	3.8	0.2	0.0	5.5	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.1	0.0	1.7	1.2	0.0	4.7	1.1	0.0	2.1	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	20.7	0.0	31.4	19.9	0.0	21.7	15.9	0.0	28.2	23.9	0.0
LnGrp LOS	C	C		C	B		C	B		C	C	
Approach Vol, veh/h		549			350			679			336	
Approach Delay, s/veh		23.0			23.8			19.5			26.0	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	18.5	9.2	14.7	19.8	9.8	10.1	13.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.3	39.7	13.5	28.5	38.5	21.5	17.9	24.1				
Max Q Clear Time (g_c+I1), s	6.8	5.1	5.6	7.7	14.0	4.5	6.2	5.1				
Green Ext Time (p_c), s	0.3	1.7	0.2	2.5	1.3	0.8	0.3	1.3				

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Baseline +Project AM
07/01/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	613	372	388	282	454
v/c Ratio	0.68	0.71	0.18	0.63	0.62
Control Delay	28.8	34.5	7.0	35.0	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	34.5	7.0	35.0	7.0
Queue Length 50th (ft)	118	154	36	116	0
Queue Length 95th (ft)	249	334	78	262	79
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1410	965	3118	916	1036
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	0.39	0.12	0.31	0.44
Intersection Summary					

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	373	191	342	357	259	418
Future Volume (veh/h)	373	191	342	357	259	418
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	405	208	372	388	282	454
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	544	276	431	1924	586	521
Arrive On Green	0.24	0.24	0.24	0.55	0.33	0.33
Sat Flow, veh/h	2356	1148	1767	3618	1767	1572
Grp Volume(v), veh/h	314	299	372	388	282	454
Grp Sat Flow(s),veh/h/ln	1763	1649	1767	1763	1767	1572
Q Serve(g_s), s	12.1	12.3	14.8	4.1	9.3	19.9
Cycle Q Clear(g_c), s	12.1	12.3	14.8	4.1	9.3	19.9
Prop In Lane		0.70	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	424	396	431	1924	586	521
V/C Ratio(X)	0.74	0.75	0.86	0.20	0.48	0.87
Avail Cap(c_a), veh/h	710	664	953	3538	905	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	25.8	26.5	8.5	19.5	23.0
Incr Delay (d2), s/veh	2.6	2.9	5.2	0.1	0.6	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	4.8	6.4	1.4	3.7	7.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.3	28.7	31.8	8.5	20.1	29.6
LnGrp LOS	C	C	C	A	C	C
Approach Vol, veh/h	613			760	736	
Approach Delay, s/veh	28.5			19.9	26.0	
Approach LOS	C			B	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		28.8	22.4	22.1		44.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	39.5	29.5		73.5
Max Q Clear Time (g_c+I1), s		21.9	16.8	14.3		6.1
Green Ext Time (p_c), s		2.4	1.1	3.3		2.8
Intersection Summary						
HCM 6th Ctrl Delay			24.5			
HCM 6th LOS			C			

Queues
11: Admiral Callaghan Ln & Redwood Street

Baseline +Project AM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	21	664	80	609	127	82
v/c Ratio	0.07	0.40	0.21	0.27	0.33	0.11
Control Delay	24.0	13.4	22.3	7.2	21.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	13.4	22.3	7.2	21.3	0.3
Queue Length 50th (ft)	5	75	20	36	30	0
Queue Length 95th (ft)	26	148	63	122	87	0
Internal Link Dist (ft)		424		851		1161
Turn Bay Length (ft)	125		125		75	
Base Capacity (vph)	566	3216	907	3447	1048	1278
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.21	0.09	0.18	0.12	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Baseline +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	19	521	90	74	559	1	117	0	75	0	0	0
Future Volume (veh/h)	19	521	90	74	559	1	117	0	75	0	0	0
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	21	566	98	80	608	1	127	0	82	0	0	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	47	1073	185	141	1481	2	465	0	210	229	248	0
Arrive On Green	0.03	0.36	0.36	0.08	0.41	0.41	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	1767	3006	519	1767	3611	6	1767	0	1572	1306	1856	0
Grp Volume(v), veh/h	21	331	333	80	297	312	127	0	82	0	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1762	1767	1763	1854	1767	0	1572	1306	1856	0
Q Serve(g_s), s	0.4	4.7	4.7	1.4	3.8	3.8	2.1	0.0	1.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	4.7	4.7	1.4	3.8	3.8	2.1	0.0	1.5	0.0	0.0	0.0
Prop In Lane	1.00		0.29	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	47	629	629	141	723	761	465	0	210	229	248	0
V/C Ratio(X)	0.45	0.53	0.53	0.57	0.41	0.41	0.27	0.00	0.39	0.00	0.00	0.00
Avail Cap(c_a), veh/h	591	2833	2832	1153	3394	3571	2226	0	1777	1530	2097	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	15.1	8.0	8.0	13.9	6.6	6.6	12.7	0.0	12.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.5	0.7	0.7	3.5	0.4	0.4	0.3	0.0	1.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	1.2	0.6	0.8	0.8	0.7	0.0	0.5	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	8.7	8.7	17.5	6.9	6.9	13.0	0.0	13.6	0.0	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	B	A	A	A
Approach Vol, veh/h		685			689			209				0
Approach Delay, s/veh		9.1			8.2			13.3				0.0
Approach LOS		A			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.7	7.0	15.7		8.7	5.3	17.4				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		35.5	20.5	50.5		35.5	10.5	60.5				
Max Q Clear Time (g_c+I1), s		4.1	3.4	6.7		0.0	2.4	5.8				
Green Ext Time (p_c), s		0.8	0.1	4.5		0.0	0.0	4.0				
Intersection Summary												
HCM 6th Ctrl Delay			9.2									
HCM 6th LOS			A									

Queues
12: Redwood Street & Admiral Callaghan Ln

Baseline +Project AM
07/01/2024



Lane Group	EBL	EBT	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	388	397	735	282	215	83	929
v/c Ratio	0.62	0.21	0.73	0.50	0.50	0.18	0.79
Control Delay	37.8	11.2	30.7	37.0	9.8	35.9	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	11.2	30.7	37.0	9.8	35.9	8.4
Queue Length 50th (ft)	92	50	161	68	0	19	0
Queue Length 95th (ft)	184	108	305	139	65	47	57
Internal Link Dist (ft)		852	424	1178			
Turn Bay Length (ft)	275				450	100	300
Base Capacity (vph)	888	2567	1417	959	585	1191	1570
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.15	0.52	0.29	0.37	0.07	0.59
Intersection Summary							

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Baseline +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕			↖↗			↕	↖	↖↗		↖↗
Traffic Volume (veh/h)	357	365	0	0	491	185	0	259	198	76	0	855
Future Volume (veh/h)	357	365	0	0	491	185	0	259	198	76	0	855
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	1856	1856	0	0	1856	1856	0	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	388	397	0	0	534	201	0	282	215	83	0	929
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, %	3	3	0	0	3	3	0	3	3	3	0	3
Cap, veh/h	540	1855	0	0	741	278	0	680	303	211	0	0
Arrive On Green	0.16	0.53	0.00	0.00	0.30	0.30	0.00	0.19	0.19	0.06	0.00	0.00
Sat Flow, veh/h	3428	3618	0	0	2601	941	0	3618	1572	3428	83	
Grp Volume(v), veh/h	388	397	0	0	375	360	0	282	215	83	28.9	
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1686	0	1763	1572	1714	C	
Q Serve(g_s), s	6.6	3.7	0.0	0.0	11.7	11.8	0.0	4.3	7.9	1.4		
Cycle Q Clear(g_c), s	6.6	3.7	0.0	0.0	11.7	11.8	0.0	4.3	7.9	1.4		
Prop In Lane	1.00		0.00	0.00		0.56	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	540	1855	0	0	521	498	0	680	303	211		
V/C Ratio(X)	0.72	0.21	0.00	0.00	0.72	0.72	0.00	0.41	0.71	0.39		
Avail Cap(c_a), veh/h	1142	3295	0	0	931	891	0	1232	550	1532		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	24.6	7.8	0.0	0.0	19.4	19.4	0.0	21.8	23.2	27.8		
Incr Delay (d2), s/veh	1.8	0.1	0.0	0.0	1.9	2.0	0.0	0.4	3.1	1.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.6	1.1	0.0	0.0	4.5	4.4	0.0	1.7	3.0	0.6		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	7.8	0.0	0.0	21.3	21.4	0.0	22.2	26.3	28.9		
LnGrp LOS	C	A	A	A	C	C	A	C	C	C		
Approach Vol, veh/h		785			735			497				
Approach Delay, s/veh		17.0			21.3			24.0				
Approach LOS		B			C			C				
Timer - Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	8.3	16.4		36.9			14.2	22.7				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	27.5	21.5		57.5			20.5	32.5				
Max Q Clear Time (g_c+I1), s	3.4	9.9		5.7			8.6	13.8				
Green Ext Time (p_c), s	0.2	2.0		2.8			1.1	4.4				

Intersection Summary

HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Queues

Baseline +Project AM

13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

06/13/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL	SWR
Lane Group Flow (vph)	79	555	379	328	946	182	126	143	154	127	331
v/c Ratio	0.86	0.36	0.42	0.71	0.99	0.22	0.59	0.64	0.47	0.48	0.94
Control Delay	116.8	23.8	3.9	57.0	55.3	16.8	60.1	62.0	12.3	52.4	64.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.8	23.8	3.9	57.0	55.3	16.8	60.1	62.0	12.3	52.4	64.4
Queue Length 50th (ft)	60	146	0	122	679	72	91	103	0	88	151
Queue Length 95th (ft)	#159	207	60	174	#1032	125	154	172	60	156	#342
Internal Link Dist (ft)		693			852			265		1072	
Turn Bay Length (ft)	150		200	285			125		125		
Base Capacity (vph)	92	1527	897	535	957	813	273	287	374	273	359
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.36	0.42	0.61	0.99	0.22	0.46	0.50	0.41	0.47	0.92

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Baseline +Project AM
 06/13/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL2	SWL	SWR
Lane Configurations												
Traffic Volume (vph)	73	511	349	302	870	167	116	132	142	117	0	275
Future Volume (vph)	73	511	349	302	870	167	116	132	142	117	0	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	1568	3400	1845	1568	1752	1845	1568		1752	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	1568	3400	1845	1568	1752	1845	1568		1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	555	379	328	946	182	126	143	154	127	0	299
RTOR Reduction (vph)	0	0	214	0	0	0	0	0	135	0	0	115
Lane Group Flow (vph)	79	555	165	328	946	182	126	143	19	0	127	216
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Prot	Prot	Prot	Prot
Protected Phases	5	2		1	6		4	4	4	8	8	8
Permitted Phases			2			6						
Actuated Green, G (s)	6.1	50.4	50.4	15.7	60.0	60.0	14.0	14.0	14.0		17.5	17.5
Effective Green, g (s)	6.1	50.4	50.4	15.7	60.0	60.0	14.0	14.0	14.0		17.5	17.5
Actuated g/C Ratio	0.05	0.44	0.44	0.14	0.52	0.52	0.12	0.12	0.12		0.15	0.15
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	92	1528	683	461	957	813	212	223	189		265	237
v/s Ratio Prot	0.05	0.16		c0.10	c0.51		0.07	c0.08	0.01		0.07	c0.14
v/s Ratio Perm			0.11			0.12						
v/c Ratio	0.86	0.36	0.24	0.71	0.99	0.22	0.59	0.64	0.10		0.48	0.91
Uniform Delay, d1	54.3	21.8	20.6	47.8	27.5	15.1	48.1	48.4	45.2		44.9	48.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	50.4	0.1	0.2	5.1	26.0	0.1	4.4	6.2	0.2		1.4	34.7
Delay (s)	104.7	22.0	20.7	52.9	53.4	15.3	52.5	54.6	45.4		46.2	82.9
Level of Service	F	C	C	D	D	B	D	D	D		D	F
Approach Delay (s)		28.0			48.6			50.6			72.8	
Approach LOS		C			D			D			E	

Intersection Summary

HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	115.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	29
Future Volume (vph)	29
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	32
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

14: Lake Herman Road & Columbus Parkway



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	80	363	83	187	239
v/c Ratio	0.09	0.19	0.32	0.15	0.33	0.11
Control Delay	17.3	7.1	13.4	4.9	15.1	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	7.1	13.4	4.9	15.1	3.2
Queue Length 50th (ft)	7	0	35	0	35	8
Queue Length 95th (ft)	28	28	73	24	87	18
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1235	1128	3294	1478	1664	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.07	0.11	0.06	0.11	0.07

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Baseline +Project AM
 07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	74	334	76	172	220
Future Volume (veh/h)	31	74	334	76	172	220
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	34	80	363	83	187	239
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	184	164	870	388	316	2053
Arrive On Green	0.10	0.10	0.25	0.25	0.18	0.58
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	34	80	363	83	187	239
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	0.5	1.4	2.5	1.2	2.8	0.9
Cycle Q Clear(g_c), s	0.5	1.4	2.5	1.2	2.8	0.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	184	164	870	388	316	2053
V/C Ratio(X)	0.18	0.49	0.42	0.21	0.59	0.12
Avail Cap(c_a), veh/h	1632	1452	4853	2165	2494	10382
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	11.7	12.1	9.1	8.6	10.8	2.7
Incr Delay (d2), s/veh	0.5	2.3	0.3	0.3	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	0.6	0.3	0.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.2	14.4	9.4	8.9	12.6	2.7
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	114		446			426
Approach Delay, s/veh	13.7		9.3			7.0
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.6	11.6			21.2	7.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	40.5	39.5			84.5	26.5
Max Q Clear Time (g_c+I1), s	4.8	4.5			2.9	3.4
Green Ext Time (p_c), s	0.5	2.6			1.6	0.3
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			

Queues

Baseline +Project AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	59	90	143	142	96	37	319	87	118	517
v/c Ratio	0.16	0.22	0.31	0.24	0.16	0.11	0.26	0.22	0.14	0.51
Control Delay	26.5	24.2	24.9	21.9	2.9	27.4	20.4	25.9	17.6	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	24.2	24.9	21.9	2.9	27.4	20.4	25.9	17.6	4.6
Queue Length 50th (ft)	18	25	43	42	0	11	47	26	23	0
Queue Length 95th (ft)	57	74	108	104	19	42	100	75	83	72
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	620	857	855	1123	1008	467	2740	714	1668	1467
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.11	0.17	0.13	0.10	0.08	0.12	0.12	0.07	0.35

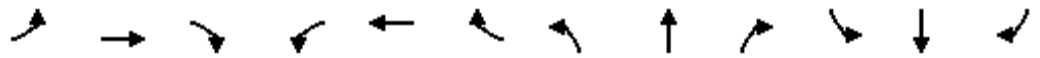
Intersection Summary

HCM 6th Signalized Intersection Summary

Baseline +Project AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	68	15	132	131	88	34	254	40	80	109	476
Future Volume (veh/h)	54	68	15	132	131	88	34	254	40	80	109	476
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	59	74	16	143	142	96	37	276	43	87	118	517
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	99	147	32	190	280	238	71	1113	171	124	730	618
Arrive On Green	0.06	0.10	0.10	0.11	0.15	0.15	0.04	0.36	0.36	0.07	0.39	0.39
Sat Flow, veh/h	1767	1478	320	1767	1856	1572	1767	3062	471	1767	1856	1572
Grp Volume(v), veh/h	59	0	90	143	142	96	37	157	162	87	118	517
Grp Sat Flow(s),veh/h/ln	1767	0	1798	1767	1856	1572	1767	1763	1771	1767	1856	1572
Q Serve(g_s), s	1.6	0.0	2.4	3.9	3.5	2.8	1.0	3.1	3.2	2.4	2.1	14.9
Cycle Q Clear(g_c), s	1.6	0.0	2.4	3.9	3.5	2.8	1.0	3.1	3.2	2.4	2.1	14.9
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	99	0	179	190	280	238	71	641	643	124	730	618
V/C Ratio(X)	0.60	0.00	0.50	0.75	0.51	0.40	0.52	0.25	0.25	0.70	0.16	0.84
Avail Cap(c_a), veh/h	406	0	736	759	1130	958	300	1567	1574	547	1908	1617
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	21.4	21.7	19.5	19.2	23.6	11.1	11.2	22.8	9.8	13.7
Incr Delay (d2), s/veh	5.7	0.0	2.2	5.9	1.4	1.1	5.8	0.2	0.2	7.0	0.1	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.0	1.8	1.5	1.0	0.5	1.1	1.1	1.2	0.7	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	23.6	27.6	20.9	20.3	29.4	11.3	11.4	29.8	9.9	16.8
LnGrp LOS	C	A	C	C	C	C	C	B	B	C	A	B
Approach Vol, veh/h		149			381			356			722	
Approach Delay, s/veh		25.6			23.3			13.2			17.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	22.7	9.9	9.5	6.5	24.2	7.3	12.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	44.5	21.5	20.5	8.5	51.5	11.5	30.5				
Max Q Clear Time (g_c+I1), s	4.4	5.2	5.9	4.4	3.0	16.9	3.6	5.5				
Green Ext Time (p_c), s	0.1	2.0	0.3	0.3	0.0	2.8	0.1	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			18.6									
HCM 6th LOS			B									

Queues

16: Sonoma Blvd (SR-29) & SR-37 Ramps



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	442	939	584	37	1576	215
v/c Ratio	0.44	0.79	0.28	0.04	0.76	0.14
Control Delay	28.1	17.5	9.8	3.4	17.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	17.5	9.8	3.4	17.0	0.2
Queue Length 50th (ft)	93	101	70	0	287	0
Queue Length 95th (ft)	204	273	156	14	596	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	2050	1881	3116	1398	3116	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.50	0.19	0.03	0.51	0.14

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Baseline +Project AM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖↗		↖↗		↕	↖		↕	↖
Traffic Volume (veh/h)	0	0	0	407	0	864	0	537	34	0	1450	198
Future Volume (veh/h)	0	0	0	407	0	864	0	537	34	0	1450	198
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				442	0	939	0	584	37	0	1576	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1290	0	1041	0	1910	852	0	1910	
Arrive On Green				0.38	0.00	0.38	0.00	0.54	0.54	0.00	0.54	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				442	0	939	0	584	37	0	1576	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				10.1	0.0	35.2	0.0	10.0	1.2	0.0	40.7	0.0
Cycle Q Clear(g_c), s				10.1	0.0	35.2	0.0	10.0	1.2	0.0	40.7	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1290	0	1041	0	1910	852	0	1910	
V/C Ratio(X)				0.34	0.00	0.90	0.00	0.31	0.04	0.00	0.83	
Avail Cap(c_a), veh/h				1452	0	1172	0	2714	1211	0	2714	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				24.5	0.0	32.3	0.0	13.8	11.8	0.0	20.8	0.0
Incr Delay (d2), s/veh				0.2	0.0	9.1	0.0	0.1	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.0	0.0	12.5	0.0	3.8	0.4	0.0	15.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.7	0.0	41.4	0.0	13.9	11.8	0.0	22.3	0.0
LnGrp LOS				C	A	D	A	B	B	A	C	
Approach Vol, veh/h					1381			621			1576	
Approach Delay, s/veh					36.0			13.8			22.3	
Approach LOS					D			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		64.0				64.0		45.8				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		84.5				84.5		46.5				
Max Q Clear Time (g_c+I1), s		12.0				42.7		37.2				
Green Ext Time (p_c), s		4.3				16.8		4.1				

Intersection Summary

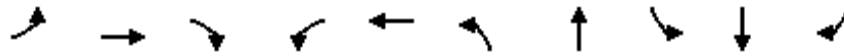
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

Notes

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

Queues

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	323	684	1033	147	809	1062	277	61	73	249
v/c Ratio	0.85	0.68	0.66	0.70	0.84	0.89	0.42	0.40	0.44	0.43
Control Delay	63.1	38.8	2.2	65.0	50.8	43.3	19.6	55.7	55.6	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	38.8	2.2	65.0	50.8	43.3	19.6	55.7	55.6	19.0
Queue Length 50th (ft)	221	230	0	101	202	360	93	42	50	80
Queue Length 95th (ft)	#394	310	0	#193	#288	#510	176	85	97	150
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	395	1012	1568	232	969	1262	702	303	351	588
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.68	0.66	0.63	0.83	0.84	0.39	0.20	0.21	0.42

Intersection Summary

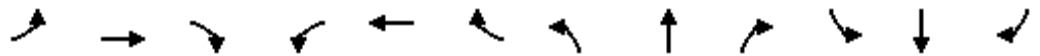
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Baseline +Project PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↗		↘	↑	↗
Traffic Volume (veh/h)	297	629	950	135	676	68	977	82	173	56	67	229
Future Volume (veh/h)	297	629	950	135	676	68	977	82	173	56	67	229
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	323	684	0	147	735	74	1062	89	0	61	73	249
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	349	960		175	813	81	1122	780		92	269	539
Arrive On Green	0.20	0.27	0.00	0.10	0.17	0.17	0.33	0.42	0.00	0.05	0.14	0.14
Sat Flow, veh/h	1767	3526	1572	1767	4680	468	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	323	684	0	147	529	280	1062	89	0	61	73	249
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1771	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	20.6	20.2	0.0	9.4	17.7	17.9	34.7	3.4	0.0	3.9	4.0	14.2
Cycle Q Clear(g_c), s	20.6	20.2	0.0	9.4	17.7	17.9	34.7	3.4	0.0	3.9	4.0	14.2
Prop In Lane	1.00		1.00	1.00		0.26	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	349	960		175	587	308	1122	780		92	269	539
V/C Ratio(X)	0.92	0.71		0.84	0.90	0.91	0.95	0.11		0.66	0.27	0.46
Avail Cap(c_a), veh/h	361	960		212	590	309	1150	780		276	319	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	37.8	0.0	51.0	46.6	46.7	37.7	20.3	0.0	53.6	43.8	29.6
Incr Delay (d2), s/veh	28.6	2.5	0.0	21.7	17.1	29.3	15.2	0.1	0.0	8.0	0.5	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	11.6	8.8	0.0	5.1	8.6	10.2	16.7	1.5	0.0	1.9	1.9	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.0	40.3	0.0	72.7	63.6	75.9	52.9	20.4	0.0	61.5	44.3	30.2
LnGrp LOS	E	D		E	E	E	D	C		E	D	C
Approach Vol, veh/h		1007			956			1151			383	
Approach Delay, s/veh		51.1			68.6			50.4			37.9	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	52.9	15.9	35.8	42.2	21.2	27.2	24.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	40.4	13.8	29.8	38.6	19.8	23.5	20.1				
Max Q Clear Time (g_c+I1), s	5.9	5.4	11.4	22.2	36.7	16.2	22.6	19.9				
Green Ext Time (p_c), s	0.1	0.5	0.1	2.6	0.9	0.4	0.1	0.1				

Intersection Summary

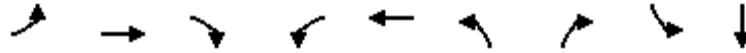
HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Baseline +Project PM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	59	710	254	33	735	178	28	2	4
v/c Ratio	0.16	0.35	0.25	0.10	0.40	0.22	0.04	0.01	0.01
Control Delay	23.0	10.0	2.9	24.2	12.4	20.5	0.1	26.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	10.0	2.9	24.2	12.4	20.5	0.1	26.5	0.0
Queue Length 50th (ft)	14	36	0	8	78	21	0	1	0
Queue Length 95th (ft)	56	172	40	38	187	65	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	793	3314	1496	574	3263	1723	1254	410	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.21	0.17	0.06	0.23	0.10	0.02	0.00	0.00
Intersection Summary									

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Baseline +Project PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	54	653	234	30	676	0	164	0	26	2	0	4
Future Volume (veh/h)	54	653	234	30	676	0	164	0	26	2	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	59	710	0	33	735	0	178	0	28	2	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	106	1322		68	1246	0	364	265	224	5	0	62
Arrive On Green	0.06	0.37	0.00	0.04	0.35	0.00	0.11	0.00	0.14	0.00	0.00	0.04
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	59	710	0	33	735	0	178	0	28	2	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.3	6.4	0.0	0.7	6.9	0.0	2.0	0.0	0.6	0.0	0.0	0.1
Cycle Q Clear(g_c), s	1.3	6.4	0.0	0.7	6.9	0.0	2.0	0.0	0.6	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	1322		68	1246	0	364	265	224	5	0	62
V/C Ratio(X)	0.56	0.54		0.49	0.59	0.00	0.49	0.00	0.12	0.41	0.00	0.06
Avail Cap(c_a), veh/h	628	4625		455	4279	0	1471	1388	1176	325	0	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	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.7	10.0	0.0	19.2	10.8	0.0	17.2	0.0	15.3	20.3	0.0	18.9
Incr Delay (d2), s/veh	4.6	0.3	0.0	5.4	0.4	0.0	1.0	0.0	0.2	47.6	0.0	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	0.6	1.7	0.0	0.4	1.9	0.0	0.7	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	10.3	0.0	24.6	11.2	0.0	18.2	0.0	15.5	67.9	0.0	19.3
LnGrp LOS	C	B		C	B	A	B	A	B	E	A	B
Approach Vol, veh/h		769			768			206				6
Approach Delay, s/veh		11.3			11.8			17.8				35.5
Approach LOS		B			B			B				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.3	6.1	19.8	8.8	6.1	6.9	18.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	30.5	10.5	53.5	17.5	20.5	14.5	49.5				
Max Q Clear Time (g_c+I1), s	2.0	2.6	2.7	8.4	4.0	2.1	3.3	8.9				
Green Ext Time (p_c), s	0.0	0.1	0.0	5.3	0.5	0.0	0.1	5.5				

Intersection Summary

HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Baseline +Project PM
07/01/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	482	228	42	592	130	23
v/c Ratio	0.28	0.26	0.10	0.28	0.14	0.05
Control Delay	8.9	3.0	15.1	4.6	13.7	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	3.0	15.1	4.6	13.7	8.5
Queue Length 50th (ft)	20	0	5	26	7	0
Queue Length 95th (ft)	81	33	30	48	33	14
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3505	1568	1422	3505	2938	1358
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.15	0.03	0.17	0.04	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary
 3: Redwood Street & Columbus Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	443	210	39	545	120	21
Future Volume (veh/h)	443	210	39	545	120	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	482	228	42	592	130	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1089	486	274	2129	397	182
Arrive On Green	0.31	0.31	0.16	0.60	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	482	228	42	592	130	23
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	3.5	3.8	0.7	2.6	1.1	0.4
Cycle Q Clear(g_c), s	3.5	3.8	0.7	2.6	1.1	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1089	486	274	2129	397	182
V/C Ratio(X)	0.44	0.47	0.15	0.28	0.33	0.13
Avail Cap(c_a), veh/h	5652	2521	1403	8944	3148	1444
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	8.9	9.0	11.7	3.0	13.0	12.7
Incr Delay (d2), s/veh	0.3	0.7	0.3	0.1	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.8	0.2	0.1	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	9.7	12.0	3.1	13.5	13.0
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	710			634	153	
Approach Delay, s/veh	9.3			3.7	13.5	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.2	9.5	14.4		23.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		29.5	25.5	51.5		81.5
Max Q Clear Time (g_c+I1), s		3.1	2.7	5.8		4.6
Green Ext Time (p_c), s		0.5	0.1	4.2		4.3
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Baseline +Project PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	1014	203	918	40	17	185	133	91
v/c Ratio	0.37	0.72	0.59	0.50	0.05	0.06	0.39	0.62	0.22
Control Delay	45.4	24.6	40.8	15.1	2.5	30.2	9.0	45.7	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	24.6	40.8	15.1	2.5	30.2	9.0	45.7	12.0
Queue Length 50th (ft)	34	208	91	153	0	7	5	59	6
Queue Length 95th (ft)	102	403	215	284	12	29	64	153	50
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	293	2222	599	2758	1245	578	808	445	767
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.46	0.34	0.33	0.03	0.03	0.23	0.30	0.12
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Baseline +Project PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	69	896	37	187	845	37	16	12	158	122	15	69
Future Volume (veh/h)	69	896	37	187	845	37	16	12	158	122	15	69
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	974	40	203	918	40	17	13	172	133	16	75
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	102	1354	56	258	1694	756	380	28	371	293	71	334
Arrive On Green	0.06	0.39	0.39	0.15	0.48	0.48	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1767	3451	142	1767	3526	1572	1295	112	1478	1189	284	1332
Grp Volume(v), veh/h	75	498	516	203	918	40	17	0	185	133	0	91
Grp Sat Flow(s),veh/h/ln	1767	1763	1830	1767	1763	1572	1295	0	1590	1189	0	1616
Q Serve(g_s), s	2.7	15.3	15.3	7.1	11.7	0.9	0.7	0.0	6.3	6.8	0.0	2.9
Cycle Q Clear(g_c), s	2.7	15.3	15.3	7.1	11.7	0.9	3.5	0.0	6.3	13.1	0.0	2.9
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	102	692	718	258	1694	756	380	0	399	293	0	405
V/C Ratio(X)	0.74	0.72	0.72	0.79	0.54	0.05	0.04	0.00	0.46	0.45	0.00	0.22
Avail Cap(c_a), veh/h	345	1309	1359	705	3335	1487	733	0	833	618	0	846
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	0.00	1.00
Uniform Delay (d), s/veh	29.7	16.5	16.5	26.4	11.7	8.9	20.4	0.0	20.3	25.9	0.0	19.0
Incr Delay (d2), s/veh	9.9	1.4	1.4	5.3	0.3	0.0	0.0	0.0	0.8	1.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.8	6.0	3.2	4.0	0.3	0.2	0.0	2.3	1.9	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	17.9	17.8	31.7	11.9	8.9	20.5	0.0	21.2	27.0	0.0	19.3
LnGrp LOS	D	B	B	C	B	A	C	A	C	C	A	B
Approach Vol, veh/h		1089			1161			202			224	
Approach Delay, s/veh		19.3			15.3			21.1			23.9	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.5	13.8	29.6		20.5	8.2	35.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		33.5	25.5	47.5		33.5	12.5	60.5				
Max Q Clear Time (g_c+I1), s		8.3	9.1	17.3		15.1	4.7	13.7				
Green Ext Time (p_c), s		1.2	0.5	7.8		0.9	0.1	8.4				
Intersection Summary												
HCM 6th Ctrl Delay				18.1								
HCM 6th LOS				B								

Queues
5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Baseline +Project PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	597	436	556	92	48	449	109	58	60
v/c Ratio	0.40	0.70	0.77	0.32	0.43	0.21	0.77	0.47	0.24	0.19
Control Delay	51.0	38.0	40.3	15.6	48.3	41.6	13.8	48.1	41.0	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	38.0	40.3	15.6	48.3	41.6	13.8	48.1	41.0	1.3
Queue Length 50th (ft)	39	156	223	90	49	26	0	58	31	0
Queue Length 95th (ft)	104	#318	#466	183	119	66	97	136	75	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	231	1033	797	2112	393	543	778	393	544	558
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.58	0.55	0.26	0.23	0.09	0.58	0.28	0.11	0.11

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Baseline +Project PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↑	↗	↗	↑	↗
Traffic Volume (veh/h)	67	476	74	401	377	134	85	44	413	100	53	55
Future Volume (veh/h)	67	476	74	401	377	134	85	44	413	100	53	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	517	80	436	410	146	92	48	449	109	58	60
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	627	97	480	1082	381	130	464	393	147	482	408
Arrive On Green	0.05	0.20	0.20	0.27	0.42	0.42	0.07	0.25	0.25	0.08	0.26	0.26
Sat Flow, veh/h	1767	3061	472	1767	2556	900	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	73	297	300	436	281	275	92	48	449	109	58	60
Grp Sat Flow(s),veh/h/ln	1767	1763	1771	1767	1763	1694	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.9	15.2	15.3	22.5	10.3	10.5	4.8	1.9	23.6	5.7	2.3	2.8
Cycle Q Clear(g_c), s	3.9	15.2	15.3	22.5	10.3	10.5	4.8	1.9	23.6	5.7	2.3	2.8
Prop In Lane	1.00		0.27	1.00		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	361	362	480	746	717	130	464	393	147	482	408
V/C Ratio(X)	0.78	0.82	0.83	0.91	0.38	0.38	0.71	0.10	1.14	0.74	0.12	0.15
Avail Cap(c_a), veh/h	198	446	448	683	929	893	337	464	393	337	482	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	35.9	36.0	33.3	18.7	18.8	42.8	27.3	35.4	42.3	26.7	26.9
Incr Delay (d2), s/veh	12.7	9.8	10.2	12.3	0.3	0.3	6.9	0.1	90.4	7.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	7.4	7.5	11.0	4.2	4.1	2.3	0.8	18.7	2.8	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	45.7	46.2	45.6	19.0	19.1	49.7	27.4	125.8	49.5	26.8	27.1
LnGrp LOS	E	D	D	D	B	B	D	C	F	D	C	C
Approach Vol, veh/h		670			992			589			227	
Approach Delay, s/veh		47.2			30.7			105.9			37.8	
Approach LOS		D			C			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	28.1	30.2	23.8	11.4	29.0	9.5	44.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	23.6	36.5	23.9	18.0	23.6	10.6	49.8				
Max Q Clear Time (g_c+I1), s	7.7	25.6	24.5	17.3	6.8	4.8	5.9	12.5				
Green Ext Time (p_c), s	0.2	0.0	1.1	2.0	0.1	0.4	0.0	3.9				

Intersection Summary

HCM 6th Ctrl Delay	53.7
HCM 6th LOS	D

Queues
6: Admiral Callaghan Ln & Turner Parkway

Baseline +Project PM
07/01/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	523	27	981	79	568
v/c Ratio	0.59	0.07	0.67	0.31	0.28
Control Delay	26.8	10.5	16.8	34.9	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	10.5	16.8	34.9	6.8
Queue Length 50th (ft)	96	0	143	29	47
Queue Length 95th (ft)	193	21	273	88	96
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	1965	834	2829	469	3372
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.03	0.35	0.17	0.17
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Baseline +Project PM
07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←	←	↑↔		←	↑↑
Traffic Volume (veh/h)	478	28	588	315	73	523
Future Volume (veh/h)	478	28	588	315	73	523
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	520	30	639	342	79	568
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	769	342	974	521	119	2110
Arrive On Green	0.22	0.22	0.44	0.44	0.07	0.60
Sat Flow, veh/h	3534	1572	2310	1187	1767	3618
Grp Volume(v), veh/h	520	30	508	473	79	568
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1642	1767	1763
Q Serve(g_s), s	6.6	0.7	11.1	11.1	2.1	3.8
Cycle Q Clear(g_c), s	6.6	0.7	11.1	11.1	2.1	3.8
Prop In Lane	1.00	1.00		0.72	1.00	
Lane Grp Cap(c), veh/h	769	342	774	721	119	2110
V/C Ratio(X)	0.68	0.09	0.66	0.66	0.66	0.27
Avail Cap(c_a), veh/h	2422	1077	2073	1931	560	5588
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	17.6	15.3	10.8	10.8	22.3	4.7
Incr Delay (d2), s/veh	1.1	0.1	1.0	1.0	6.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.2	3.6	3.4	1.0	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.6	15.4	11.8	11.8	28.5	4.8
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	550		981			647
Approach Delay, s/veh	18.4		11.8			7.7
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.8	26.0			33.8	15.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	15.5	57.5			77.5	33.5
Max Q Clear Time (g_c+I1), s	4.1	13.1			5.8	8.6
Green Ext Time (p_c), s	0.1	8.4			4.5	2.0

Intersection Summary

HCM 6th Ctrl Delay			12.2			
HCM 6th LOS			B			

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	238	110	448	443	200
v/c Ratio	0.51	0.06	0.54	0.50	0.38
Control Delay	20.8	5.6	9.4	17.4	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	5.6	9.4	17.4	5.8
Queue Length 50th (ft)	53	6	16	47	0
Queue Length 95th (ft)	136	17	60	108	47
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1455	3505	2112	2675	1180
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.03	0.21	0.17	0.17

Intersection Summary

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Baseline +Project PM
07/01/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	219	101	127	285	332	259	
Future Volume (veh/h)	219	101	127	285	332	259	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	238	110	138	310	424	214	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	317	2007	504	450	789	351	
Arrive On Green	0.18	0.57	0.29	0.29	0.22	0.22	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	238	110	138	310	424	214	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	5.5	0.6	2.6	7.6	4.6	5.3	
Cycle Q Clear(g_c), s	5.5	0.6	2.6	7.6	4.6	5.3	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	317	2007	504	450	789	351	
V/C Ratio(X)	0.75	0.05	0.27	0.69	0.54	0.61	
Avail Cap(c_a), veh/h	1610	5977	1199	1070	3057	1360	
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	16.9	4.2	12.0	13.8	14.9	15.1	
Incr Delay (d2), s/veh	3.6	0.0	0.3	1.9	0.6	1.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.2	0.1	0.9	2.4	1.6	4.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.5	4.2	12.3	15.7	15.4	16.9	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		348	448		638		
Approach Delay, s/veh		15.3	14.6		15.9		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				29.2	14.2	12.3	16.9
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				73.5	37.5	39.5	29.5
Max Q Clear Time (g_c+I1), s				2.6	7.3	7.5	9.6
Green Ext Time (p_c), s				0.8	2.4	0.7	2.8

Intersection Summary

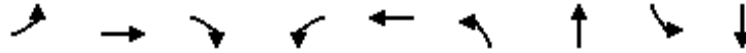
HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Baseline +Project PM
07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	11	373	5	19	348	143	23	261
v/c Ratio	0.23	0.04	0.65	0.02	0.08	0.60	0.08	0.10	0.38
Control Delay	25.7	22.7	9.4	29.4	20.9	20.6	9.0	27.9	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	22.7	9.4	29.4	20.9	20.6	9.0	27.9	17.4
Queue Length 50th (ft)	14	2	0	1	2	71	5	5	22
Queue Length 95th (ft)	66	18	71	13	24	230	40	34	81
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	433	1257	1187	207	907	1493	3296	282	1714
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.01	0.31	0.02	0.02	0.23	0.04	0.08	0.15

Intersection Summary

HCM 6th Signalized Intersection Summary
8: Ascot Parkway & Turner Parkway/Turner St

Baseline +Project PM

07/01/2024



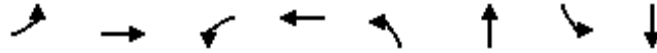
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↑↗		↖	↑↗	
Traffic Volume (veh/h)	59	10	343	5	9	8	320	129	3	21	157	83
Future Volume (veh/h)	59	10	343	5	9	8	320	129	3	21	157	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	64	11	373	5	10	9	348	140	3	23	171	90
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	101	525	445	12	209	188	427	1233	26	48	307	154
Arrive On Green	0.06	0.28	0.28	0.01	0.23	0.23	0.24	0.35	0.35	0.03	0.13	0.13
Sat Flow, veh/h	1767	1856	1572	1767	900	810	1767	3529	75	1767	2272	1141
Grp Volume(v), veh/h	64	11	373	5	0	19	348	70	73	23	131	130
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1710	1767	1763	1842	1767	1763	1650
Q Serve(g_s), s	1.9	0.2	12.0	0.2	0.0	0.5	10.0	1.4	1.5	0.7	3.7	4.0
Cycle Q Clear(g_c), s	1.9	0.2	12.0	0.2	0.0	0.5	10.0	1.4	1.5	0.7	3.7	4.0
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.04	1.00		0.69
Lane Grp Cap(c), veh/h	101	525	445	12	0	398	427	616	644	48	238	223
V/C Ratio(X)	0.63	0.02	0.84	0.42	0.00	0.05	0.82	0.11	0.11	0.48	0.55	0.58
Avail Cap(c_a), veh/h	377	1049	889	180	0	777	1393	1912	1998	246	768	719
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	13.9	18.2	26.7	0.0	16.1	19.3	11.9	11.9	25.9	21.8	21.9
Incr Delay (d2), s/veh	6.4	0.0	4.3	22.2	0.0	0.0	3.9	0.1	0.1	7.3	2.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	4.4	0.1	0.0	0.2	4.0	0.5	0.5	0.4	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	14.0	22.4	48.9	0.0	16.1	23.2	12.0	12.0	33.2	23.8	24.3
LnGrp LOS	C	B	C	D	A	B	C	B	B	C	C	C
Approach Vol, veh/h		448			24			491			284	
Approach Delay, s/veh		23.5			22.9			19.9			24.8	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.0	23.3	4.9	19.8	17.5	11.8	7.6	17.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	58.5	5.5	30.5	42.5	23.5	11.5	24.5				
Max Q Clear Time (g_c+I1), s	2.7	3.5	2.2	14.0	12.0	6.0	3.9	2.5				
Green Ext Time (p_c), s	0.0	0.8	0.0	1.3	1.1	1.3	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Queues
9: Ascot Parkway & Redwood Street

Baseline +Project PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	116	338	40	162	130	358	34	441
v/c Ratio	0.34	0.32	0.16	0.28	0.36	0.28	0.14	0.50
Control Delay	26.9	11.7	28.2	22.2	26.7	14.6	28.4	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	11.7	28.2	22.2	26.7	14.6	28.4	16.5
Queue Length 50th (ft)	36	19	12	21	40	33	11	46
Queue Length 95th (ft)	95	73	45	56	103	97	40	104
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	871	2150	406	1620	918	2832	406	2166
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.16	0.10	0.10	0.14	0.13	0.08	0.20
Intersection Summary								

HCM 6th Signalized Intersection Summary
9: Ascot Parkway & Redwood Street

Baseline +Project PM
07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	163	148	37	112	37	120	274	55	31	238	167
Future Volume (veh/h)	107	163	148	37	112	37	120	274	55	31	238	167
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	116	177	0	40	122	0	130	298	0	34	259	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	169	650		81	475		179	805		71	589	
Arrive On Green	0.10	0.18	0.00	0.05	0.13	0.00	0.10	0.23	0.00	0.04	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	116	177	0	40	122	0	130	298	0	34	259	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	2.3	1.5	0.0	0.8	1.1	0.0	2.6	2.6	0.0	0.7	2.4	0.0
Cycle Q Clear(g_c), s	2.3	1.5	0.0	0.8	1.1	0.0	2.6	2.6	0.0	0.7	2.4	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	169	650		81	475		179	805		71	589	
V/C Ratio(X)	0.69	0.27		0.49	0.26		0.73	0.37		0.48	0.44	
Avail Cap(c_a), veh/h	1108	3291		517	2112		1207	4667		517	3291	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.7	12.6	0.0	16.7	13.9	0.0	15.6	11.7	0.0	16.9	13.4	0.0
Incr Delay (d2), s/veh	4.9	0.2	0.0	4.6	0.3	0.0	5.5	0.3	0.0	5.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.5	0.0	0.4	0.4	0.0	1.1	0.8	0.0	0.3	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	12.8	0.0	21.3	14.2	0.0	21.2	12.0	0.0	21.8	14.0	0.0
LnGrp LOS	C	B		C	B		C	B		C	B	
Approach Vol, veh/h		293			162			428			293	
Approach Delay, s/veh		15.9			16.0			14.8			14.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	12.7	6.1	11.1	8.1	10.5	7.9	9.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	47.5	10.5	33.5	24.5	33.5	22.5	21.5				
Max Q Clear Time (g_c+I1), s	2.7	4.6	2.8	3.5	4.6	4.4	4.3	3.1				
Green Ext Time (p_c), s	0.0	2.0	0.0	1.1	0.3	1.6	0.2	0.6				

Intersection Summary

HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Baseline +Project PM
07/01/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	404	199	229	143	208
v/c Ratio	0.48	0.46	0.11	0.38	0.42
Control Delay	15.5	20.0	4.6	20.6	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	20.0	4.6	20.6	6.4
Queue Length 50th (ft)	38	43	11	32	0
Queue Length 95th (ft)	88	112	27	88	45
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	2423	1439	3505	1410	1302
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.14	0.07	0.10	0.16
Intersection Summary					

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

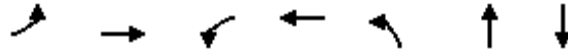
Baseline +Project PM
 07/01/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	250	121	183	211	132	191
Future Volume (veh/h)	250	121	183	211	132	191
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	272	132	199	229	143	208
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	549	259	274	1852	365	325
Arrive On Green	0.24	0.24	0.15	0.53	0.21	0.21
Sat Flow, veh/h	2417	1097	1767	3618	1767	1572
Grp Volume(v), veh/h	204	200	199	229	143	208
Grp Sat Flow(s),veh/h/ln	1763	1658	1767	1763	1767	1572
Q Serve(g_s), s	3.4	3.5	3.6	1.1	2.3	4.1
Cycle Q Clear(g_c), s	3.4	3.5	3.6	1.1	2.3	4.1
Prop In Lane		0.66	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	416	392	274	1852	365	325
V/C Ratio(X)	0.49	0.51	0.73	0.12	0.39	0.64
Avail Cap(c_a), veh/h	1708	1607	1976	7832	1923	1711
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	11.1	11.1	13.5	4.0	11.5	12.2
Incr Delay (d2), s/veh	0.9	1.0	3.7	0.0	0.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.0	1.3	0.2	0.8	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.0	12.2	17.2	4.1	12.2	14.3
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	404			428	351	
Approach Delay, s/veh	12.1			10.2	13.4	
Approach LOS	B			B	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		11.4	9.7	12.4		22.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		36.5	37.5	32.5		74.5
Max Q Clear Time (g_c+I1), s		6.1	5.6	5.5		3.1
Green Ext Time (p_c), s		1.1	0.6	2.4		1.6
Intersection Summary						
HCM 6th Ctrl Delay			11.8			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Baseline +Project PM
07/01/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	24	837	60	375	261	102	7
v/c Ratio	0.11	0.62	0.24	0.24	0.58	0.15	0.01
Control Delay	35.9	18.2	33.4	12.5	26.5	0.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	18.2	33.4	12.5	26.5	0.5	0.0
Queue Length 50th (ft)	8	128	21	33	85	0	0
Queue Length 95th (ft)	39	261	71	104	204	0	0
Internal Link Dist (ft)		424		851		1161	269
Turn Bay Length (ft)	125		125		75		
Base Capacity (vph)	252	2648	421	2883	1075	1275	1318
Starvation Cap Reductn	0	17	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.32	0.14	0.13	0.24	0.08	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Baseline +Project PM
 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	22	576	194	55	344	1	240	0	94	0	0	6
Future Volume (veh/h)	22	576	194	55	344	1	240	0	94	0	0	6
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	626	211	60	374	1	261	0	102	0	0	7
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	51	988	333	104	1485	4	511	0	396	164	0	396
Arrive On Green	0.03	0.38	0.38	0.06	0.41	0.41	0.25	0.00	0.25	0.00	0.00	0.25
Sat Flow, veh/h	1767	2590	872	1767	3607	10	1397	0	1572	1282	0	1572
Grp Volume(v), veh/h	24	426	411	60	183	192	261	0	102	0	0	7
Grp Sat Flow(s),veh/h/ln	1767	1763	1699	1767	1763	1854	1397	0	1572	1282	0	1572
Q Serve(g_s), s	0.6	8.7	8.7	1.5	3.0	3.0	7.6	0.0	2.3	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.6	8.7	8.7	1.5	3.0	3.0	7.7	0.0	2.3	0.0	0.0	0.1
Prop In Lane	1.00		0.51	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	673	648	104	726	763	511	0	396	164	0	396
V/C Ratio(X)	0.47	0.63	0.63	0.57	0.25	0.25	0.51	0.00	0.26	0.00	0.00	0.02
Avail Cap(c_a), veh/h	302	1907	1838	503	2108	2216	1639	0	1665	1199	0	1665
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	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	11.1	11.1	20.1	8.5	8.5	15.2	0.0	13.1	0.0	0.0	12.3
Incr Delay (d2), s/veh	6.6	1.0	1.0	4.9	0.2	0.2	0.8	0.0	0.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.7	2.6	0.7	0.9	0.9	2.1	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	12.1	12.1	25.0	8.7	8.6	16.0	0.0	13.5	0.0	0.0	12.4
LnGrp LOS	C	B	B	C	A	A	B	A	B	A	A	B
Approach Vol, veh/h		861			435			363				7
Approach Delay, s/veh		12.5			10.9			15.3				12.4
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.6	7.1	21.3		15.6	5.8	22.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		46.5	12.5	47.5		46.5	7.5	52.5				
Max Q Clear Time (g_c+I1), s		9.7	3.5	10.7		2.1	2.6	5.0				
Green Ext Time (p_c), s		1.5	0.1	6.1		0.0	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay				12.7								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln



Lane Group	EBL	EBT	WBT	NBT	NBR	SBL	SBR
Lane Group Flow (vph)	666	471	681	398	130	249	1213
v/c Ratio	0.80	0.26	0.81	0.67	0.35	0.42	0.82
Control Delay	45.2	14.8	39.0	46.5	10.2	40.3	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	14.8	39.0	46.5	10.2	40.3	7.6
Queue Length 50th (ft)	213	84	180	131	0	77	0
Queue Length 95th (ft)	#325	146	#310	208	55	121	58
Internal Link Dist (ft)		852	424	1178			
Turn Bay Length (ft)	275				450	100	300
Base Capacity (vph)	1010	2138	974	749	437	975	1656
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.22	0.70	0.53	0.30	0.26	0.73

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Baseline +Project PM
 07/01/2024



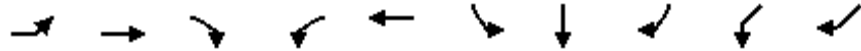
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↕			↕			↕	↗	↘↗		↘↗
Traffic Volume (veh/h)	613	433	0	0	366	260	0	366	120	229	0	1116
Future Volume (veh/h)	613	433	0	0	366	260	0	366	120	229	0	1116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	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	1856	1856	0	0	1856	1856	0	1856	1856	1856	0	1856
Adj Flow Rate, veh/h	666	471	0	0	398	283	0	398	130	249	0	1213
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, %	3	3	0	0	3	3	0	3	3	3	0	3
Cap, veh/h	816	1947	0	0	503	354	0	573	256	365	0	0
Arrive On Green	0.24	0.55	0.00	0.00	0.25	0.25	0.00	0.16	0.16	0.11	0.00	0.00
Sat Flow, veh/h	3428	3618	0	0	2070	1391	0	3618	1572	3428	249	
Grp Volume(v), veh/h	666	471	0	0	354	327	0	398	130	249	34.8	
Grp Sat Flow(s),veh/h/ln	1714	1763	0	0	1763	1605	0	1763	1572	1714	C	
Q Serve(g_s), s	13.9	5.2	0.0	0.0	14.2	14.4	0.0	8.1	5.7	5.3		
Cycle Q Clear(g_c), s	13.9	5.2	0.0	0.0	14.2	14.4	0.0	8.1	5.7	5.3		
Prop In Lane	1.00		0.00	0.00		0.87	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	816	1947	0	0	449	409	0	573	256	365		
V/C Ratio(X)	0.82	0.24	0.00	0.00	0.79	0.80	0.00	0.69	0.51	0.68		
Avail Cap(c_a), veh/h	1293	2729	0	0	595	542	0	956	427	1247		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	27.2	8.7	0.0	0.0	26.3	26.4	0.0	29.9	28.9	32.5		
Incr Delay (d2), s/veh	2.3	0.1	0.0	0.0	5.2	6.2	0.0	1.5	1.6	2.3		
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		
%ile BackOfQ(50%),veh/ln	5.6	1.7	0.0	0.0	6.2	5.8	0.0	3.4	2.2	2.2		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	8.8	0.0	0.0	31.5	32.6	0.0	31.4	30.4	34.8		
LnGrp LOS	C	A	A	A	C	C	A	C	C	C		
Approach Vol, veh/h		1137			681			528				
Approach Delay, s/veh		20.9			32.0			31.2				
Approach LOS		C			C			C				
Timer - Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	12.5	16.8		46.2			22.5	23.7				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	27.5	20.5		58.5			28.5	25.5				
Max Q Clear Time (g_c+I1), s	7.3	10.1		7.2			15.9	16.4				
Green Ext Time (p_c), s	0.8	2.2		3.4			2.1	2.8				

Intersection Summary

HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Queues

13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp



Lane Group	EBL	EBT	EBR	WBL	WBT	SBL	SBT	SBR	SWL	SWR
Lane Group Flow (vph)	92	803	575	524	1094	170	155	99	165	251
v/c Ratio	0.56	0.70	0.69	0.78	0.69	0.67	0.58	0.29	0.65	0.73
Control Delay	63.6	34.5	10.7	49.5	26.3	58.3	53.3	5.2	56.6	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	34.5	10.7	49.5	26.3	58.3	53.3	5.2	56.6	34.4
Queue Length 50th (ft)	62	251	47	177	319	113	102	0	110	76
Queue Length 95th (ft)	#134	351	182	263	438	201	183	23	194	178
Internal Link Dist (ft)		693			852		265		1072	
Turn Bay Length (ft)	150		200	285		125		125		
Base Capacity (vph)	187	1449	929	815	1859	331	348	406	348	420
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.55	0.62	0.64	0.59	0.51	0.45	0.24	0.47	0.60

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 13: I-80 SB Onramp & Redwood Street & I-80 SB Offramp

Baseline +Project PM

06/13/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SWL2	SWL	SWR
Lane Configurations												
Traffic Volume (vph)	85	739	529	482	810	197	156	143	91	152	0	210
Future Volume (vph)	85	739	529	482	810	197	156	143	91	152	0	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3402		1752	1845	1568		1752	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3402		1752	1845	1568		1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	803	575	524	880	214	170	155	99	165	0	228
RTOR Reduction (vph)	0	0	316	0	0	0	0	0	85	0	0	116
Lane Group Flow (vph)	92	803	259	524	1094	0	170	155	14	0	165	135
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Prot	Prot	Prot
Protected Phases	5	2		1	6		4	4	4	8	8	8
Permitted Phases			2									
Actuated Green, G (s)	7.6	34.8	34.8	20.2	47.4		14.7	14.7	14.7		14.8	14.8
Effective Green, g (s)	7.6	34.8	34.8	20.2	47.4		14.7	14.7	14.7		14.8	14.8
Actuated g/C Ratio	0.07	0.34	0.34	0.20	0.46		0.14	0.14	0.14		0.14	0.14
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	129	1189	532	670	1573		251	264	224		252	226
v/s Ratio Prot	0.05	0.23		c0.15	c0.32		c0.10	0.08	0.01		c0.09	0.09
v/s Ratio Perm			0.16									
v/c Ratio	0.71	0.68	0.49	0.78	0.70		0.68	0.59	0.06		0.65	0.60
Uniform Delay, d1	46.4	29.0	26.8	39.1	21.8		41.6	41.1	37.9		41.4	41.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	17.0	1.5	0.7	5.9	1.4		7.1	3.3	0.1		6.0	4.2
Delay (s)	63.4	30.5	27.5	45.0	23.2		48.7	44.4	38.1		47.4	45.2
Level of Service	E	C	C	D	C		D	D	D		D	D
Approach Delay (s)		31.4			30.2			44.6			46.1	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	102.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	21
Future Volume (vph)	21
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	23
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

14: Lake Herman Road & Columbus Parkway



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	99	295	424	33	67	413
v/c Ratio	0.24	0.49	0.39	0.07	0.18	0.24
Control Delay	15.7	5.9	12.5	5.8	16.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	5.9	12.5	5.8	16.2	5.2
Queue Length 50th (ft)	18	0	40	0	12	18
Queue Length 95th (ft)	54	47	81	14	42	39
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1714	1541	3271	1465	1284	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.19	0.13	0.02	0.05	0.12

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Baseline +Project PM
 07/01/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	91	271	390	30	62	380
Future Volume (veh/h)	91	271	390	30	62	380
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	99	295	424	33	67	413
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	454	404	839	374	240	1751
Arrive On Green	0.26	0.26	0.24	0.24	0.14	0.50
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	99	295	424	33	67	413
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	1.6	6.3	3.8	0.6	1.2	2.4
Cycle Q Clear(g_c), s	1.6	6.3	3.8	0.6	1.2	2.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	454	404	839	374	240	1751
V/C Ratio(X)	0.22	0.73	0.51	0.09	0.28	0.24
Avail Cap(c_a), veh/h	2103	1872	3714	1656	1185	6511
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	10.7	12.4	12.1	10.8	14.2	5.2
Incr Delay (d2), s/veh	0.2	2.5	0.5	0.1	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.8	1.1	0.2	0.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.9	15.0	12.5	10.9	14.8	5.3
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	394		457			480
Approach Delay, s/veh	14.0		12.4			6.6
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.5	13.2			22.7	13.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	24.5	38.5			67.5	43.5
Max Q Clear Time (g_c+I1), s	3.2	5.8			4.4	8.3
Green Ext Time (p_c), s	0.1	2.9			2.8	1.3
Intersection Summary						
HCM 6th Ctrl Delay			10.8			
HCM 6th LOS			B			

Queues

Baseline +Project PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	86	197	108	114	162	76	931	161	116	417
v/c Ratio	0.44	0.63	0.49	0.34	0.38	0.41	0.73	0.58	0.14	0.44
Control Delay	52.3	47.7	51.5	40.2	9.3	52.2	29.6	49.8	19.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	47.7	51.5	40.2	9.3	52.2	29.6	49.8	19.3	3.6
Queue Length 50th (ft)	48	106	61	59	0	43	243	90	42	0
Queue Length 95th (ft)	118	217	139	131	57	108	390	189	91	57
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	269	473	328	542	575	256	1883	417	1166	1144
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.42	0.33	0.21	0.28	0.30	0.49	0.39	0.10	0.36

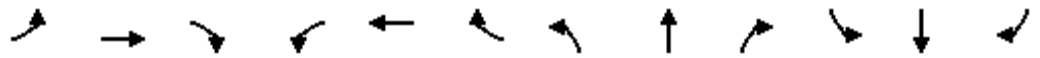
Intersection Summary

HCM 6th Signalized Intersection Summary

Baseline +Project PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	151	30	99	105	149	70	706	151	148	107	384
Future Volume (veh/h)	79	151	30	99	105	149	70	706	151	148	107	384
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	86	164	33	108	114	162	76	767	164	161	116	417
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	112	224	45	141	308	261	103	1068	228	208	796	675
Arrive On Green	0.06	0.15	0.15	0.08	0.17	0.17	0.06	0.37	0.37	0.12	0.43	0.43
Sat Flow, veh/h	1767	1500	302	1767	1856	1572	1767	2889	618	1767	1856	1572
Grp Volume(v), veh/h	86	0	197	108	114	162	76	468	463	161	116	417
Grp Sat Flow(s),veh/h/ln	1767	0	1801	1767	1856	1572	1767	1763	1744	1767	1856	1572
Q Serve(g_s), s	3.0	0.0	6.6	3.8	3.5	6.1	2.7	14.5	14.5	5.6	2.4	13.1
Cycle Q Clear(g_c), s	3.0	0.0	6.6	3.8	3.5	6.1	2.7	14.5	14.5	5.6	2.4	13.1
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	112	0	268	141	308	261	103	652	645	208	796	675
V/C Ratio(X)	0.77	0.00	0.73	0.76	0.37	0.62	0.74	0.72	0.72	0.77	0.15	0.62
Avail Cap(c_a), veh/h	354	0	610	432	711	602	337	1258	1245	549	1547	1311
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	0.0	25.8	28.6	23.5	24.6	29.4	17.2	17.2	27.2	11.0	14.1
Incr Delay (d2), s/veh	10.6	0.0	3.9	8.3	0.7	2.4	9.9	1.5	1.5	6.1	0.1	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	1.6	0.0	3.0	1.9	1.5	2.3	1.4	5.5	5.4	2.6	0.9	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	0.0	29.7	36.9	24.3	27.0	39.3	18.7	18.7	33.2	11.1	15.0
LnGrp LOS	D	A	C	D	C	C	D	B	B	C	B	B
Approach Vol, veh/h		283			384			1007			694	
Approach Delay, s/veh		32.8			29.0			20.2			18.6	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	28.0	9.6	14.0	8.2	31.7	8.5	15.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.7	45.3	15.5	21.5	12.1	52.9	12.7	24.3				
Max Q Clear Time (g_c+I1), s	7.6	16.5	5.8	8.6	4.7	15.1	5.0	8.1				
Green Ext Time (p_c), s	0.3	7.0	0.2	0.8	0.1	2.3	0.1	1.0				

Intersection Summary

HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Queues



















16: Sonoma Blvd (SR-29) & SR-37 Ramps



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	373	953	999	90	1427	279
v/c Ratio	0.28	0.82	0.55	0.11	0.78	0.18
Control Delay	23.5	31.0	18.6	3.5	24.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	31.0	18.6	3.5	24.5	0.2
Queue Length 50th (ft)	84	263	219	0	377	0
Queue Length 95th (ft)	155	464	365	27	617	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	2024	1707	2644	1205	2644	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.56	0.38	0.07	0.54	0.18
Intersection Summary						

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Baseline +Project PM
 07/01/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	343	0	877	0	919	83	0	1313	257
Future Volume (veh/h)	0	0	0	343	0	877	0	919	83	0	1313	257
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				373	0	953	0	999	90	0	1427	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1370	0	1106	0	1783	795	0	1783	
Arrive On Green				0.40	0.00	0.40	0.00	0.51	0.51	0.00	0.51	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				373	0	953	0	999	90	0	1427	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				7.0	0.0	30.0	0.0	18.6	2.9	0.0	32.0	0.0
Cycle Q Clear(g_c), s				7.0	0.0	30.0	0.0	18.6	2.9	0.0	32.0	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1370	0	1106	0	1783	795	0	1783	
V/C Ratio(X)				0.27	0.00	0.86	0.00	0.56	0.11	0.00	0.80	
Avail Cap(c_a), veh/h				2036	0	1644	0	2761	1231	0	2761	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				19.2	0.0	26.2	0.0	16.2	12.3	0.0	19.5	0.0
Incr Delay (d2), s/veh				0.1	0.0	3.3	0.0	0.3	0.1	0.0	1.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	9.6	0.0	6.8	0.9	0.0	11.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				19.3	0.0	29.4	0.0	16.5	12.4	0.0	20.5	0.0
LnGrp LOS				B	A	C	A	B	B	A	C	
Approach Vol, veh/h					1326			1089			1427	
Approach Delay, s/veh					26.6			16.2			20.5	
Approach LOS					C			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		52.6				52.6		42.5				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.5				74.5		56.5				
Max Q Clear Time (g_c+I1), s		20.6				34.0		32.0				
Green Ext Time (p_c), s		8.9				14.1		6.0				

Intersection Summary

HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Notes

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

Queues

Cumulative AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBR
Lane Group Flow (vph)	12	803	623	112	893	419	97	2
v/c Ratio	0.07	0.59	0.40	0.36	0.32	0.50	0.13	0.01
Control Delay	32.5	17.8	0.8	28.6	7.6	23.5	0.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	17.8	0.8	28.6	7.6	23.5	0.4	0.0
Queue Length 50th (ft)	4	119	0	36	46	67	0	0
Queue Length 95th (ft)	22	219	0	95	118	135	0	0
Internal Link Dist (ft)		1084			414		644	
Turn Bay Length (ft)	230			215		425		
Base Capacity (vph)	180	2537	1568	540	4345	1557	1012	283
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.32	0.40	0.21	0.21	0.27	0.10	0.01

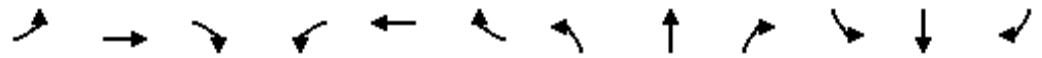
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑	↗
Traffic Volume (veh/h)	12	803	623	112	893	0	419	0	97	0	0	2
Future Volume (veh/h)	12	803	623	112	893	0	419	0	97	0	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	803	0	112	893	0	419	0	0	0	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	27	1250		147	2140	0	630	520		4	5	29
Arrive On Green	0.02	0.35	0.00	0.08	0.42	0.00	0.18	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	1767	3526	1572	1767	5233	0	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	12	803	0	112	893	0	419	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	0	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	0.3	9.1	0.0	3.0	5.9	0.0	5.4	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.3	9.1	0.0	3.0	5.9	0.0	5.4	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	27	1250		147	2140	0	630	520		4	5	29
V/C Ratio(X)	0.44	0.64		0.76	0.42	0.00	0.67	0.00		0.00	0.00	0.07
Avail Cap(c_a), veh/h	203	3053		609	5550	0	1753	1007		664	755	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	23.4	12.9	0.0	21.5	9.7	0.0	18.2	0.0	0.0	0.0	0.0	23.1
Incr Delay (d2), s/veh	10.8	0.6	0.0	7.8	0.1	0.0	1.2	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.8	0.0	1.4	1.6	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	13.5	0.0	29.3	9.8	0.0	19.4	0.0	0.0	0.0	0.0	24.2
LnGrp LOS	C	B		C	A	A	B	A		A	A	C
Approach Vol, veh/h		815			1005			419				2
Approach Delay, s/veh		13.8			12.0			19.4				24.2
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	17.9	8.5	21.5	13.3	4.6	5.2	24.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	26.0	16.5	41.5	24.5	19.5	5.5	52.5				
Max Q Clear Time (g_c+I1), s	0.0	0.0	5.0	11.1	7.4	2.1	2.3	7.9				
Green Ext Time (p_c), s	0.0	0.0	0.2	5.9	1.4	0.0	0.0	7.0				

Intersection Summary

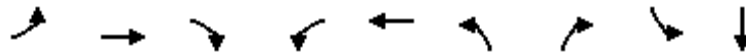
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative AM
07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	28	584	348	23	749	314	9	2	5
v/c Ratio	0.10	0.37	0.39	0.08	0.52	0.36	0.01	0.01	0.01
Control Delay	25.0	10.1	3.1	25.4	13.3	18.5	0.0	27.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	10.1	3.1	25.4	13.3	18.5	0.0	27.5	0.0
Queue Length 50th (ft)	5	34	0	4	47	26	0	0	0
Queue Length 95th (ft)	36	150	50	31	201	105	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	428	3246	1478	383	3164	2145	1384	293	929
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.18	0.24	0.06	0.24	0.15	0.01	0.01	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary

2: N Ascot Parkway & Columbus Parkway

Cumulative AM
07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	26	537	320	21	688	1	289	0	8	2	0	5
Future Volume (veh/h)	26	537	320	21	688	1	289	0	8	2	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	584	0	23	748	1	314	0	9	2	0	5
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	59	1224		50	1235	2	534	322	273	5	0	32
Arrive On Green	0.03	0.35	0.00	0.03	0.34	0.34	0.16	0.00	0.17	0.00	0.00	0.02
Sat Flow, veh/h	1767	3526	1572	1767	3613	5	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	28	584	0	23	365	384	314	0	9	2	0	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1855	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	0.6	5.2	0.0	0.5	6.9	6.9	3.4	0.0	0.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.6	5.2	0.0	0.5	6.9	6.9	3.4	0.0	0.2	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	1224		50	603	634	534	322	273	5	0	32
V/C Ratio(X)	0.47	0.48		0.46	0.61	0.61	0.59	0.00	0.03	0.41	0.00	0.16
Avail Cap(c_a), veh/h	418	4260		374	2086	2195	2093	1780	1508	286	0	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.1	10.2	0.0	19.2	11.0	11.0	15.7	0.0	13.8	20.0	0.0	19.3
Incr Delay (d2), s/veh	5.8	0.3	0.0	6.5	1.0	0.9	1.0	0.0	0.0	47.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.4	0.0	0.3	2.0	2.1	1.2	0.0	0.1	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	10.5	0.0	25.7	11.9	11.9	16.8	0.0	13.8	67.6	0.0	21.6
LnGrp LOS	C	B		C	B	B	B	A	B	E	A	C
Approach Vol, veh/h		612			772			323				7
Approach Delay, s/veh		11.2			12.3			16.7				34.7
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	11.5	5.6	18.4	10.8	5.3	5.8	18.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	38.5	8.5	48.5	24.5	20.5	9.5	47.5				
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.5	7.2	5.4	2.1	2.6	8.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.1	1.0	0.0	0.0	4.8				

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative AM
07/03/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	450	104	13	446	303	65
v/c Ratio	0.37	0.17	0.04	0.32	0.31	0.13
Control Delay	9.3	3.7	14.3	6.7	10.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	3.7	14.3	6.7	10.8	5.0
Queue Length 50th (ft)	21	0	1	21	15	0
Queue Length 95th (ft)	81	24	15	45	62	22
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3495	1564	1316	3505	3263	1507
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.07	0.01	0.13	0.09	0.04
Intersection Summary						

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Cumulative AM
07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖↗	↗
Traffic Volume (veh/h)	414	96	12	410	279	60
Future Volume (veh/h)	414	96	12	410	279	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	450	104	13	446	303	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	952	425	263	1957	593	272
Arrive On Green	0.27	0.27	0.15	0.55	0.17	0.17
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	450	104	13	446	303	65
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	3.5	1.7	0.2	2.1	2.7	1.2
Cycle Q Clear(g_c), s	3.5	1.7	0.2	2.1	2.7	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	952	425	263	1957	593	272
V/C Ratio(X)	0.47	0.24	0.05	0.23	0.51	0.24
Avail Cap(c_a), veh/h	5063	2258	1095	7728	3991	1830
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	10.1	9.4	12.1	3.7	12.4	11.8
Incr Delay (d2), s/veh	0.4	0.3	0.1	0.1	0.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.4	0.1	0.2	0.8	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.5	9.7	12.1	3.8	13.1	12.2
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	554			459	368	
Approach Delay, s/veh	10.3			4.0	12.9	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.2	9.4	13.4		22.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		38.5	20.5	47.5		72.5
Max Q Clear Time (g_c+I1), s		4.7	2.2	5.5		4.1
Green Ext Time (p_c), s		1.3	0.0	3.4		3.1
Intersection Summary						
HCM 6th Ctrl Delay			8.9			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative AM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	431	68	578	16	2	25	71	26
v/c Ratio	0.05	0.21	0.13	0.23	0.01	0.00	0.05	0.12	0.05
Control Delay	17.7	10.0	15.9	6.0	0.4	15.0	9.0	14.9	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	10.0	15.9	6.0	0.4	15.0	9.0	14.9	8.3
Queue Length 50th (ft)	5	40	13	27	0	0	1	13	0
Queue Length 95th (ft)	23	80	45	100	2	5	16	44	15
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	1072	3477	1263	3505	1568	1582	1376	1582	1358
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.12	0.05	0.16	0.01	0.00	0.02	0.04	0.02
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative AM
07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	22	392	5	63	532	15	2	3	20	65	1	23
Future Volume (veh/h)	22	392	5	63	532	15	2	3	20	65	1	23
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	426	5	68	578	16	2	3	22	71	1	25
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1151	14	130	1290	575	395	21	157	396	7	169
Arrive On Green	0.03	0.32	0.32	0.07	0.37	0.37	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1767	3569	42	1767	3526	1572	1374	192	1410	1375	61	1521
Grp Volume(v), veh/h	24	210	221	68	578	16	2	0	25	71	0	26
Grp Sat Flow(s),veh/h/ln	1767	1763	1848	1767	1763	1572	1374	0	1602	1375	0	1582
Q Serve(g_s), s	0.4	2.5	2.5	1.0	3.4	0.2	0.0	0.0	0.4	1.3	0.0	0.4
Cycle Q Clear(g_c), s	0.4	2.5	2.5	1.0	3.4	0.2	0.4	0.0	0.4	1.7	0.0	0.4
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	54	569	596	130	1290	575	395	0	178	396	0	176
V/C Ratio(X)	0.45	0.37	0.37	0.52	0.45	0.03	0.01	0.00	0.14	0.18	0.00	0.15
Avail Cap(c_a), veh/h	999	3182	3336	1514	7393	3297	1920	0	1957	1923	0	1932
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	0.00	1.00
Uniform Delay (d), s/veh	13.1	7.1	7.1	12.2	6.6	5.6	11.2	0.0	11.0	11.8	0.0	11.0
Incr Delay (d2), s/veh	5.7	0.4	0.4	3.2	0.2	0.0	0.0	0.0	0.4	0.2	0.0	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	0.2	0.6	0.6	0.4	0.7	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	7.5	7.5	15.4	6.8	5.6	11.2	0.0	11.4	12.0	0.0	11.4
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		455			662			27				97
Approach Delay, s/veh		8.1			7.7			11.3				11.8
Approach LOS		A			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.6	6.5	13.3		7.6	5.3	14.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		33.5	23.5	49.5		33.5	15.5	57.5				
Max Q Clear Time (g_c+I1), s		2.4	3.0	4.5		3.7	2.4	5.4				
Green Ext Time (p_c), s		0.1	0.1	2.8		0.3	0.0	4.6				
Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

Queues

Cumulative AM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	280	207	381	28	23	93	58	14	20
v/c Ratio	0.12	0.22	0.37	0.22	0.08	0.06	0.22	0.15	0.03	0.04
Control Delay	24.5	19.1	20.5	12.1	25.3	25.6	4.1	24.1	22.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	19.1	20.5	12.1	25.3	25.6	4.1	24.1	22.5	0.2
Queue Length 50th (ft)	13	40	58	43	8	7	0	17	3	0
Queue Length 95th (ft)	45	84	129	85	32	28	20	52	20	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	684	1925	1219	2819	872	1059	958	925	1115	1001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.15	0.17	0.14	0.03	0.02	0.10	0.06	0.01	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative AM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↖	↖	↑	↖
Traffic Volume (veh/h)	42	223	35	190	252	98	26	21	86	53	13	18
Future Volume (veh/h)	42	223	35	190	252	98	26	21	86	53	13	18
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	46	242	38	207	274	107	28	23	93	58	14	20
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	89	492	76	280	672	256	199	248	210	164	211	178
Arrive On Green	0.05	0.16	0.16	0.16	0.27	0.27	0.11	0.13	0.13	0.09	0.11	0.11
Sat Flow, veh/h	1767	3059	474	1767	2496	951	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	46	138	142	207	192	189	28	23	93	58	14	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1770	1767	1763	1684	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	2.8	2.9	4.4	3.5	3.7	0.6	0.4	2.2	1.2	0.3	0.5
Cycle Q Clear(g_c), s	1.0	2.8	2.9	4.4	3.5	3.7	0.6	0.4	2.2	1.2	0.3	0.5
Prop In Lane	1.00		0.27	1.00		0.56	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	283	285	280	475	454	199	248	210	164	211	178
V/C Ratio(X)	0.52	0.49	0.50	0.74	0.40	0.42	0.14	0.09	0.44	0.35	0.07	0.11
Avail Cap(c_a), veh/h	558	1046	1050	1450	1936	1850	870	1148	973	959	1242	1052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	15.1	15.2	15.9	11.9	11.9	15.8	15.1	15.8	16.9	15.7	15.8
Incr Delay (d2), s/veh	4.6	1.3	1.4	3.8	0.6	0.6	0.3	0.2	1.5	1.3	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	1.1	1.8	1.2	1.2	0.2	0.2	0.7	0.5	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	16.4	16.5	19.7	12.4	12.5	16.2	15.2	17.3	18.2	15.8	16.0
LnGrp LOS	C	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		326			588			144				92
Approach Delay, s/veh		17.4			15.0			16.7				17.3
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	9.8	10.8	10.9	9.0	9.0	6.5	15.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	24.5	32.5	23.5	19.5	26.5	12.5	43.5				
Max Q Clear Time (g_c+I1), s	3.2	4.2	6.4	4.9	2.6	2.5	3.0	5.7				
Green Ext Time (p_c), s	0.1	0.3	0.6	1.5	0.0	0.1	0.0	2.5				

Intersection Summary												
HCM 6th Ctrl Delay				16.1								
HCM 6th LOS				B								

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative AM
07/03/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	135	19	644	55	279
v/c Ratio	0.15	0.05	0.36	0.13	0.13
Control Delay	15.1	9.5	7.7	16.4	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	9.5	7.7	16.4	3.9
Queue Length 50th (ft)	8	0	23	7	11
Queue Length 95th (ft)	37	15	95	39	23
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2609	1098	3323	1109	3505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.02	0.19	0.05	0.08
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative AM
07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	122	19	388	204	51	257
Future Volume (veh/h)	122	19	388	204	51	257
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	133	21	422	222	55	279
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	424	189	833	434	108	2052
Arrive On Green	0.12	0.12	0.37	0.37	0.06	0.58
Sat Flow, veh/h	3534	1572	2334	1167	1767	3618
Grp Volume(v), veh/h	133	21	331	313	55	279
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1645	1767	1763
Q Serve(g_s), s	1.0	0.4	4.4	4.5	0.9	1.1
Cycle Q Clear(g_c), s	1.0	0.4	4.4	4.5	0.9	1.1
Prop In Lane	1.00	1.00		0.71	1.00	
Lane Grp Cap(c), veh/h	424	189	656	612	108	2052
V/C Ratio(X)	0.31	0.11	0.50	0.51	0.51	0.14
Avail Cap(c_a), veh/h	2983	1327	3589	3350	1141	9978
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	12.2	11.9	7.3	7.4	13.7	2.9
Incr Delay (d2), s/veh	0.4	0.3	0.6	0.7	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	1.1	1.0	0.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.6	12.1	7.9	8.0	17.4	2.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h			644			334
Approach Delay, s/veh			8.0			5.3
Approach LOS			A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.3	15.7			22.1	8.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	19.5	61.5			85.5	25.5
Max Q Clear Time (g_c+I1), s	2.9	6.5			3.1	3.0
Green Ext Time (p_c), s	0.1	4.8			2.0	0.5

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Cumulative AM
07/03/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	141	104	310	117	54
v/c Ratio	0.27	0.06	0.33	0.14	0.14
Control Delay	13.6	3.7	6.5	12.7	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	3.7	6.5	12.7	6.5
Queue Length 50th (ft)	23	3	9	8	0
Queue Length 95th (ft)	60	10	34	26	21
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1723	3505	3067	2979	1268
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.03	0.10	0.04	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative AM
07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	130	96	100	185	96	62	
Future Volume (veh/h)	130	96	100	185	96	62	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	141	104	109	201	113	57	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	213	1886	438	390	471	209	
Arrive On Green	0.12	0.53	0.25	0.25	0.13	0.13	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	141	104	109	201	113	57	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	2.1	0.4	1.3	3.0	0.8	0.9	
Cycle Q Clear(g_c), s	2.1	0.4	1.3	3.0	0.8	0.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	213	1886	438	390	471	209	
V/C Ratio(X)	0.66	0.06	0.25	0.52	0.24	0.27	
Avail Cap(c_a), veh/h	2510	10339	2373	2117	4107	1827	
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	3.0	8.2	8.8	10.5	10.6	
Incr Delay (d2), s/veh	3.5	0.0	0.3	1.1	0.3	0.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.4	0.8	0.2	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	14.9	3.0	8.5	9.8	10.8	11.3	
LnGrp LOS	B	A	A	A	B	B	
Approach Vol, veh/h		245	310		170		
Approach Delay, s/veh		9.8	9.4		10.9		
Approach LOS		A	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				19.0	8.1	7.8	11.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				79.5	31.5	38.5	36.5
Max Q Clear Time (g_c+I1), s				2.4	2.9	4.1	5.0
Green Ext Time (p_c), s				0.7	0.5	0.4	2.1

Intersection Summary

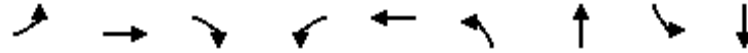
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative AM
07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	8	138	4	33	235	270	10	363
v/c Ratio	0.11	0.02	0.34	0.02	0.13	0.47	0.12	0.04	0.42
Control Delay	25.4	21.6	8.0	26.8	15.8	20.7	7.3	26.3	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	21.6	8.0	26.8	15.8	20.7	7.3	26.3	18.8
Queue Length 50th (ft)	7	2	0	1	2	47	9	2	37
Queue Length 95th (ft)	35	14	45	10	27	147	60	17	106
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	443	1090	983	316	859	1424	3416	316	2420
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.01	0.14	0.01	0.04	0.17	0.08	0.03	0.15
Intersection Summary									

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative AM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	7	127	4	7	23	216	244	5	9	284	50
Future Volume (veh/h)	28	7	127	4	7	23	216	244	5	9	284	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	8	138	4	8	25	235	265	5	10	309	54
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	63	265	224	10	44	139	318	1297	24	23	601	104
Arrive On Green	0.04	0.14	0.14	0.01	0.11	0.11	0.18	0.37	0.37	0.01	0.20	0.20
Sat Flow, veh/h	1767	1856	1572	1767	396	1237	1767	3540	67	1767	3006	519
Grp Volume(v), veh/h	30	8	138	4	0	33	235	132	138	10	180	183
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1633	1767	1763	1844	1767	1763	1762
Q Serve(g_s), s	0.6	0.1	3.1	0.1	0.0	0.7	4.8	2.0	2.0	0.2	3.5	3.5
Cycle Q Clear(g_c), s	0.6	0.1	3.1	0.1	0.0	0.7	4.8	2.0	2.0	0.2	3.5	3.5
Prop In Lane	1.00		1.00	1.00		0.76	1.00		0.04	1.00		0.29
Lane Grp Cap(c), veh/h	63	265	224	10	0	183	318	646	676	23	352	352
V/C Ratio(X)	0.48	0.03	0.62	0.42	0.00	0.18	0.74	0.20	0.20	0.43	0.51	0.52
Avail Cap(c_a), veh/h	487	1193	1011	348	0	921	1785	2891	3023	348	1457	1456
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	14.1	15.4	18.9	0.0	15.3	14.8	8.3	8.3	18.7	13.6	13.6
Incr Delay (d2), s/veh	5.5	0.0	2.7	26.2	0.0	0.5	3.4	0.2	0.1	12.0	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	1.1	0.1	0.0	0.2	1.8	0.5	0.6	0.2	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	14.1	18.1	45.1	0.0	15.8	18.2	8.4	8.4	30.7	14.7	14.8
LnGrp LOS	C	B	B	D	A	B	B	A	A	C	B	B
Approach Vol, veh/h		176			37			505			373	
Approach Delay, s/veh		18.8			19.0			13.0			15.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	18.5	4.7	9.9	11.4	12.1	5.9	8.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	62.5	7.5	24.5	38.5	31.5	10.5	21.5				
Max Q Clear Time (g_c+I1), s	2.2	4.0	2.1	5.1	6.8	5.5	2.6	2.7				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.4	0.7	2.1	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									

Queues
9: Ascot Parkway & Redwood Street

Cumulative AM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	157	870	141	326	527	352	196	347
v/c Ratio	0.67	0.90	0.78	0.41	0.90	0.33	0.71	0.68
Control Delay	60.4	45.6	78.0	38.2	54.9	28.8	59.0	42.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	45.6	78.0	38.2	54.9	28.8	59.0	42.6
Queue Length 50th (ft)	111	274	103	103	354	95	139	101
Queue Length 95th (ft)	185	#420	#222	162	#583	145	219	151
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	310	1015	187	798	661	1224	375	696
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.86	0.75	0.41	0.80	0.29	0.52	0.50

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative AM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	144	446	354	130	257	43	485	275	49	180	204	115
Future Volume (veh/h)	144	446	354	130	257	43	485	275	49	180	204	115
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	157	485	0	141	279	0	527	299	0	196	222	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	201	703		179	659		592	1059		246	368	
Arrive On Green	0.11	0.20	0.00	0.10	0.19	0.00	0.34	0.30	0.00	0.14	0.10	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	157	485	0	141	279	0	527	299	0	196	222	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	6.0	8.8	0.0	5.4	4.8	0.0	19.6	4.5	0.0	7.4	4.2	0.0
Cycle Q Clear(g_c), s	6.0	8.8	0.0	5.4	4.8	0.0	19.6	4.5	0.0	7.4	4.2	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	201	703		179	659		592	1059		246	368	
V/C Ratio(X)	0.78	0.69		0.79	0.42		0.89	0.28		0.80	0.60	
Avail Cap(c_a), veh/h	485	1502		294	1120		1034	1935		587	1044	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.9	25.7	0.0	30.4	24.8	0.0	21.8	18.5	0.0	28.9	29.6	0.0
Incr Delay (d2), s/veh	6.5	1.2	0.0	7.5	0.4	0.0	5.1	0.1	0.0	5.8	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	3.6	0.0	2.5	1.9	0.0	8.1	1.7	0.0	3.4	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.4	27.0	0.0	37.9	25.3	0.0	26.9	18.7	0.0	34.7	31.2	0.0
LnGrp LOS	D	C		D	C		C	B		C	C	
Approach Vol, veh/h		642			420			826			418	
Approach Delay, s/veh		29.3			29.5			24.0			32.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	25.3	11.5	18.3	27.7	11.7	12.4	17.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	23.0	38.0	11.5	29.5	40.5	20.5	19.0	22.0				
Max Q Clear Time (g_c+I1), s	9.4	6.5	7.4	10.8	21.6	6.2	8.0	6.8				
Green Ext Time (p_c), s	0.4	2.0	0.1	3.0	1.6	1.1	0.3	1.4				

Intersection Summary

HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative AM
07/03/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	743	434	493	338	528
v/c Ratio	0.77	0.81	0.22	0.73	0.66
Control Delay	36.5	44.3	8.1	43.3	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	44.3	8.1	43.3	7.2
Queue Length 50th (ft)	197	242	60	189	0
Queue Length 95th (ft)	335	426	106	334	89
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1239	787	2827	708	948
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.55	0.17	0.48	0.56
Intersection Summary					

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

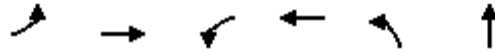
Cumulative AM
 07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	455	228	399	454	311	486
Future Volume (veh/h)	455	228	399	454	311	486
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	495	248	434	493	338	528
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	582	290	475	2002	609	542
Arrive On Green	0.26	0.26	0.27	0.57	0.34	0.34
Sat Flow, veh/h	2371	1136	1767	3618	1767	1572
Grp Volume(v), veh/h	383	360	434	493	338	528
Grp Sat Flow(s),veh/h/ln	1763	1651	1767	1763	1767	1572
Q Serve(g_s), s	21.2	21.4	24.5	7.2	16.0	34.1
Cycle Q Clear(g_c), s	21.2	21.4	24.5	7.2	16.0	34.1
Prop In Lane		0.69	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	450	422	475	2002	609	542
V/C Ratio(X)	0.85	0.86	0.91	0.25	0.55	0.97
Avail Cap(c_a), veh/h	539	505	678	2586	609	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	36.5	36.5	11.2	27.3	33.3
Incr Delay (d2), s/veh	10.6	11.8	13.1	0.1	1.1	31.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	9.8	12.0	2.7	6.8	17.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.1	48.3	49.6	11.2	28.4	65.2
LnGrp LOS	D	D	D	B	C	E
Approach Vol, veh/h	743			927	866	
Approach Delay, s/veh	47.7			29.2	50.8	
Approach LOS	D			C	D	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		40.0	32.2	30.8		62.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		35.5	39.5	31.5		75.5
Max Q Clear Time (g_c+I1), s		36.1	26.5	23.4		9.2
Green Ext Time (p_c), s		0.0	1.1	2.9		3.6
Intersection Summary						
HCM 6th Ctrl Delay			42.0			
HCM 6th LOS			D			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative AM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	25	791	96	759	135	97
v/c Ratio	0.11	0.58	0.31	0.42	0.43	0.15
Control Delay	28.1	15.7	26.6	10.1	26.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	15.7	26.6	10.1	26.2	0.5
Queue Length 50th (ft)	7	101	27	51	38	0
Queue Length 95th (ft)	33	195	82	165	104	0
Internal Link Dist (ft)		424		851		1161
Turn Bay Length (ft)	125		125		75	
Base Capacity (vph)	343	3100	706	3383	944	1175
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.26	0.14	0.22	0.14	0.08
Intersection Summary						

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

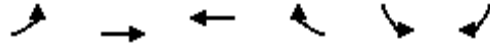
Cumulative AM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	23	617	110	88	697	1	124	0	89	0	0	0
Future Volume (veh/h)	23	617	110	88	697	1	124	0	89	0	0	0
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	671	120	96	758	1	135	0	97	0	0	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1174	210	153	1619	2	449	0	219	204	258	0
Arrive On Green	0.03	0.39	0.39	0.09	0.45	0.45	0.14	0.00	0.14	0.00	0.00	0.00
Sat Flow, veh/h	1767	2988	534	1767	3613	5	1767	0	1572	1288	1856	0
Grp Volume(v), veh/h	25	396	395	96	370	389	135	0	97	0	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1759	1767	1763	1855	1767	0	1572	1288	1856	0
Q Serve(g_s), s	0.5	6.2	6.2	1.9	5.2	5.2	2.5	0.0	2.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	6.2	6.2	1.9	5.2	5.2	2.5	0.0	2.0	0.0	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	54	692	691	153	790	831	449	0	219	204	258	0
V/C Ratio(X)	0.46	0.57	0.57	0.63	0.47	0.47	0.30	0.00	0.44	0.00	0.00	0.00
Avail Cap(c_a), veh/h	475	2618	2613	975	3117	3279	1928	0	1535	1282	1811	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	16.8	8.4	8.4	15.6	6.8	6.8	14.2	0.0	14.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.7	0.8	4.2	0.4	0.4	0.4	0.0	1.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.6	1.6	0.8	1.2	1.2	0.9	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	9.1	9.2	19.8	7.2	7.2	14.6	0.0	15.4	0.0	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	B	A	A	A
Approach Vol, veh/h		816			855			232				0
Approach Delay, s/veh		9.6			8.6			14.9				0.0
Approach LOS		A			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.4	7.6	18.4		9.4	5.6	20.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		34.5	19.5	52.5		34.5	9.5	62.5				
Max Q Clear Time (g_c+I1), s		4.5	3.9	8.2		0.0	2.5	7.2				
Green Ext Time (p_c), s		1.0	0.2	5.7		0.0	0.0	5.3				
Intersection Summary												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative AM
07/03/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	433	480	646	228	91	1092
v/c Ratio	0.56	0.27	0.75	0.41	0.07	0.58
Control Delay	42.6	15.6	44.7	6.5	22.0	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.0
Total Delay	42.6	15.6	44.7	6.5	22.0	12.9
Queue Length 50th (ft)	144	98	227	0	20	197
Queue Length 95th (ft)	211	130	292	58	40	314
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	772	2046	1108	651	1378	1890
Starvation Cap Reductn	0	0	0	0	0	613
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.23	0.58	0.35	0.07	0.86

Intersection Summary

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Cumulative AM
 07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	390	432	581	205	82	983	
Future Volume (veh/h)	390	432	581	205	82	983	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	433	480	646	228	91	1092	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	796	1777	814	363	1420	1788	
Arrive On Green	0.23	0.50	0.23	0.23	0.41	0.41	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	433	480	646	228	91	1092	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	12.2	8.6	19.0	14.3	1.8	25.3	
Cycle Q Clear(g_c), s	12.2	8.6	19.0	14.3	1.8	25.3	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	796	1777	814	363	1420	1788	
V/C Ratio(X)	0.54	0.27	0.79	0.63	0.06	0.61	
Avail Cap(c_a), veh/h	796	2102	1139	508	1420	1788	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	37.1	15.6	39.8	38.0	19.4	11.4	
Incr Delay (d2), s/veh	2.7	0.1	2.7	1.8	0.1	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.3	3.4	8.3	12.5	0.7	22.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	39.7	15.7	42.4	39.8	19.5	12.9	
LnGrp LOS	D	B	D	D	B	B	
Approach Vol, veh/h		913	874		1183		
Approach Delay, s/veh		27.1	41.7		13.4		
Approach LOS		C	D		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				59.9	50.0	30.0	29.9
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				65.5	45.5	25.5	35.5
Max Q Clear Time (g_c+I1), s				10.6	27.3	14.2	21.0
Green Ext Time (p_c), s				3.5	5.3	1.2	4.4
Intersection Summary							
HCM 6th Ctrl Delay			26.0				
HCM 6th LOS			C				

Queues
13: Redwood Street

Cumulative AM
07/03/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	96	646	1129	213	142	187
v/c Ratio	0.72	0.27	0.81	0.34	0.09	0.24
Control Delay	91.3	20.5	39.4	28.1	21.8	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.3	20.5	39.4	28.1	21.8	10.5
Queue Length 50th (ft)	41	116	432	122	32	33
Queue Length 95th (ft)	#100	142	513	183	65	97
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	133	3258	2006	897	1559	781
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.20	0.56	0.24	0.09	0.24

Intersection Summary

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

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative AM
07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑	↑↑	↖	↖↗	↖
Traffic Volume (veh/h)	86	581	1016	192	128	168
Future Volume (veh/h)	86	581	1016	192	128	168
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	96	646	1129	213	142	187
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	136	2360	1377	614	1587	728
Arrive On Green	0.04	0.47	0.39	0.39	0.46	0.46
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	96	646	1129	213	142	187
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	3.5	9.9	36.3	12.1	2.9	9.2
Cycle Q Clear(g_c), s	3.5	9.9	36.3	12.1	2.9	9.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	136	2360	1377	614	1587	728
V/C Ratio(X)	0.71	0.27	0.82	0.35	0.09	0.26
Avail Cap(c_a), veh/h	136	3307	2037	908	1587	728
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	60.0	20.7	34.5	27.1	19.0	20.7
Incr Delay (d2), s/veh	26.7	0.1	1.8	0.3	0.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.9	15.5	4.6	1.2	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	86.7	20.7	36.3	27.5	19.1	21.5
LnGrp LOS	F	C	D	C	B	C
Approach Vol, veh/h		742	1342		329	
Approach Delay, s/veh		29.3	34.9		20.5	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		63.4		63.0	9.5	53.9
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		11.9		11.2	5.5	38.3
Green Ext Time (p_c), s		5.0		1.2	0.0	11.1
Intersection Summary						
HCM 6th Ctrl Delay			31.2			
HCM 6th LOS			C			

Queues
14: Lake Herman Road & Columbus Parkway

Cumulative AM
07/03/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	83	402	98	215	272
v/c Ratio	0.10	0.20	0.28	0.14	0.36	0.11
Control Delay	18.7	7.4	13.6	4.7	15.8	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	7.4	13.6	4.7	15.8	3.1
Queue Length 50th (ft)	8	0	41	0	42	10
Queue Length 95th (ft)	33	30	85	26	104	21
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1153	1060	3126	1409	1646	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.08	0.13	0.07	0.13	0.08
Intersection Summary						

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative AM
 07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	76	370	90	198	250
Future Volume (veh/h)	37	76	370	90	198	250
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	40	83	402	98	215	272
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	187	167	908	405	343	2112
Arrive On Green	0.11	0.11	0.26	0.26	0.19	0.60
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	40	83	402	98	215	272
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	0.6	1.5	2.9	1.5	3.4	1.0
Cycle Q Clear(g_c), s	0.6	1.5	2.9	1.5	3.4	1.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	187	167	908	405	343	2112
V/C Ratio(X)	0.21	0.50	0.44	0.24	0.63	0.13
Avail Cap(c_a), veh/h	1477	1314	4448	1984	2461	9877
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	12.9	9.5	9.0	11.3	2.7
Incr Delay (d2), s/veh	0.6	2.3	0.3	0.3	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	0.7	0.3	1.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.0	15.2	9.8	9.3	13.2	2.7
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	123		500			487
Approach Delay, s/veh	14.5		9.7			7.3
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.4	12.4			22.8	7.7
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	42.5	38.5			85.5	25.5
Max Q Clear Time (g_c+I1), s	5.4	4.9			3.0	3.5
Green Ext Time (p_c), s	0.6	3.0			1.8	0.3
Intersection Summary						
HCM 6th Ctrl Delay			9.2			
HCM 6th LOS			A			

Queues

Cumulative AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	70	108	170	168	113	43	356	103	140	603
v/c Ratio	0.26	0.34	0.44	0.39	0.24	0.18	0.44	0.33	0.25	0.67
Control Delay	30.6	28.4	28.7	26.0	5.0	31.6	23.4	29.9	21.0	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	28.4	28.7	26.0	5.0	31.6	23.4	29.9	21.0	6.5
Queue Length 50th (ft)	23	33	56	53	0	15	57	34	42	0
Queue Length 95th (ft)	72	94	138	129	29	52	120	95	101	79
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	411	717	804	1064	962	303	2578	553	1543	1410
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.15	0.21	0.16	0.12	0.14	0.14	0.19	0.09	0.43

Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↕		↖	↗	↖
Traffic Volume (veh/h)	64	81	18	156	155	104	40	281	47	95	129	555
Future Volume (veh/h)	64	81	18	156	155	104	40	281	47	95	129	555
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	88	20	170	168	113	43	305	51	103	140	603
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	101	142	32	221	306	259	75	1225	202	135	813	689
Arrive On Green	0.06	0.10	0.10	0.12	0.16	0.16	0.04	0.40	0.40	0.08	0.44	0.44
Sat Flow, veh/h	1767	1463	333	1767	1856	1572	1767	3028	501	1767	1856	1572
Grp Volume(v), veh/h	70	0	108	170	168	113	43	176	180	103	140	603
Grp Sat Flow(s),veh/h/ln	1767	0	1796	1767	1856	1572	1767	1763	1765	1767	1856	1572
Q Serve(g_s), s	2.4	0.0	3.5	5.6	5.0	3.9	1.4	4.0	4.1	3.5	2.8	21.2
Cycle Q Clear(g_c), s	2.4	0.0	3.5	5.6	5.0	3.9	1.4	4.0	4.1	3.5	2.8	21.2
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	101	0	175	221	306	259	75	713	714	135	813	689
V/C Ratio(X)	0.69	0.00	0.62	0.77	0.55	0.44	0.57	0.25	0.25	0.76	0.17	0.87
Avail Cap(c_a), veh/h	335	0	578	656	934	792	248	1295	1297	452	1577	1337
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	0.0	26.3	25.7	23.2	22.8	28.5	11.9	12.0	27.4	10.3	15.5
Incr Delay (d2), s/veh	8.2	0.0	3.5	5.6	1.5	1.2	6.7	0.2	0.2	8.6	0.1	3.7
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	1.2	0.0	1.6	2.6	2.2	1.4	0.7	1.4	1.5	1.7	1.0	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	0.0	29.8	31.3	24.8	23.9	35.2	12.1	12.1	36.1	10.4	19.2
LnGrp LOS	D	A	C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		178			451			399			846	
Approach Delay, s/veh		32.3			27.0			14.6			19.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	29.0	12.1	10.4	7.1	31.1	8.0	14.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	44.5	22.5	19.5	8.5	51.5	11.5	30.5				
Max Q Clear Time (g_c+I1), s	5.5	6.1	7.6	5.5	3.4	23.2	4.4	7.0				
Green Ext Time (p_c), s	0.2	2.3	0.4	0.4	0.0	3.4	0.1	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									

Queues
 16: Sonoma Blvd (SR-29) & SR-37 Ramps



















Cumulative AM
 07/03/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	476	1007	636	40	1692	235
v/c Ratio	0.44	0.84	0.31	0.04	0.82	0.15
Control Delay	31.5	25.2	11.8	3.4	21.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	25.2	11.8	3.4	21.9	0.2
Queue Length 50th (ft)	130	198	104	0	440	0
Queue Length 95th (ft)	222	369	179	16	708	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1658	1591	2797	1259	2797	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.63	0.23	0.03	0.60	0.15
Intersection Summary						

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative AM
 07/03/2024

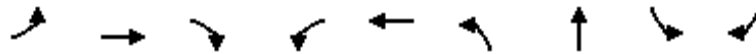
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	438	0	926	0	585	37	0	1557	216
Future Volume (veh/h)	0	0	0	438	0	926	0	585	37	0	1557	216
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				476	0	1007	0	636	40	0	1692	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1286	0	1038	0	1952	871	0	1952	
Arrive On Green				0.38	0.00	0.38	0.00	0.55	0.55	0.00	0.55	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				476	0	1007	0	636	40	0	1692	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				12.7	0.0	45.2	0.0	12.4	1.5	0.0	52.0	0.0
Cycle Q Clear(g_c), s				12.7	0.0	45.2	0.0	12.4	1.5	0.0	52.0	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1286	0	1038	0	1952	871	0	1952	
V/C Ratio(X)				0.37	0.00	0.97	0.00	0.33	0.05	0.00	0.87	
Avail Cap(c_a), veh/h				1289	0	1040	0	2330	1039	0	2330	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				28.7	0.0	38.8	0.0	15.4	12.9	0.0	24.2	0.0
Incr Delay (d2), s/veh				0.2	0.0	20.9	0.0	0.1	0.0	0.0	3.2	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.2	0.0	17.7	0.0	4.8	0.5	0.0	21.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.8	0.0	59.7	0.0	15.5	12.9	0.0	27.5	0.0
LnGrp LOS				C	A	E	A	B	B	A	C	
Approach Vol, veh/h					1483			676			1692	
Approach Delay, s/veh					49.8			15.3			27.5	
Approach LOS					D			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		74.5				74.5		51.9				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		83.5				83.5		47.5				
Max Q Clear Time (g_c+I1), s		14.4				54.0		47.2				
Green Ext Time (p_c), s		4.8				15.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				33.9								
HCM 6th LOS				C								
Notes												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

Cumulative PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	26	745	1093	173	802	1321	265	1	2
v/c Ratio	0.24	0.81	0.70	0.78	0.43	0.83	0.26	0.01	0.01
Control Delay	49.0	41.4	2.6	65.6	24.5	27.8	0.6	43.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	41.4	2.6	65.6	24.5	27.8	0.6	43.0	0.0
Queue Length 50th (ft)	16	225	0	105	143	350	0	1	0
Queue Length 95th (ft)	42	296	0	#211	182	444	0	6	0
Internal Link Dist (ft)		1084			414		644		
Turn Bay Length (ft)	230			215		425		100	
Base Capacity (vph)	110	923	1568	222	1869	1598	1035	325	226
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.81	0.70	0.78	0.43	0.83	0.26	0.00	0.01

Intersection Summary

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

HCM 6th Signalized Intersection Summary

Cumulative PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	26	745	1093	173	801	1	1321	0	265	1	0	2
Future Volume (veh/h)	26	745	1093	173	801	1	1321	0	265	1	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	26	745	0	173	801	1	1321	0	0	1	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	47	875		207	1771	2	1475	703		98	7	48
Arrive On Green	0.03	0.25	0.00	0.12	0.34	0.34	0.43	0.00	0.00	0.06	0.00	0.00
Sat Flow, veh/h	1767	3526	1572	1767	5225	7	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	26	745	0	173	518	284	1321	0	0	1	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1854	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	1.3	18.1	0.0	8.6	10.8	10.8	32.1	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	1.3	18.1	0.0	8.6	10.8	10.8	32.1	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	47	875		207	1144	628	1475	703		98	7	48
V/C Ratio(X)	0.55	0.85		0.83	0.45	0.45	0.90	0.00		0.01	0.00	0.04
Avail Cap(c_a), veh/h	120	1000		242	1191	654	1735	954		354	386	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	32.2	0.0	38.8	23.2	23.2	23.7	0.0	0.0	40.1	0.0	42.3
Incr Delay (d2), s/veh	9.8	6.5	0.0	19.3	0.3	0.5	5.8	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	8.1	0.0	4.7	4.1	4.5	13.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	38.7	0.0	58.1	23.5	23.7	29.5	0.0	0.0	40.2	0.0	42.6
LnGrp LOS	D	D		E	C	C	C	A		D	A	D
Approach Vol, veh/h		771			975			1321				3
Approach Delay, s/veh		39.2			29.7			29.5				41.8
Approach LOS		D			C			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	38.5	15.0	26.8	43.2	4.9	6.9	35.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	46.2	12.3	25.5	45.5	18.7	6.1	31.7				
Max Q Clear Time (g_c+I1), s	2.0	0.0	10.6	20.1	34.1	2.1	3.3	12.8				
Green Ext Time (p_c), s	0.0	0.0	0.1	2.2	4.6	0.0	0.0	4.7				

Intersection Summary

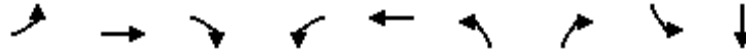
HCM 6th Ctrl Delay	32.0
HCM 6th LOS	C

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative PM
07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	70	849	287	39	815	195	34	2	5
v/c Ratio	0.23	0.49	0.31	0.14	0.54	0.29	0.06	0.01	0.01
Control Delay	26.1	11.2	2.9	27.3	13.8	23.2	0.2	30.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	11.2	2.9	27.3	13.8	23.2	0.2	30.0	0.0
Queue Length 50th (ft)	18	48	0	10	93	25	0	1	0
Queue Length 95th (ft)	70	219	42	47	220	77	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	591	3246	1473	428	3162	1385	1184	265	845
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.26	0.19	0.09	0.26	0.14	0.03	0.01	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Cumulative PM
07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	64	781	264	36	750	0	179	0	31	2	0	5
Future Volume (veh/h)	64	781	264	36	750	0	179	0	31	2	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	849	0	39	815	0	195	0	34	2	0	5
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	116	1403		76	1325	0	355	270	229	5	0	70
Arrive On Green	0.07	0.40	0.00	0.04	0.38	0.00	0.10	0.00	0.15	0.00	0.00	0.04
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	70	849	0	39	815	0	195	0	34	2	0	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.7	8.4	0.0	0.9	8.2	0.0	2.4	0.0	0.8	0.0	0.0	0.1
Cycle Q Clear(g_c), s	1.7	8.4	0.0	0.9	8.2	0.0	2.4	0.0	0.8	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	1403		76	1325	0	355	270	229	5	0	70
V/C Ratio(X)	0.61	0.61		0.51	0.62	0.00	0.55	0.00	0.15	0.41	0.00	0.07
Avail Cap(c_a), veh/h	585	4383		423	4061	0	1369	1291	1094	262	0	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	10.5	0.0	20.5	11.1	0.0	18.7	0.0	16.4	21.8	0.0	20.1
Incr Delay (d2), s/veh	5.0	0.4	0.0	5.2	0.5	0.0	1.3	0.0	0.3	47.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.3	0.0	0.4	2.3	0.0	0.9	0.0	0.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	10.9	0.0	25.7	11.6	0.0	20.0	0.0	16.7	69.5	0.0	20.5
LnGrp LOS	C	B		C	B	A	C	A	B	E	A	C
Approach Vol, veh/h		919			854			229				7
Approach Delay, s/veh		12.0			12.2			19.5				34.5
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.9	6.4	21.9	9.0	6.5	7.4	21.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	30.5	10.5	54.5	17.5	19.5	14.5	50.5				
Max Q Clear Time (g_c+I1), s	2.0	2.8	2.9	10.4	4.4	2.1	3.7	10.2				
Green Ext Time (p_c), s	0.0	0.1	0.0	6.6	0.5	0.0	0.1	6.2				

Intersection Summary

HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative PM
07/02/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	579	271	50	646	154	27
v/c Ratio	0.31	0.28	0.12	0.29	0.17	0.06
Control Delay	9.0	2.8	16.9	4.6	15.3	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	2.8	16.9	4.6	15.3	8.8
Queue Length 50th (ft)	26	0	6	31	9	0
Queue Length 95th (ft)	101	36	37	56	41	16
Internal Link Dist (ft)	1748			2821	1766	
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3505	1568	1313	3505	2769	1282
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.04	0.18	0.06	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary
 3: Redwood Street & Columbus Parkway

Cumulative PM
 07/02/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	533	249	46	594	142	25
Future Volume (veh/h)	533	249	46	594	142	25
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	579	271	50	646	154	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1215	542	256	2185	409	188
Arrive On Green	0.34	0.34	0.14	0.62	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	579	271	50	646	154	27
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	4.4	4.7	0.9	2.9	1.4	0.5
Cycle Q Clear(g_c), s	4.4	4.7	0.9	2.9	1.4	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1215	542	256	2185	409	188
V/C Ratio(X)	0.48	0.50	0.20	0.30	0.38	0.14
Avail Cap(c_a), veh/h	5364	2392	1306	8428	2831	1299
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	8.9	9.0	13.0	3.1	14.0	13.6
Incr Delay (d2), s/veh	0.3	0.7	0.4	0.1	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.1	0.3	0.1	0.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	9.7	13.4	3.1	14.6	14.0
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	850			696	181	
Approach Delay, s/veh	9.3			3.9	14.5	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.6	9.5	16.4		25.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		28.5	25.5	52.5		82.5
Max Q Clear Time (g_c+I1), s		3.4	2.9	6.7		4.9
Green Ext Time (p_c), s		0.6	0.1	5.2		4.8
Intersection Summary						
HCM 6th Ctrl Delay			7.7			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	1331	203	979	40	17	185	133	91
v/c Ratio	0.43	0.81	0.67	0.48	0.04	0.07	0.40	0.72	0.24
Control Delay	54.1	27.2	51.7	14.5	2.2	34.7	9.8	59.9	13.2
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	27.3	51.7	14.5	2.2	34.7	9.8	59.9	13.2
Queue Length 50th (ft)	45	350	121	184	0	9	7	79	8
Queue Length 95th (ft)	106	567	231	307	11	30	65	161	51
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	238	2139	423	2476	1124	441	657	316	603
Starvation Cap Reductn	0	92	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.65	0.48	0.40	0.04	0.04	0.28	0.42	0.15
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative PM
07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	69	1188	37	187	901	37	16	12	158	122	15	69
Future Volume (veh/h)	69	1188	37	187	901	37	16	12	158	122	15	69
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	1291	40	203	979	40	17	13	172	133	16	75
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	97	1620	50	245	1931	861	336	27	355	250	68	319
Arrive On Green	0.05	0.46	0.46	0.14	0.55	0.55	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1767	3491	108	1767	3526	1572	1295	112	1478	1189	284	1332
Grp Volume(v), veh/h	75	651	680	203	979	40	17	0	185	133	0	91
Grp Sat Flow(s),veh/h/ln	1767	1763	1836	1767	1763	1572	1295	0	1590	1189	0	1616
Q Serve(g_s), s	3.6	26.9	27.0	9.6	14.9	1.0	0.9	0.0	8.6	9.3	0.0	3.9
Cycle Q Clear(g_c), s	3.6	26.9	27.0	9.6	14.9	1.0	4.8	0.0	8.6	17.9	0.0	3.9
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	97	818	852	245	1931	861	336	0	381	250	0	388
V/C Ratio(X)	0.77	0.80	0.80	0.83	0.51	0.05	0.05	0.00	0.49	0.53	0.00	0.23
Avail Cap(c_a), veh/h	250	1121	1168	443	2629	1172	486	0	566	388	0	575
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	0.00	1.00
Uniform Delay (d), s/veh	40.0	19.5	19.5	35.9	12.1	9.0	28.2	0.0	28.0	35.7	0.0	26.2
Incr Delay (d2), s/veh	12.2	2.9	2.8	7.1	0.2	0.0	0.1	0.0	1.0	1.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	10.9	11.3	4.5	5.4	0.3	0.3	0.0	3.3	2.8	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	22.4	22.3	43.0	12.3	9.0	28.2	0.0	29.0	37.5	0.0	26.5
LnGrp LOS	D	C	C	D	B	A	C	A	C	D	A	C
Approach Vol, veh/h		1406			1222			202				224
Approach Delay, s/veh		23.9			17.3			28.9				33.0
Approach LOS		C			B			C				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.1	16.4	44.3		25.1	9.2	51.4				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		30.5	21.5	54.5		30.5	12.1	63.9				
Max Q Clear Time (g_c+I1), s		10.6	11.6	29.0		19.9	5.6	16.9				
Green Ext Time (p_c), s		1.1	0.4	10.8		0.7	0.1	9.2				
Intersection Summary												
HCM 6th Ctrl Delay				22.3								
HCM 6th LOS				C								

Queues

Cumulative PM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	1033	270	694	92	48	250	109	58	60
v/c Ratio	0.44	0.79	0.74	0.39	0.47	0.28	0.67	0.51	0.23	0.18
Control Delay	53.1	32.2	49.5	15.1	50.6	47.7	15.6	50.2	44.9	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	32.2	49.5	15.1	50.6	47.7	15.6	50.2	44.9	1.2
Queue Length 50th (ft)	44	280	157	123	55	29	0	65	34	0
Queue Length 95th (ft)	99	449	#296	212	114	68	75	130	78	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	206	1513	461	1988	349	417	547	349	417	459
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.68	0.59	0.35	0.26	0.12	0.46	0.31	0.14	0.13

Intersection Summary

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

HCM 6th Signalized Intersection Summary
5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative PM
07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↑	↗	↗	↑	↗
Traffic Volume (veh/h)	67	877	74	248	504	134	85	44	230	100	53	55
Future Volume (veh/h)	67	877	74	248	504	134	85	44	230	100	53	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	953	80	270	548	146	92	48	250	109	58	60
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	1161	97	312	1312	348	133	339	287	150	357	302
Arrive On Green	0.05	0.35	0.35	0.18	0.48	0.48	0.07	0.18	0.18	0.08	0.19	0.19
Sat Flow, veh/h	1767	3292	276	1767	2755	731	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	73	510	523	270	350	344	92	48	250	109	58	60
Grp Sat Flow(s),veh/h/ln	1767	1763	1806	1767	1763	1724	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.6	23.3	23.4	13.1	11.5	11.6	4.5	1.9	13.7	5.3	2.3	2.8
Cycle Q Clear(g_c), s	3.6	23.3	23.4	13.1	11.5	11.6	4.5	1.9	13.7	5.3	2.3	2.8
Prop In Lane	1.00		0.15	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	622	637	312	839	821	133	339	287	150	357	302
V/C Ratio(X)	0.77	0.82	0.82	0.86	0.42	0.42	0.69	0.14	0.87	0.73	0.16	0.20
Avail Cap(c_a), veh/h	214	786	806	477	1049	1026	361	430	364	361	430	364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	26.1	26.1	35.4	15.2	15.2	40.0	30.4	35.2	39.5	29.8	30.0
Incr Delay (d2), s/veh	12.6	5.6	5.5	10.1	0.3	0.3	6.4	0.2	16.7	6.6	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	10.3	10.6	6.4	4.4	4.4	2.2	0.9	6.4	2.6	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	31.7	31.6	45.5	15.5	15.5	46.3	30.6	51.9	46.1	30.0	30.3
LnGrp LOS	D	C	C	D	B	B	D	C	D	D	C	C
Approach Vol, veh/h		1106			964			390			227	
Approach Delay, s/veh		33.1			23.9			47.9			37.9	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	20.7	20.2	35.7	11.1	21.5	9.2	46.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.1	20.5	23.9	39.5	18.1	20.5	10.7	52.7				
Max Q Clear Time (g_c+I1), s	7.3	15.7	15.1	25.4	6.5	4.8	5.6	13.6				
Green Ext Time (p_c), s	0.2	0.5	0.5	5.9	0.1	0.4	0.1	5.0				

Intersection Summary

HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative PM
07/02/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	606	32	1548	93	736
v/c Ratio	0.77	0.09	0.80	0.54	0.31
Control Delay	46.5	12.8	21.6	61.7	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	12.8	21.6	61.7	7.0
Queue Length 50th (ft)	212	0	432	64	95
Queue Length 95th (ft)	294	29	562	127	131
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	983	434	2337	211	2823
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.07	0.66	0.44	0.26
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative PM
07/02/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	554	33	1009	415	86	677
Future Volume (veh/h)	554	33	1009	415	86	677
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	602	36	1097	451	93	736
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	735	327	1398	561	120	2427
Arrive On Green	0.21	0.21	0.57	0.57	0.07	0.69
Sat Flow, veh/h	3534	1572	2548	985	1767	3618
Grp Volume(v), veh/h	602	36	780	768	93	736
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1678	1767	1763
Q Serve(g_s), s	14.1	1.6	29.7	31.6	4.5	7.1
Cycle Q Clear(g_c), s	14.1	1.6	29.7	31.6	4.5	7.1
Prop In Lane	1.00	1.00		0.59	1.00	
Lane Grp Cap(c), veh/h	735	327	1003	955	120	2427
V/C Ratio(X)	0.82	0.11	0.78	0.80	0.78	0.30
Avail Cap(c_a), veh/h	1118	497	1369	1303	234	3386
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	32.9	27.9	14.5	14.9	39.9	5.3
Incr Delay (d2), s/veh	3.0	0.1	2.0	2.7	10.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.6	11.1	11.4	2.3	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.8	28.1	16.5	17.6	50.2	5.4
LnGrp LOS	D	C	B	B	D	A
Approach Vol, veh/h	638		1548			829
Approach Delay, s/veh	35.4		17.0			10.4
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.4	54.0			64.4	22.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	11.5	67.5			83.5	27.5
Max Q Clear Time (g_c+I1), s	6.5	33.6			9.1	16.1
Green Ext Time (p_c), s	0.1	15.9			6.2	1.9

Intersection Summary

HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Cumulative PM
07/02/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	145	250	527	378	173
v/c Ratio	0.35	0.14	0.52	0.42	0.34
Control Delay	19.7	5.4	9.4	15.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	5.4	9.4	15.9	5.7
Queue Length 50th (ft)	32	13	26	39	0
Queue Length 95th (ft)	88	32	73	88	42
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1258	3505	2781	2803	1223
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.07	0.19	0.13	0.14
Intersection Summary					

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative PM
07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↗↗	↖↗		↘↘	↘	
Traffic Volume (veh/h)	133	230	212	273	286	221	
Future Volume (veh/h)	133	230	212	273	286	221	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	145	250	230	297	364	184	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	197	1924	552	492	748	333	
Arrive On Green	0.11	0.55	0.31	0.31	0.21	0.21	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	145	250	230	297	364	184	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	2.9	1.3	3.8	5.9	3.4	3.9	
Cycle Q Clear(g_c), s	2.9	1.3	3.8	5.9	3.4	3.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	197	1924	552	492	748	333	
V/C Ratio(X)	0.74	0.13	0.42	0.60	0.49	0.55	
Avail Cap(c_a), veh/h	1452	6983	1829	1631	3572	1589	
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	16.0	4.1	10.1	10.8	12.9	13.1	
Incr Delay (d2), s/veh	5.3	0.0	0.5	1.2	0.5	1.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.3	0.2	1.2	1.7	1.1	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.2	4.2	10.6	12.0	13.3	14.5	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		395	527		548		
Approach Delay, s/veh		10.4	11.4		13.7		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				24.8	12.4	8.6	16.1
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				73.5	37.5	30.5	38.5
Max Q Clear Time (g_c+I1), s				3.3	5.9	4.9	7.9
Green Ext Time (p_c), s				1.8	2.0	0.4	3.7

Intersection Summary

HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Notes

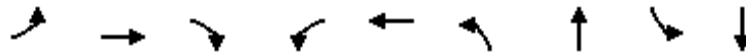
User approved volume balancing among the lanes for turning movement.

Queues

Cumulative PM

8: Ascot Parkway & Turner Parkway/Turner St

07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	76	13	436	7	22	405	153	27	295
v/c Ratio	0.28	0.04	0.66	0.04	0.10	0.68	0.08	0.13	0.44
Control Delay	31.0	24.0	8.6	35.2	24.7	24.8	9.7	34.5	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	24.0	8.6	35.2	24.7	24.8	9.7	34.5	20.6
Queue Length 50th (ft)	19	3	0	2	3	92	6	7	27
Queue Length 95th (ft)	83	22	83	18	28	291	42	42	99
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	422	1084	1101	185	784	1396	3128	219	1485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.01	0.40	0.04	0.03	0.29	0.05	0.12	0.20

Intersection Summary

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	12	401	6	11	9	373	137	4	25	173	98
Future Volume (veh/h)	70	12	401	6	11	9	373	137	4	25	173	98
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	13	436	7	12	10	405	149	4	27	188	107
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	101	582	493	16	249	207	472	1312	35	52	301	163
Arrive On Green	0.06	0.31	0.31	0.01	0.27	0.27	0.27	0.37	0.37	0.03	0.14	0.14
Sat Flow, veh/h	1767	1856	1572	1767	936	780	1767	3508	94	1767	2205	1198
Grp Volume(v), veh/h	76	13	436	7	0	22	405	75	78	27	149	146
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1715	1767	1763	1839	1767	1763	1640
Q Serve(g_s), s	2.8	0.3	17.3	0.3	0.0	0.6	14.3	1.8	1.8	1.0	5.2	5.6
Cycle Q Clear(g_c), s	2.8	0.3	17.3	0.3	0.0	0.6	14.3	1.8	1.8	1.0	5.2	5.6
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.05	1.00		0.73
Lane Grp Cap(c), veh/h	101	582	493	16	0	456	472	659	688	52	240	224
V/C Ratio(X)	0.75	0.02	0.88	0.43	0.00	0.05	0.86	0.11	0.11	0.52	0.62	0.65
Avail Cap(c_a), veh/h	336	860	729	148	0	613	1168	1594	1663	175	603	561
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	15.6	21.4	32.4	0.0	18.0	22.9	13.5	13.5	31.5	26.8	26.9
Incr Delay (d2), s/veh	10.8	0.0	8.8	17.3	0.0	0.0	4.6	0.1	0.1	7.7	2.6	3.2
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	1.4	0.1	7.0	0.2	0.0	0.2	6.0	0.7	0.7	0.5	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	15.6	30.2	49.7	0.0	18.0	27.5	13.5	13.5	39.1	29.4	30.2
LnGrp LOS	D	B	C	D	A	B	C	B	B	D	C	C
Approach Vol, veh/h		525			29			558			322	
Approach Delay, s/veh		31.5			25.7			23.7			30.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	29.1	5.1	25.1	22.1	13.5	8.3	22.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	59.5	5.5	30.5	43.5	22.5	12.5	23.5				
Max Q Clear Time (g_c+I1), s	3.0	3.8	2.3	19.3	16.3	7.6	4.8	2.6				
Green Ext Time (p_c), s	0.0	0.9	0.0	1.3	1.3	1.4	0.1	0.1				

Intersection Summary

HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Queues
9: Ascot Parkway & Redwood Street

Cumulative PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	123	454	48	219	291	416	40	506
v/c Ratio	0.44	0.51	0.25	0.42	0.64	0.26	0.23	0.62
Control Delay	38.6	17.1	40.9	32.0	33.9	14.6	42.1	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	17.1	40.9	32.0	33.9	14.6	42.1	25.1
Queue Length 50th (ft)	51	49	20	42	116	64	17	81
Queue Length 95th (ft)	132	122	68	101	255	118	61	175
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	491	1518	252	1019	942	2664	199	1493
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.30	0.19	0.21	0.31	0.16	0.20	0.34
Intersection Summary								

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	113	201	217	44	157	44	268	317	65	37	280	186
Future Volume (veh/h)	113	201	217	44	157	44	268	317	65	37	280	186
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	123	218	0	48	171	0	291	345	0	40	304	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	163	549		89	402		378	1187		78	589	
Arrive On Green	0.09	0.16	0.00	0.05	0.11	0.00	0.21	0.34	0.00	0.04	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	123	218	0	48	171	0	291	345	0	40	304	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	3.0	2.4	0.0	1.2	2.0	0.0	6.8	3.1	0.0	1.0	3.4	0.0
Cycle Q Clear(g_c), s	3.0	2.4	0.0	1.2	2.0	0.0	6.8	3.1	0.0	1.0	3.4	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	163	549		89	402		378	1187		78	589	
V/C Ratio(X)	0.75	0.40		0.54	0.43		0.77	0.29		0.51	0.52	
Avail Cap(c_a), veh/h	750	2305		385	1577		1439	4569		304	2305	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.3	16.6	0.0	20.2	18.0	0.0	16.1	10.6	0.0	20.4	16.6	0.0
Incr Delay (d2), s/veh	6.9	0.5	0.0	4.9	0.7	0.0	3.3	0.1	0.0	5.2	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.9	0.0	0.5	0.7	0.0	2.6	1.0	0.0	0.5	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	17.0	0.0	25.1	18.7	0.0	19.5	10.8	0.0	25.5	17.3	0.0
LnGrp LOS	C	B		C	B		B	B		C	B	
Approach Vol, veh/h		341			219			636			344	
Approach Delay, s/veh		20.3			20.1			14.7			18.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	19.2	6.7	11.3	13.8	11.8	8.5	9.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	56.5	9.5	28.5	35.5	28.5	18.5	19.5				
Max Q Clear Time (g_c+I1), s	3.0	5.1	3.2	4.4	8.8	5.4	5.0	4.0				
Green Ext Time (p_c), s	0.0	2.4	0.0	1.3	0.8	1.9	0.2	0.8				

Intersection Summary

HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative PM
07/02/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	540	223	435	211	230
v/c Ratio	0.57	0.52	0.21	0.51	0.42
Control Delay	19.4	25.6	5.7	25.8	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	25.6	5.7	25.8	6.3
Queue Length 50th (ft)	69	64	28	60	0
Queue Length 95th (ft)	150	157	62	151	51
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	2283	1121	3473	1153	1111
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.20	0.13	0.18	0.21

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

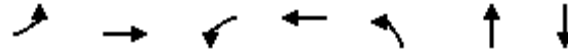
Cumulative PM
 07/02/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↙	↗
Traffic Volume (veh/h)	346	151	205	400	194	212
Future Volume (veh/h)	346	151	205	400	194	212
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	376	164	223	435	211	230
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	657	282	300	1961	386	343
Arrive On Green	0.27	0.27	0.17	0.56	0.22	0.22
Sat Flow, veh/h	2493	1032	1767	3618	1767	1572
Grp Volume(v), veh/h	275	265	223	435	211	230
Grp Sat Flow(s),veh/h/ln	1763	1670	1767	1763	1767	1572
Q Serve(g_s), s	5.4	5.5	4.8	2.5	4.2	5.3
Cycle Q Clear(g_c), s	5.4	5.5	4.8	2.5	4.2	5.3
Prop In Lane		0.62	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	482	457	300	1961	386	343
V/C Ratio(X)	0.57	0.58	0.74	0.22	0.55	0.67
Avail Cap(c_a), veh/h	1612	1527	1527	6667	1571	1398
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	12.5	15.7	4.5	13.9	14.3
Incr Delay (d2), s/veh	1.1	1.2	3.6	0.1	1.2	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.7	1.9	0.5	1.5	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.5	13.7	19.4	4.5	15.1	16.5
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	540			658	441	
Approach Delay, s/veh	13.6			9.6	15.8	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.2	11.3	15.4		26.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		35.5	34.5	36.5		75.5
Max Q Clear Time (g_c+I1), s		7.3	6.8	7.5		4.5
Green Ext Time (p_c), s		1.4	0.6	3.4		3.1
Intersection Summary						
HCM 6th Ctrl Delay			12.6			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	1034	71	648	286	121	8
v/c Ratio	0.17	0.72	0.33	0.36	0.67	0.19	0.01
Control Delay	45.9	22.0	43.6	13.4	34.8	0.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	22.1	43.6	13.4	34.8	0.7	0.0
Queue Length 50th (ft)	13	198	32	74	119	0	0
Queue Length 95th (ft)	50	371	96	198	266	0	0
Internal Link Dist (ft)		424		851		1161	269
Turn Bay Length (ft)	125		125		75		
Base Capacity (vph)	174	2331	308	2587	875	1073	1092
Starvation Cap Reductn	0	92	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.46	0.23	0.25	0.33	0.11	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

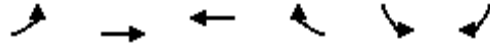
Cumulative PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	26	682	270	65	595	1	263	0	111	0	0	7
Future Volume (veh/h)	26	682	270	65	595	1	263	0	111	0	0	7
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	741	293	71	647	1	286	0	121	0	0	8
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	1062	420	107	1659	3	492	0	411	132	0	411
Arrive On Green	0.03	0.43	0.43	0.06	0.46	0.46	0.26	0.00	0.26	0.00	0.00	0.26
Sat Flow, veh/h	1767	2467	975	1767	3612	6	1396	0	1572	1260	0	1572
Grp Volume(v), veh/h	28	529	505	71	316	332	286	0	121	0	0	8
Grp Sat Flow(s),veh/h/ln	1767	1763	1680	1767	1763	1855	1396	0	1572	1260	0	1572
Q Serve(g_s), s	0.9	13.3	13.3	2.1	6.4	6.4	10.4	0.0	3.4	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.9	13.3	13.3	2.1	6.4	6.4	10.6	0.0	3.4	0.0	0.0	0.2
Prop In Lane	1.00		0.58	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	759	723	107	810	852	492	0	411	132	0	411
V/C Ratio(X)	0.50	0.70	0.70	0.67	0.39	0.39	0.58	0.00	0.29	0.00	0.00	0.02
Avail Cap(c_a), veh/h	211	1632	1555	372	1793	1887	1265	0	1283	830	0	1283
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	0.00	0.00	1.00
Uniform Delay (d), s/veh	26.0	12.6	12.6	25.1	9.7	9.7	18.9	0.0	16.1	0.0	0.0	15.0
Incr Delay (d2), s/veh	6.7	1.2	1.2	6.9	0.3	0.3	1.1	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.4	4.2	1.0	2.0	2.1	3.2	0.0	1.1	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	13.8	13.9	32.0	10.0	10.0	20.0	0.0	16.5	0.0	0.0	15.0
LnGrp LOS	C	B	B	C	B	B	B	A	B	A	A	B
Approach Vol, veh/h		1062			719			407				8
Approach Delay, s/veh		14.3			12.2			19.0				15.0
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		18.8	7.8	28.0		18.8	6.2	29.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		44.5	11.5	50.5		44.5	6.5	55.5				
Max Q Clear Time (g_c+I1), s		12.6	4.1	15.3		2.2	2.9	8.4				
Green Ext Time (p_c), s		1.7	0.1	8.2		0.0	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay			14.5									
HCM 6th LOS			B									

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative PM
07/02/2024



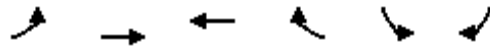
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1496	1022	927	339	387	1466
v/c Ratio	1.01	0.40	1.01	0.57	0.61	0.80
Control Delay	58.8	6.4	75.8	14.1	49.3	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	42.4
Total Delay	58.8	6.4	75.8	14.1	49.3	61.0
Queue Length 50th (ft)	~594	134	~384	52	142	421
Queue Length 95th (ft)	#761	165	#526	147	195	536
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	1487	2584	920	598	637	1833
Starvation Cap Reductn	0	0	0	0	0	484
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.40	1.01	0.57	0.61	1.09

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Cumulative PM
 07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↖	↑↑	↗↗	↘	↙↙	↘↘	
Traffic Volume (veh/h)	1346	920	834	305	348	1319	
Future Volume (veh/h)	1346	920	834	305	348	1319	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	1496	1022	927	339	387	1466	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	1500	2600	925	413	643	1730	
Arrive On Green	0.44	0.74	0.26	0.26	0.19	0.19	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	1496	1022	927	339	387	1466	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	52.3	12.9	31.5	24.3	12.4	22.5	
Cycle Q Clear(g_c), s	52.3	12.9	31.5	24.3	12.4	22.5	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	1500	2600	925	413	643	1730	
V/C Ratio(X)	1.00	0.39	1.00	0.82	0.60	0.85	
Avail Cap(c_a), veh/h	1500	2600	925	413	643	1730	
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	33.7	5.8	44.3	41.6	44.6	17.9	
Incr Delay (d2), s/veh	22.6	0.1	30.0	12.5	4.1	5.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	25.5	4.1	17.3	21.1	5.6	34.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	56.3	5.9	74.2	54.1	48.8	23.3	
LnGrp LOS	E	A	F	D	D	C	
Approach Vol, veh/h		2518	1266		1853		
Approach Delay, s/veh		35.9	68.8		28.6		
Approach LOS		D	E		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				93.0	27.0	57.0	36.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				88.5	22.5	52.5	31.5
Max Q Clear Time (g_c+I1), s				14.9	24.5	54.3	33.5
Green Ext Time (p_c), s				9.4	0.0	0.0	0.0
Intersection Summary							
HCM 6th Ctrl Delay			40.9				
HCM 6th LOS			D				

Queues
13: Redwood Street

Cumulative PM
07/02/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	112	1974	1998	256	822	133
v/c Ratio	0.99	0.71	1.17	0.34	0.62	0.20
Control Delay	152.5	26.8	119.5	25.2	39.3	14.7
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	152.5	26.8	119.5	25.2	39.3	14.7
Queue Length 50th (ft)	57	508	~1222	151	331	37
Queue Length 95th (ft)	#125	563	#1354	220	402	85
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	113	2769	1705	763	1326	656
Starvation Cap Reductn	0	0	30	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.71	1.19	0.34	0.62	0.20

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative PM
07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑	↑↑	↖	↖↗	↖
Traffic Volume (veh/h)	101	1777	1798	230	740	120
Future Volume (veh/h)	101	1777	1798	230	740	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	112	1974	1998	256	822	133
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	114	2786	1716	765	1337	613
Arrive On Green	0.03	0.55	0.49	0.49	0.39	0.39
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	112	1974	1998	256	822	133
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	4.9	43.1	73.0	15.0	28.9	8.5
Cycle Q Clear(g_c), s	4.9	43.1	73.0	15.0	28.9	8.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	2786	1716	765	1337	613
V/C Ratio(X)	0.98	0.71	1.16	0.33	0.61	0.22
Avail Cap(c_a), veh/h	114	2786	1716	765	1337	613
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	72.5	24.9	38.5	23.6	36.7	30.5
Incr Delay (d2), s/veh	79.0	0.8	80.8	0.3	2.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	17.1	49.8	5.6	12.6	9.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	151.4	25.7	119.3	23.9	38.8	31.3
LnGrp LOS	F	C	F	C	D	C
Approach Vol, veh/h		2086	2254		955	
Approach Delay, s/veh		32.5	108.5		37.8	
Approach LOS		C	F		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		87.0		63.0	9.5	77.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		45.1		30.9	6.9	75.0
Green Ext Time (p_c), s		21.7		3.9	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			65.8			
HCM 6th LOS			E			

Queues
14: Lake Herman Road & Columbus Parkway















Cumulative PM
07/02/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	117	330	465	39	77	501
v/c Ratio	0.27	0.52	0.42	0.07	0.21	0.29
Control Delay	16.5	6.0	13.1	5.7	17.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	6.0	13.1	5.7	17.3	5.6
Queue Length 50th (ft)	23	0	46	0	15	24
Queue Length 95th (ft)	65	51	93	16	49	51
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1678	1516	3176	1424	1238	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.22	0.15	0.03	0.06	0.14
Intersection Summary						

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative PM
 07/02/2024

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (veh/h)	108	304	428	36	71	461
Future Volume (veh/h)	108	304	428	36	71	461
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	117	330	465	39	77	501
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	492	438	873	390	226	1730
Arrive On Green	0.28	0.28	0.25	0.25	0.13	0.49
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	117	330	465	39	77	501
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	2.0	7.5	4.5	0.7	1.6	3.3
Cycle Q Clear(g_c), s	2.0	7.5	4.5	0.7	1.6	3.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	492	438	873	390	226	1730
V/C Ratio(X)	0.24	0.75	0.53	0.10	0.34	0.29
Avail Cap(c_a), veh/h	1969	1752	3476	1551	1109	6095
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	10.9	12.9	12.7	11.3	15.5	5.9
Incr Delay (d2), s/veh	0.2	2.6	0.5	0.1	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.2	1.3	0.2	0.5	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.1	15.5	13.2	11.4	16.4	6.0
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	447		504			578
Approach Delay, s/veh	14.4		13.1			7.4
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.5	14.2			23.7	15.4
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	24.5	38.5			67.5	43.5
Max Q Clear Time (g_c+I1), s	3.6	6.5			5.3	9.5
Green Ext Time (p_c), s	0.2	3.2			3.5	1.5
Intersection Summary						
HCM 6th Ctrl Delay			11.3			
HCM 6th LOS			B			

Queues

Cumulative PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	102	234	127	135	191	90	1075	217	158	471
v/c Ratio	0.56	0.76	0.65	0.36	0.40	0.52	0.82	0.75	0.18	0.48
Control Delay	60.7	60.1	64.4	44.7	9.1	60.4	35.4	61.6	18.8	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	60.1	64.4	44.7	9.1	60.4	35.4	61.6	18.8	3.5
Queue Length 50th (ft)	74	162	91	89	0	65	366	155	69	0
Queue Length 95th (ft)	135	#283	#173	159	64	122	458	#267	115	58
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	236	368	232	389	481	222	1605	353	999	1064
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.64	0.55	0.35	0.40	0.41	0.67	0.61	0.16	0.44

Intersection Summary

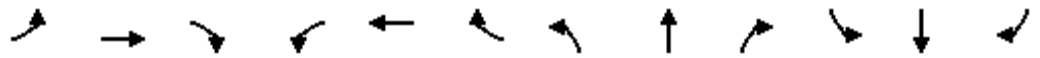
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	179	36	117	124	176	83	810	179	200	145	433
Future Volume (veh/h)	94	179	36	117	124	176	83	810	179	200	145	433
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	102	195	39	127	135	191	90	880	195	217	158	471
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	131	238	48	161	325	276	116	1114	247	260	871	738
Arrive On Green	0.07	0.16	0.16	0.09	0.18	0.18	0.07	0.39	0.39	0.15	0.47	0.47
Sat Flow, veh/h	1767	1501	300	1767	1856	1572	1767	2869	635	1767	1856	1572
Grp Volume(v), veh/h	102	0	234	127	135	191	90	541	534	217	158	471
Grp Sat Flow(s),veh/h/ln	1767	0	1801	1767	1856	1572	1767	1763	1741	1767	1856	1572
Q Serve(g_s), s	4.7	0.0	10.5	5.9	5.4	9.5	4.2	22.6	22.7	10.0	4.1	19.0
Cycle Q Clear(g_c), s	4.7	0.0	10.5	5.9	5.4	9.5	4.2	22.6	22.7	10.0	4.1	19.0
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	131	0	286	161	325	276	116	685	676	260	871	738
V/C Ratio(X)	0.78	0.00	0.82	0.79	0.42	0.69	0.77	0.79	0.79	0.84	0.18	0.64
Avail Cap(c_a), veh/h	289	0	441	285	450	381	272	1000	988	433	1221	1035
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	34.1	37.3	30.7	32.4	38.5	22.6	22.6	34.7	12.9	16.8
Incr Delay (d2), s/veh	9.4	0.0	6.9	8.4	0.8	3.1	10.4	2.7	2.7	7.0	0.1	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	2.4	0.0	5.0	2.9	2.5	3.8	2.1	9.3	9.2	4.7	1.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	0.0	41.0	45.7	31.6	35.6	48.8	25.3	25.3	41.7	13.0	17.7
LnGrp LOS	D	A	D	D	C	D	D	C	C	D	B	B
Approach Vol, veh/h		336			453			1165			846	
Approach Delay, s/veh		43.0			37.2			27.1			23.0	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.8	37.0	12.1	17.8	10.0	43.8	10.7	19.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.5	47.5	13.5	20.5	12.9	55.1	13.7	20.3				
Max Q Clear Time (g_c+I1), s	12.0	24.7	7.9	12.5	6.2	21.0	6.7	11.5				
Green Ext Time (p_c), s	0.4	7.9	0.1	0.8	0.1	2.8	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Queues

Cumulative PM

16: Sonoma Blvd (SR-29) & SR-37 Ramps

07/02/2024





















Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	393	1009	1087	98	1518	304
v/c Ratio	0.29	0.87	0.59	0.11	0.83	0.19
Control Delay	25.7	37.9	21.2	3.4	28.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	37.9	21.2	3.4	28.6	0.3
Queue Length 50th (ft)	105	359	295	0	502	0
Queue Length 95th (ft)	163	529	410	28	684	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1755	1486	2386	1099	2386	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.68	0.46	0.09	0.64	0.19

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative PM
 07/02/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	362	0	928	0	1000	90	0	1397	280
Future Volume (veh/h)	0	0	0	362	0	928	0	1000	90	0	1397	280
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				393	0	1009	0	1087	98	0	1518	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1399	0	1129	0	1805	805	0	1805	
Arrive On Green				0.41	0.00	0.41	0.00	0.51	0.51	0.00	0.51	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				393	0	1009	0	1087	98	0	1518	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				8.6	0.0	38.2	0.0	24.4	3.6	0.0	41.5	0.0
Cycle Q Clear(g_c), s				8.6	0.0	38.2	0.0	24.4	3.6	0.0	41.5	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1399	0	1129	0	1805	805	0	1805	
V/C Ratio(X)				0.28	0.00	0.89	0.00	0.60	0.12	0.00	0.84	
Avail Cap(c_a), veh/h				1724	0	1392	0	2338	1043	0	2338	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				22.2	0.0	31.0	0.0	19.3	14.3	0.0	23.5	0.0
Incr Delay (d2), s/veh				0.1	0.0	6.7	0.0	0.3	0.1	0.0	2.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.4	0.0	13.1	0.0	9.4	1.3	0.0	16.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.3	0.0	37.7	0.0	19.7	14.3	0.0	25.8	0.0
LnGrp LOS				C	A	D	A	B	B	A	C	
Approach Vol, veh/h					1402			1185			1518	
Approach Delay, s/veh					33.4			19.2			25.8	
Approach LOS					C			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		62.0				62.0		50.3				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.5				74.5		56.5				
Max Q Clear Time (g_c+I1), s		26.4				43.5		40.2				
Green Ext Time (p_c), s		10.0				14.1		5.7				

Intersection Summary

HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

Notes

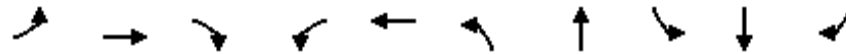
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Cumulative +Project AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	200	803	623	112	939	419	152	29	34	120
v/c Ratio	0.57	0.56	0.40	0.43	0.61	0.58	0.33	0.17	0.18	0.23
Control Delay	37.8	22.7	0.8	40.4	26.0	33.2	19.5	42.3	42.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	22.7	0.8	40.4	26.0	33.2	19.5	42.3	42.0	8.7
Queue Length 50th (ft)	92	175	0	52	147	98	28	14	16	8
Queue Length 95th (ft)	193	298	0	124	243	180	106	47	53	50
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	651	2070	1568	421	2300	1165	690	472	578	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.39	0.40	0.27	0.41	0.36	0.22	0.06	0.06	0.16

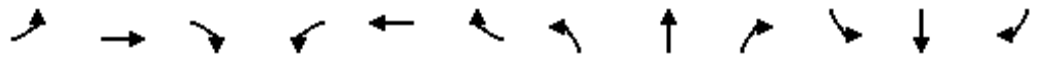
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative +Project AM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↗		↘	↑	↗
Traffic Volume (veh/h)	200	803	623	112	893	46	419	55	97	29	34	120
Future Volume (veh/h)	200	803	623	112	893	46	419	55	97	29	34	120
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	200	803	0	112	893	46	419	55	0	29	34	120
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	256	1229		147	1415	73	584	350		146	187	386
Arrive On Green	0.14	0.35	0.00	0.08	0.29	0.29	0.17	0.19	0.00	0.08	0.10	0.10
Sat Flow, veh/h	1767	3526	1572	1767	4933	254	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	200	803	0	112	611	328	419	55	0	29	34	120
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1810	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	6.6	11.6	0.0	3.8	9.5	9.6	7.0	1.5	0.0	0.9	1.0	3.8
Cycle Q Clear(g_c), s	6.6	11.6	0.0	3.8	9.5	9.6	7.0	1.5	0.0	0.9	1.0	3.8
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	256	1229		147	969	519	584	350		146	187	386
V/C Ratio(X)	0.78	0.65		0.76	0.63	0.63	0.72	0.16		0.20	0.18	0.31
Avail Cap(c_a), veh/h	744	2358		482	1757	942	1331	812		540	659	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	16.6	0.0	27.2	18.8	18.8	23.7	20.5	0.0	25.9	24.9	18.7
Incr Delay (d2), s/veh	5.2	0.6	0.0	8.0	0.7	1.3	1.7	0.2	0.0	0.7	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	4.1	0.0	1.8	3.3	3.6	2.8	0.6	0.0	0.4	0.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	17.2	0.0	35.1	19.5	20.1	25.4	20.8	0.0	26.6	25.4	19.1
LnGrp LOS	C	B		D	B	C	C	C		C	C	B
Approach Vol, veh/h		1003			1051			474			183	
Approach Delay, s/veh		19.8			21.3			24.9			21.5	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	15.9	9.5	25.6	14.8	10.6	13.3	21.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	26.5	16.5	40.5	23.5	21.5	25.5	31.5				
Max Q Clear Time (g_c+I1), s	2.9	3.5	5.8	13.6	9.0	5.8	8.6	11.6				
Green Ext Time (p_c), s	0.0	0.2	0.2	5.7	1.3	0.4	0.5	5.8				

Intersection Summary

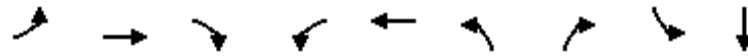
HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project AM
07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	28	609	354	23	789	324	9	2	5
v/c Ratio	0.10	0.38	0.39	0.08	0.54	0.37	0.01	0.01	0.01
Control Delay	25.8	10.2	3.1	26.0	13.4	19.0	0.0	28.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	10.2	3.1	26.0	13.4	19.0	0.0	28.0	0.0
Queue Length 50th (ft)	5	37	0	4	51	27	0	0	0
Queue Length 95th (ft)	36	158	50	32	214	109	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	375	3163	1449	375	3163	2100	1374	287	910
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.19	0.24	0.06	0.25	0.15	0.01	0.01	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project AM
07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	26	560	326	21	725	1	298	0	8	2	0	5
Future Volume (veh/h)	26	560	326	21	725	1	298	0	8	2	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	609	0	23	788	1	324	0	9	2	0	5
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	59	1265		50	1277	2	542	326	276	5	0	32
Arrive On Green	0.03	0.36	0.00	0.03	0.35	0.35	0.16	0.00	0.18	0.00	0.00	0.02
Sat Flow, veh/h	1767	3526	1572	1767	3613	5	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	28	609	0	23	384	405	324	0	9	2	0	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1855	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	0.6	5.5	0.0	0.5	7.5	7.5	3.6	0.0	0.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.6	5.5	0.0	0.5	7.5	7.5	3.6	0.0	0.2	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	1265		50	623	656	542	326	276	5	0	32
V/C Ratio(X)	0.48	0.48		0.46	0.62	0.62	0.60	0.00	0.03	0.41	0.00	0.16
Avail Cap(c_a), veh/h	363	4131		363	2065	2173	2029	1726	1463	278	0	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.7	10.3	0.0	19.8	11.1	11.1	16.2	0.0	14.1	20.6	0.0	19.9
Incr Delay (d2), s/veh	5.9	0.3	0.0	6.6	1.0	0.9	1.1	0.0	0.0	47.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.5	0.0	0.3	2.2	2.3	1.3	0.0	0.1	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	10.6	0.0	26.4	12.1	12.0	17.3	0.0	14.2	68.2	0.0	22.2
LnGrp LOS	C	B		C	B	B	B	A	B	E	A	C
Approach Vol, veh/h		637			812			333				7
Approach Delay, s/veh		11.2			12.4			17.2				35.3
Approach LOS		B			B			B				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	11.8	5.7	19.3	11.0	5.3	5.9	19.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	38.5	8.5	48.5	24.5	20.5	8.5	48.5				
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.5	7.5	5.6	2.1	2.6	9.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.3	1.1	0.0	0.0	5.2				

Intersection Summary

HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative +Project AM
07/03/2024

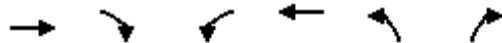


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	475	104	13	486	303	65
v/c Ratio	0.38	0.17	0.04	0.35	0.31	0.13
Control Delay	9.4	3.6	14.7	6.8	11.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	3.6	14.7	6.8	11.0	5.1
Queue Length 50th (ft)	22	0	2	23	15	0
Queue Length 95th (ft)	85	24	15	50	63	22
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3499	1566	1239	3505	3241	1498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.07	0.01	0.14	0.09	0.04
Intersection Summary						

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Cumulative +Project AM
07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	437	96	12	447	279	60
Future Volume (veh/h)	437	96	12	447	279	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	475	104	13	486	303	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	983	439	261	1975	589	270
Arrive On Green	0.28	0.28	0.15	0.56	0.17	0.17
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	475	104	13	486	303	65
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	3.8	1.7	0.2	2.4	2.7	1.2
Cycle Q Clear(g_c), s	3.8	1.7	0.2	2.4	2.7	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	983	439	261	1975	589	270
V/C Ratio(X)	0.48	0.24	0.05	0.25	0.51	0.24
Avail Cap(c_a), veh/h	5090	2270	1078	7713	3827	1755
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	10.1	9.4	12.3	3.8	12.6	12.0
Incr Delay (d2), s/veh	0.4	0.3	0.1	0.1	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.4	0.1	0.2	0.8	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.5	9.6	12.4	3.8	13.3	12.5
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	579			499	368	
Approach Delay, s/veh	10.3			4.1	13.2	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.3	9.5	13.9		23.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	20.5	48.5		73.5
Max Q Clear Time (g_c+I1), s		4.7	2.2	5.8		4.4
Green Ext Time (p_c), s		1.3	0.0	3.6		3.4
Intersection Summary						
HCM 6th Ctrl Delay			8.9			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project AM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	491	68	615	16	2	25	71	26
v/c Ratio	0.05	0.24	0.13	0.25	0.01	0.00	0.05	0.12	0.05
Control Delay	18.2	10.0	16.4	6.0	0.4	15.5	9.2	15.4	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	10.0	16.4	6.0	0.4	15.5	9.2	15.4	8.4
Queue Length 50th (ft)	5	46	14	29	0	0	1	14	0
Queue Length 95th (ft)	23	92	45	108	2	5	16	45	15
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	1035	3478	1223	3505	1568	1557	1354	1557	1336
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.14	0.06	0.18	0.01	0.00	0.02	0.05	0.02
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project AM
07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↷		↶	↶↷	↶	↶	↷		↶	↷	
Traffic Volume (veh/h)	22	447	5	63	566	15	2	3	20	65	1	23
Future Volume (veh/h)	22	447	5	63	566	15	2	3	20	65	1	23
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	486	5	68	615	16	2	3	22	71	1	25
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1203	12	129	1338	597	387	21	155	388	7	168
Arrive On Green	0.03	0.34	0.34	0.07	0.38	0.38	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1767	3575	37	1767	3526	1572	1374	192	1410	1375	61	1521
Grp Volume(v), veh/h	24	240	251	68	615	16	2	0	25	71	0	26
Grp Sat Flow(s),veh/h/ln	1767	1763	1849	1767	1763	1572	1374	0	1602	1375	0	1582
Q Serve(g_s), s	0.4	2.9	2.9	1.0	3.7	0.2	0.0	0.0	0.4	1.4	0.0	0.4
Cycle Q Clear(g_c), s	0.4	2.9	2.9	1.0	3.7	0.2	0.5	0.0	0.4	1.8	0.0	0.4
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	54	593	622	129	1338	597	387	0	177	388	0	174
V/C Ratio(X)	0.45	0.40	0.40	0.53	0.46	0.03	0.01	0.00	0.14	0.18	0.00	0.15
Avail Cap(c_a), veh/h	911	3165	3319	1413	7332	3270	1871	0	1908	1874	0	1884
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	0.00	1.00
Uniform Delay (d), s/veh	13.4	7.2	7.2	12.6	6.6	5.5	11.5	0.0	11.3	12.1	0.0	11.3
Incr Delay (d2), s/veh	5.7	0.4	0.4	3.3	0.2	0.0	0.0	0.0	0.4	0.2	0.0	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	0.2	0.7	0.7	0.4	0.8	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	7.6	7.6	15.8	6.8	5.5	11.5	0.0	11.7	12.3	0.0	11.7
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		515			699			27				97
Approach Delay, s/veh		8.1			7.7			11.7				12.2
Approach LOS		A			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.6	6.6	14.0		7.6	5.4	15.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		33.5	22.5	50.5		33.5	14.5	58.5				
Max Q Clear Time (g_c+I1), s		2.5	3.0	4.9		3.8	2.4	5.7				
Green Ext Time (p_c), s		0.1	0.1	3.3		0.3	0.0	5.0				
Intersection Summary												
HCM 6th Ctrl Delay			8.2									
HCM 6th LOS			A									

Queues

Cumulative +Project AM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	328	214	410	28	23	105	58	14	20
v/c Ratio	0.17	0.40	0.46	0.23	0.11	0.09	0.31	0.20	0.04	0.05
Control Delay	26.1	20.7	22.7	12.2	26.8	27.0	6.5	25.8	23.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	20.7	22.7	12.2	26.8	27.0	6.5	25.8	23.6	0.2
Queue Length 50th (ft)	14	48	62	48	9	7	0	17	3	0
Queue Length 95th (ft)	46	100	137	94	33	29	28	54	20	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	505	1874	1192	2779	789	1065	962	829	1092	984
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.18	0.18	0.15	0.04	0.02	0.11	0.07	0.01	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project AM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	267	35	197	279	98	26	21	97	53	13	18
Future Volume (veh/h)	42	267	35	197	279	98	26	21	97	53	13	18
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	46	290	38	214	303	107	28	23	105	58	14	20
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	88	552	72	288	743	257	196	245	208	160	207	176
Arrive On Green	0.05	0.18	0.18	0.16	0.29	0.29	0.11	0.13	0.13	0.09	0.11	0.11
Sat Flow, veh/h	1767	3138	407	1767	2569	889	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	46	162	166	214	206	204	28	23	105	58	14	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1782	1767	1763	1695	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	3.4	3.5	4.7	3.9	4.0	0.6	0.4	2.6	1.3	0.3	0.5
Cycle Q Clear(g_c), s	1.0	3.4	3.5	4.7	3.9	4.0	0.6	0.4	2.6	1.3	0.3	0.5
Prop In Lane	1.00		0.23	1.00		0.52	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	310	313	288	510	491	196	245	208	160	207	176
V/C Ratio(X)	0.52	0.52	0.53	0.74	0.40	0.42	0.14	0.09	0.51	0.36	0.07	0.11
Avail Cap(c_a), veh/h	538	1008	1019	1398	1866	1795	839	1151	976	882	1197	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	15.4	15.4	16.4	11.7	11.8	16.5	15.7	16.6	17.6	16.3	16.4
Incr Delay (d2), s/veh	4.8	1.4	1.4	3.8	0.5	0.6	0.3	0.2	1.9	1.4	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.3	1.3	1.9	1.3	1.3	0.2	0.2	0.9	0.5	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	16.7	16.8	20.1	12.3	12.4	16.8	15.8	18.5	18.9	16.5	16.7
LnGrp LOS	C	B	B	C	B	B	B	B	B	B	B	B
Approach Vol, veh/h		374			624			156				92
Approach Delay, s/veh		17.6			15.0			17.8				18.1
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	9.9	11.2	11.7	9.1	9.1	6.5	16.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.5	25.5	32.5	23.5	19.5	26.5	12.5	43.5				
Max Q Clear Time (g_c+I1), s	3.3	4.6	6.7	5.5	2.6	2.5	3.0	6.0				
Green Ext Time (p_c), s	0.1	0.4	0.6	1.7	0.0	0.1	0.0	2.7				

Intersection Summary

HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project AM
07/03/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	140	19	700	55	309
v/c Ratio	0.16	0.05	0.38	0.13	0.14
Control Delay	15.9	9.9	7.9	17.2	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	9.9	7.9	17.2	3.9
Queue Length 50th (ft)	9	0	27	7	13
Queue Length 95th (ft)	39	15	108	40	25
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2533	1066	3333	1042	3505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.02	0.21	0.05	0.09
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project AM
07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	127	19	432	212	51	284
Future Volume (veh/h)	127	19	432	212	51	284
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	138	21	470	230	55	309
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	422	188	898	436	107	2095
Arrive On Green	0.12	0.12	0.39	0.39	0.06	0.59
Sat Flow, veh/h	3534	1572	2392	1118	1767	3618
Grp Volume(v), veh/h	138	21	360	340	55	309
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1654	1767	1763
Q Serve(g_s), s	1.1	0.4	4.9	5.0	0.9	1.2
Cycle Q Clear(g_c), s	1.1	0.4	4.9	5.0	0.9	1.2
Prop In Lane	1.00	1.00		0.68	1.00	
Lane Grp Cap(c), veh/h	422	188	688	646	107	2095
V/C Ratio(X)	0.33	0.11	0.52	0.53	0.51	0.15
Avail Cap(c_a), veh/h	2868	1276	3506	3290	1040	9592
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	12.7	12.3	7.3	7.4	14.3	2.8
Incr Delay (d2), s/veh	0.4	0.3	0.6	0.7	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	1.2	1.2	0.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.1	12.6	8.0	8.0	18.1	2.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	159		700			364
Approach Delay, s/veh	13.1		8.0			5.2
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.4	16.8			23.2	8.3
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	18.5	62.5			85.5	25.5
Max Q Clear Time (g_c+I1), s	2.9	7.0			3.2	3.1
Green Ext Time (p_c), s	0.1	5.3			2.3	0.5

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Cumulative +Project AM
07/03/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	150	104	313	124	56
v/c Ratio	0.29	0.05	0.34	0.15	0.15
Control Delay	13.7	3.7	6.6	12.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	3.7	6.6	12.6	6.5
Queue Length 50th (ft)	24	3	9	9	0
Queue Length 95th (ft)	64	10	35	27	21
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1726	3505	3014	2947	1257
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.10	0.04	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative +Project AM
07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑↑	↗		↙	↘	
Traffic Volume (veh/h)	138	96	100	188	98	67	
Future Volume (veh/h)	138	96	100	188	98	67	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	150	104	109	204	119	60	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	219	1893	439	392	479	213	
Arrive On Green	0.12	0.54	0.25	0.25	0.14	0.14	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	150	104	109	204	119	60	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	2.2	0.4	1.4	3.1	0.8	0.9	
Cycle Q Clear(g_c), s	2.2	0.4	1.4	3.1	0.8	0.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	219	1893	439	392	479	213	
V/C Ratio(X)	0.68	0.05	0.25	0.52	0.25	0.28	
Avail Cap(c_a), veh/h	2540	10201	2278	2032	4052	1803	
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	11.5	3.0	8.3	8.9	10.6	10.7	
Incr Delay (d2), s/veh	3.7	0.0	0.3	1.1	0.3	0.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.4	0.8	0.2	0.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	15.3	3.0	8.6	10.0	10.9	11.4	
LnGrp LOS	B	A	A	A	B	B	
Approach Vol, veh/h		254	313		179		
Approach Delay, s/veh		10.3	9.5		11.1		
Approach LOS		B	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				19.3	8.2	7.9	11.3
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				79.5	31.5	39.5	35.5
Max Q Clear Time (g_c+I1), s				2.4	2.9	4.2	5.1
Green Ext Time (p_c), s				0.7	0.6	0.4	2.1

Intersection Summary

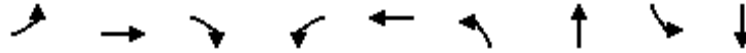
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project AM
07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	8	140	4	33	238	280	10	369
v/c Ratio	0.11	0.02	0.34	0.02	0.13	0.48	0.12	0.04	0.42
Control Delay	25.6	21.7	8.0	27.0	16.0	20.8	7.3	26.4	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	21.7	8.0	27.0	16.0	20.8	7.3	26.4	18.9
Queue Length 50th (ft)	7	2	0	1	2	48	9	2	38
Queue Length 95th (ft)	35	14	45	10	27	149	62	17	108
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	398	1118	1005	314	930	1396	3404	314	2410
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.01	0.14	0.01	0.04	0.17	0.08	0.03	0.15
Intersection Summary									

HCM 6th Signalized Intersection Summary
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project AM
07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	7	129	4	7	23	219	253	5	9	290	50
Future Volume (veh/h)	28	7	129	4	7	23	219	253	5	9	290	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	8	140	4	8	25	238	275	5	10	315	54
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	63	264	224	10	44	139	321	1311	24	23	608	103
Arrive On Green	0.04	0.14	0.14	0.01	0.11	0.11	0.18	0.37	0.37	0.01	0.20	0.20
Sat Flow, veh/h	1767	1856	1572	1767	396	1237	1767	3542	64	1767	3015	511
Grp Volume(v), veh/h	30	8	140	4	0	33	238	137	143	10	183	186
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1633	1767	1763	1844	1767	1763	1764
Q Serve(g_s), s	0.6	0.1	3.2	0.1	0.0	0.7	4.9	2.0	2.0	0.2	3.5	3.6
Cycle Q Clear(g_c), s	0.6	0.1	3.2	0.1	0.0	0.7	4.9	2.0	2.0	0.2	3.5	3.6
Prop In Lane	1.00		1.00	1.00		0.76	1.00		0.03	1.00		0.29
Lane Grp Cap(c), veh/h	63	264	224	10	0	183	321	652	683	23	355	355
V/C Ratio(X)	0.48	0.03	0.63	0.42	0.00	0.18	0.74	0.21	0.21	0.43	0.51	0.52
Avail Cap(c_a), veh/h	437	1233	1045	345	0	1000	1726	2824	2954	345	1446	1447
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	14.2	15.5	19.0	0.0	15.4	14.9	8.3	8.3	18.8	13.7	13.7
Incr Delay (d2), s/veh	5.5	0.0	2.9	26.2	0.0	0.5	3.4	0.2	0.2	12.0	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	1.1	0.1	0.0	0.2	1.8	0.6	0.6	0.2	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	14.2	18.4	45.3	0.0	15.9	18.2	8.4	8.4	30.8	14.8	14.9
LnGrp LOS	C	B	B	D	A	B	B	A	A	C	B	B
Approach Vol, veh/h		178			37			518			379	
Approach Delay, s/veh		19.1			19.1			12.9			15.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	18.7	4.7	10.0	11.5	12.2	5.9	8.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	61.5	7.5	25.5	37.5	31.5	9.5	23.5				
Max Q Clear Time (g_c+I1), s	2.2	4.0	2.1	5.2	6.9	5.6	2.6	2.7				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.4	0.7	2.1	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									

Queues
9: Ascot Parkway & Redwood Street

Cumulative +Project AM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	870	141	326	527	356	196	355
v/c Ratio	0.68	0.90	0.78	0.42	0.90	0.33	0.71	0.69
Control Delay	60.1	45.8	78.2	39.0	55.0	29.0	59.2	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	45.8	78.2	39.0	55.0	29.0	59.2	42.4
Queue Length 50th (ft)	117	274	103	104	355	97	139	102
Queue Length 95th (ft)	192	#421	#223	165	#584	146	218	153
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	327	1014	187	779	660	1223	375	699
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.86	0.75	0.42	0.80	0.29	0.52	0.51

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative +Project AM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Traffic Volume (veh/h)	152	446	354	130	257	43	485	279	49	180	207	120
Future Volume (veh/h)	152	446	354	130	257	43	485	279	49	180	207	120
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	165	485	0	141	279	0	527	303	0	196	225	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	210	702		179	640		592	1062		246	371	
Arrive On Green	0.12	0.20	0.00	0.10	0.18	0.00	0.34	0.30	0.00	0.14	0.11	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	165	485	0	141	279	0	527	303	0	196	225	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	6.3	8.9	0.0	5.4	4.9	0.0	19.6	4.6	0.0	7.5	4.2	0.0
Cycle Q Clear(g_c), s	6.3	8.9	0.0	5.4	4.9	0.0	19.6	4.6	0.0	7.5	4.2	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	210	702		179	640		592	1062		246	371	
V/C Ratio(X)	0.78	0.69		0.79	0.44		0.89	0.29		0.80	0.61	
Avail Cap(c_a), veh/h	512	1499		293	1062		1031	1930		586	1041	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.7	25.8	0.0	30.5	25.3	0.0	21.9	18.5	0.0	28.9	29.7	0.0
Incr Delay (d2), s/veh	6.3	1.2	0.0	7.5	0.5	0.0	5.2	0.1	0.0	5.8	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.6	0.0	2.5	2.0	0.0	8.1	1.7	0.0	3.4	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	27.0	0.0	37.9	25.7	0.0	27.1	18.7	0.0	34.8	31.3	0.0
LnGrp LOS	D	C		D	C		C	B		C	C	
Approach Vol, veh/h		650			420			830			421	
Approach Delay, s/veh		29.3			29.8			24.0			32.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.2	25.4	11.5	18.3	27.8	11.8	12.8	17.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	23.0	38.0	11.5	29.5	40.5	20.5	20.1	20.9				
Max Q Clear Time (g_c+I1), s	9.5	6.6	7.4	10.9	21.6	6.2	8.3	6.9				
Green Ext Time (p_c), s	0.4	2.0	0.1	3.0	1.6	1.1	0.3	1.4				

Intersection Summary

HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative +Project AM
07/03/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	743	439	493	338	537
v/c Ratio	0.77	0.81	0.22	0.73	0.66
Control Delay	36.7	44.0	8.0	44.1	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	44.0	8.0	44.1	7.4
Queue Length 50th (ft)	198	246	60	190	0
Queue Length 95th (ft)	335	426	104	338	91
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1236	805	2848	686	940
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.55	0.17	0.49	0.57
Intersection Summary					

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

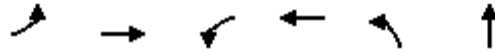
Cumulative +Project AM
 07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↙	↗
Traffic Volume (veh/h)	455	228	404	454	311	494
Future Volume (veh/h)	455	228	404	454	311	494
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	495	248	439	493	338	537
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	584	291	481	2019	599	533
Arrive On Green	0.26	0.26	0.27	0.57	0.34	0.34
Sat Flow, veh/h	2371	1136	1767	3618	1767	1572
Grp Volume(v), veh/h	383	360	439	493	338	537
Grp Sat Flow(s),veh/h/ln	1763	1651	1767	1763	1767	1572
Q Serve(g_s), s	21.0	21.1	24.5	7.1	15.9	34.5
Cycle Q Clear(g_c), s	21.0	21.1	24.5	7.1	15.9	34.5
Prop In Lane		0.69	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	452	423	481	2019	599	533
V/C Ratio(X)	0.85	0.85	0.91	0.24	0.56	1.01
Avail Cap(c_a), veh/h	546	511	703	2650	599	533
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	35.9	36.0	35.9	10.8	27.5	33.6
Incr Delay (d2), s/veh	10.2	11.3	12.3	0.1	1.2	40.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	9.6	11.8	2.6	6.8	18.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.1	47.3	48.2	10.9	28.7	74.4
LnGrp LOS	D	D	D	B	C	F
Approach Vol, veh/h	743			932	875	
Approach Delay, s/veh	46.7			28.4	56.8	
Approach LOS	D			C	E	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		39.0	32.2	30.6		62.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		34.5	40.5	31.5		76.5
Max Q Clear Time (g_c+I1), s		36.5	26.5	23.1		9.1
Green Ext Time (p_c), s		0.0	1.2	2.9		3.6
Intersection Summary						
HCM 6th Ctrl Delay			43.5			
HCM 6th LOS			D			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project AM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	25	798	96	759	148	97
v/c Ratio	0.11	0.59	0.32	0.42	0.46	0.15
Control Delay	29.1	16.2	27.5	10.4	26.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	16.2	27.5	10.4	26.8	0.5
Queue Length 50th (ft)	7	104	28	53	42	0
Queue Length 95th (ft)	34	204	84	171	114	0
Internal Link Dist (ft)		424		851		1161
Turn Bay Length (ft)	125		125		75	
Base Capacity (vph)	337	3022	691	3334	947	1177
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.26	0.14	0.23	0.16	0.08
Intersection Summary						

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

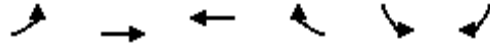
Cumulative +Project AM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	23	617	117	88	697	1	136	0	89	0	0	0
Future Volume (veh/h)	23	617	117	88	697	1	136	0	89	0	0	0
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	671	127	96	758	1	148	0	97	0	0	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1161	220	151	1617	2	460	0	232	200	273	0
Arrive On Green	0.03	0.39	0.39	0.09	0.45	0.45	0.15	0.00	0.15	0.00	0.00	0.00
Sat Flow, veh/h	1767	2958	559	1767	3613	5	1767	0	1572	1288	1856	0
Grp Volume(v), veh/h	25	400	398	96	370	389	148	0	97	0	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1755	1767	1763	1855	1767	0	1572	1288	1856	0
Q Serve(g_s), s	0.5	6.4	6.4	1.9	5.3	5.3	2.8	0.0	2.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	6.4	6.4	1.9	5.3	5.3	2.8	0.0	2.0	0.0	0.0	0.0
Prop In Lane	1.00		0.32	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	54	692	689	151	789	830	460	0	232	200	273	0
V/C Ratio(X)	0.46	0.58	0.58	0.63	0.47	0.47	0.32	0.00	0.42	0.00	0.00	0.00
Avail Cap(c_a), veh/h	466	2518	2507	956	3007	3164	1940	0	1548	1278	1827	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	17.2	8.6	8.6	15.9	7.0	7.0	14.3	0.0	14.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.0	0.8	0.8	4.3	0.4	0.4	0.4	0.0	1.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.7	1.7	0.8	1.2	1.3	1.0	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	9.4	9.4	20.3	7.4	7.4	14.7	0.0	15.2	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	B	A	B	A	A	A
Approach Vol, veh/h		823			855			245				0
Approach Delay, s/veh		9.8			8.8			14.9				0.0
Approach LOS		A			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.8	7.6	18.7		9.8	5.6	20.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		35.5	19.5	51.5		35.5	9.5	61.5				
Max Q Clear Time (g_c+I1), s		4.8	3.9	8.4		0.0	2.5	7.3				
Green Ext Time (p_c), s		1.0	0.2	5.7		0.0	0.0	5.3				
Intersection Summary												
HCM 6th Ctrl Delay				10.0								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project AM
07/03/2024

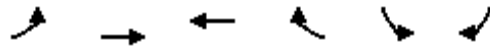


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	464	480	646	241	99	1120
v/c Ratio	0.58	0.26	0.75	0.43	0.07	0.59
Control Delay	42.8	15.5	45.6	6.6	22.4	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.3
Total Delay	42.8	15.5	45.6	6.6	22.4	13.5
Queue Length 50th (ft)	156	98	230	0	22	209
Queue Length 95th (ft)	224	130	295	60	43	323
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	796	2028	1068	645	1367	1896
Starvation Cap Reductn	0	0	0	0	0	611
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.24	0.60	0.37	0.07	0.87

Intersection Summary

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

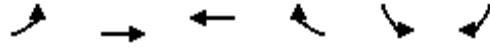
Cumulative +Project AM
 07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↖	↑↑	↗↗	↑	↙↙	↘↘	
Traffic Volume (veh/h)	418	432	581	217	89	1008	
Future Volume (veh/h)	418	432	581	217	89	1008	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	464	480	646	241	99	1120	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	819	1794	809	361	1406	1796	
Arrive On Green	0.24	0.51	0.23	0.23	0.41	0.41	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	464	480	646	241	99	1120	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	13.2	8.6	19.2	15.5	1.9	26.5	
Cycle Q Clear(g_c), s	13.2	8.6	19.2	15.5	1.9	26.5	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	819	1794	809	361	1406	1796	
V/C Ratio(X)	0.57	0.27	0.80	0.67	0.07	0.62	
Avail Cap(c_a), veh/h	819	2081	1096	489	1406	1796	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	37.2	15.5	40.3	38.9	19.9	11.5	
Incr Delay (d2), s/veh	2.8	0.1	3.0	2.1	0.1	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.8	3.4	8.5	13.4	0.8	23.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	40.0	15.6	43.4	41.0	20.0	13.1	
LnGrp LOS	D	B	D	D	B	B	
Approach Vol, veh/h		944	887		1219		
Approach Delay, s/veh		27.6	42.7		13.7		
Approach LOS		C	D		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				61.0	50.0	31.0	30.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				65.5	45.5	26.5	34.5
Max Q Clear Time (g_c+I1), s				10.6	28.5	15.2	21.2
Green Ext Time (p_c), s				3.5	5.4	1.3	4.3
Intersection Summary							
HCM 6th Ctrl Delay			26.4				
HCM 6th LOS			C				

Queues
13: Redwood Street

Cumulative +Project AM
07/03/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	96	668	1142	219	151	187
v/c Ratio	0.73	0.28	0.81	0.35	0.10	0.24
Control Delay	92.9	20.5	39.3	28.0	22.3	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.9	20.5	39.3	28.0	22.3	10.8
Queue Length 50th (ft)	41	120	440	126	36	34
Queue Length 95th (ft)	#101	146	521	188	70	100
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	132	3232	1990	890	1547	775
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.21	0.57	0.25	0.10	0.24

Intersection Summary

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

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative +Project AM
07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗↘	↑↑↑	↑↑	↖	↗↘	↖
Traffic Volume (veh/h)	86	601	1028	197	136	168
Future Volume (veh/h)	86	601	1028	197	136	168
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	96	668	1142	219	151	187
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	135	2376	1390	620	1578	724
Arrive On Green	0.04	0.47	0.39	0.39	0.46	0.46
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	96	668	1142	219	151	187
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	3.5	10.3	36.9	12.5	3.2	9.3
Cycle Q Clear(g_c), s	3.5	10.3	36.9	12.5	3.2	9.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	135	2376	1390	620	1578	724
V/C Ratio(X)	0.71	0.28	0.82	0.35	0.10	0.26
Avail Cap(c_a), veh/h	135	3287	2024	903	1578	724
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	60.4	20.6	34.5	27.1	19.4	21.0
Incr Delay (d2), s/veh	27.3	0.1	1.8	0.3	0.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	4.0	15.8	4.7	1.3	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	87.6	20.7	36.3	27.4	19.5	21.9
LnGrp LOS	F	C	D	C	B	C
Approach Vol, veh/h		764	1361		338	
Approach Delay, s/veh		29.1	34.9		20.8	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.1		63.0	9.5	54.6
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		12.3		11.3	5.5	38.9
Green Ext Time (p_c), s		5.2		1.2	0.0	11.2
Intersection Summary						
HCM 6th Ctrl Delay			31.2			
HCM 6th LOS			C			

Queues

14: Lake Herman Road & Columbus Parkway















Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	96	429	98	224	288
v/c Ratio	0.14	0.28	0.43	0.19	0.45	0.11
Control Delay	20.0	8.2	15.1	5.0	17.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	8.2	15.1	5.0	17.7	3.0
Queue Length 50th (ft)	9	0	45	0	45	11
Queue Length 95th (ft)	34	33	93	27	113	22
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1131	1046	3116	1405	1601	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.09	0.14	0.07	0.14	0.08

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project AM
 07/03/2024

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	88	395	90	206	265
Future Volume (veh/h)	37	88	395	90	206	265
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	40	96	429	98	224	288
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	195	173	934	417	349	2133
Arrive On Green	0.11	0.11	0.26	0.26	0.20	0.61
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	40	96	429	98	224	288
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	0.7	1.8	3.2	1.5	3.7	1.1
Cycle Q Clear(g_c), s	0.7	1.8	3.2	1.5	3.7	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	195	173	934	417	349	2133
V/C Ratio(X)	0.21	0.55	0.46	0.24	0.64	0.14
Avail Cap(c_a), veh/h	1426	1269	4406	1965	2320	9536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	13.3	9.7	9.1	11.7	2.7
Incr Delay (d2), s/veh	0.5	2.7	0.4	0.3	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.6	0.8	0.4	1.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.3	16.1	10.1	9.4	13.6	2.7
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	136		527			512
Approach Delay, s/veh	15.3		9.9			7.5
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.7	12.9			23.6	8.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	41.5	39.5			85.5	25.5
Max Q Clear Time (g_c+I1), s	5.7	5.2			3.1	3.8
Green Ext Time (p_c), s	0.6	3.2			1.9	0.3
Intersection Summary						
HCM 6th Ctrl Delay			9.5			
HCM 6th LOS			A			

Queues

Cumulative +Project AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	70	108	170	168	113	43	378	103	140	617
v/c Ratio	0.26	0.34	0.44	0.39	0.24	0.18	0.45	0.33	0.24	0.67
Control Delay	31.0	28.8	29.0	26.3	5.0	32.0	23.7	30.2	20.8	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	28.8	29.0	26.3	5.0	32.0	23.7	30.2	20.8	6.4
Queue Length 50th (ft)	24	34	57	54	0	15	62	35	42	0
Queue Length 95th (ft)	73	95	139	130	29	52	128	95	101	81
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	406	709	795	1057	956	300	2560	547	1531	1406
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.15	0.21	0.16	0.12	0.14	0.15	0.19	0.09	0.44

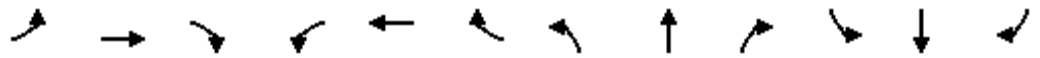
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative +Project AM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	81	18	156	155	104	40	301	47	95	129	568
Future Volume (veh/h)	64	81	18	156	155	104	40	301	47	95	129	568
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	88	20	170	168	113	43	327	51	103	140	617
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	100	141	32	220	305	259	75	1261	195	135	827	701
Arrive On Green	0.06	0.10	0.10	0.12	0.16	0.16	0.04	0.41	0.41	0.08	0.45	0.45
Sat Flow, veh/h	1767	1463	333	1767	1856	1572	1767	3061	473	1767	1856	1572
Grp Volume(v), veh/h	70	0	108	170	168	113	43	187	191	103	140	617
Grp Sat Flow(s),veh/h/ln	1767	0	1796	1767	1856	1572	1767	1763	1770	1767	1856	1572
Q Serve(g_s), s	2.4	0.0	3.6	5.8	5.1	4.0	1.5	4.3	4.4	3.5	2.8	22.1
Cycle Q Clear(g_c), s	2.4	0.0	3.6	5.8	5.1	4.0	1.5	4.3	4.4	3.5	2.8	22.1
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	100	0	173	220	305	259	75	726	729	135	827	701
V/C Ratio(X)	0.70	0.00	0.62	0.77	0.55	0.44	0.58	0.26	0.26	0.76	0.17	0.88
Avail Cap(c_a), veh/h	328	0	566	643	915	775	243	1268	1273	443	1544	1309
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	26.9	26.2	23.8	23.3	29.1	12.0	12.0	28.0	10.3	15.6
Incr Delay (d2), s/veh	8.6	0.0	3.6	5.7	1.6	1.2	6.8	0.2	0.2	8.6	0.1	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.6	2.6	2.3	1.5	0.7	1.5	1.6	1.7	1.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	0.0	30.5	31.9	25.3	24.4	35.9	12.2	12.2	36.7	10.4	19.4
LnGrp LOS	D	A	C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		178			451			421			860	
Approach Delay, s/veh		33.2			27.6			14.6			20.0	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	30.0	12.2	10.5	7.1	32.1	8.0	14.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	44.5	22.5	19.5	8.5	51.5	11.5	30.5				
Max Q Clear Time (g_c+I1), s	5.5	6.4	7.8	5.6	3.5	24.1	4.4	7.1				
Green Ext Time (p_c), s	0.2	2.4	0.4	0.4	0.0	3.5	0.1	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			21.8									
HCM 6th LOS			C									

Queues
 16: Sonoma Blvd (SR-29) & SR-37 Ramps



















Cumulative +Project AM
 07/03/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	482	1021	636	40	1714	235
v/c Ratio	0.45	0.85	0.31	0.04	0.83	0.15
Control Delay	32.0	26.3	12.0	3.5	22.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	26.3	12.0	3.5	22.7	0.2
Queue Length 50th (ft)	136	212	108	0	468	0
Queue Length 95th (ft)	225	380	179	16	725	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1617	1564	2744	1236	2744	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.65	0.23	0.03	0.62	0.15
Intersection Summary						

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project AM
 07/03/2024

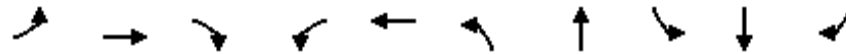
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	443	0	939	0	585	37	0	1577	216
Future Volume (veh/h)	0	0	0	443	0	939	0	585	37	0	1577	216
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				482	0	1021	0	636	40	0	1714	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1275	0	1029	0	1966	877	0	1966	
Arrive On Green				0.37	0.00	0.37	0.00	0.56	0.56	0.00	0.56	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				482	0	1021	0	636	40	0	1714	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				13.1	0.0	46.9	0.0	12.4	1.5	0.0	53.5	0.0
Cycle Q Clear(g_c), s				13.1	0.0	46.9	0.0	12.4	1.5	0.0	53.5	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1275	0	1029	0	1966	877	0	1966	
V/C Ratio(X)				0.38	0.00	0.99	0.00	0.32	0.05	0.00	0.87	
Avail Cap(c_a), veh/h				1275	0	1029	0	2305	1028	0	2305	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				29.3	0.0	39.9	0.0	15.2	12.8	0.0	24.3	0.0
Incr Delay (d2), s/veh				0.2	0.0	26.0	0.0	0.1	0.0	0.0	3.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.3	0.0	19.0	0.0	4.8	0.5	0.0	21.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.5	0.0	65.9	0.0	15.3	12.8	0.0	27.8	0.0
LnGrp LOS				C	A	E	A	B	B	A	C	
Approach Vol, veh/h					1503			676			1714	
Approach Delay, s/veh					54.2			15.2			27.8	
Approach LOS					D			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		75.7				75.7		52.0				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		83.5				83.5		47.5				
Max Q Clear Time (g_c+I1), s		14.4				55.5		48.9				
Green Ext Time (p_c), s		4.8				15.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				35.8								
HCM 6th LOS				D								
Notes												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

Cumulative +Project PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	301	745	1093	173	869	1321	347	56	67	229
v/c Ratio	0.94	0.86	0.70	0.84	0.95	0.96	0.46	0.39	0.42	0.44
Control Delay	82.8	51.2	2.6	80.5	64.5	49.6	15.3	56.1	56.0	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.8	51.2	2.6	80.5	64.5	49.6	15.3	56.1	56.0	20.1
Queue Length 50th (ft)	213	267	0	122	223	469	94	38	46	72
Queue Length 95th (ft)	#403	#391	0	#256	#331	#660	184	80	91	142
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	320	865	1568	206	913	1373	768	292	328	520
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.86	0.70	0.84	0.95	0.96	0.45	0.19	0.20	0.44

Intersection Summary

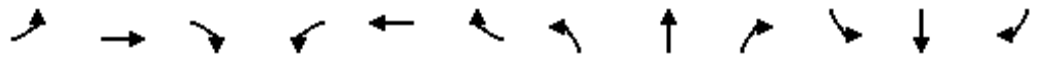
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗	↗	↗	↗↗↗		↗↗	↗		↗	↗	↗
Traffic Volume (veh/h)	301	745	1093	173	801	68	1321	82	265	56	67	229
Future Volume (veh/h)	301	745	1093	173	801	68	1321	82	265	56	67	229
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	301	745	0	173	801	68	1321	82	0	56	67	229
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	298	802		192	797	67	1275	856		86	257	482
Arrive On Green	0.17	0.23	0.00	0.11	0.17	0.17	0.37	0.46	0.00	0.05	0.14	0.14
Sat Flow, veh/h	1767	3526	1572	1767	4758	402	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	301	745	0	173	567	302	1321	82	0	56	67	229
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1783	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	19.7	24.2	0.0	11.3	19.6	19.6	43.5	2.9	0.0	3.6	3.8	13.8
Cycle Q Clear(g_c), s	19.7	24.2	0.0	11.3	19.6	19.6	43.5	2.9	0.0	3.6	3.8	13.8
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	298	802		192	566	299	1275	856		86	257	482
V/C Ratio(X)	1.01	0.93		0.90	1.00	1.01	1.04	0.10		0.65	0.26	0.47
Avail Cap(c_a), veh/h	298	802		192	566	299	1275	856		272	305	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	44.3	0.0	51.5	48.7	48.7	36.7	17.8	0.0	54.7	45.1	32.9
Incr Delay (d2), s/veh	55.1	17.1	0.0	38.8	38.6	54.5	35.1	0.0	0.0	7.9	0.5	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	13.0	12.2	0.0	7.0	11.1	13.0	24.0	1.3	0.0	1.8	1.8	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.8	61.4	0.0	90.3	87.3	103.2	71.8	17.8	0.0	62.6	45.6	33.6
LnGrp LOS	F	E		F	F	F	F	B		E	D	C
Approach Vol, veh/h		1046			1042			1403			352	
Approach Delay, s/veh		73.6			92.4			68.7			40.5	
Approach LOS		E			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	58.5	17.2	31.1	48.0	20.7	24.2	24.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	44.7	12.7	26.6	43.5	19.2	19.7	19.6				
Max Q Clear Time (g_c+I1), s	5.6	4.9	13.3	26.2	45.5	15.8	21.7	21.6				
Green Ext Time (p_c), s	0.1	0.4	0.0	0.2	0.0	0.4	0.0	0.0				

Intersection Summary

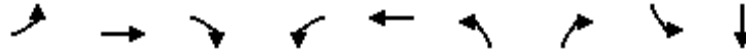
HCM 6th Ctrl Delay	73.9
HCM 6th LOS	E

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project PM
07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	70	897	299	39	874	209	34	2	5
v/c Ratio	0.23	0.51	0.32	0.15	0.57	0.31	0.06	0.01	0.01
Control Delay	27.2	11.4	2.8	28.5	14.2	23.9	0.2	31.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	11.4	2.8	28.5	14.2	23.9	0.2	31.0	0.0
Queue Length 50th (ft)	19	53	0	11	104	28	0	1	0
Queue Length 95th (ft)	73	236	42	48	243	85	0	8	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	534	3227	1467	376	3146	1267	1156	257	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.28	0.20	0.10	0.28	0.16	0.03	0.01	0.01
Intersection Summary									

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project PM
07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	64	825	275	36	804	0	192	0	31	2	0	5
Future Volume (veh/h)	64	825	275	36	804	0	192	0	31	2	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	897	0	39	874	0	209	0	34	2	0	5
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	114	1463		75	1386	0	360	272	231	5	0	70
Arrive On Green	0.06	0.41	0.00	0.04	0.39	0.00	0.11	0.00	0.15	0.00	0.00	0.04
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	70	897	0	39	874	0	209	0	34	2	0	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.8	9.1	0.0	1.0	9.2	0.0	2.7	0.0	0.9	0.1	0.0	0.1
Cycle Q Clear(g_c), s	1.8	9.1	0.0	1.0	9.2	0.0	2.7	0.0	0.9	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	1463		75	1386	0	360	272	231	5	0	70
V/C Ratio(X)	0.62	0.61		0.52	0.63	0.00	0.58	0.00	0.15	0.41	0.00	0.07
Avail Cap(c_a), veh/h	521	4271		366	3963	0	1235	1235	1047	251	0	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.9	10.5	0.0	21.5	11.2	0.0	19.5	0.0	17.0	22.8	0.0	21.0
Incr Delay (d2), s/veh	5.3	0.4	0.0	5.4	0.5	0.0	1.5	0.0	0.3	47.7	0.0	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	0.8	2.6	0.0	0.5	2.6	0.0	1.0	0.0	0.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	10.9	0.0	26.8	11.7	0.0	21.0	0.0	17.3	70.5	0.0	21.4
LnGrp LOS	C	B		C	B	A	C	A	B	E	A	C
Approach Vol, veh/h		967			913			243				7
Approach Delay, s/veh		12.0			12.3			20.5				35.5
Approach LOS		B			B			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	11.2	6.5	23.5	9.3	6.5	7.4	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	30.5	9.5	55.5	16.5	20.5	13.5	51.5				
Max Q Clear Time (g_c+I1), s	2.1	2.9	3.0	11.1	4.7	2.1	3.8	11.2				
Green Ext Time (p_c), s	0.0	0.1	0.0	7.2	0.5	0.0	0.1	6.8				

Intersection Summary

HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative +Project PM
07/03/2024

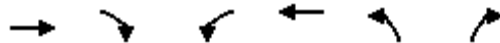


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	627	271	50	704	154	27
v/c Ratio	0.33	0.28	0.12	0.31	0.18	0.06
Control Delay	8.9	2.7	17.7	4.6	16.0	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	2.7	17.7	4.6	16.0	9.2
Queue Length 50th (ft)	30	0	7	34	10	0
Queue Length 95th (ft)	111	35	39	61	43	17
Internal Link Dist (ft)	1748			2821	1766	
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3488	1562	1243	3505	2696	1249
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.17	0.04	0.20	0.06	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Cumulative +Project PM
07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (veh/h)	577	249	46	648	142	25
Future Volume (veh/h)	577	249	46	648	142	25
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	627	271	50	704	154	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1256	560	251	2208	404	185
Arrive On Green	0.36	0.36	0.14	0.63	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	627	271	50	704	154	27
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	4.9	4.7	0.9	3.3	1.5	0.5
Cycle Q Clear(g_c), s	4.9	4.7	0.9	3.3	1.5	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1256	560	251	2208	404	185
V/C Ratio(X)	0.50	0.48	0.20	0.32	0.38	0.15
Avail Cap(c_a), veh/h	5361	2391	1231	8267	2777	1274
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	8.9	8.8	13.3	3.1	14.3	13.9
Incr Delay (d2), s/veh	0.3	0.6	0.4	0.1	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.1	0.3	0.2	0.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	9.5	13.7	3.2	14.9	14.3
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	898			754	181	
Approach Delay, s/veh	9.3			3.9	14.8	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.6	9.5	17.0		26.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		28.5	24.5	53.5		82.5
Max Q Clear Time (g_c+I1), s		3.5	2.9	6.9		5.3
Green Ext Time (p_c), s		0.6	0.1	5.6		5.3
Intersection Summary						
HCM 6th Ctrl Delay			7.6			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way






















Cumulative +Project PM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	1420	203	1052	40	17	185	133	91
v/c Ratio	0.44	0.83	0.70	0.51	0.04	0.07	0.41	0.75	0.24
Control Delay	56.2	27.7	55.4	14.6	2.2	35.9	10.0	66.0	13.6
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.2	28.0	55.4	14.6	2.2	35.9	10.0	66.0	13.6
Queue Length 50th (ft)	49	398	131	208	0	10	7	86	9
Queue Length 95th (ft)	106	608	233	332	11	30	66	164	52
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	226	2107	383	2424	1101	405	618	283	560
Starvation Cap Reductn	0	169	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.73	0.53	0.43	0.04	0.04	0.30	0.47	0.16
Intersection Summary									

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project PM
07/03/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1270	37	187	968	37	16	12	158	122	15	69
Future Volume (veh/h)	69	1270	37	187	968	37	16	12	158	122	15	69
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	1380	40	203	1052	40	17	13	172	133	16	75
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	97	1683	49	241	1984	885	326	26	350	240	67	316
Arrive On Green	0.05	0.48	0.48	0.14	0.56	0.56	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1767	3499	101	1767	3526	1572	1295	112	1478	1189	284	1332
Grp Volume(v), veh/h	75	695	725	203	1052	40	17	0	185	133	0	91
Grp Sat Flow(s),veh/h/ln	1767	1763	1837	1767	1763	1572	1295	0	1590	1189	0	1616
Q Serve(g_s), s	3.9	31.3	31.4	10.4	17.3	1.1	1.0	0.0	9.3	10.1	0.0	4.2
Cycle Q Clear(g_c), s	3.9	31.3	31.4	10.4	17.3	1.1	5.2	0.0	9.3	19.4	0.0	4.2
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	97	848	884	241	1984	885	326	0	377	240	0	383
V/C Ratio(X)	0.77	0.82	0.82	0.84	0.53	0.05	0.05	0.00	0.49	0.55	0.00	0.24
Avail Cap(c_a), veh/h	230	1073	1118	390	2465	1099	430	0	505	336	0	513
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	0.00	1.00
Uniform Delay (d), s/veh	43.3	20.6	20.7	39.1	12.7	9.1	30.7	0.0	30.6	39.0	0.0	28.6
Incr Delay (d2), s/veh	12.2	4.1	4.0	8.7	0.2	0.0	0.1	0.0	1.0	2.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	13.0	13.6	5.0	6.3	0.3	0.3	0.0	3.6	3.0	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	24.7	24.7	47.8	12.9	9.1	30.8	0.0	31.6	41.0	0.0	28.9
LnGrp LOS	E	C	C	D	B	A	C	A	C	D	A	C
Approach Vol, veh/h		1495			1295			202			224	
Approach Delay, s/veh		26.2			18.2			31.5			36.1	
Approach LOS		C			B			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.5	17.2	49.1		26.5	9.6	56.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		29.5	20.5	56.5		29.5	12.1	64.9				
Max Q Clear Time (g_c+I1), s		11.3	12.4	33.4		21.4	5.9	19.3				
Green Ext Time (p_c), s		1.1	0.3	11.2		0.6	0.1	10.2				
Intersection Summary												
HCM 6th Ctrl Delay			24.0									
HCM 6th LOS			C									

Queues

Cumulative +Project PM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	1104	284	751	92	48	268	109	58	60
v/c Ratio	0.45	0.82	0.77	0.41	0.48	0.28	0.69	0.52	0.24	0.19
Control Delay	55.1	33.8	53.1	15.5	52.3	48.4	15.7	52.2	45.7	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	33.8	53.1	15.5	52.3	48.4	15.7	52.2	45.7	1.3
Queue Length 50th (ft)	45	318	170	137	57	30	0	67	36	0
Queue Length 95th (ft)	101	#535	#336	242	116	69	77	133	78	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	197	1485	434	1928	334	387	540	334	387	436
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.74	0.65	0.39	0.28	0.12	0.50	0.33	0.15	0.14

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project PM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	942	74	261	557	134	85	44	247	100	53	55
Future Volume (veh/h)	67	942	74	261	557	134	85	44	247	100	53	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	1024	80	284	605	146	92	48	268	109	58	60
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	1196	93	321	1380	332	129	351	298	146	369	313
Arrive On Green	0.05	0.36	0.36	0.18	0.49	0.49	0.07	0.19	0.19	0.08	0.20	0.20
Sat Flow, veh/h	1767	3313	259	1767	2818	679	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	73	545	559	284	378	373	92	48	268	109	58	60
Grp Sat Flow(s),veh/h/ln	1767	1763	1809	1767	1763	1733	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.0	27.8	27.8	15.2	13.5	13.6	5.0	2.1	16.2	5.9	2.5	3.1
Cycle Q Clear(g_c), s	4.0	27.8	27.8	15.2	13.5	13.6	5.0	2.1	16.2	5.9	2.5	3.1
Prop In Lane	1.00		0.14	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	637	653	321	863	849	129	351	298	146	369	313
V/C Ratio(X)	0.78	0.86	0.86	0.88	0.44	0.44	0.71	0.14	0.90	0.75	0.16	0.19
Avail Cap(c_a), veh/h	194	734	753	427	966	950	329	380	322	329	380	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	28.7	28.7	38.8	16.1	16.1	44.1	32.8	38.5	43.6	32.2	32.4
Incr Delay (d2), s/veh	12.7	8.8	8.6	15.6	0.4	0.4	7.1	0.2	25.6	7.4	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	12.9	13.2	7.9	5.3	5.3	2.4	1.0	8.3	2.8	1.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	37.5	37.3	54.4	16.5	16.5	51.2	33.0	64.1	51.0	32.4	32.7
LnGrp LOS	E	D	D	D	B	B	D	C	E	D	C	C
Approach Vol, veh/h		1177			1035			408			227	
Approach Delay, s/veh		38.7			26.9			57.5			41.4	
Approach LOS		D			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	22.9	22.2	39.6	11.6	23.9	9.7	52.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.1	19.9	23.5	40.5	18.1	19.9	10.7	53.3				
Max Q Clear Time (g_c+I1), s	7.9	18.2	17.2	29.8	7.0	5.1	6.0	15.6				
Green Ext Time (p_c), s	0.2	0.2	0.5	5.3	0.1	0.3	0.0	5.5				

Intersection Summary

HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project PM
07/03/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	616	32	1631	93	793
v/c Ratio	0.79	0.09	0.83	0.58	0.33
Control Delay	48.7	12.8	22.6	66.5	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	12.8	22.6	66.5	7.2
Queue Length 50th (ft)	231	0	486	70	110
Queue Length 95th (ft)	301	29	610	#138	143
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	937	415	2306	184	2751
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.08	0.71	0.51	0.29

Intersection Summary

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

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project PM
07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	563	33	1074	427	86	730
Future Volume (veh/h)	563	33	1074	427	86	730
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	612	36	1167	464	93	793
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	731	325	1449	559	119	2459
Arrive On Green	0.21	0.21	0.58	0.58	0.07	0.70
Sat Flow, veh/h	3534	1572	2580	959	1767	3618
Grp Volume(v), veh/h	612	36	817	814	93	793
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1683	1767	1763
Q Serve(g_s), s	15.7	1.8	34.0	36.9	4.9	8.3
Cycle Q Clear(g_c), s	15.7	1.8	34.0	36.9	4.9	8.3
Prop In Lane	1.00	1.00		0.57	1.00	
Lane Grp Cap(c), veh/h	731	325	1027	981	119	2459
V/C Ratio(X)	0.84	0.11	0.80	0.83	0.78	0.32
Avail Cap(c_a), veh/h	1031	459	1281	1223	197	3124
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	35.8	30.3	15.3	15.9	43.3	5.6
Incr Delay (d2), s/veh	4.3	0.1	2.8	4.1	10.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.7	13.1	13.8	2.5	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.2	30.5	18.1	20.0	53.9	5.6
LnGrp LOS	D	C	B	B	D	A
Approach Vol, veh/h	648		1631			886
Approach Delay, s/veh	39.6		19.1			10.7
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.8	59.4			70.2	24.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	10.5	68.5			83.5	27.5
Max Q Clear Time (g_c+I1), s	6.9	38.9			10.3	17.7
Green Ext Time (p_c), s	0.1	16.0			6.9	1.8

Intersection Summary

HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Cumulative +Project PM
07/03/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	158	250	532	388	177
v/c Ratio	0.37	0.14	0.53	0.43	0.35
Control Delay	20.0	5.4	9.6	16.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	5.4	9.6	16.2	5.7
Queue Length 50th (ft)	35	13	27	41	0
Queue Length 95th (ft)	96	32	75	92	43
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1272	3505	2749	2711	1189
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.07	0.19	0.14	0.15

Intersection Summary

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative +Project PM
07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑↑	↗		↙	↘	
Traffic Volume (veh/h)	145	230	212	278	290	230	
Future Volume (veh/h)	145	230	212	278	290	230	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	158	250	230	302	373	188	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	215	1947	552	492	751	334	
Arrive On Green	0.12	0.55	0.31	0.31	0.21	0.21	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	158	250	230	302	373	188	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	3.3	1.3	3.9	6.2	3.6	4.1	
Cycle Q Clear(g_c), s	3.3	1.3	3.9	6.2	3.6	4.1	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	215	1947	552	492	751	334	
V/C Ratio(X)	0.73	0.13	0.42	0.61	0.50	0.56	
Avail Cap(c_a), veh/h	1455	6867	1774	1583	3373	1501	
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	16.2	4.1	10.4	11.2	13.3	13.5	
Incr Delay (d2), s/veh	4.8	0.0	0.5	1.2	0.5	1.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.4	0.3	1.2	1.8	1.2	3.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.0	4.2	10.9	12.4	13.8	15.0	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		408	532		561		
Approach Delay, s/veh		10.7	11.8		14.2		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				25.6	12.6	9.2	16.5
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				74.5	36.5	31.5	38.5
Max Q Clear Time (g_c+I1), s				3.3	6.1	5.3	8.2
Green Ext Time (p_c), s				1.8	2.1	0.4	3.7

Intersection Summary

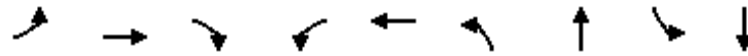
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project PM
07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	76	13	440	7	22	411	167	27	307
v/c Ratio	0.29	0.04	0.67	0.04	0.10	0.68	0.09	0.14	0.46
Control Delay	31.9	24.7	8.8	36.0	25.1	25.1	9.5	35.3	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	24.7	8.8	36.0	25.1	25.1	9.5	35.3	21.9
Queue Length 50th (ft)	19	3	0	2	3	95	6	7	31
Queue Length 95th (ft)	86	22	84	18	29	299	45	43	108
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	415	1067	1092	182	771	1431	3107	216	1396
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.01	0.40	0.04	0.03	0.29	0.05	0.13	0.22

Intersection Summary

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project PM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	12	405	6	11	9	378	150	4	25	184	98
Future Volume (veh/h)	70	12	405	6	11	9	378	150	4	25	184	98
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	13	440	7	12	10	411	163	4	27	200	107
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	100	585	496	16	251	209	477	1332	33	52	312	160
Arrive On Green	0.06	0.32	0.32	0.01	0.27	0.27	0.27	0.38	0.38	0.03	0.14	0.14
Sat Flow, veh/h	1767	1856	1572	1767	936	780	1767	3517	86	1767	2254	1156
Grp Volume(v), veh/h	76	13	440	7	0	22	411	81	86	27	155	152
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1715	1767	1763	1840	1767	1763	1647
Q Serve(g_s), s	2.9	0.3	17.9	0.3	0.0	0.6	14.9	2.0	2.0	1.0	5.6	5.9
Cycle Q Clear(g_c), s	2.9	0.3	17.9	0.3	0.0	0.6	14.9	2.0	2.0	1.0	5.6	5.9
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.05	1.00		0.70
Lane Grp Cap(c), veh/h	100	585	496	16	0	460	477	668	697	52	244	228
V/C Ratio(X)	0.76	0.02	0.89	0.43	0.00	0.05	0.86	0.12	0.12	0.52	0.63	0.67
Avail Cap(c_a), veh/h	328	841	713	144	0	599	1168	1558	1627	171	563	526
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	15.9	21.9	33.2	0.0	18.3	23.4	13.6	13.6	32.2	27.4	27.5
Incr Delay (d2), s/veh	11.4	0.0	9.7	17.4	0.0	0.0	4.7	0.1	0.1	7.8	2.7	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.1	7.4	0.2	0.0	0.2	6.3	0.7	0.8	0.5	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	15.9	31.6	50.6	0.0	18.3	28.1	13.7	13.7	40.0	30.1	30.9
LnGrp LOS	D	B	C	D	A	B	C	B	B	D	C	C
Approach Vol, veh/h		529			29			578			334	
Approach Delay, s/veh		32.8			26.1			23.9			31.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	30.0	5.1	25.7	22.7	13.8	8.3	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	59.5	5.5	30.5	44.5	21.5	12.5	23.5				
Max Q Clear Time (g_c+I1), s	3.0	4.0	2.3	19.9	16.9	7.9	4.9	2.6				
Green Ext Time (p_c), s	0.0	1.0	0.0	1.3	1.3	1.4	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			28.8									
HCM 6th LOS			C									

Queues
9: Ascot Parkway & Redwood Street

Cumulative +Project PM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	136	454	48	219	291	422	40	523
v/c Ratio	0.49	0.45	0.27	0.45	0.67	0.28	0.25	0.66
Control Delay	40.0	16.4	42.5	33.4	36.2	15.1	43.8	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	16.4	42.5	33.4	36.2	15.1	43.8	25.9
Queue Length 50th (ft)	58	51	21	44	121	67	17	84
Queue Length 95th (ft)	145	123	70	103	262	122	62	182
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	471	1402	230	884	834	2622	181	1422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.32	0.21	0.25	0.35	0.16	0.22	0.37
Intersection Summary								

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative +Project PM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↗↘		↗	↗↘	
Traffic Volume (veh/h)	125	201	217	44	157	44	268	323	65	37	285	196
Future Volume (veh/h)	125	201	217	44	157	44	268	323	65	37	285	196
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	136	218	0	48	171	0	291	351	0	40	310	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	181	578		89	394		376	1189		77	593	
Arrive On Green	0.10	0.16	0.00	0.05	0.11	0.00	0.21	0.34	0.00	0.04	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	136	218	0	48	171	0	291	351	0	40	310	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	3.3	2.5	0.0	1.2	2.0	0.0	6.9	3.3	0.0	1.0	3.6	0.0
Cycle Q Clear(g_c), s	3.3	2.5	0.0	1.2	2.0	0.0	6.9	3.3	0.0	1.0	3.6	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	181	578		89	394		376	1189		77	593	
V/C Ratio(X)	0.75	0.38		0.54	0.43		0.77	0.30		0.52	0.52	
Avail Cap(c_a), veh/h	774	2258		377	1466		1370	4476		298	2337	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.4	16.6	0.0	20.6	18.4	0.0	16.5	10.8	0.0	20.8	16.9	0.0
Incr Delay (d2), s/veh	6.2	0.4	0.0	5.0	0.8	0.0	3.4	0.1	0.0	5.2	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.9	0.0	0.5	0.7	0.0	2.7	1.0	0.0	0.5	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	17.0	0.0	25.6	19.2	0.0	19.9	11.0	0.0	26.0	17.6	0.0
LnGrp LOS	C	B		C	B		B	B		C	B	
Approach Vol, veh/h		354			219			642			350	
Approach Delay, s/veh		20.3			20.6			15.0			18.6	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	19.5	6.7	11.8	14.0	12.0	9.1	9.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	56.5	9.5	28.5	34.5	29.5	19.5	18.5				
Max Q Clear Time (g_c+I1), s	3.0	5.3	3.2	4.5	8.9	5.6	5.3	4.0				
Green Ext Time (p_c), s	0.0	2.5	0.0	1.3	0.8	1.9	0.3	0.8				

Intersection Summary

HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative +Project PM
07/03/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	540	234	435	211	243
v/c Ratio	0.57	0.54	0.21	0.51	0.44
Control Delay	19.8	25.8	5.7	26.1	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	25.8	5.7	26.1	6.4
Queue Length 50th (ft)	71	68	29	61	0
Queue Length 95th (ft)	153	166	63	153	53
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	2195	1139	3463	1139	1104
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.21	0.13	0.19	0.22

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

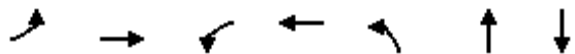
Cumulative +Project PM
 07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↙	↗
Traffic Volume (veh/h)	346	151	215	400	194	224
Future Volume (veh/h)	346	151	215	400	194	224
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	376	164	234	435	211	243
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	647	278	313	1961	398	354
Arrive On Green	0.27	0.27	0.18	0.56	0.23	0.23
Sat Flow, veh/h	2493	1032	1767	3618	1767	1572
Grp Volume(v), veh/h	275	265	234	435	211	243
Grp Sat Flow(s),veh/h/ln	1763	1670	1767	1763	1767	1572
Q Serve(g_s), s	5.5	5.7	5.2	2.6	4.3	5.8
Cycle Q Clear(g_c), s	5.5	5.7	5.2	2.6	4.3	5.8
Prop In Lane		0.62	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	475	450	313	1961	398	354
V/C Ratio(X)	0.58	0.59	0.75	0.22	0.53	0.69
Avail Cap(c_a), veh/h	1521	1441	1525	6469	1525	1357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.0	13.1	16.1	4.6	14.0	14.6
Incr Delay (d2), s/veh	1.1	1.2	3.6	0.1	1.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.8	2.0	0.5	1.6	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.1	14.3	19.6	4.7	15.1	17.0
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	540			669	454	
Approach Delay, s/veh	14.2			9.9	16.1	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.8	11.8	15.6		27.4
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		35.5	35.5	35.5		75.5
Max Q Clear Time (g_c+I1), s		7.8	7.2	7.7		4.6
Green Ext Time (p_c), s		1.5	0.7	3.4		3.1
Intersection Summary						
HCM 6th Ctrl Delay			13.0			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project PM
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	1051	71	648	305	121	8
v/c Ratio	0.18	0.73	0.34	0.37	0.69	0.19	0.01
Control Delay	47.6	23.2	45.3	14.1	35.6	0.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	23.2	45.3	14.1	35.6	0.6	0.0
Queue Length 50th (ft)	13	212	33	79	133	0	0
Queue Length 95th (ft)	51	391	98	205	286	0	0
Internal Link Dist (ft)		424		851		1161	269
Turn Bay Length (ft)	125		125		75		
Base Capacity (vph)	168	2245	298	2490	868	1065	1084
Starvation Cap Reductn	0	90	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.49	0.24	0.26	0.35	0.11	0.01
Intersection Summary							

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

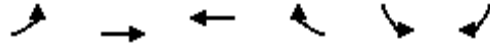
Cumulative +Project PM
 07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	26	682	285	65	595	1	281	0	111	0	0	7
Future Volume (veh/h)	26	682	285	65	595	1	281	0	111	0	0	7
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	741	310	71	647	1	305	0	121	0	0	8
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	1044	437	105	1657	3	502	0	429	126	0	429
Arrive On Green	0.03	0.43	0.43	0.06	0.46	0.46	0.27	0.00	0.27	0.00	0.00	0.27
Sat Flow, veh/h	1767	2423	1013	1767	3612	6	1396	0	1572	1260	0	1572
Grp Volume(v), veh/h	28	539	512	71	316	332	305	0	121	0	0	8
Grp Sat Flow(s),veh/h/ln	1767	1763	1673	1767	1763	1855	1396	0	1572	1260	0	1572
Q Serve(g_s), s	0.9	14.3	14.3	2.2	6.7	6.7	11.6	0.0	3.5	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.9	14.3	14.3	2.2	6.7	6.7	11.9	0.0	3.5	0.0	0.0	0.2
Prop In Lane	1.00		0.61	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	760	721	105	809	851	502	0	429	126	0	429
V/C Ratio(X)	0.50	0.71	0.71	0.68	0.39	0.39	0.61	0.00	0.28	0.00	0.00	0.02
Avail Cap(c_a), veh/h	202	1531	1453	357	1685	1773	1236	0	1255	788	0	1255
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	0.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	13.3	13.3	26.3	10.2	10.2	19.5	0.0	16.3	0.0	0.0	15.1
Incr Delay (d2), s/veh	6.9	1.2	1.3	7.5	0.3	0.3	1.2	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.8	4.6	1.1	2.2	2.3	3.6	0.0	1.2	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	14.5	14.6	33.7	10.5	10.5	20.7	0.0	16.7	0.0	0.0	15.2
LnGrp LOS	C	B	B	C	B	B	C	A	B	A	A	B
Approach Vol, veh/h		1079			719			426				8
Approach Delay, s/veh		15.1			12.8			19.5				15.2
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.1	7.9	29.1		20.1	6.3	30.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		45.5	11.5	49.5		45.5	6.5	54.5				
Max Q Clear Time (g_c+I1), s		13.9	4.2	16.3		2.2	2.9	8.7				
Green Ext Time (p_c), s		1.7	0.1	8.3		0.0	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay				15.2								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project PM
07/03/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1541	1022	927	359	403	1519
v/c Ratio	1.41	0.52	1.32	0.70	0.32	0.76
Control Delay	224.5	17.7	193.5	22.1	28.2	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	22.2
Total Delay	224.5	17.7	193.5	22.1	28.2	35.5
Queue Length 50th (ft)	~827	247	~488	77	114	360
Queue Length 95th (ft)	#964	305	#619	191	156	459
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	1090	1956	701	512	1246	2001
Starvation Cap Reductn	0	0	0	0	0	533
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.41	0.52	1.32	0.70	0.32	1.03

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

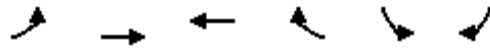
HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project PM
 07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↖	↑↑	↗↗	↖	↘↘	↘↘	
Traffic Volume (veh/h)	1387	920	834	323	363	1367	
Future Volume (veh/h)	1387	920	834	323	363	1367	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	1541	1022	927	359	403	1519	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	1100	1968	705	314	1257	1903	
Arrive On Green	0.32	0.56	0.20	0.20	0.37	0.37	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	1541	1022	927	359	403	1519	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	38.5	21.6	24.0	24.0	10.1	44.0	
Cycle Q Clear(g_c), s	38.5	21.6	24.0	24.0	10.1	44.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	1100	1968	705	314	1257	1903	
V/C Ratio(X)	1.40	0.52	1.31	1.14	0.32	0.80	
Avail Cap(c_a), veh/h	1100	1968	705	314	1257	1903	
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	40.7	16.5	48.0	48.0	27.3	13.0	
Incr Delay (d2), s/veh	186.0	0.2	151.6	94.7	0.7	3.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	44.2	8.4	25.2	27.1	4.3	34.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	226.8	16.7	199.6	142.7	27.9	16.6	
LnGrp LOS	F	B	F	F	C	B	
Approach Vol, veh/h		2563	1286		1922		
Approach Delay, s/veh		143.0	183.7		19.0		
Approach LOS		F	F		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				71.5	48.5	43.0	28.5
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				67.0	44.0	38.5	24.0
Max Q Clear Time (g_c+I1), s				23.6	46.0	40.5	26.0
Green Ext Time (p_c), s				9.0	0.0	0.0	0.0
Intersection Summary							
HCM 6th Ctrl Delay			110.8				
HCM 6th LOS			F				

Queues
13: Redwood Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	112	2007	2024	267	836	133
v/c Ratio	0.99	0.72	1.19	0.35	0.63	0.20
Control Delay	152.5	27.2	125.7	25.5	39.6	14.7
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	152.5	27.2	125.8	25.5	39.6	14.7
Queue Length 50th (ft)	57	522	~1250	159	339	37
Queue Length 95th (ft)	#125	578	#1382	230	410	85
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	113	2769	1705	763	1326	656
Starvation Cap Reductn	0	0	29	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.72	1.21	0.35	0.63	0.20

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 13: Redwood Street

Cumulative +Project PM
 07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	1806	1822	240	752	120
Future Volume (veh/h)	101	1806	1822	240	752	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	112	2007	2024	267	836	133
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	114	2786	1716	765	1337	613
Arrive On Green	0.03	0.55	0.49	0.49	0.39	0.39
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	112	2007	2024	267	836	133
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	4.9	44.3	73.0	15.7	29.5	8.5
Cycle Q Clear(g_c), s	4.9	44.3	73.0	15.7	29.5	8.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	2786	1716	765	1337	613
V/C Ratio(X)	0.98	0.72	1.18	0.35	0.63	0.22
Avail Cap(c_a), veh/h	114	2786	1716	765	1337	613
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	72.5	25.2	38.5	23.8	36.9	30.5
Incr Delay (d2), s/veh	79.0	0.9	87.2	0.3	2.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	17.6	51.3	5.9	12.9	9.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	151.4	26.1	125.7	24.1	39.1	31.3
LnGrp LOS	F	C	F	C	D	C
Approach Vol, veh/h		2119	2291		969	
Approach Delay, s/veh		32.7	113.9		38.1	
Approach LOS		C	F		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		87.0		63.0	9.5	77.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		46.3		31.5	6.9	75.0
Green Ext Time (p_c), s		21.8		4.0	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			68.2			
HCM 6th LOS			E			

Queues
14: Lake Herman Road & Columbus Parkway













Cumulative +Project PM
07/03/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	117	350	504	39	93	533
v/c Ratio	0.30	0.56	0.47	0.08	0.26	0.28
Control Delay	18.6	6.7	14.5	5.7	19.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	6.7	14.5	5.7	19.1	5.2
Queue Length 50th (ft)	25	0	52	0	20	27
Queue Length 95th (ft)	70	55	104	16	60	55
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1645	1494	3074	1380	1105	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.23	0.16	0.03	0.08	0.15
Intersection Summary						

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project PM
 07/03/2024

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	108	322	464	36	86	490
Future Volume (veh/h)	108	322	464	36	86	490
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	117	350	504	39	93	533
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	511	455	911	406	216	1729
Arrive On Green	0.29	0.29	0.26	0.26	0.12	0.49
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	117	350	504	39	93	533
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	2.1	8.3	5.1	0.8	2.0	3.7
Cycle Q Clear(g_c), s	2.1	8.3	5.1	0.8	2.0	3.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	511	455	911	406	216	1729
V/C Ratio(X)	0.23	0.77	0.55	0.10	0.43	0.31
Avail Cap(c_a), veh/h	1880	1673	3320	1481	1059	5821
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	11.1	13.3	13.1	11.5	16.6	6.2
Incr Delay (d2), s/veh	0.2	2.8	0.5	0.1	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.5	1.6	0.2	0.7	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.3	16.1	13.6	11.6	18.0	6.3
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	467		543			626
Approach Delay, s/veh	14.9		13.5			8.1
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.5	15.1			24.6	16.3
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	24.5	38.5			67.5	43.5
Max Q Clear Time (g_c+I1), s	4.0	7.1			5.7	10.3
Green Ext Time (p_c), s	0.2	3.5			3.8	1.6
Intersection Summary						
HCM 6th Ctrl Delay			11.8			
HCM 6th LOS			B			

Queues

Cumulative +Project PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	102	234	127	135	191	90	1108	198	152	516
v/c Ratio	0.55	0.76	0.64	0.36	0.40	0.52	0.83	0.72	0.17	0.51
Control Delay	60.6	59.9	64.4	44.7	9.1	60.5	35.6	60.2	18.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.6	59.9	64.4	44.7	9.1	60.5	35.6	60.2	18.8	3.6
Queue Length 50th (ft)	74	162	92	89	0	65	375	142	66	0
Queue Length 95th (ft)	135	#283	#173	159	64	122	479	228	111	59
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	236	368	232	389	481	222	1608	353	1000	1086
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.64	0.55	0.35	0.40	0.41	0.69	0.56	0.15	0.48

Intersection Summary

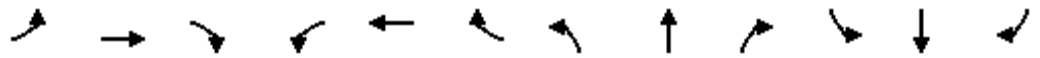
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	179	36	117	124	176	83	840	179	182	140	475
Future Volume (veh/h)	94	179	36	117	124	176	83	840	179	182	140	475
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	102	195	39	127	135	191	90	913	195	198	152	516
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	131	238	48	161	325	276	116	1153	246	240	870	737
Arrive On Green	0.07	0.16	0.16	0.09	0.18	0.18	0.07	0.40	0.40	0.14	0.47	0.47
Sat Flow, veh/h	1767	1501	300	1767	1856	1572	1767	2890	617	1767	1856	1572
Grp Volume(v), veh/h	102	0	234	127	135	191	90	557	551	198	152	516
Grp Sat Flow(s),veh/h/ln	1767	0	1801	1767	1856	1572	1767	1763	1744	1767	1856	1572
Q Serve(g_s), s	4.7	0.0	10.5	5.9	5.4	9.5	4.2	23.2	23.2	9.1	4.0	21.7
Cycle Q Clear(g_c), s	4.7	0.0	10.5	5.9	5.4	9.5	4.2	23.2	23.2	9.1	4.0	21.7
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	131	0	286	161	325	276	116	703	696	240	870	737
V/C Ratio(X)	0.78	0.00	0.82	0.79	0.41	0.69	0.77	0.79	0.79	0.82	0.17	0.70
Avail Cap(c_a), veh/h	290	0	442	286	451	382	273	1003	993	434	1225	1038
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	33.9	37.2	30.6	32.3	38.4	22.0	22.1	35.1	12.8	17.5
Incr Delay (d2), s/veh	9.4	0.0	6.8	8.4	0.8	3.1	10.3	2.9	2.9	7.0	0.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	5.0	2.9	2.4	3.8	2.1	9.5	9.5	4.3	1.6	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	0.0	40.8	45.6	31.5	35.4	48.7	24.9	25.0	42.1	12.9	18.7
LnGrp LOS	D	A	D	D	C	D	D	C	C	D	B	B
Approach Vol, veh/h		336			453			1198			866	
Approach Delay, s/veh		42.8			37.1			26.7			23.1	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	37.8	12.1	17.8	10.0	43.6	10.7	19.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.5	47.5	13.5	20.5	12.9	55.1	13.7	20.3				
Max Q Clear Time (g_c+I1), s	11.1	25.2	7.9	12.5	6.2	23.7	6.7	11.5				
Green Ext Time (p_c), s	0.4	8.1	0.1	0.8	0.1	3.0	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Queues
 16: Sonoma Blvd (SR-29) & SR-37 Ramps



















Cumulative +Project PM
 07/03/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	404	1035	1087	98	1551	304
v/c Ratio	0.30	0.88	0.59	0.11	0.85	0.19
Control Delay	26.3	40.0	21.7	3.3	30.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	40.0	21.7	3.3	30.3	0.3
Queue Length 50th (ft)	114	398	314	0	556	0
Queue Length 95th (ft)	168	551	410	28	712	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1678	1426	2281	1054	2281	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.73	0.48	0.09	0.68	0.19
Intersection Summary						

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project PM
 07/03/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	372	0	952	0	1000	90	0	1427	280
Future Volume (veh/h)	0	0	0	372	0	952	0	1000	90	0	1427	280
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				404	0	1035	0	1087	98	0	1551	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1411	0	1139	0	1808	806	0	1808	
Arrive On Green				0.41	0.00	0.41	0.00	0.51	0.51	0.00	0.51	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				404	0	1035	0	1087	98	0	1551	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				9.4	0.0	41.9	0.0	25.9	3.9	0.0	45.6	0.0
Cycle Q Clear(g_c), s				9.4	0.0	41.9	0.0	25.9	3.9	0.0	45.6	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1411	0	1139	0	1808	806	0	1808	
V/C Ratio(X)				0.29	0.00	0.91	0.00	0.60	0.12	0.00	0.86	
Avail Cap(c_a), veh/h				1625	0	1312	0	2204	983	0	2204	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				23.4	0.0	32.9	0.0	20.4	15.1	0.0	25.3	0.0
Incr Delay (d2), s/veh				0.1	0.0	8.7	0.0	0.3	0.1	0.0	3.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.7	0.0	14.7	0.0	10.1	1.4	0.0	18.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.5	0.0	41.6	0.0	20.8	15.2	0.0	28.3	0.0
LnGrp LOS				C	A	D	A	C	B	A	C	
Approach Vol, veh/h					1439			1185			1551	
Approach Delay, s/veh					36.5			20.3			28.3	
Approach LOS					D			C			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		65.6				65.6		53.6				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.5				74.5		56.5				
Max Q Clear Time (g_c+I1), s		27.9				47.6		43.9				
Green Ext Time (p_c), s		10.0				13.5		5.2				

Intersection Summary

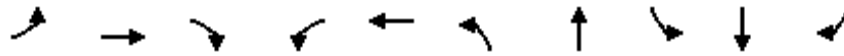
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

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

Queues

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	327	810	1188	188	945	1436	377	61	73	249
v/c Ratio	0.82	0.98	0.76	1.01	0.84	1.00	0.48	0.41	0.45	0.58
Control Delay	64.4	68.2	3.5	118.3	48.1	56.4	15.4	56.3	56.2	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	68.2	3.5	118.3	48.1	56.4	15.4	56.3	56.2	27.7
Queue Length 50th (ft)	118	303	0	~143	234	~558	105	42	50	93
Queue Length 95th (ft)	#198	#461	0	#299	#320	#731	201	85	97	176
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	407	830	1568	186	1128	1436	802	292	333	431
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.98	0.76	1.01	0.84	1.00	0.47	0.21	0.22	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

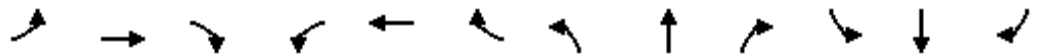
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project PM (Mit1)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↖	↑↑↑		↔↔	↖		↗	↑	↗
Traffic Volume (veh/h)	301	745	1093	173	801	68	1321	82	265	56	67	229
Future Volume (veh/h)	301	745	1093	173	801	68	1321	82	265	56	67	229
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	327	810	0	188	871	74	1436	89	0	61	73	249
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	371	755		171	962	81	1309	903		91	290	416
Arrive On Green	0.11	0.21	0.00	0.10	0.20	0.20	0.38	0.49	0.00	0.05	0.16	0.16
Sat Flow, veh/h	3428	3526	1572	1767	4757	403	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	327	810	0	188	617	328	1436	89	0	61	73	249
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1767	1689	1783	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	11.2	25.5	0.0	11.5	21.3	21.4	45.5	3.1	0.0	4.0	4.1	16.5
Cycle Q Clear(g_c), s	11.2	25.5	0.0	11.5	21.3	21.4	45.5	3.1	0.0	4.0	4.1	16.5
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	755		171	683	361	1309	903		91	290	416
V/C Ratio(X)	0.88	1.07		1.10	0.90	0.91	1.10	0.10		0.67	0.25	0.60
Avail Cap(c_a), veh/h	371	755		171	683	361	1309	903		267	304	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	46.8	0.0	53.8	46.4	46.4	36.8	16.5	0.0	55.5	44.1	38.3
Incr Delay (d2), s/veh	20.9	54.2	0.0	98.8	15.5	25.9	55.7	0.0	0.0	8.3	0.5	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	16.6	0.0	9.7	10.2	11.9	28.7	1.3	0.0	2.0	1.9	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.3	101.0	0.0	152.6	61.8	72.4	92.5	16.5	0.0	63.8	44.6	40.5
LnGrp LOS	E	F		F	E	E	F	B		E	D	D
Approach Vol, veh/h		1137			1133			1525			383	
Approach Delay, s/veh		93.1			80.0			88.0			45.0	
Approach LOS		F			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	62.5	16.0	30.0	50.0	23.1	17.4	28.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	47.0	11.5	25.5	45.5	19.5	12.9	24.1				
Max Q Clear Time (g_c+I1), s	6.0	5.1	13.5	27.5	47.5	18.5	13.2	23.4				
Green Ext Time (p_c), s	0.1	0.5	0.0	0.0	0.0	0.1	0.0	0.4				

Intersection Summary

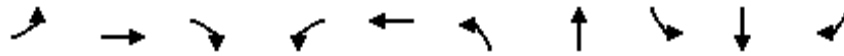
HCM 6th Ctrl Delay	83.3
HCM 6th LOS	F

Notes

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

Queues

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	327	810	1188	188	945	1436	377	61	73	249
v/c Ratio	0.87	0.92	0.76	0.83	0.91	0.94	0.45	0.41	0.45	0.60
Control Delay	71.8	57.8	3.5	80.0	56.6	42.3	13.7	57.1	57.0	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.8	57.8	3.5	80.0	56.6	42.3	13.7	57.1	57.0	29.1
Queue Length 50th (ft)	120	300	0	70	243	501	98	42	51	96
Queue Length 95th (ft)	#211	#446	0	#139	#347	#702	190	86	98	179
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	377	878	1568	227	1035	1532	833	289	310	417
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.92	0.76	0.83	0.91	0.94	0.45	0.21	0.24	0.60

Intersection Summary

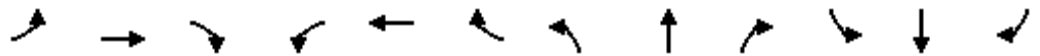
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project PM (Mit 2)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↔		↔↔	↔		↗	↑	↗
Traffic Volume (veh/h)	301	745	1093	173	801	68	1321	82	265	56	67	229
Future Volume (veh/h)	301	745	1093	173	801	68	1321	82	265	56	67	229
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	327	810	0	188	871	74	1436	89	0	61	73	249
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	346	802		209	892	76	1403	947		91	283	398
Arrive On Green	0.10	0.23	0.00	0.06	0.19	0.19	0.41	0.51	0.00	0.05	0.15	0.15
Sat Flow, veh/h	3428	3526	1572	3428	4757	403	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	327	810	0	188	617	328	1436	89	0	61	73	249
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1689	1783	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	11.4	27.3	0.0	6.5	21.8	21.9	49.1	3.0	0.0	4.1	4.2	16.9
Cycle Q Clear(g_c), s	11.4	27.3	0.0	6.5	21.8	21.9	49.1	3.0	0.0	4.1	4.2	16.9
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	346	802		209	633	334	1403	947		91	283	398
V/C Ratio(X)	0.95	1.01		0.90	0.98	0.98	1.02	0.09		0.67	0.26	0.63
Avail Cap(c_a), veh/h	346	802		209	633	334	1403	947		265	283	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	46.3	0.0	56.0	48.5	48.5	35.4	15.1	0.0	55.9	44.9	39.7
Incr Delay (d2), s/veh	34.5	34.2	0.0	36.6	29.5	43.6	30.2	0.0	0.0	8.4	0.5	3.0
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	6.5	15.4	0.0	3.8	11.6	13.6	25.8	1.3	0.0	2.0	2.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.1	80.6	0.0	92.6	77.9	92.1	65.7	15.1	0.0	64.3	45.3	42.8
LnGrp LOS	F	F		F	E	F	F	B		E	D	D
Approach Vol, veh/h		1137			1133			1525			383	
Approach Delay, s/veh		82.8			84.5			62.7			46.7	
Approach LOS		F			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	65.8	11.8	31.8	53.6	22.8	16.6	27.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	49.4	7.3	27.3	49.1	18.3	12.1	22.5				
Max Q Clear Time (g_c+I1), s	6.1	5.0	8.5	29.3	51.1	18.9	13.4	23.9				
Green Ext Time (p_c), s	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	72.6
HCM 6th LOS	E

Notes

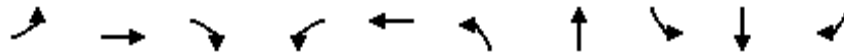
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Cumulative +Project PM (Mit 3)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	327	810	1188	188	945	1436	377	61	73	249
v/c Ratio	0.64	0.86	0.76	0.51	0.82	0.80	0.54	0.38	0.41	0.51
Control Delay	47.2	46.9	3.5	48.8	45.2	32.2	17.2	52.3	52.0	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	46.9	3.5	48.8	45.2	32.2	17.2	52.3	52.0	22.3
Queue Length 50th (ft)	103	268	0	59	216	289	106	38	45	79
Queue Length 95th (ft)	165	#461	0	106	#366	372	206	85	97	165
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	630	947	1568	450	1150	2330	876	334	381	537
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.86	0.76	0.42	0.82	0.62	0.43	0.18	0.19	0.46

Intersection Summary

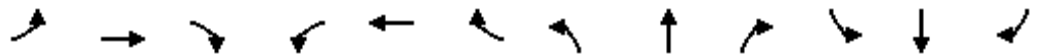
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project PM (Mit 3)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↔		↔↔↔	↔		↗	↑	↗
Traffic Volume (veh/h)	301	745	1093	173	801	68	1321	82	265	56	67	229
Future Volume (veh/h)	301	745	1093	173	801	68	1321	82	265	56	67	229
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	327	810	0	188	871	74	1436	89	0	61	73	249
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	405	871		258	971	82	1704	830		96	296	437
Arrive On Green	0.12	0.25	0.00	0.08	0.20	0.20	0.34	0.45	0.00	0.05	0.16	0.16
Sat Flow, veh/h	3428	3526	1572	3428	4757	403	4983	1856	0	1767	1856	1572
Grp Volume(v), veh/h	327	810	0	188	617	328	1436	89	0	61	73	249
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1689	1783	1661	1856	0	1767	1856	1572
Q Serve(g_s), s	9.5	23.0	0.0	5.5	18.2	18.3	27.2	2.8	0.0	3.5	3.5	13.9
Cycle Q Clear(g_c), s	9.5	23.0	0.0	5.5	18.2	18.3	27.2	2.8	0.0	3.5	3.5	13.9
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	405	871		258	689	364	1704	830		96	296	437
V/C Ratio(X)	0.81	0.93		0.73	0.90	0.90	0.84	0.11		0.64	0.25	0.57
Avail Cap(c_a), veh/h	587	880		419	689	364	2170	835		311	354	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	37.6	0.0	46.2	39.6	39.7	31.1	16.4	0.0	47.3	37.6	31.7
Incr Delay (d2), s/veh	5.3	16.0	0.0	3.9	14.4	24.4	2.6	0.1	0.0	6.8	0.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	11.4	0.0	2.4	8.7	10.2	11.0	1.2	0.0	1.7	1.6	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.2	53.6	0.0	50.2	54.0	64.1	33.7	16.4	0.0	54.2	38.0	32.9
LnGrp LOS	D	D		D	D	E	C	B		D	D	C
Approach Vol, veh/h		1137			1133			1525			383	
Approach Delay, s/veh		52.3			56.3			32.7			37.3	
Approach LOS		D			E			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	50.2	12.2	29.8	39.4	20.8	16.6	25.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	46.0	12.5	25.5	44.5	19.5	17.5	20.5				
Max Q Clear Time (g_c+I1), s	5.5	4.8	7.5	25.0	29.2	15.9	11.5	20.3				
Green Ext Time (p_c), s	0.1	0.5	0.2	0.3	5.7	0.4	0.6	0.1				

Intersection Summary

HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

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

Queues

Cumulative Friday PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBR
Lane Group Flow (vph)	14	769	1155	188	714	1306	305	4
v/c Ratio	0.16	0.82	0.74	0.79	0.35	0.84	0.30	0.02
Control Delay	48.4	42.3	3.1	65.5	21.2	29.1	0.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	42.3	3.1	65.5	21.2	29.1	0.8	0.2
Queue Length 50th (ft)	8	235	0	115	101	354	0	0
Queue Length 95th (ft)	28	#311	0	#227	156	448	0	0
Internal Link Dist (ft)		1084			414		644	
Turn Bay Length (ft)	230			215		425		
Base Capacity (vph)	89	934	1568	237	2061	1562	1021	209
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.82	0.74	0.79	0.35	0.84	0.30	0.02

Intersection Summary

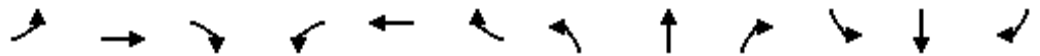
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative Friday PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑	↗
Traffic Volume (veh/h)	14	769	1155	188	714	0	1306	0	305	0	0	4
Future Volume (veh/h)	14	769	1155	188	714	0	1306	0	305	0	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	14	769	0	188	714	0	1306	0	0	0	0	4
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	29	889		222	1831	0	1448	884		2	10	34
Arrive On Green	0.02	0.25	0.00	0.13	0.36	0.00	0.42	0.00	0.00	0.00	0.00	0.01
Sat Flow, veh/h	1767	3526	1572	1767	5233	0	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	14	769	0	188	714	0	1306	0	0	0	0	4
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	0	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	0.7	19.3	0.0	9.6	9.7	0.0	32.9	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.7	19.3	0.0	9.6	9.7	0.0	32.9	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	29	889		222	1831	0	1448	884		2	10	34
V/C Ratio(X)	0.49	0.86		0.85	0.39	0.00	0.90	0.00		0.00	0.00	0.12
Avail Cap(c_a), veh/h	96	991		252	1873	0	1660	899		344	361	332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	45.1	33.1	0.0	39.6	21.9	0.0	24.9	0.0	0.0	0.0	0.0	44.4
Incr Delay (d2), s/veh	12.1	7.5	0.0	20.8	0.1	0.0	6.6	0.0	0.0	0.0	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	8.7	0.0	5.3	3.6	0.0	14.0	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	40.5	0.0	60.4	22.1	0.0	31.6	0.0	0.0	0.0	0.0	45.9
LnGrp LOS	E	D		E	C	A	C	A		A	A	D
Approach Vol, veh/h		783			902			1306				4
Approach Delay, s/veh		40.8			30.1			31.6				45.9
Approach LOS		D			C			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	48.5	16.1	27.8	43.6	5.0	6.0	37.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	44.8	13.2	26.0	44.8	18.0	5.0	34.2				
Max Q Clear Time (g_c+I1), s	0.0	0.0	11.6	21.3	34.9	2.2	2.7	11.7				
Green Ext Time (p_c), s	0.0	0.0	0.1	2.0	4.2	0.0	0.0	4.7				

Intersection Summary

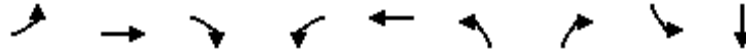
HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative Friday PM
07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	72	849	334	39	775	161	40	2	2
v/c Ratio	0.20	0.40	0.31	0.12	0.41	0.22	0.07	0.01	0.00
Control Delay	24.9	9.8	2.6	26.3	12.1	23.0	0.2	29.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	9.8	2.6	26.3	12.1	23.0	0.2	29.5	0.0
Queue Length 50th (ft)	18	45	0	10	85	20	0	1	0
Queue Length 95th (ft)	71	214	44	46	202	66	0	8	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	784	3284	1490	531	3181	1523	1188	329	969
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.26	0.22	0.07	0.24	0.11	0.03	0.01	0.00

Intersection Summary

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Cumulative Friday PM
07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↗↘	↑	↗	↘	↗	
Traffic Volume (veh/h)	66	781	307	36	713	0	148	0	37	2	0	2
Future Volume (veh/h)	66	781	307	36	713	0	148	0	37	2	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	72	849	0	39	775	0	161	0	40	2	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	118	1386		76	1303	0	340	267	226	5	0	75
Arrive On Green	0.07	0.39	0.00	0.04	0.37	0.00	0.10	0.00	0.14	0.00	0.00	0.05
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	72	849	0	39	775	0	161	0	40	2	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.7	8.3	0.0	0.9	7.7	0.0	1.9	0.0	1.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	1.7	8.3	0.0	0.9	7.7	0.0	1.9	0.0	1.0	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	1386		76	1303	0	340	267	226	5	0	75
V/C Ratio(X)	0.61	0.61		0.51	0.59	0.00	0.47	0.00	0.18	0.41	0.00	0.03
Avail Cap(c_a), veh/h	635	4533		430	4125	0	1231	1268	1075	266	0	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.6	10.5	0.0	20.2	11.0	0.0	18.4	0.0	16.2	21.5	0.0	19.6
Incr Delay (d2), s/veh	5.0	0.4	0.0	5.2	0.4	0.0	1.0	0.0	0.4	47.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.3	0.0	0.4	2.2	0.0	0.7	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	10.9	0.0	25.4	11.4	0.0	19.4	0.0	16.6	69.2	0.0	19.7
LnGrp LOS	C	B		C	B	A	B	A	B	E	A	B
Approach Vol, veh/h		921			814			201				4
Approach Delay, s/veh		12.0			12.1			18.9				44.5
Approach LOS		B			B			B				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.7	6.4	21.5	8.8	6.5	7.4	20.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	29.5	10.5	55.5	15.5	20.5	15.5	50.5				
Max Q Clear Time (g_c+I1), s	2.0	3.0	2.9	10.3	3.9	2.1	3.7	9.7				
Green Ext Time (p_c), s	0.0	0.1	0.0	6.7	0.4	0.0	0.1	5.9				

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

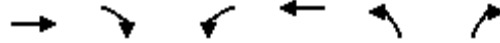
Cumulative Friday PM
07/02/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	566	245	33	616	159	22
v/c Ratio	0.30	0.25	0.08	0.30	0.17	0.05
Control Delay	7.4	2.5	15.1	5.1	12.9	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	2.5	15.1	5.1	12.9	8.1
Queue Length 50th (ft)	26	0	4	28	10	0
Queue Length 95th (ft)	95	34	28	53	41	14
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3505	1568	1345	3505	3008	1389
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.16	0.02	0.18	0.05	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary
 3: Redwood Street & Columbus Parkway

Cumulative Friday PM
 07/02/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	521	225	30	567	146	20
Future Volume (veh/h)	521	225	30	567	146	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	566	245	33	616	159	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1174	524	260	2162	414	190
Arrive On Green	0.33	0.33	0.15	0.61	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	566	245	33	616	159	22
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	4.3	4.2	0.5	2.8	1.4	0.4
Cycle Q Clear(g_c), s	4.3	4.2	0.5	2.8	1.4	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1174	524	260	2162	414	190
V/C Ratio(X)	0.48	0.47	0.13	0.28	0.38	0.12
Avail Cap(c_a), veh/h	5572	2485	1227	8488	2988	1370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.0	8.9	12.5	3.1	13.7	13.3
Incr Delay (d2), s/veh	0.3	0.7	0.2	0.1	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.9	0.2	0.1	0.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	9.6	12.8	3.1	14.3	13.5
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	811			649	181	
Approach Delay, s/veh	9.4			3.6	14.2	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.6	9.5	15.8		25.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		29.5	23.5	53.5		81.5
Max Q Clear Time (g_c+I1), s		3.4	2.5	6.3		4.8
Green Ext Time (p_c), s		0.6	0.0	5.0		4.5
Intersection Summary						
HCM 6th Ctrl Delay			7.6			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative Friday PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	1323	202	1088	39	29	174	195	99
v/c Ratio	0.49	0.84	0.71	0.57	0.04	0.09	0.34	0.80	0.22
Control Delay	57.3	31.1	57.5	18.9	2.6	32.1	8.6	61.1	9.8
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	31.3	57.5	18.9	2.6	32.1	8.6	61.1	9.8
Queue Length 50th (ft)	60	396	134	253	0	16	8	129	5
Queue Length 95th (ft)	122	590	#249	396	12	40	61	220	47
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	240	1880	357	2128	974	474	691	376	648
Starvation Cap Reductn	0	113	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.75	0.57	0.51	0.04	0.06	0.25	0.52	0.15

Intersection Summary

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

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative Friday PM
07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	83	1179	38	186	1001	36	27	13	147	179	9	82
Future Volume (veh/h)	83	1179	38	186	1001	36	27	13	147	179	9	82
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	1282	41	202	1088	39	29	14	160	195	10	89
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	116	1547	49	239	1811	808	372	36	406	303	45	398
Arrive On Green	0.07	0.44	0.44	0.14	0.51	0.51	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1767	3487	111	1767	3526	1572	1286	128	1464	1201	161	1436
Grp Volume(v), veh/h	90	648	675	202	1088	39	29	0	174	195	0	99
Grp Sat Flow(s),veh/h/ln	1767	1763	1835	1767	1763	1572	1286	0	1592	1201	0	1597
Q Serve(g_s), s	4.7	30.3	30.4	10.5	20.4	1.2	1.7	0.0	8.3	14.8	0.0	4.5
Cycle Q Clear(g_c), s	4.7	30.3	30.4	10.5	20.4	1.2	6.2	0.0	8.3	23.1	0.0	4.5
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.92	1.00		0.90
Lane Grp Cap(c), veh/h	116	782	814	239	1811	808	372	0	441	303	0	443
V/C Ratio(X)	0.78	0.83	0.83	0.84	0.60	0.05	0.08	0.00	0.39	0.64	0.00	0.22
Avail Cap(c_a), veh/h	247	967	1007	367	2174	970	501	0	602	424	0	604
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	0.00	1.00
Uniform Delay (d), s/veh	43.2	23.0	23.0	39.6	16.1	11.4	28.5	0.0	27.5	36.9	0.0	26.2
Incr Delay (d2), s/veh	10.6	5.0	4.9	10.4	0.3	0.0	0.1	0.0	0.6	2.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	13.0	13.5	5.2	7.8	0.4	0.5	0.0	3.2	4.4	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	28.0	27.9	50.1	16.4	11.4	28.6	0.0	28.1	39.2	0.0	26.4
LnGrp LOS	D	C	C	D	B	B	C	A	C	D	A	C
Approach Vol, veh/h		1413			1329			203			294	
Approach Delay, s/veh		29.6			21.4			28.2			34.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.5	17.2	46.2		30.5	10.6	52.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		35.5	19.5	51.5		35.5	13.1	57.9				
Max Q Clear Time (g_c+I1), s		10.3	12.5	32.4		25.1	6.7	22.4				
Green Ext Time (p_c), s		1.2	0.3	9.2		0.9	0.1	10.2				
Intersection Summary												
HCM 6th Ctrl Delay			26.6									
HCM 6th LOS			C									

Queues
5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative Friday PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	80	1073	335	751	102	46	230	107	43	51
v/c Ratio	0.47	0.82	0.81	0.40	0.52	0.29	0.67	0.53	0.20	0.17
Control Delay	54.5	35.3	53.1	15.4	52.8	49.4	16.3	52.6	46.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	35.3	53.1	15.4	52.8	49.4	16.3	52.6	46.4	1.2
Queue Length 50th (ft)	50	321	201	139	63	29	0	66	27	0
Queue Length 95th (ft)	106	#514	#390	240	123	67	73	128	64	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	217	1376	459	1862	325	377	503	325	377	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.78	0.73	0.40	0.31	0.12	0.46	0.33	0.11	0.12

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative Friday PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	↖
Traffic Volume (veh/h)	74	912	75	308	564	127	94	42	212	98	40	47
Future Volume (veh/h)	74	912	75	308	564	127	94	42	212	98	40	47
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	80	991	82	335	613	138	102	46	230	107	43	51
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	103	1157	96	373	1441	324	140	311	264	145	316	268
Arrive On Green	0.06	0.35	0.35	0.21	0.50	0.50	0.08	0.17	0.17	0.08	0.17	0.17
Sat Flow, veh/h	1767	3296	273	1767	2860	643	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	80	530	543	335	377	374	102	46	230	107	43	51
Grp Sat Flow(s),veh/h/ln	1767	1763	1806	1767	1763	1740	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.3	26.7	26.7	17.6	12.9	13.0	5.4	2.0	13.6	5.7	1.9	2.7
Cycle Q Clear(g_c), s	4.3	26.7	26.7	17.6	12.9	13.0	5.4	2.0	13.6	5.7	1.9	2.7
Prop In Lane	1.00		0.15	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	619	634	373	888	876	140	311	264	145	316	268
V/C Ratio(X)	0.78	0.86	0.86	0.90	0.42	0.43	0.73	0.15	0.87	0.74	0.14	0.19
Avail Cap(c_a), veh/h	224	710	728	472	957	945	335	386	327	335	386	327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	28.8	28.8	36.7	15.0	15.0	43.0	33.9	38.8	42.9	33.7	34.0
Incr Delay (d2), s/veh	11.7	9.1	9.0	16.9	0.3	0.3	7.1	0.2	18.7	7.2	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	12.4	12.7	9.2	5.0	5.0	2.6	0.9	6.5	2.7	0.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	37.9	37.7	53.6	15.3	15.3	50.1	34.2	57.5	50.1	33.8	34.3
LnGrp LOS	E	D	D	D	B	B	D	C	E	D	C	C
Approach Vol, veh/h		1153			1086			378			201	
Approach Delay, s/veh		39.1			27.1			52.7			42.6	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	20.5	24.7	38.0	12.0	20.8	10.1	52.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.1	19.9	25.5	38.5	18.1	19.9	12.1	51.9				
Max Q Clear Time (g_c+I1), s	7.7	15.6	19.6	28.7	7.4	4.7	6.3	15.0				
Green Ext Time (p_c), s	0.2	0.4	0.5	4.9	0.2	0.3	0.1	5.5				

Intersection Summary												
HCM 6th Ctrl Delay				36.6								
HCM 6th LOS				D								

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative Friday PM
07/02/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	655	42	1583	86	785
v/c Ratio	0.80	0.11	0.83	0.53	0.34
Control Delay	47.3	11.6	23.0	63.5	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	11.6	23.0	63.5	7.7
Queue Length 50th (ft)	242	0	472	63	113
Queue Length 95th (ft)	318	32	587	120	146
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	1028	459	2297	194	2744
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.09	0.69	0.44	0.29
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative Friday PM
07/02/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	598	43	1040	417	79	722
Future Volume (veh/h)	598	43	1040	417	79	722
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	650	47	1130	453	86	785
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	777	346	1413	552	110	2405
Arrive On Green	0.22	0.22	0.57	0.57	0.06	0.68
Sat Flow, veh/h	3534	1572	2570	967	1767	3618
Grp Volume(v), veh/h	650	47	795	788	86	785
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1681	1767	1763
Q Serve(g_s), s	16.1	2.2	32.4	34.8	4.4	8.4
Cycle Q Clear(g_c), s	16.1	2.2	32.4	34.8	4.4	8.4
Prop In Lane	1.00	1.00		0.58	1.00	
Lane Grp Cap(c), veh/h	777	346	1006	959	110	2405
V/C Ratio(X)	0.84	0.14	0.79	0.82	0.78	0.33
Avail Cap(c_a), veh/h	1097	488	1295	1236	202	3167
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	34.2	28.8	15.4	15.9	42.4	6.0
Incr Delay (d2), s/veh	4.0	0.2	2.6	3.6	11.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.8	12.4	12.9	2.2	2.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.3	29.0	18.0	19.5	53.6	6.1
LnGrp LOS	D	C	B	B	D	A
Approach Vol, veh/h	697		1583			871
Approach Delay, s/veh	37.7		18.8			10.7
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.2	56.9			67.1	24.7
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	10.5	67.5			82.5	28.5
Max Q Clear Time (g_c+I1), s	6.4	36.8			10.4	18.1
Green Ext Time (p_c), s	0.1	15.6			6.8	2.1

Intersection Summary

HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Cumulative Friday PM
07/02/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	184	232	543	387	177
v/c Ratio	0.45	0.12	0.56	0.47	0.37
Control Delay	21.1	5.2	10.1	16.9	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	5.2	10.1	16.9	6.3
Queue Length 50th (ft)	42	12	28	40	0
Queue Length 95th (ft)	111	30	79	92	45
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1283	3505	2639	2577	1144
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.07	0.21	0.15	0.15
Intersection Summary					

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative Friday PM
07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	169	213	212	288	265	254	
Future Volume (veh/h)	169	213	212	288	265	254	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	184	232	230	313	370	188	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	250	2003	554	494	734	327	
Arrive On Green	0.14	0.57	0.31	0.31	0.21	0.21	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	184	232	230	313	370	188	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	4.0	1.2	4.1	6.8	3.7	4.3	
Cycle Q Clear(g_c), s	4.0	1.2	4.1	6.8	3.7	4.3	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	250	2003	554	494	734	327	
V/C Ratio(X)	0.74	0.12	0.41	0.63	0.50	0.58	
Avail Cap(c_a), veh/h	1475	6631	1647	1469	3126	1391	
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	16.5	4.0	10.8	11.8	14.1	14.3	
Incr Delay (d2), s/veh	4.2	0.0	0.5	1.3	0.5	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.7	0.2	1.3	2.0	1.3	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.7	4.0	11.3	13.1	14.6	15.9	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		416	543		558		
Approach Delay, s/veh		11.4	12.4		15.0		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				27.3	12.8	10.2	17.1
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				75.5	35.5	33.5	37.5
Max Q Clear Time (g_c+I1), s				3.2	6.3	6.0	8.8
Green Ext Time (p_c), s				1.7	2.0	0.5	3.8

Intersection Summary

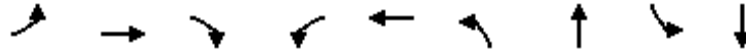
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative Friday PM
07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	15	430	2	23	426	136	26	337
v/c Ratio	0.24	0.05	0.68	0.01	0.10	0.69	0.07	0.13	0.48
Control Delay	34.5	26.3	9.5	38.0	21.8	25.5	9.0	36.6	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.5	26.3	9.5	38.0	21.8	25.5	9.0	36.6	24.2
Queue Length 50th (ft)	15	4	0	1	2	100	5	7	38
Queue Length 95th (ft)	72	25	86	9	27	323	38	43	131
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	308	1009	1052	178	794	1397	3102	211	1362
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.01	0.41	0.01	0.03	0.30	0.04	0.12	0.25
Intersection Summary									

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative Friday PM
 07/02/2024

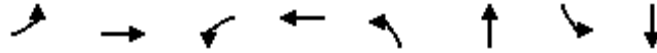


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	14	396	2	7	14	392	123	2	24	218	92
Future Volume (veh/h)	51	14	396	2	7	14	392	123	2	24	218	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	55	15	430	2	8	15	426	134	2	26	237	100
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	84	571	484	5	152	285	492	1410	21	50	358	147
Arrive On Green	0.05	0.31	0.31	0.00	0.26	0.26	0.28	0.40	0.40	0.03	0.15	0.15
Sat Flow, veh/h	1767	1856	1572	1767	578	1083	1767	3556	53	1767	2440	999
Grp Volume(v), veh/h	55	15	430	2	0	23	426	66	70	26	169	168
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1661	1767	1763	1846	1767	1763	1676
Q Serve(g_s), s	2.1	0.4	17.7	0.1	0.0	0.7	15.6	1.6	1.6	1.0	6.2	6.5
Cycle Q Clear(g_c), s	2.1	0.4	17.7	0.1	0.0	0.7	15.6	1.6	1.6	1.0	6.2	6.5
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.03	1.00		0.60
Lane Grp Cap(c), veh/h	84	571	484	5	0	437	492	699	732	50	259	246
V/C Ratio(X)	0.66	0.03	0.89	0.42	0.00	0.05	0.87	0.09	0.10	0.52	0.65	0.68
Avail Cap(c_a), veh/h	247	804	682	143	0	622	1181	1567	1641	169	557	529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	16.4	22.4	33.9	0.0	18.7	23.4	12.9	12.9	32.6	27.4	27.5
Incr Delay (d2), s/veh	8.4	0.0	10.3	48.4	0.0	0.0	4.8	0.1	0.1	7.9	2.8	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	7.4	0.1	0.0	0.3	6.6	0.6	0.6	0.5	2.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	16.5	32.8	82.3	0.0	18.8	28.1	12.9	12.9	40.5	30.2	30.9
LnGrp LOS	D	B	C	F	A	B	C	B	B	D	C	C
Approach Vol, veh/h		500			25			562			363	
Approach Delay, s/veh		33.1			23.9			24.4			31.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	31.5	4.7	25.5	23.4	14.5	7.7	22.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	60.5	5.5	29.5	45.5	21.5	9.5	25.5				
Max Q Clear Time (g_c+I1), s	3.0	3.6	2.1	19.7	17.6	8.5	4.1	2.7				
Green Ext Time (p_c), s	0.0	0.8	0.0	1.2	1.3	1.5	0.0	0.1				

Intersection Summary												
HCM 6th Ctrl Delay				29.1								
HCM 6th LOS				C								

Queues
9: Ascot Parkway & Redwood Street

Cumulative Friday PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	173	443	54	223	314	408	58	570
v/c Ratio	0.58	0.42	0.32	0.48	0.71	0.29	0.34	0.69
Control Delay	43.8	15.8	47.5	35.2	39.6	17.2	47.6	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	15.8	47.5	35.2	39.6	17.2	47.6	28.0
Queue Length 50th (ft)	81	48	26	46	144	69	28	101
Queue Length 95th (ft)	193	120	82	110	303	126	87	211
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	483	1404	213	826	760	2296	218	1283
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.32	0.25	0.27	0.41	0.18	0.27	0.44
Intersection Summary								

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative Friday PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↗↘		↗	↗↘	
Traffic Volume (veh/h)	159	192	215	50	151	54	289	303	73	53	298	226
Future Volume (veh/h)	159	192	215	50	151	54	289	303	73	53	298	226
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	173	209	0	54	164	0	314	329	0	58	324	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	229	635		94	366		397	1183		99	589	
Arrive On Green	0.13	0.18	0.00	0.05	0.10	0.00	0.22	0.34	0.00	0.06	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	173	209	0	54	164	0	314	329	0	58	324	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	4.5	2.5	0.0	1.4	2.1	0.0	8.0	3.3	0.0	1.5	4.0	0.0
Cycle Q Clear(g_c), s	4.5	2.5	0.0	1.4	2.1	0.0	8.0	3.3	0.0	1.5	4.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	229	635		94	366		397	1183		99	589	
V/C Ratio(X)	0.75	0.33		0.57	0.45		0.79	0.28		0.59	0.55	
Avail Cap(c_a), veh/h	791	2239		350	1358		1244	3840		357	2070	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.2	17.2	0.0	22.2	20.2	0.0	17.6	11.7	0.0	22.1	18.3	0.0
Incr Delay (d2), s/veh	5.0	0.3	0.0	5.3	0.9	0.0	3.6	0.1	0.0	5.4	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.9	0.0	0.7	0.8	0.0	3.2	1.1	0.0	0.7	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	17.5	0.0	27.5	21.1	0.0	21.1	11.8	0.0	27.5	19.2	0.0
LnGrp LOS	C	B		C	C		C	B		C	B	
Approach Vol, veh/h		382			218			643			382	
Approach Delay, s/veh		20.9			22.7			16.4			20.4	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.2	20.6	7.1	13.1	15.3	12.5	10.7	9.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.7	52.3	9.5	30.5	33.8	28.2	21.5	18.5				
Max Q Clear Time (g_c+I1), s	3.5	5.3	3.4	4.5	10.0	6.0	6.5	4.1				
Green Ext Time (p_c), s	0.0	2.3	0.0	1.3	0.9	2.0	0.4	0.7				

Intersection Summary

HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative Friday PM
07/02/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	605	318	421	246	253
v/c Ratio	0.64	0.64	0.19	0.58	0.44
Control Delay	22.8	30.1	6.2	31.4	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	30.1	6.2	31.4	6.6
Queue Length 50th (ft)	90	110	32	86	0
Queue Length 95th (ft)	202	260	73	212	58
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1746	1091	3340	953	968
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.29	0.13	0.26	0.26

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

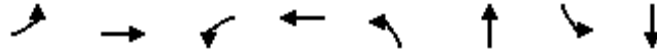
Cumulative Friday PM
 07/02/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	345	212	293	387	226	233
Future Volume (veh/h)	345	212	293	387	226	233
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	375	230	318	421	246	253
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	584	353	401	2096	393	350
Arrive On Green	0.28	0.28	0.23	0.59	0.22	0.22
Sat Flow, veh/h	2205	1276	1767	3618	1767	1572
Grp Volume(v), veh/h	312	293	318	421	246	253
Grp Sat Flow(s),veh/h/ln	1763	1626	1767	1763	1767	1572
Q Serve(g_s), s	7.7	7.8	8.3	2.7	6.2	7.3
Cycle Q Clear(g_c), s	7.7	7.8	8.3	2.7	6.2	7.3
Prop In Lane		0.79	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	487	449	401	2096	393	350
V/C Ratio(X)	0.64	0.65	0.79	0.20	0.63	0.72
Avail Cap(c_a), veh/h	1165	1074	1419	5483	1239	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	15.7	17.9	4.6	17.3	17.7
Incr Delay (d2), s/veh	1.4	1.6	3.6	0.0	1.6	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.6	3.3	0.6	2.4	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.1	17.3	21.5	4.6	18.9	20.5
LnGrp LOS	B	B	C	A	B	C
Approach Vol, veh/h	605			739	499	
Approach Delay, s/veh	17.2			11.9	19.7	
Approach LOS	B			B	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.4	15.7	18.1		33.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		34.5	39.5	32.5		76.5
Max Q Clear Time (g_c+I1), s		9.3	10.3	9.8		4.7
Green Ext Time (p_c), s		1.6	1.0	3.8		3.0
Intersection Summary						
HCM 6th Ctrl Delay			15.8			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative Friday PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	1021	59	636	286	152	2	10
v/c Ratio	0.15	0.71	0.29	0.36	0.66	0.24	0.01	0.02
Control Delay	44.8	21.6	42.9	13.6	33.5	1.4	22.0	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	21.6	42.9	13.6	33.5	1.4	22.0	13.1
Queue Length 50th (ft)	11	188	25	71	115	0	1	0
Queue Length 95th (ft)	47	362	84	197	259	7	7	13
Internal Link Dist (ft)		424		851		1161		269
Turn Bay Length (ft)	125		125		75			
Base Capacity (vph)	177	2367	286	2594	901	1099	779	1042
Starvation Cap Reductn	0	87	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.45	0.21	0.25	0.32	0.14	0.00	0.01
Intersection Summary								

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

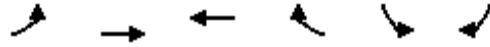
Cumulative Friday PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	23	662	277	54	585	0	263	0	140	2	1	8
Future Volume (veh/h)	23	662	277	54	585	0	263	0	140	2	1	8
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	720	301	59	636	0	286	0	152	2	1	9
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	51	1037	434	96	1599	0	499	0	420	365	43	384
Arrive On Green	0.03	0.43	0.43	0.05	0.45	0.00	0.27	0.00	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1767	2423	1013	1767	3618	0	1394	0	1572	1225	160	1437
Grp Volume(v), veh/h	25	524	497	59	636	0	286	0	152	2	0	10
Grp Sat Flow(s),veh/h/ln	1767	1763	1673	1767	1763	0	1394	0	1572	1225	0	1597
Q Serve(g_s), s	0.8	13.0	13.0	1.8	6.5	0.0	10.3	0.0	4.2	0.1	0.0	0.2
Cycle Q Clear(g_c), s	0.8	13.0	13.0	1.8	6.5	0.0	10.5	0.0	4.2	4.3	0.0	0.2
Prop In Lane	1.00		0.61	1.00		0.00	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	51	755	716	96	1599	0	499	0	420	365	0	426
V/C Ratio(X)	0.49	0.69	0.69	0.61	0.40	0.00	0.57	0.00	0.36	0.01	0.00	0.02
Avail Cap(c_a), veh/h	213	1652	1568	344	3566	0	1304	0	1328	1072	0	1348
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	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.8	12.5	12.5	24.9	9.8	0.0	18.4	0.0	16.0	17.8	0.0	14.6
Incr Delay (d2), s/veh	7.0	1.2	1.2	6.2	0.2	0.0	1.0	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.3	4.1	0.8	2.0	0.0	3.1	0.0	1.4	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	13.7	13.8	31.1	10.0	0.0	19.5	0.0	16.5	17.8	0.0	14.6
LnGrp LOS	C	B	B	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		1046			695			438				12
Approach Delay, s/veh		14.2			11.8			18.5				15.1
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		18.9	7.4	27.6		18.9	6.1	28.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		45.5	10.5	50.5		45.5	6.5	54.5				
Max Q Clear Time (g_c+I1), s		12.5	3.8	15.0		6.3	2.8	8.5				
Green Ext Time (p_c), s		1.9	0.0	8.0		0.0	0.0	4.8				
Intersection Summary												
HCM 6th Ctrl Delay				14.3								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative Friday PM
07/02/2024



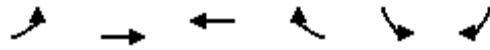
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1531	1047	949	347	396	1501
v/c Ratio	1.03	0.40	1.03	0.58	0.63	0.82
Control Delay	65.0	6.4	80.0	14.7	50.1	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	47.7
Total Delay	65.0	6.4	80.0	14.7	50.1	67.5
Queue Length 50th (ft)	~654	138	~412	56	146	447
Queue Length 95th (ft)	#791	170	#543	155	200	569
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	1487	2590	925	601	631	1828
Starvation Cap Reductn	0	0	0	0	0	467
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.40	1.03	0.58	0.63	1.10

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

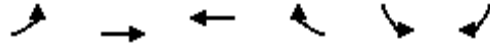
Cumulative Friday PM
 07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↶↷	↶↷	↶↷	↶	↶↷	↶↷	
Traffic Volume (veh/h)	1378	942	854	312	356	1351	
Future Volume (veh/h)	1378	942	854	312	356	1351	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	1531	1047	949	347	396	1501	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	1500	2606	931	415	637	1725	
Arrive On Green	0.44	0.74	0.26	0.26	0.19	0.19	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	1531	1047	949	347	396	1501	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	52.5	13.2	31.7	25.0	12.8	22.3	
Cycle Q Clear(g_c), s	52.5	13.2	31.7	25.0	12.8	22.3	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	1500	2606	931	415	637	1725	
V/C Ratio(X)	1.02	0.40	1.02	0.84	0.62	0.87	
Avail Cap(c_a), veh/h	1500	2606	931	415	637	1725	
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	33.7	5.8	44.1	41.7	45.0	18.6	
Incr Delay (d2), s/veh	28.6	0.1	34.3	13.8	4.5	6.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	26.8	4.2	18.0	21.7	5.8	35.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	62.4	5.9	78.5	55.4	49.5	24.9	
LnGrp LOS	F	A	F	E	D	C	
Approach Vol, veh/h		2578	1296		1897		
Approach Delay, s/veh		39.4	72.3		30.0		
Approach LOS		D	E		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				93.2	26.8	57.0	36.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				88.7	22.3	52.5	31.7
Max Q Clear Time (g_c+I1), s				15.2	24.3	54.5	33.7
Green Ext Time (p_c), s				9.8	0.0	0.0	0.0
Intersection Summary							
HCM 6th Ctrl Delay			43.7				
HCM 6th LOS			D				

Queues
13: Redwood Street

Cumulative Friday PM
07/02/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	114	2022	2046	262	842	137
v/c Ratio	1.01	0.73	1.20	0.34	0.63	0.21
Control Delay	156.6	27.4	131.0	25.4	39.8	15.1
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	156.6	27.4	131.0	25.4	39.8	15.1
Queue Length 50th (ft)	~59	528	~1273	155	342	40
Queue Length 95th (ft)	#128	585	#1406	225	414	89
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	113	2769	1705	763	1326	656
Starvation Cap Reductn	0	0	29	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.73	1.22	0.34	0.63	0.21

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative Friday PM
07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑	↑↑	↖	↖↗	↖
Traffic Volume (veh/h)	103	1820	1841	236	758	123
Future Volume (veh/h)	103	1820	1841	236	758	123
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	114	2022	2046	262	842	137
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	114	2786	1716	765	1337	613
Arrive On Green	0.03	0.55	0.49	0.49	0.39	0.39
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	114	2022	2046	262	842	137
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	5.0	44.8	73.0	15.4	29.8	8.7
Cycle Q Clear(g_c), s	5.0	44.8	73.0	15.4	29.8	8.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	2786	1716	765	1337	613
V/C Ratio(X)	1.00	0.73	1.19	0.34	0.63	0.22
Avail Cap(c_a), veh/h	114	2786	1716	765	1337	613
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	72.5	25.3	38.5	23.7	37.0	30.6
Incr Delay (d2), s/veh	83.5	1.0	92.7	0.3	2.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	17.8	52.6	5.8	13.0	9.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	156.0	26.2	131.2	24.0	39.3	31.4
LnGrp LOS	F	C	F	C	D	C
Approach Vol, veh/h		2136	2308		979	
Approach Delay, s/veh		33.2	119.0		38.2	
Approach LOS		C	F		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		87.0		63.0	9.5	77.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		46.8		31.8	7.0	75.0
Green Ext Time (p_c), s		21.8		4.0	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			70.6			
HCM 6th LOS			E			

Queues
14: Lake Herman Road & Columbus Parkway

Cumulative Friday PM
07/02/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	163	491	27	84	480
v/c Ratio	0.16	0.31	0.30	0.04	0.18	0.21
Control Delay	16.2	5.7	11.2	5.8	16.1	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	5.7	11.2	5.8	16.1	4.2
Queue Length 50th (ft)	14	0	46	0	16	21
Queue Length 95th (ft)	46	38	92	13	50	42
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1472	1344	3456	1546	1353	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.12	0.14	0.02	0.06	0.14
Intersection Summary						

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative Friday PM
 07/02/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↷	↕	↷	↶	↕
Traffic Volume (veh/h)	69	150	452	25	77	442
Future Volume (veh/h)	69	150	452	25	77	442
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	163	491	27	84	480
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	281	250	992	443	266	2004
Arrive On Green	0.16	0.16	0.28	0.28	0.15	0.57
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	75	163	491	27	84	480
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	1.2	3.2	3.8	0.4	1.4	2.2
Cycle Q Clear(g_c), s	1.2	3.2	3.8	0.4	1.4	2.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	281	250	992	443	266	2004
V/C Ratio(X)	0.27	0.65	0.49	0.06	0.32	0.24
Avail Cap(c_a), veh/h	1740	1548	4965	2215	1472	8382
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	12.2	13.0	9.9	8.7	12.5	3.6
Incr Delay (d2), s/veh	0.5	2.9	0.4	0.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.0	1.0	0.1	0.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.7	15.9	10.3	8.7	13.2	3.6
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	238		518			564
Approach Delay, s/veh	14.9		10.2			5.0
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.5	13.8			23.3	9.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	27.5	46.5			78.5	32.5
Max Q Clear Time (g_c+I1), s	3.4	5.8			4.2	5.2
Green Ext Time (p_c), s	0.2	3.5			3.3	0.7
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			

Queues

Cumulative Friday PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	153	247	117	133	183	72	926	210	183	524
v/c Ratio	0.62	0.74	0.59	0.46	0.46	0.46	0.78	0.71	0.22	0.53
Control Delay	55.9	53.8	59.5	47.7	10.6	58.6	34.5	56.2	19.5	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	53.8	59.5	47.7	10.6	58.6	34.5	56.2	19.5	3.8
Queue Length 50th (ft)	97	153	75	81	0	46	280	133	76	0
Queue Length 95th (ft)	184	268	151	159	65	103	396	239	134	60
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	334	451	249	367	459	195	1575	396	1057	1122
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.55	0.47	0.36	0.40	0.37	0.59	0.53	0.17	0.47

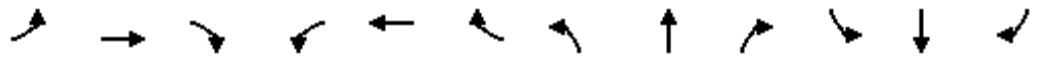
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative Friday PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	194	33	108	122	168	66	691	161	193	168	482
Future Volume (veh/h)	141	194	33	108	122	168	66	691	161	193	168	482
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	153	211	36	117	133	183	72	751	175	210	183	524
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	271	46	151	279	237	93	994	232	258	823	698
Arrive On Green	0.11	0.18	0.18	0.09	0.15	0.15	0.05	0.35	0.35	0.15	0.44	0.44
Sat Flow, veh/h	1767	1545	264	1767	1856	1572	1767	2838	661	1767	1856	1572
Grp Volume(v), veh/h	153	0	247	117	133	183	72	466	460	210	183	524
Grp Sat Flow(s),veh/h/ln	1767	0	1808	1767	1856	1572	1767	1763	1737	1767	1856	1572
Q Serve(g_s), s	6.2	0.0	9.7	4.8	4.9	8.3	3.0	17.3	17.3	8.5	4.5	20.6
Cycle Q Clear(g_c), s	6.2	0.0	9.7	4.8	4.9	8.3	3.0	17.3	17.3	8.5	4.5	20.6
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	194	0	317	151	279	237	93	617	608	258	823	698
V/C Ratio(X)	0.79	0.00	0.78	0.78	0.48	0.77	0.78	0.76	0.76	0.81	0.22	0.75
Avail Cap(c_a), veh/h	432	0	574	322	474	401	253	1036	1020	513	1363	1155
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	29.2	33.2	28.8	30.2	34.6	21.3	21.3	30.6	12.7	17.2
Incr Delay (d2), s/veh	6.9	0.0	4.2	8.3	1.3	5.3	12.8	1.9	1.9	6.1	0.1	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	4.4	2.3	2.2	3.4	1.6	7.0	6.9	3.9	1.8	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	0.0	33.3	41.5	30.0	35.5	47.5	23.2	23.2	36.8	12.8	18.8
LnGrp LOS	D	A	C	D	C	D	D	C	C	D	B	B
Approach Vol, veh/h		400			433			998			917	
Approach Delay, s/veh		35.5			35.4			24.9			21.7	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	30.4	10.8	17.5	8.4	37.4	12.6	15.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	43.5	13.5	23.5	10.6	54.4	18.1	18.9				
Max Q Clear Time (g_c+I1), s	10.5	19.3	6.8	11.7	5.0	22.6	8.2	10.3				
Green Ext Time (p_c), s	0.4	6.6	0.1	1.1	0.1	3.3	0.3	0.9				

Intersection Summary

HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Queues
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative Friday PM
 07/02/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	415	1113	1025	89	1680	292
v/c Ratio	0.31	0.93	0.55	0.10	0.90	0.19
Control Delay	28.2	47.5	22.1	3.4	36.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	47.5	22.1	3.4	36.3	0.3
Queue Length 50th (ft)	131	489	314	0	699	0
Queue Length 95th (ft)	173	#652	377	27	821	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1486	1289	2033	947	2033	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.86	0.50	0.09	0.83	0.19

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative Friday PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔		↔↔		↑↑	↔		↑↑	↔
Traffic Volume (veh/h)	0	0	0	382	0	1024	0	943	82	0	1546	269
Future Volume (veh/h)	0	0	0	382	0	1024	0	943	82	0	1546	269
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				415	0	1113	0	1025	89	0	1680	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1417	0	1144	0	1834	818	0	1834	
Arrive On Green				0.41	0.00	0.41	0.00	0.52	0.52	0.00	0.52	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				415	0	1113	0	1025	89	0	1680	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				11.0	0.0	53.5	0.0	26.7	3.9	0.0	59.2	0.0
Cycle Q Clear(g_c), s				11.0	0.0	53.5	0.0	26.7	3.9	0.0	59.2	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1417	0	1144	0	1834	818	0	1834	
V/C Ratio(X)				0.29	0.00	0.97	0.00	0.56	0.11	0.00	0.92	
Avail Cap(c_a), veh/h				1423	0	1148	0	1941	866	0	1941	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				26.6	0.0	39.1	0.0	22.0	16.5	0.0	29.8	0.0
Incr Delay (d2), s/veh				0.1	0.0	20.2	0.0	0.3	0.1	0.0	7.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.5	0.0	20.7	0.0	10.7	1.4	0.0	25.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.7	0.0	59.3	0.0	22.3	16.6	0.0	36.9	0.0
LnGrp LOS				C	A	E	A	C	B	A	D	
Approach Vol, veh/h					1528			1114			1680	
Approach Delay, s/veh					50.4			21.9			36.9	
Approach LOS					D			C			D	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		75.1				75.1		60.6				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.7				74.7		56.3				
Max Q Clear Time (g_c+I1), s		28.7				61.2		55.5				
Green Ext Time (p_c), s		9.1				9.4		0.5				

Intersection Summary

HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D

Notes

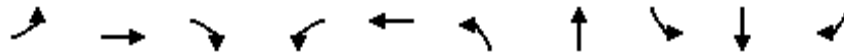
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Cumulative +Project Friday PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	314	769	1155	188	787	1306	393	60	73	250
v/c Ratio	0.94	0.91	0.74	0.91	0.93	0.95	0.51	0.41	0.45	0.47
Control Delay	80.8	56.4	3.1	93.0	63.1	46.8	16.5	56.1	55.8	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.8	56.4	3.1	93.0	63.1	46.8	16.5	56.1	55.8	21.0
Queue Length 50th (ft)	221	280	0	133	200	457	114	41	50	84
Queue Length 95th (ft)	#413	#418	0	#284	#300	#646	216	84	97	157
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	334	846	1568	206	843	1379	788	294	344	537
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.91	0.74	0.91	0.93	0.95	0.50	0.20	0.21	0.47

Intersection Summary

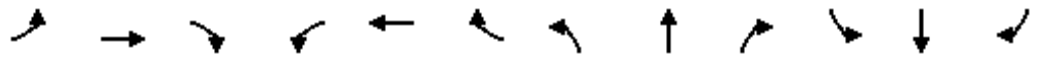
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project Friday PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↗		↘	↑	↗
Traffic Volume (veh/h)	314	769	1155	188	714	73	1306	88	305	60	73	250
Future Volume (veh/h)	314	769	1155	188	714	73	1306	88	305	60	73	250
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	314	769	0	188	714	73	1306	88	0	60	73	250
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	309	778		190	716	73	1270	868		90	275	508
Arrive On Green	0.17	0.22	0.00	0.11	0.15	0.15	0.37	0.47	0.00	0.05	0.15	0.15
Sat Flow, veh/h	1767	3526	1572	1767	4673	474	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	314	769	0	188	515	272	1306	88	0	60	73	250
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1770	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	20.5	25.5	0.0	12.5	17.9	18.0	43.5	3.1	0.0	3.9	4.1	15.0
Cycle Q Clear(g_c), s	20.5	25.5	0.0	12.5	17.9	18.0	43.5	3.1	0.0	3.9	4.1	15.0
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	778		190	518	271	1270	868		90	275	508
V/C Ratio(X)	1.02	0.99		0.99	0.99	1.00	1.03	0.10		0.67	0.27	0.49
Avail Cap(c_a), veh/h	309	778		190	518	271	1270	868		271	316	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.5	45.6	0.0	52.3	49.6	49.7	37.0	17.5	0.0	54.7	44.3	32.0
Incr Delay (d2), s/veh	55.8	29.4	0.0	62.7	37.9	55.6	32.7	0.1	0.0	8.1	0.5	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	13.6	14.0	0.0	8.7	10.1	12.0	23.6	1.3	0.0	1.9	1.9	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.2	75.0	0.0	115.0	87.5	105.3	69.7	17.5	0.0	62.8	44.8	32.7
LnGrp LOS	F	E		F	F	F	F	B		E	D	C
Approach Vol, veh/h		1083			975			1394			383	
Approach Delay, s/veh		83.5			97.8			66.4			39.8	
Approach LOS		F			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	59.4	17.1	30.4	48.0	21.9	25.0	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	45.5	12.6	25.9	43.5	20.0	20.5	18.0				
Max Q Clear Time (g_c+I1), s	5.9	5.1	14.5	27.5	45.5	17.0	22.5	20.0				
Green Ext Time (p_c), s	0.1	0.5	0.0	0.0	0.0	0.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	76.5
HCM 6th LOS	E

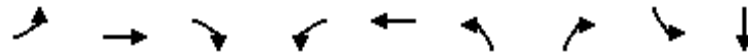
Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project Friday PM

07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	72	901	347	39	838	177	40	2	2
v/c Ratio	0.24	0.51	0.36	0.15	0.54	0.28	0.07	0.01	0.00
Control Delay	26.9	11.0	2.8	28.2	13.5	24.3	0.2	31.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	11.0	2.8	28.2	13.5	24.3	0.2	31.0	0.0
Queue Length 50th (ft)	18	52	0	10	97	23	0	1	0
Queue Length 95th (ft)	75	233	44	48	227	74	0	8	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	578	3227	1471	418	3146	1199	1153	259	860
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.28	0.24	0.09	0.27	0.15	0.03	0.01	0.00

Intersection Summary

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project Friday PM
07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↗↘	↑	↗	↘	↗	
Traffic Volume (veh/h)	66	829	319	36	771	0	163	0	37	2	0	2
Future Volume (veh/h)	66	829	319	36	771	0	163	0	37	2	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	72	901	0	39	838	0	177	0	40	2	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	117	1441		76	1359	0	340	267	226	5	0	74
Arrive On Green	0.07	0.41	0.00	0.04	0.39	0.00	0.10	0.00	0.14	0.00	0.00	0.05
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	72	901	0	39	838	0	177	0	40	2	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.8	9.1	0.0	1.0	8.6	0.0	2.2	0.0	1.0	0.1	0.0	0.1
Cycle Q Clear(g_c), s	1.8	9.1	0.0	1.0	8.6	0.0	2.2	0.0	1.0	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	1441		76	1359	0	340	267	226	5	0	74
V/C Ratio(X)	0.62	0.63		0.51	0.62	0.00	0.52	0.00	0.18	0.41	0.00	0.03
Avail Cap(c_a), veh/h	572	4370		414	4055	0	1187	1222	1036	257	0	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.4	10.5	0.0	21.0	11.1	0.0	19.2	0.0	16.8	22.3	0.0	20.4
Incr Delay (d2), s/veh	5.2	0.4	0.0	5.3	0.5	0.0	1.2	0.0	0.4	47.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.5	0.0	0.5	2.5	0.0	0.8	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	11.0	0.0	26.3	11.5	0.0	20.4	0.0	17.2	70.0	0.0	20.5
LnGrp LOS	C	B		C	B	A	C	A	B	E	A	C
Approach Vol, veh/h		973			877			217				4
Approach Delay, s/veh		12.0			12.2			19.8				45.3
Approach LOS		B			B			B				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	10.9	6.4	22.8	8.9	6.6	7.5	21.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	29.5	10.5	55.5	15.5	20.5	14.5	51.5				
Max Q Clear Time (g_c+I1), s	2.1	3.0	3.0	11.1	4.2	2.1	3.8	10.6				
Green Ext Time (p_c), s	0.0	0.1	0.0	7.2	0.4	0.0	0.1	6.5				

Intersection Summary

HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative +Project Friday PM
07/02/2024



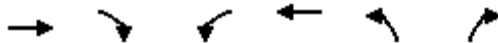
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	618	245	33	679	159	22
v/c Ratio	0.33	0.26	0.08	0.31	0.18	0.05
Control Delay	8.8	2.7	17.6	4.7	15.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	2.7	17.6	4.7	15.3	9.3
Queue Length 50th (ft)	29	0	4	33	10	0
Queue Length 95th (ft)	105	33	29	59	43	15
Internal Link Dist (ft)	1748			2821	1766	
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3505	1568	1216	3505	2765	1279
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.16	0.03	0.19	0.06	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Cumulative +Project Friday PM

07/02/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	569	225	30	625	146	20
Future Volume (veh/h)	569	225	30	625	146	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	618	245	33	679	159	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1238	552	253	2198	406	186
Arrive On Green	0.35	0.35	0.14	0.62	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	618	245	33	679	159	22
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	4.8	4.2	0.6	3.1	1.5	0.4
Cycle Q Clear(g_c), s	4.8	4.2	0.6	3.1	1.5	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1238	552	253	2198	406	186
V/C Ratio(X)	0.50	0.44	0.13	0.31	0.39	0.12
Avail Cap(c_a), veh/h	5610	2502	1140	8339	2801	1285
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	8.9	8.7	13.0	3.1	14.2	13.7
Incr Delay (d2), s/veh	0.3	0.6	0.2	0.1	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.9	0.2	0.2	0.5	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	9.3	13.3	3.1	14.8	14.0
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	863			712	181	
Approach Delay, s/veh	9.2			3.6	14.7	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.6	9.5	16.8		26.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		28.5	22.5	55.5		82.5
Max Q Clear Time (g_c+I1), s		3.5	2.6	6.8		5.1
Green Ext Time (p_c), s		0.6	0.0	5.4		5.1
Intersection Summary						
HCM 6th Ctrl Delay			7.5			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project Friday PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	1418	202	1167	39	29	174	195	99
v/c Ratio	0.52	0.86	0.74	0.60	0.04	0.10	0.35	0.82	0.22
Control Delay	60.1	32.4	61.8	19.2	2.4	33.6	8.8	66.4	10.1
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	32.9	61.8	19.2	2.4	33.6	8.8	66.4	10.1
Queue Length 50th (ft)	64	462	141	291	0	17	8	136	6
Queue Length 95th (ft)	122	627	#258	418	12	42	63	#243	48
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	224	1887	326	2109	965	417	630	328	584
Starvation Cap Reductn	0	156	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.82	0.62	0.55	0.04	0.07	0.28	0.59	0.17

Intersection Summary

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

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project Friday PM

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	83	1267	38	186	1074	36	27	13	147	179	9	82
Future Volume (veh/h)	83	1267	38	186	1074	36	27	13	147	179	9	82
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	1377	41	202	1167	39	29	14	160	195	10	89
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	115	1612	48	236	1867	833	360	35	400	292	44	392
Arrive On Green	0.07	0.46	0.46	0.13	0.53	0.53	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1767	3496	104	1767	3526	1572	1286	128	1464	1201	161	1436
Grp Volume(v), veh/h	90	694	724	202	1167	39	29	0	174	195	0	99
Grp Sat Flow(s),veh/h/ln	1767	1763	1837	1767	1763	1572	1286	0	1592	1201	0	1597
Q Serve(g_s), s	5.1	35.7	35.8	11.4	23.8	1.2	1.8	0.0	9.1	16.2	0.0	4.9
Cycle Q Clear(g_c), s	5.1	35.7	35.8	11.4	23.8	1.2	6.7	0.0	9.1	25.3	0.0	4.9
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.92	1.00		0.90
Lane Grp Cap(c), veh/h	115	813	847	236	1867	833	360	0	435	292	0	436
V/C Ratio(X)	0.78	0.85	0.86	0.86	0.63	0.05	0.08	0.00	0.40	0.67	0.00	0.23
Avail Cap(c_a), veh/h	223	941	980	325	2085	930	427	0	518	354	0	519
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	0.00	1.00
Uniform Delay (d), s/veh	47.0	24.5	24.5	43.3	16.9	11.6	31.4	0.0	30.3	40.6	0.0	28.8
Incr Delay (d2), s/veh	11.0	6.9	6.7	15.0	0.5	0.0	0.1	0.0	0.6	3.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	15.8	16.4	5.9	9.3	0.4	0.6	0.0	3.5	5.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	31.3	31.2	58.3	17.4	11.6	31.5	0.0	30.9	44.2	0.0	29.0
LnGrp LOS	E	C	C	E	B	B	C	A	C	D	A	C
Approach Vol, veh/h		1508			1408			203			294	
Approach Delay, s/veh		32.9			23.1			31.0			39.1	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		32.4	18.1	51.6		32.4	11.1	58.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		33.2	18.8	54.5		33.2	12.9	60.4				
Max Q Clear Time (g_c+I1), s		11.1	13.4	37.8		27.3	7.1	25.8				
Green Ext Time (p_c), s		1.1	0.3	9.3		0.6	0.1	11.2				
Intersection Summary												
HCM 6th Ctrl Delay			29.3									
HCM 6th LOS			C									

Queues

Cumulative +Project Friday PM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	80	1149	351	815	102	46	250	107	43	51
v/c Ratio	0.49	0.85	0.84	0.42	0.53	0.29	0.69	0.54	0.21	0.17
Control Delay	56.7	37.3	57.2	15.7	54.8	50.4	16.6	54.8	47.5	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	37.3	57.2	15.7	54.8	50.4	16.6	54.8	47.5	1.3
Queue Length 50th (ft)	51	357	218	156	65	29	0	68	27	0
Queue Length 95th (ft)	108	#582	#428	269	126	67	77	131	64	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	206	1353	439	1918	307	331	486	307	331	393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.85	0.80	0.42	0.33	0.14	0.51	0.35	0.13	0.13

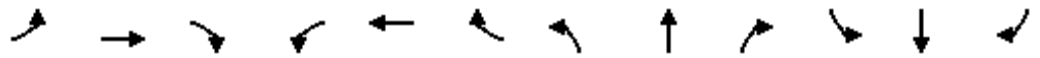
Intersection Summary

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

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project Friday PM

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	982	75	323	623	127	94	42	230	98	40	47
Future Volume (veh/h)	74	982	75	323	623	127	94	42	230	98	40	47
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	80	1067	82	351	677	138	102	46	250	107	43	51
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	103	1185	91	383	1505	307	136	325	275	141	330	280
Arrive On Green	0.06	0.36	0.36	0.22	0.52	0.52	0.08	0.17	0.17	0.08	0.18	0.18
Sat Flow, veh/h	1767	3318	255	1767	2917	594	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	80	567	582	351	409	406	102	46	250	107	43	51
Grp Sat Flow(s),veh/h/ln	1767	1763	1810	1767	1763	1749	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.7	32.0	32.1	20.4	15.4	15.4	5.9	2.2	16.4	6.2	2.1	2.9
Cycle Q Clear(g_c), s	4.7	32.0	32.1	20.4	15.4	15.4	5.9	2.2	16.4	6.2	2.1	2.9
Prop In Lane	1.00		0.14	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	630	647	383	909	902	136	325	275	141	330	280
V/C Ratio(X)	0.78	0.90	0.90	0.92	0.45	0.45	0.75	0.14	0.91	0.76	0.13	0.18
Avail Cap(c_a), veh/h	203	669	687	432	909	902	303	325	275	303	330	280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	32.0	32.0	40.2	16.0	16.0	47.5	36.7	42.5	47.4	36.4	36.7
Incr Delay (d2), s/veh	12.0	14.7	14.5	22.7	0.3	0.4	8.0	0.2	31.5	8.1	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	15.8	16.2	11.2	6.1	6.0	2.9	1.0	8.7	3.0	0.9	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.8	46.7	46.5	63.0	16.4	16.4	55.5	36.9	74.1	55.5	36.6	37.0
LnGrp LOS	E	D	D	E	B	B	E	D	E	E	D	D
Approach Vol, veh/h		1229			1166			398			201	
Approach Delay, s/veh		47.5			30.4			65.0			46.7	
Approach LOS		D			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.9	22.9	27.3	42.1	12.6	23.2	10.6	58.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	18.4	25.7	39.9	18.0	18.4	12.1	53.5				
Max Q Clear Time (g_c+I1), s	8.2	18.4	22.4	34.1	7.9	4.9	6.7	17.4				
Green Ext Time (p_c), s	0.2	0.0	0.4	3.5	0.1	0.2	0.1	6.1				

Intersection Summary

HCM 6th Ctrl Delay	43.1
HCM 6th LOS	D

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project Friday PM

07/02/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	667	42	1674	86	849
v/c Ratio	0.84	0.12	0.84	0.59	0.36
Control Delay	51.8	11.8	23.4	69.3	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	11.8	23.4	69.3	7.7
Queue Length 50th (ft)	256	0	515	66	124
Queue Length 95th (ft)	#348	32	632	#133	156
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	900	407	2261	163	2704
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.10	0.74	0.53	0.31

Intersection Summary

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

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project Friday PM
07/02/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	609	43	1110	430	79	781
Future Volume (veh/h)	609	43	1110	430	79	781
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	662	47	1207	467	86	849
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	770	343	1469	549	110	2440
Arrive On Green	0.22	0.22	0.59	0.59	0.06	0.69
Sat Flow, veh/h	3534	1572	2603	939	1767	3618
Grp Volume(v), veh/h	662	47	835	839	86	849
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1687	1767	1763
Q Serve(g_s), s	18.0	2.4	37.4	41.1	4.8	9.8
Cycle Q Clear(g_c), s	18.0	2.4	37.4	41.1	4.8	9.8
Prop In Lane	1.00	1.00		0.56	1.00	
Lane Grp Cap(c), veh/h	770	343	1031	987	110	2440
V/C Ratio(X)	0.86	0.14	0.81	0.85	0.78	0.35
Avail Cap(c_a), veh/h	971	432	1221	1168	171	2942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	31.5	16.4	17.1	46.3	6.2
Incr Delay (d2), s/veh	6.5	0.2	3.6	5.3	11.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.9	14.8	15.9	2.4	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.2	31.7	20.0	22.5	57.9	6.3
LnGrp LOS	D	C	B	C	E	A
Approach Vol, veh/h	709		1674			935
Approach Delay, s/veh	43.3		21.2			11.1
Approach LOS	D		C			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.7	63.0			73.8	26.3
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	9.7	69.3			83.5	27.5
Max Q Clear Time (g_c+I1), s	6.8	43.1			11.8	20.0
Green Ext Time (p_c), s	0.0	15.5			7.6	1.8

Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Cumulative +Project Friday PM
07/02/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	198	232	548	399	181
v/c Ratio	0.47	0.12	0.57	0.48	0.38
Control Delay	21.5	5.2	10.5	17.3	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	5.2	10.5	17.3	6.3
Queue Length 50th (ft)	46	13	30	42	0
Queue Length 95th (ft)	121	31	83	97	46
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1293	3505	2550	2529	1127
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.07	0.21	0.16	0.16

Intersection Summary

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative +Project Friday PM
07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↕	↑↑	↑↔		↕↕	↕	
Traffic Volume (veh/h)	182	213	212	293	269	265	
Future Volume (veh/h)	182	213	212	293	269	265	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	198	232	230	318	380	193	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	268	2023	553	493	739	329	
Arrive On Green	0.15	0.57	0.31	0.31	0.21	0.21	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	198	232	230	318	380	193	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	4.4	1.2	4.3	7.2	3.9	4.6	
Cycle Q Clear(g_c), s	4.4	1.2	4.3	7.2	3.9	4.6	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	268	2023	553	493	739	329	
V/C Ratio(X)	0.74	0.11	0.42	0.64	0.51	0.59	
Avail Cap(c_a), veh/h	1471	6420	1552	1384	3026	1346	
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	16.8	4.0	11.2	12.2	14.5	14.8	
Incr Delay (d2), s/veh	4.0	0.0	0.5	1.4	0.6	1.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.8	0.3	1.4	2.2	1.4	4.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.8	4.1	11.7	13.7	15.1	16.4	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		430	548		573		
Approach Delay, s/veh		11.8	12.9		15.5		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				28.3	13.2	10.8	17.5
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				75.5	35.5	34.5	36.5
Max Q Clear Time (g_c+I1), s				3.2	6.6	6.4	9.2
Green Ext Time (p_c), s				1.7	2.1	0.6	3.8

Intersection Summary

HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

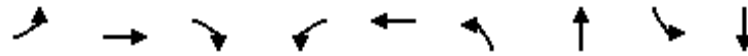
Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project Friday PM

07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	15	435	2	23	432	152	26	350
v/c Ratio	0.24	0.05	0.69	0.01	0.10	0.70	0.07	0.13	0.49
Control Delay	35.0	26.7	9.6	39.0	22.1	25.8	8.8	37.2	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	26.7	9.6	39.0	22.1	25.8	8.8	37.2	24.7
Queue Length 50th (ft)	15	4	0	1	2	104	5	7	41
Queue Length 95th (ft)	72	25	88	9	27	330	41	43	138
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	304	996	1047	163	773	1387	3095	208	1371
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.02	0.42	0.01	0.03	0.31	0.05	0.13	0.26

Intersection Summary

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project Friday PM

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↕		↖	↕	
Traffic Volume (veh/h)	51	14	400	2	7	14	397	138	2	24	230	92
Future Volume (veh/h)	51	14	400	2	7	14	397	138	2	24	230	92
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	55	15	435	2	8	15	432	150	2	26	250	100
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	83	575	487	5	153	287	496	1432	19	50	371	144
Arrive On Green	0.05	0.31	0.31	0.00	0.27	0.27	0.28	0.40	0.40	0.03	0.15	0.15
Sat Flow, veh/h	1767	1856	1572	1767	578	1083	1767	3562	47	1767	2480	965
Grp Volume(v), veh/h	55	15	435	2	0	23	432	74	78	26	176	174
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1661	1767	1763	1847	1767	1763	1682
Q Serve(g_s), s	2.1	0.4	18.5	0.1	0.0	0.7	16.3	1.8	1.8	1.0	6.6	6.9
Cycle Q Clear(g_c), s	2.1	0.4	18.5	0.1	0.0	0.7	16.3	1.8	1.8	1.0	6.6	6.9
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.03	1.00		0.57
Lane Grp Cap(c), veh/h	83	575	487	5	0	441	496	709	742	50	264	252
V/C Ratio(X)	0.66	0.03	0.89	0.42	0.00	0.05	0.87	0.10	0.10	0.52	0.67	0.69
Avail Cap(c_a), veh/h	240	782	663	129	0	596	1149	1535	1608	164	552	527
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	16.8	23.0	34.8	0.0	19.1	24.0	13.1	13.1	33.5	28.1	28.2
Incr Delay (d2), s/veh	8.7	0.0	11.5	48.5	0.0	0.0	4.9	0.1	0.1	8.1	2.9	3.4
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	0.2	7.9	0.1	0.0	0.3	6.9	0.7	0.7	0.5	2.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	16.8	34.6	83.3	0.0	19.2	28.8	13.1	13.1	41.6	31.0	31.6
LnGrp LOS	D	B	C	F	A	B	C	B	B	D	C	C
Approach Vol, veh/h		505			25			584			376	
Approach Delay, s/veh		34.8			24.3			24.7			32.0	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	32.6	4.7	26.2	24.1	15.0	7.8	23.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	60.9	5.1	29.5	45.5	21.9	9.5	25.1				
Max Q Clear Time (g_c+I1), s	3.0	3.8	2.1	20.5	18.3	8.9	4.1	2.7				
Green Ext Time (p_c), s	0.0	0.9	0.0	1.2	1.4	1.6	0.0	0.1				

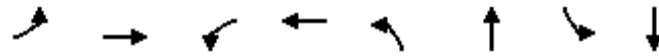
Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Queues
9: Ascot Parkway & Redwood Street

Cumulative +Project Friday PM

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	187	443	54	223	314	416	58	587
v/c Ratio	0.61	0.46	0.33	0.49	0.71	0.29	0.34	0.70
Control Delay	44.9	16.7	48.6	35.9	40.7	17.5	48.6	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	16.7	48.6	35.9	40.7	17.5	48.6	28.4
Queue Length 50th (ft)	90	49	27	47	148	72	28	107
Queue Length 95th (ft)	208	120	82	110	307	131	86	217
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	481	1378	209	792	736	2248	213	1272
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.32	0.26	0.28	0.43	0.19	0.27	0.46

Intersection Summary

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative +Project Friday PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↗↘		↗	↗↘	
Traffic Volume (veh/h)	172	192	215	50	151	54	289	310	73	53	303	237
Future Volume (veh/h)	172	192	215	50	151	54	289	310	73	53	303	237
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	187	209	0	54	164	0	314	337	0	58	329	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	246	663		94	359		396	1184		98	591	
Arrive On Green	0.14	0.19	0.00	0.05	0.10	0.00	0.22	0.34	0.00	0.06	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	187	209	0	54	164	0	314	337	0	58	329	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	5.0	2.5	0.0	1.5	2.1	0.0	8.2	3.4	0.0	1.6	4.2	0.0
Cycle Q Clear(g_c), s	5.0	2.5	0.0	1.5	2.1	0.0	8.2	3.4	0.0	1.6	4.2	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	246	663		94	359		396	1184		98	591	
V/C Ratio(X)	0.76	0.32		0.58	0.46		0.79	0.28		0.59	0.56	
Avail Cap(c_a), veh/h	790	2195		343	1303		1208	3764		350	2051	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	17.2	0.0	22.7	20.7	0.0	17.9	12.0	0.0	22.6	18.7	0.0
Incr Delay (d2), s/veh	4.8	0.3	0.0	5.5	0.9	0.0	3.6	0.1	0.0	5.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.9	0.0	0.7	0.8	0.0	3.3	1.1	0.0	0.7	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	17.4	0.0	28.1	21.6	0.0	21.6	12.1	0.0	28.1	19.5	0.0
LnGrp LOS	C	B		C	C		C	B		C	B	
Approach Vol, veh/h		396			218			651			387	
Approach Delay, s/veh		21.0			23.2			16.7			20.8	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.2	20.9	7.1	13.7	15.5	12.7	11.3	9.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.7	52.3	9.5	30.5	33.5	28.5	21.9	18.1				
Max Q Clear Time (g_c+I1), s	3.6	5.4	3.5	4.5	10.2	6.2	7.0	4.1				
Green Ext Time (p_c), s	0.0	2.3	0.0	1.3	0.9	2.0	0.4	0.7				

Intersection Summary

HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative +Project Friday PM
07/02/2024



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	605	330	421	246	267
v/c Ratio	0.64	0.66	0.19	0.59	0.46
Control Delay	23.2	30.4	6.2	32.1	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	30.4	6.2	32.1	6.7
Queue Length 50th (ft)	91	115	32	88	0
Queue Length 95th (ft)	205	272	74	215	60
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1726	1105	3337	914	946
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.30	0.13	0.27	0.28

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

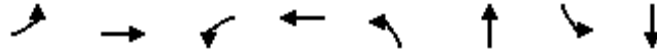
Cumulative +Project Friday PM
 07/02/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	345	212	304	387	226	246
Future Volume (veh/h)	345	212	304	387	226	246
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	375	230	330	421	246	267
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	576	348	411	2094	406	361
Arrive On Green	0.27	0.27	0.23	0.59	0.23	0.23
Sat Flow, veh/h	2205	1276	1767	3618	1767	1572
Grp Volume(v), veh/h	312	293	330	421	246	267
Grp Sat Flow(s),veh/h/ln	1763	1626	1767	1763	1767	1572
Q Serve(g_s), s	8.0	8.1	9.0	2.8	6.3	8.0
Cycle Q Clear(g_c), s	8.0	8.1	9.0	2.8	6.3	8.0
Prop In Lane		0.79	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	481	443	411	2094	406	361
V/C Ratio(X)	0.65	0.66	0.80	0.20	0.61	0.74
Avail Cap(c_a), veh/h	1125	1037	1405	5364	1162	1034
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	16.4	16.4	18.4	4.8	17.6	18.2
Incr Delay (d2), s/veh	1.5	1.7	3.7	0.0	1.5	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.8	3.6	0.6	2.5	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.8	18.1	22.1	4.8	19.0	21.2
LnGrp LOS	B	B	C	A	B	C
Approach Vol, veh/h	605			751	513	
Approach Delay, s/veh	18.0			12.4	20.2	
Approach LOS	B			B	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.2	16.4	18.4		34.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		33.5	40.5	32.5		77.5
Max Q Clear Time (g_c+I1), s		10.0	11.0	10.1		4.8
Green Ext Time (p_c), s		1.7	1.0	3.7		3.0
Intersection Summary						
HCM 6th Ctrl Delay			16.3			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project Friday PM
07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	1038	59	636	307	152	2	10
v/c Ratio	0.16	0.73	0.30	0.36	0.69	0.23	0.01	0.02
Control Delay	46.8	22.7	44.9	14.3	34.6	1.4	22.5	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	22.7	44.9	14.3	34.6	1.4	22.5	13.1
Queue Length 50th (ft)	11	202	27	76	130	0	1	0
Queue Length 95th (ft)	47	382	86	204	284	8	7	12
Internal Link Dist (ft)		424		851		1161		269
Turn Bay Length (ft)	125		125		75			
Base Capacity (vph)	171	2270	276	2488	891	1088	768	1030
Starvation Cap Reductn	0	90	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.48	0.21	0.26	0.34	0.14	0.00	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

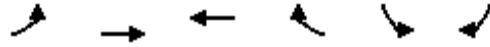
Cumulative +Project Friday PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	23	662	293	54	585	0	282	0	140	2	1	8
Future Volume (veh/h)	23	662	293	54	585	0	282	0	140	2	1	8
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	720	318	59	636	0	307	0	152	2	1	9
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	51	1018	450	94	1596	0	511	0	439	375	45	402
Arrive On Green	0.03	0.43	0.43	0.05	0.45	0.00	0.28	0.00	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1767	2379	1050	1767	3618	0	1394	0	1572	1225	160	1437
Grp Volume(v), veh/h	25	533	505	59	636	0	307	0	152	2	0	10
Grp Sat Flow(s),veh/h/ln	1767	1763	1666	1767	1763	0	1394	0	1572	1225	0	1597
Q Serve(g_s), s	0.8	14.0	14.0	1.8	6.8	0.0	11.6	0.0	4.4	0.1	0.0	0.3
Cycle Q Clear(g_c), s	0.8	14.0	14.0	1.8	6.8	0.0	11.8	0.0	4.4	4.4	0.0	0.3
Prop In Lane	1.00		0.63	1.00		0.00	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	51	755	713	94	1596	0	511	0	439	375	0	446
V/C Ratio(X)	0.49	0.71	0.71	0.62	0.40	0.00	0.60	0.00	0.35	0.01	0.00	0.02
Avail Cap(c_a), veh/h	203	1545	1461	329	3340	0	1269	0	1295	1042	0	1315
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	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.0	13.2	13.2	26.2	10.3	0.0	19.0	0.0	16.2	18.0	0.0	14.8
Incr Delay (d2), s/veh	7.2	1.2	1.3	6.6	0.2	0.0	1.1	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.7	4.5	0.9	2.2	0.0	3.5	0.0	1.5	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	14.5	14.6	32.8	10.5	0.0	20.2	0.0	16.7	18.0	0.0	14.8
LnGrp LOS	C	B	B	C	B	A	C	A	B	B	A	B
Approach Vol, veh/h		1063			695			459				12
Approach Delay, s/veh		15.0			12.4			19.0				15.3
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.3	7.5	28.7		20.3	6.1	30.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		46.5	10.5	49.5		46.5	6.5	53.5				
Max Q Clear Time (g_c+I1), s		13.8	3.8	16.0		6.4	2.8	8.8				
Green Ext Time (p_c), s		2.0	0.0	8.1		0.0	0.0	4.8				
Intersection Summary												
HCM 6th Ctrl Delay				15.0								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project Friday PM
07/02/2024



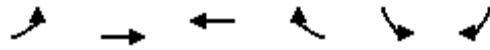
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1581	1047	949	368	413	1560
v/c Ratio	1.06	0.41	1.04	0.61	0.65	0.85
Control Delay	73.9	6.5	84.6	15.4	50.3	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	47.3
Total Delay	73.9	6.5	84.6	15.4	50.3	68.4
Queue Length 50th (ft)	~693	140	~418	61	153	480
Queue Length 95th (ft)	#829	172	#550	166	208	615
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	1493	2582	911	606	640	1839
Starvation Cap Reductn	0	0	0	0	0	447
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.41	1.04	0.61	0.65	1.12

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

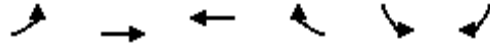
Cumulative +Project Friday PM
 07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↖	↑↑	↗↗	↖	↘↘	↘↘	
Traffic Volume (veh/h)	1423	942	854	331	372	1404	
Future Volume (veh/h)	1423	942	854	331	372	1404	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	1581	1047	949	368	413	1560	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	1506	2597	917	409	646	1737	
Arrive On Green	0.44	0.74	0.26	0.26	0.19	0.19	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	1581	1047	949	368	413	1560	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	52.7	13.3	31.2	27.1	13.3	22.6	
Cycle Q Clear(g_c), s	52.7	13.3	31.2	27.1	13.3	22.6	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	1506	2597	917	409	646	1737	
V/C Ratio(X)	1.05	0.40	1.04	0.90	0.64	0.90	
Avail Cap(c_a), veh/h	1506	2597	917	409	646	1737	
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	33.7	5.9	44.4	42.9	44.9	19.1	
Incr Delay (d2), s/veh	37.6	0.1	39.2	22.3	4.8	7.8	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	28.8	4.3	18.3	23.9	6.1	37.5	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	71.2	6.0	83.6	65.2	49.7	26.9	
LnGrp LOS	F	A	F	E	D	C	
Approach Vol, veh/h		2628	1317		1973		
Approach Delay, s/veh		45.2	78.5		31.7		
Approach LOS		D	E		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				92.9	27.1	57.2	35.7
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				88.4	22.6	52.7	31.2
Max Q Clear Time (g_c+I1), s				15.3	24.6	54.7	33.2
Green Ext Time (p_c), s				9.8	0.0	0.0	0.0
Intersection Summary							
HCM 6th Ctrl Delay			48.1				
HCM 6th LOS			D				

Queues
13: Redwood Street

Cumulative +Project Friday PM
07/02/2024



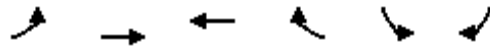
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	114	2058	2074	274	857	137
v/c Ratio	1.01	0.74	1.22	0.36	0.65	0.21
Control Delay	156.6	27.8	137.8	25.7	40.1	15.1
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	156.6	27.8	137.8	25.7	40.1	15.1
Queue Length 50th (ft)	~59	544	~1303	164	351	40
Queue Length 95th (ft)	#128	602	#1435	236	423	89
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	113	2769	1705	763	1326	656
Starvation Cap Reductn	0	0	28	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.74	1.24	0.36	0.65	0.21

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative +Project Friday PM
07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↖	↑↑↑	↑↑	↗	↘↘	↘
Traffic Volume (veh/h)	103	1852	1867	247	771	123
Future Volume (veh/h)	103	1852	1867	247	771	123
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	114	2058	2074	274	857	137
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	114	2786	1716	765	1337	613
Arrive On Green	0.03	0.55	0.49	0.49	0.39	0.39
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	114	2058	2074	274	857	137
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	5.0	46.2	73.0	16.2	30.5	8.7
Cycle Q Clear(g_c), s	5.0	46.2	73.0	16.2	30.5	8.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	2786	1716	765	1337	613
V/C Ratio(X)	1.00	0.74	1.21	0.36	0.64	0.22
Avail Cap(c_a), veh/h	114	2786	1716	765	1337	613
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	72.5	25.6	38.5	23.9	37.2	30.6
Incr Delay (d2), s/veh	83.5	1.1	99.7	0.3	2.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	18.3	54.3	6.1	13.3	9.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	156.0	26.6	138.2	24.2	39.6	31.4
LnGrp LOS	F	C	F	C	D	C
Approach Vol, veh/h		2172	2348		994	
Approach Delay, s/veh		33.4	124.9		38.5	
Approach LOS		C	F		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		87.0		63.0	9.5	77.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		48.2		32.5	7.0	75.0
Green Ext Time (p_c), s		21.7		4.1	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			73.3			
HCM 6th LOS			E			

Queues
14: Lake Herman Road & Columbus Parkway















Cumulative +Project Friday PM
07/02/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	184	534	27	101	515
v/c Ratio	0.22	0.41	0.47	0.05	0.27	0.26
Control Delay	18.6	6.9	13.7	5.8	18.4	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	6.9	13.7	5.8	18.4	4.4
Queue Length 50th (ft)	16	0	53	0	21	23
Queue Length 95th (ft)	50	42	104	13	61	45
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1377	1271	3409	1526	1219	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.14	0.16	0.02	0.08	0.15
Intersection Summary						

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project Friday PM
 07/02/2024

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (veh/h)	69	169	491	25	93	474
Future Volume (veh/h)	69	169	491	25	93	474
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	184	534	27	101	515
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	308	274	1034	461	254	1998
Arrive On Green	0.17	0.17	0.29	0.29	0.14	0.57
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	75	184	534	27	101	515
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	1.3	3.8	4.4	0.4	1.8	2.6
Cycle Q Clear(g_c), s	1.3	3.8	4.4	0.4	1.8	2.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	308	274	1034	461	254	1998
V/C Ratio(X)	0.24	0.67	0.52	0.06	0.40	0.26
Avail Cap(c_a), veh/h	1655	1473	4725	2107	1401	7976
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	12.4	13.4	10.2	8.8	13.5	3.8
Incr Delay (d2), s/veh	0.4	2.9	0.4	0.1	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	1.2	0.1	0.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.8	16.3	10.6	8.9	14.5	3.9
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	259		561			616
Approach Delay, s/veh	15.3		10.5			5.6
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.5	14.7			24.2	10.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	27.5	46.5			78.5	32.5
Max Q Clear Time (g_c+I1), s	3.8	6.4			4.6	5.8
Green Ext Time (p_c), s	0.2	3.8			3.6	0.8
Intersection Summary						
HCM 6th Ctrl Delay			9.3			
HCM 6th LOS			A			

Queues

Cumulative +Project Friday PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	153	247	117	133	183	72	961	210	183	553
v/c Ratio	0.63	0.74	0.59	0.46	0.46	0.46	0.80	0.71	0.22	0.54
Control Delay	56.5	54.4	60.2	48.1	10.6	59.2	35.3	56.7	19.4	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	54.4	60.2	48.1	10.6	59.2	35.3	56.7	19.4	3.9
Queue Length 50th (ft)	100	156	77	82	0	47	297	136	77	0
Queue Length 95th (ft)	184	268	151	159	65	103	416	239	134	62
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	330	446	246	362	455	193	1558	392	1044	1127
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.55	0.48	0.37	0.40	0.37	0.62	0.54	0.18	0.49

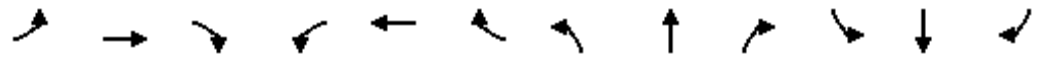
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative +Project Friday PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↕		↖	↗	↖
Traffic Volume (veh/h)	141	194	33	108	122	168	66	723	161	193	168	509
Future Volume (veh/h)	141	194	33	108	122	168	66	723	161	193	168	509
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	153	211	36	117	133	183	72	786	175	210	183	553
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	269	46	150	278	235	93	1028	229	257	838	710
Arrive On Green	0.11	0.17	0.17	0.09	0.15	0.15	0.05	0.36	0.36	0.15	0.45	0.45
Sat Flow, veh/h	1767	1545	264	1767	1856	1572	1767	2865	638	1767	1856	1572
Grp Volume(v), veh/h	153	0	247	117	133	183	72	484	477	210	183	553
Grp Sat Flow(s),veh/h/ln	1767	0	1808	1767	1856	1572	1767	1763	1741	1767	1856	1572
Q Serve(g_s), s	6.4	0.0	9.9	4.9	5.0	8.5	3.1	18.4	18.4	8.8	4.6	22.6
Cycle Q Clear(g_c), s	6.4	0.0	9.9	4.9	5.0	8.5	3.1	18.4	18.4	8.8	4.6	22.6
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	194	0	315	150	278	235	93	632	624	257	838	710
V/C Ratio(X)	0.79	0.00	0.78	0.78	0.48	0.78	0.77	0.76	0.76	0.82	0.22	0.78
Avail Cap(c_a), veh/h	421	0	559	314	461	391	246	1009	996	500	1328	1126
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	30.0	34.1	29.6	31.1	35.6	21.5	21.5	31.5	12.7	17.6
Incr Delay (d2), s/veh	7.0	0.0	4.3	8.4	1.3	5.5	12.8	2.0	2.0	6.3	0.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	4.5	2.4	2.3	3.5	1.6	7.5	7.4	4.1	1.8	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	0.0	34.3	42.4	30.9	36.6	48.4	23.5	23.5	37.8	12.8	19.5
LnGrp LOS	D	A	C	D	C	D	D	C	C	D	B	B
Approach Vol, veh/h		400			433			1033			946	
Approach Delay, s/veh		36.5			36.4			25.3			22.3	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.6	31.8	11.0	17.7	8.5	38.8	12.8	15.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	43.5	13.5	23.5	10.6	54.4	18.1	18.9				
Max Q Clear Time (g_c+I1), s	10.8	20.4	6.9	11.9	5.1	24.6	8.4	10.5				
Green Ext Time (p_c), s	0.4	6.8	0.1	1.0	0.1	3.4	0.3	0.9				

Intersection Summary

HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Queues
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project Friday PM
 07/02/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	427	1142	1025	89	1715	292
v/c Ratio	0.32	0.96	0.55	0.10	0.92	0.19
Control Delay	29.1	52.4	22.0	3.2	37.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	52.4	22.0	3.2	37.6	0.3
Queue Length 50th (ft)	137	515	310	0	717	0
Queue Length 95th (ft)	179	#689	372	26	842	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1416	1240	1987	927	1987	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.92	0.52	0.10	0.86	0.19

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project Friday PM
 07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔		↔		↕	↗		↕	↗
Traffic Volume (veh/h)	0	0	0	393	0	1051	0	943	82	0	1578	269
Future Volume (veh/h)	0	0	0	393	0	1051	0	943	82	0	1578	269
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				427	0	1142	0	1025	89	0	1715	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1394	0	1125	0	1860	830	0	1860	
Arrive On Green				0.41	0.00	0.41	0.00	0.53	0.53	0.00	0.53	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				427	0	1142	0	1025	89	0	1715	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				11.5	0.0	55.5	0.0	26.4	3.9	0.0	61.1	0.0
Cycle Q Clear(g_c), s				11.5	0.0	55.5	0.0	26.4	3.9	0.0	61.1	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1394	0	1125	0	1860	830	0	1860	
V/C Ratio(X)				0.31	0.00	1.02	0.00	0.55	0.11	0.00	0.92	
Avail Cap(c_a), veh/h				1394	0	1125	0	1950	870	0	1950	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				27.5	0.0	40.5	0.0	21.5	16.1	0.0	29.7	0.0
Incr Delay (d2), s/veh				0.1	0.0	30.6	0.0	0.3	0.1	0.0	7.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.7	0.0	23.0	0.0	10.6	1.4	0.0	26.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				27.6	0.0	71.1	0.0	21.8	16.2	0.0	37.3	0.0
LnGrp LOS				C	A	F	A	C	B	A	D	
Approach Vol, veh/h					1569			1114			1715	
Approach Delay, s/veh					59.3			21.3			37.3	
Approach LOS					E			C			D	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		76.5				76.5		60.0				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		75.5				75.5		55.5				
Max Q Clear Time (g_c+I1), s		28.4				63.1		57.5				
Green Ext Time (p_c), s		9.1				8.9		0.0				

Intersection Summary

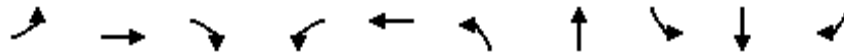
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Notes

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

Queues

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	341	836	1290	190	855	1241	362	65	79	272
v/c Ratio	0.75	0.93	0.82	0.92	0.71	0.94	0.50	0.43	0.46	0.60
Control Delay	56.7	57.6	5.0	93.6	41.7	47.7	18.9	56.2	56.0	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	57.6	5.0	93.6	41.7	47.7	18.9	56.2	56.0	27.8
Queue Length 50th (ft)	119	305	0	135	204	435	120	44	54	105
Queue Length 95th (ft)	#176	#456	0	#286	264	#619	219	89	102	190
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	488	899	1568	207	1207	1316	748	294	349	471
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.93	0.82	0.92	0.71	0.94	0.48	0.22	0.23	0.58

Intersection Summary

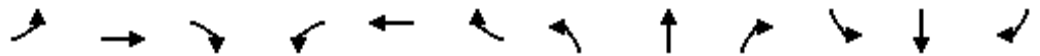
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project Friday PM - Mit 1

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↖	↑↑↑		↖↖	↑		↖	↑	↗
Traffic Volume (veh/h)	314	769	1187	175	714	73	1142	88	245	60	73	250
Future Volume (veh/h)	314	769	1187	175	714	73	1142	88	245	60	73	250
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	341	836	0	190	776	79	1241	96	0	65	79	272
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	398	810		187	1027	104	1189	854		95	310	445
Arrive On Green	0.12	0.23	0.00	0.11	0.22	0.22	0.35	0.46	0.00	0.05	0.17	0.17
Sat Flow, veh/h	3428	3526	1572	1767	4674	473	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	341	836	0	190	559	296	1241	96	0	65	79	272
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1767	1689	1770	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	11.7	27.5	0.0	12.7	18.5	18.7	41.5	3.5	0.0	4.3	4.4	17.9
Cycle Q Clear(g_c), s	11.7	27.5	0.0	12.7	18.5	18.7	41.5	3.5	0.0	4.3	4.4	17.9
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	398	810		187	742	389	1189	854		95	310	445
V/C Ratio(X)	0.86	1.03		1.01	0.75	0.76	1.04	0.11		0.69	0.25	0.61
Avail Cap(c_a), veh/h	441	810		187	742	389	1189	854		266	315	449
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	46.1	0.0	53.5	43.7	43.8	39.1	18.4	0.0	55.7	43.4	37.2
Incr Delay (d2), s/veh	14.2	40.2	0.0	69.2	4.4	8.5	38.4	0.1	0.0	8.5	0.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	16.2	0.0	9.1	8.0	8.9	23.5	1.5	0.0	2.2	2.1	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	86.3	0.0	122.7	48.1	52.2	77.5	18.4	0.0	64.1	43.8	39.6
LnGrp LOS	E	F		F	D	D	F	B		E	D	D
Approach Vol, veh/h		1177			1045			1337			416	
Approach Delay, s/veh		80.4			62.8			73.2			44.2	
Approach LOS		F			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	59.6	17.2	32.0	46.0	24.5	18.4	30.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	43.8	12.7	27.5	41.5	20.3	15.4	24.8				
Max Q Clear Time (g_c+I1), s	6.3	5.5	14.7	29.5	43.5	19.9	13.7	20.7				
Green Ext Time (p_c), s	0.1	0.5	0.0	0.0	0.0	0.1	0.2	1.9				

Intersection Summary

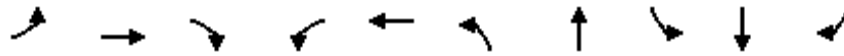
HCM 6th Ctrl Delay	69.6
HCM 6th LOS	E

Notes

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

Queues

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	341	836	1290	190	855	1241	362	65	79	272
v/c Ratio	0.79	0.87	0.82	0.76	0.77	0.89	0.48	0.42	0.45	0.61
Control Delay	61.0	48.9	5.0	69.9	44.7	39.2	16.7	56.3	56.1	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	48.9	5.0	69.9	44.7	39.2	16.7	56.3	56.1	29.2
Queue Length 50th (ft)	124	302	0	70	209	415	111	45	54	110
Queue Length 95th (ft)	#206	#437	0	#135	271	#583	205	89	104	197
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	440	996	1568	251	1145	1486	811	302	340	449
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.84	0.82	0.76	0.75	0.84	0.45	0.22	0.23	0.61

Intersection Summary

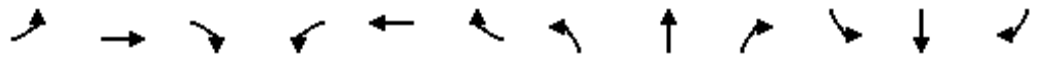
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project Friday PM - Mit 2

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↔		↔↔	↔		↗	↑	↗
Traffic Volume (veh/h)	314	769	1187	175	714	73	1142	88	245	60	73	250
Future Volume (veh/h)	314	769	1187	175	714	73	1142	88	245	60	73	250
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	341	836	0	190	776	79	1241	96	0	65	79	272
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	387	873		221	931	94	1291	897		95	298	430
Arrive On Green	0.11	0.25	0.00	0.06	0.20	0.20	0.38	0.48	0.00	0.05	0.16	0.16
Sat Flow, veh/h	3428	3526	1572	3428	4674	473	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	341	836	0	190	559	296	1241	96	0	65	79	272
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1689	1770	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	11.7	27.9	0.0	6.6	19.0	19.2	42.3	3.4	0.0	4.3	4.5	18.2
Cycle Q Clear(g_c), s	11.7	27.9	0.0	6.6	19.0	19.2	42.3	3.4	0.0	4.3	4.5	18.2
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	387	873		221	673	353	1291	897		95	298	430
V/C Ratio(X)	0.88	0.96		0.86	0.83	0.84	0.96	0.11		0.69	0.26	0.63
Avail Cap(c_a), veh/h	387	873		221	673	353	1305	897		266	298	430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.2	44.3	0.0	55.4	45.9	46.0	36.4	16.8	0.0	55.6	44.0	38.1
Incr Delay (d2), s/veh	20.2	20.7	0.0	27.3	8.7	16.2	16.4	0.1	0.0	8.5	0.5	3.0
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	6.0	14.4	0.0	3.6	8.6	9.8	20.3	1.5	0.0	2.1	2.1	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.4	65.1	0.0	82.7	54.7	62.2	52.8	16.9	0.0	64.0	44.4	41.1
LnGrp LOS	E	E		F	D	E	D	B		E	D	D
Approach Vol, veh/h		1177			1045			1337			416	
Approach Delay, s/veh		67.2			61.9			50.2			45.3	
Approach LOS		E			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	62.3	12.2	34.1	49.5	23.7	18.0	28.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	46.7	7.7	29.6	45.5	19.2	13.5	23.8				
Max Q Clear Time (g_c+I1), s	6.3	5.4	8.6	29.9	44.3	20.2	13.7	21.2				
Green Ext Time (p_c), s	0.1	0.5	0.0	0.0	0.7	0.0	0.0	1.3				

Intersection Summary

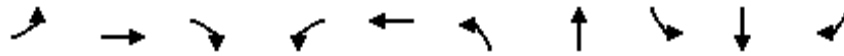
HCM 6th Ctrl Delay	57.8
HCM 6th LOS	E

Notes

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

Queues

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	341	836	1290	190	855	1241	362	65	79	272
v/c Ratio	0.66	0.78	0.82	0.54	0.66	0.78	0.58	0.38	0.42	0.55
Control Delay	48.3	37.6	5.0	51.7	35.9	34.8	23.3	52.9	52.5	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	37.6	5.0	51.7	35.9	34.8	23.3	52.9	52.5	24.6
Queue Length 50th (ft)	111	266	0	63	186	262	130	42	51	96
Queue Length 95th (ft)	175	370	0	109	252	349	246	89	103	189
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	616	1367	1568	392	1618	1982	756	346	395	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.61	0.82	0.48	0.53	0.63	0.48	0.19	0.20	0.51

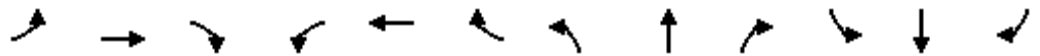
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative +Project Friday PM - Mit 3

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↔		↔↔↔	↔		↗	↑	↗
Traffic Volume (veh/h)	314	769	1187	175	714	73	1142	88	245	60	73	250
Future Volume (veh/h)	314	769	1187	175	714	73	1142	88	245	60	73	250
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	341	836	0	190	776	79	1241	96	0	65	79	272
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	417	996		258	1103	112	1465	758		100	318	461
Arrive On Green	0.12	0.28	0.00	0.08	0.24	0.24	0.29	0.41	0.00	0.06	0.17	0.17
Sat Flow, veh/h	3428	3526	1572	3428	4674	473	4983	1856	0	1767	1856	1572
Grp Volume(v), veh/h	341	836	0	190	559	296	1241	96	0	65	79	272
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1689	1770	1661	1856	0	1767	1856	1572
Q Serve(g_s), s	9.8	22.6	0.0	5.5	15.4	15.5	23.8	3.3	0.0	3.7	3.7	15.0
Cycle Q Clear(g_c), s	9.8	22.6	0.0	5.5	15.4	15.5	23.8	3.3	0.0	3.7	3.7	15.0
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	417	996		258	797	418	1465	758		100	318	461
V/C Ratio(X)	0.82	0.84		0.74	0.70	0.71	0.85	0.13		0.65	0.25	0.59
Avail Cap(c_a), veh/h	557	1233		355	981	514	1791	758		313	356	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	34.3	0.0	46.0	35.5	35.6	33.7	18.7	0.0	46.9	36.4	30.7
Incr Delay (d2), s/veh	6.9	4.4	0.0	5.1	1.7	3.4	3.4	0.1	0.0	6.9	0.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	9.9	0.0	2.5	6.3	6.8	9.8	1.4	0.0	1.8	1.7	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	38.7	0.0	51.1	37.2	39.0	37.1	18.8	0.0	53.8	36.8	32.3
LnGrp LOS	D	D		D	D	D	D	B		D	D	C
Approach Vol, veh/h		1177			1045			1337			416	
Approach Delay, s/veh		42.1			40.2			35.8			36.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	46.0	12.1	33.2	34.3	21.9	16.9	28.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	38.0	10.5	35.5	36.5	19.5	16.5	29.5				
Max Q Clear Time (g_c+I1), s	5.7	5.3	7.5	24.6	25.8	17.0	11.8	17.5				
Green Ext Time (p_c), s	0.1	0.5	0.2	4.0	4.1	0.4	0.5	4.1				

Intersection Summary

HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Notes

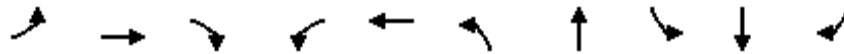
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Cumulative +Project +Event Friday PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	521	769	1155	188	836	1306	454	65	78	268
v/c Ratio	1.18	0.75	0.74	0.84	1.00	1.11	0.71	0.43	0.46	0.42
Control Delay	137.9	41.4	3.1	79.2	76.6	97.6	32.4	57.0	56.5	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.9	41.4	3.1	79.2	76.6	97.6	32.4	57.0	56.5	18.1
Queue Length 50th (ft)	~452	264	0	133	~227	~560	228	45	54	87
Queue Length 95th (ft)	#695	355	0	#274	#335	#734	370	90	102	156
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	443	1023	1568	224	835	1174	646	290	323	631
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.75	0.74	0.84	1.00	1.11	0.70	0.22	0.24	0.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

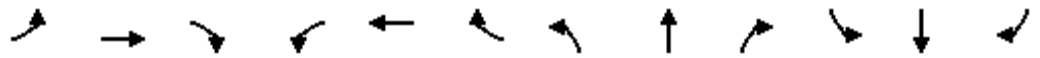
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project +Event Friday PM

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗	↗	↗	↗↗↗		↗↗	↗		↗	↗	↗
Traffic Volume (veh/h)	521	769	1155	188	714	122	1306	149	305	65	78	268
Future Volume (veh/h)	521	769	1155	188	714	122	1306	149	305	65	78	268
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	521	769	0	188	714	122	1306	149	0	65	78	268
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	411	941		208	663	112	1086	760		95	272	596
Arrive On Green	0.23	0.27	0.00	0.12	0.15	0.15	0.32	0.41	0.00	0.05	0.15	0.15
Sat Flow, veh/h	1767	3526	1572	1767	4362	738	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	521	769	0	188	551	285	1306	149	0	65	78	268
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1723	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	27.5	24.2	0.0	12.4	18.0	18.0	37.5	6.1	0.0	4.3	4.4	15.1
Cycle Q Clear(g_c), s	27.5	24.2	0.0	12.4	18.0	18.0	37.5	6.1	0.0	4.3	4.4	15.1
Prop In Lane	1.00		1.00	1.00		0.43	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	411	941		208	514	262	1086	760		95	272	596
V/C Ratio(X)	1.27	0.82		0.91	1.07	1.09	1.20	0.20		0.68	0.29	0.45
Avail Cap(c_a), veh/h	411	941		208	514	262	1086	760		269	298	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	40.7	0.0	51.6	50.2	50.2	40.4	22.4	0.0	55.0	45.0	27.5
Incr Delay (d2), s/veh	139.1	5.7	0.0	37.7	60.8	80.9	100.1	0.1	0.0	8.4	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.6	11.0	0.0	7.6	11.8	13.5	30.7	2.7	0.0	2.1	2.1	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	184.5	46.4	0.0	89.3	111.0	131.1	140.5	22.5	0.0	63.4	45.5	28.0
LnGrp LOS	F	D		F	F	F	F	C		E	D	C
Approach Vol, veh/h		1290			1024			1455			411	
Approach Delay, s/veh		102.2			112.6			128.5			37.0	
Approach LOS		F			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	53.0	18.4	36.1	42.0	21.9	32.0	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	38.5	13.9	31.6	37.5	19.0	27.5	18.0				
Max Q Clear Time (g_c+I1), s	6.3	8.1	14.4	26.2	39.5	17.1	29.5	20.0				
Green Ext Time (p_c), s	0.1	0.8	0.0	2.3	0.0	0.3	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	107.5
HCM 6th LOS	F

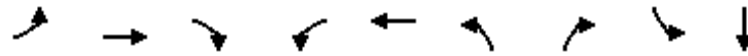
Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	72	904	349	39	882	187	40	2	2
v/c Ratio	0.26	0.48	0.35	0.16	0.59	0.31	0.07	0.01	0.01
Control Delay	28.0	10.6	2.7	29.0	15.1	25.4	0.3	31.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	10.6	2.7	29.0	15.1	25.4	0.3	31.5	0.0
Queue Length 50th (ft)	20	52	0	11	104	25	0	1	0
Queue Length 95th (ft)	75	234	44	49	243	77	0	8	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	531	3242	1477	348	3141	1102	1083	238	800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.28	0.24	0.11	0.28	0.17	0.04	0.01	0.00

Intersection Summary

HCM 6th Signalized Intersection Summary
 2: N Ascot Parkway & Columbus Parkway

Cumulative +Project +Event Friday PM

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	66	832	321	36	811	0	172	0	37	2	0	2
Future Volume (veh/h)	66	832	321	36	811	0	172	0	37	2	0	2
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	72	904	0	39	882	0	187	0	40	2	0	2
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	116	1477		75	1397	0	339	265	225	5	0	74
Arrive On Green	0.07	0.42	0.00	0.04	0.40	0.00	0.10	0.00	0.14	0.00	0.00	0.05
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	72	904	0	39	882	0	187	0	40	2	0	2
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.8	9.2	0.0	1.0	9.2	0.0	2.4	0.0	1.0	0.1	0.0	0.1
Cycle Q Clear(g_c), s	1.8	9.2	0.0	1.0	9.2	0.0	2.4	0.0	1.0	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	1477		75	1397	0	339	265	225	5	0	74
V/C Ratio(X)	0.62	0.61		0.52	0.63	0.00	0.55	0.00	0.18	0.41	0.00	0.03
Avail Cap(c_a), veh/h	559	4344		366	3960	0	1159	1194	1012	251	0	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.9	10.4	0.0	21.5	11.1	0.0	19.7	0.0	17.3	22.8	0.0	20.9
Incr Delay (d2), s/veh	5.4	0.4	0.0	5.4	0.5	0.0	1.4	0.0	0.4	47.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.5	0.0	0.5	2.6	0.0	0.9	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	10.8	0.0	26.9	11.6	0.0	21.1	0.0	17.7	70.6	0.0	21.0
LnGrp LOS	C	B		C	B	A	C	A	B	E	A	C
Approach Vol, veh/h		976			921			227				4
Approach Delay, s/veh		12.0			12.3			20.5				45.8
Approach LOS		B			B			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	11.1	6.5	23.7	9.0	6.6	7.5	22.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	29.5	9.5	56.5	15.5	20.5	14.5	51.5				
Max Q Clear Time (g_c+I1), s	2.1	3.0	3.0	11.2	4.4	2.1	3.8	11.2				
Green Ext Time (p_c), s	0.0	0.1	0.0	7.3	0.4	0.0	0.1	6.9				

Intersection Summary

HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

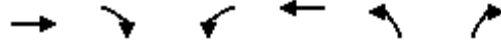
Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative +Project +Event Friday PM

07/02/2024



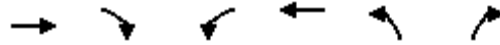
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	622	245	33	723	159	22
v/c Ratio	0.33	0.26	0.09	0.33	0.18	0.05
Control Delay	8.8	2.7	17.7	4.8	15.3	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	2.7	17.7	4.8	15.3	9.2
Queue Length 50th (ft)	29	0	4	35	10	0
Queue Length 95th (ft)	106	33	29	64	43	15
Internal Link Dist (ft)	1748			2821	1766	
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3505	1568	1213	3505	2761	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.16	0.03	0.21	0.06	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
 3: Redwood Street & Columbus Parkway

Cumulative +Project +Event Friday PM

07/02/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	572	225	30	665	146	20
Future Volume (veh/h)	572	225	30	665	146	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	622	245	33	723	159	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1243	554	253	2201	406	186
Arrive On Green	0.35	0.35	0.14	0.62	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	622	245	33	723	159	22
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	4.8	4.2	0.6	3.4	1.5	0.4
Cycle Q Clear(g_c), s	4.8	4.2	0.6	3.4	1.5	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1243	554	253	2201	406	186
V/C Ratio(X)	0.50	0.44	0.13	0.33	0.39	0.12
Avail Cap(c_a), veh/h	5597	2496	1137	8319	2795	1282
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	8.9	8.7	13.1	3.1	14.2	13.8
Incr Delay (d2), s/veh	0.3	0.6	0.2	0.1	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.9	0.2	0.2	0.5	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	9.2	13.3	3.2	14.9	14.1
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	867			756	181	
Approach Delay, s/veh	9.2			3.6	14.8	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.6	9.5	16.8		26.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		28.5	22.5	55.5		82.5
Max Q Clear Time (g_c+I1), s		3.5	2.6	6.8		5.4
Green Ext Time (p_c), s		0.6	0.0	5.5		5.5
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	1484	202	1173	39	29	174	195	99
v/c Ratio	0.53	0.88	0.75	0.59	0.04	0.10	0.35	0.84	0.22
Control Delay	61.5	33.6	64.2	18.9	2.2	34.6	9.0	70.8	10.3
Queue Delay	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	34.6	64.2	18.9	2.2	34.6	9.0	70.8	10.3
Queue Length 50th (ft)	65	512	145	302	0	17	8	139	6
Queue Length 95th (ft)	122	#678	#258	411	12	42	64	#255	49
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	216	1868	315	2082	954	384	595	300	547
Starvation Cap Reductn	0	171	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.87	0.64	0.56	0.04	0.08	0.29	0.65	0.18

Intersection Summary

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

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project +Event Friday PM
07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	83	1328	38	186	1079	36	27	13	147	179	9	82
Future Volume (veh/h)	83	1328	38	186	1079	36	27	13	147	179	9	82
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	1443	41	202	1173	39	29	14	160	195	10	89
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	115	1650	47	234	1900	847	353	35	396	285	44	388
Arrive On Green	0.06	0.47	0.47	0.13	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1767	3501	99	1767	3526	1572	1286	128	1464	1201	161	1436
Grp Volume(v), veh/h	90	726	758	202	1173	39	29	0	174	195	0	99
Grp Sat Flow(s),veh/h/ln	1767	1763	1838	1767	1763	1572	1286	0	1592	1201	0	1597
Q Serve(g_s), s	5.4	39.7	39.9	12.0	24.7	1.3	1.9	0.0	9.6	17.0	0.0	5.2
Cycle Q Clear(g_c), s	5.4	39.7	39.9	12.0	24.7	1.3	7.1	0.0	9.6	26.6	0.0	5.2
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.92	1.00		0.90
Lane Grp Cap(c), veh/h	115	831	866	234	1900	847	353	0	431	285	0	432
V/C Ratio(X)	0.79	0.87	0.88	0.86	0.62	0.05	0.08	0.00	0.40	0.69	0.00	0.23
Avail Cap(c_a), veh/h	213	919	958	310	2031	906	386	0	472	316	0	473
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	0.00	1.00
Uniform Delay (d), s/veh	49.4	25.5	25.5	45.6	17.1	11.7	33.2	0.0	32.0	42.9	0.0	30.4
Incr Delay (d2), s/veh	11.2	8.7	8.6	17.2	0.5	0.0	0.1	0.0	0.6	5.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	17.9	18.7	6.4	9.7	0.4	0.6	0.0	3.8	5.4	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	34.2	34.1	62.8	17.6	11.7	33.3	0.0	32.7	48.3	0.0	30.7
LnGrp LOS	E	C	C	E	B	B	C	A	C	D	A	C
Approach Vol, veh/h		1574			1414			203			294	
Approach Delay, s/veh		35.7			23.9			32.7			42.3	
Approach LOS		D			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.5	18.7	55.0		33.5	11.5	62.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		31.8	18.8	55.9		31.8	12.9	61.8				
Max Q Clear Time (g_c+I1), s		11.6	14.0	41.9		28.6	7.4	26.7				
Green Ext Time (p_c), s		1.1	0.2	8.7		0.4	0.1	11.3				
Intersection Summary												
HCM 6th Ctrl Delay				31.3								
HCM 6th LOS				C								

Queues

Cumulative +Project +Event Friday PM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	80	1202	352	820	102	46	263	107	43	51
v/c Ratio	0.49	0.89	0.84	0.43	0.53	0.29	0.70	0.54	0.21	0.17
Control Delay	56.2	40.4	57.6	16.0	54.5	49.3	16.3	54.4	46.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.2	40.4	57.6	16.0	54.5	49.3	16.3	54.4	46.6	1.2
Queue Length 50th (ft)	50	375	217	157	64	29	0	67	27	0
Queue Length 95th (ft)	108	#628	#441	277	126	66	77	130	63	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	206	1344	422	1907	307	354	513	307	354	411
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.89	0.83	0.43	0.33	0.13	0.51	0.35	0.12	0.12

Intersection Summary

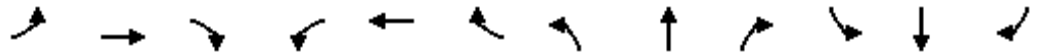
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project +Event Friday PM

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	↖
Traffic Volume (veh/h)	74	1030	75	324	627	127	94	42	242	98	40	47
Future Volume (veh/h)	74	1030	75	324	627	127	94	42	242	98	40	47
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	80	1120	82	352	682	138	102	46	263	107	43	51
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	102	1194	87	381	1507	305	135	337	285	140	342	290
Arrive On Green	0.06	0.36	0.36	0.22	0.52	0.52	0.08	0.18	0.18	0.08	0.18	0.18
Sat Flow, veh/h	1767	3331	244	1767	2921	591	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	80	592	610	352	411	409	102	46	263	107	43	51
Grp Sat Flow(s),veh/h/ln	1767	1763	1812	1767	1763	1749	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.9	35.3	35.3	21.2	16.0	16.0	6.1	2.3	17.9	6.4	2.1	3.0
Cycle Q Clear(g_c), s	4.9	35.3	35.3	21.2	16.0	16.0	6.1	2.3	17.9	6.4	2.1	3.0
Prop In Lane	1.00		0.13	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	632	649	381	909	902	135	337	285	140	342	290
V/C Ratio(X)	0.78	0.94	0.94	0.92	0.45	0.45	0.76	0.14	0.92	0.76	0.13	0.18
Avail Cap(c_a), veh/h	197	643	661	402	909	902	293	337	285	293	342	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	33.7	33.7	41.7	16.6	16.6	49.2	37.3	43.7	49.0	37.0	37.3
Incr Delay (d2), s/veh	12.1	21.4	21.2	26.4	0.4	0.4	8.3	0.2	33.5	8.4	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	18.4	18.9	11.9	6.4	6.3	3.0	1.0	9.5	3.2	1.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.5	55.0	54.9	68.1	17.0	17.0	57.5	37.5	77.2	57.4	37.2	37.6
LnGrp LOS	E	E	D	E	B	B	E	D	E	E	D	D
Approach Vol, veh/h		1282			1172			411			201	
Approach Delay, s/veh		55.4			32.3			67.9			48.0	
Approach LOS		E			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	24.2	27.9	43.4	12.8	24.5	10.8	60.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	19.7	24.7	39.6	18.0	19.7	12.1	52.2				
Max Q Clear Time (g_c+I1), s	8.4	19.9	23.2	37.3	8.1	5.0	6.9	18.0				
Green Ext Time (p_c), s	0.2	0.0	0.2	1.6	0.1	0.2	0.1	6.1				

Intersection Summary

HCM 6th Ctrl Delay	47.8
HCM 6th LOS	D

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	668	42	1735	86	853
v/c Ratio	0.85	0.12	0.86	0.60	0.36
Control Delay	53.2	11.8	24.9	70.7	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	11.8	24.9	70.7	7.7
Queue Length 50th (ft)	256	0	556	66	125
Queue Length 95th (ft)	#349	32	681	#133	156
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	872	396	2194	158	2669
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.11	0.79	0.54	0.32

Intersection Summary

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

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project +Event Friday PM
07/02/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	610	43	1158	438	79	785
Future Volume (veh/h)	610	43	1158	438	79	785
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	663	47	1259	476	86	853
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	763	340	1501	546	109	2460
Arrive On Green	0.22	0.22	0.59	0.59	0.06	0.70
Sat Flow, veh/h	3534	1572	2625	921	1767	3618
Grp Volume(v), veh/h	663	47	861	874	86	853
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1690	1767	1763
Q Serve(g_s), s	18.9	2.5	40.6	45.5	5.0	10.1
Cycle Q Clear(g_c), s	18.9	2.5	40.6	45.5	5.0	10.1
Prop In Lane	1.00	1.00		0.54	1.00	
Lane Grp Cap(c), veh/h	763	340	1045	1002	109	2460
V/C Ratio(X)	0.87	0.14	0.82	0.87	0.79	0.35
Avail Cap(c_a), veh/h	932	415	1171	1123	164	2823
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	39.5	33.0	16.9	17.9	48.2	6.3
Incr Delay (d2), s/veh	7.6	0.2	4.5	7.1	13.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	1.0	16.3	18.1	2.6	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.0	33.2	21.4	25.0	61.6	6.4
LnGrp LOS	D	C	C	C	E	A
Approach Vol, veh/h	710		1735			939
Approach Delay, s/veh	46.1		23.2			11.4
Approach LOS	D		C			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.0	66.3			77.3	27.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	9.7	69.3			83.5	27.5
Max Q Clear Time (g_c+I1), s	7.0	47.5			12.1	20.9
Green Ext Time (p_c), s	0.0	14.3			7.6	1.6

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	207	232	553	399	182
v/c Ratio	0.48	0.12	0.57	0.49	0.38
Control Delay	21.7	5.1	10.6	17.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	5.1	10.6	17.5	6.4
Queue Length 50th (ft)	49	13	30	42	0
Queue Length 95th (ft)	126	31	84	98	47
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1320	3505	2532	2440	1094
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.07	0.22	0.16	0.17

Intersection Summary

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative +Project +Event Friday PM
07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↗	↑↑	↑↑		↖↖	↗	
Traffic Volume (veh/h)	190	213	212	297	269	266	
Future Volume (veh/h)	190	213	212	297	269	266	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	207	232	230	323	381	194	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	279	2042	555	495	735	327	
Arrive On Green	0.16	0.58	0.31	0.31	0.21	0.21	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	207	232	230	323	381	194	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	4.7	1.3	4.3	7.5	4.0	4.7	
Cycle Q Clear(g_c), s	4.7	1.3	4.3	7.5	4.0	4.7	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	279	2042	555	495	735	327	
V/C Ratio(X)	0.74	0.11	0.41	0.65	0.52	0.59	
Avail Cap(c_a), veh/h	1483	6377	1521	1357	2883	1283	
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	17.0	4.0	11.4	12.5	14.9	15.1	
Incr Delay (d2), s/veh	3.9	0.0	0.5	1.5	0.6	1.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.9	0.3	1.4	2.3	1.4	4.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.9	4.0	11.9	14.0	15.4	16.8	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		439	553		575		
Approach Delay, s/veh		12.0	13.1		15.9		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				29.0	13.3	11.2	17.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				76.5	34.5	35.5	36.5
Max Q Clear Time (g_c+I1), s				3.3	6.7	6.7	9.5
Green Ext Time (p_c), s				1.7	2.1	0.6	3.8

Intersection Summary

HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

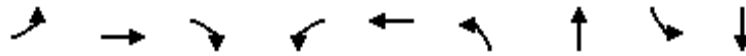
User approved volume balancing among the lanes for turning movement.

Queues

Cumulative +Project +Event Friday PM

8: Ascot Parkway & Turner Parkway/Turner St

07/02/2024



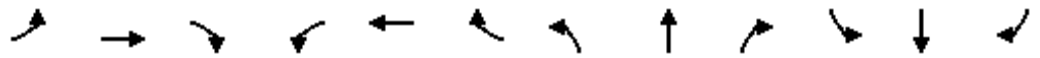
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	15	435	2	23	436	162	26	352
v/c Ratio	0.24	0.05	0.69	0.01	0.11	0.70	0.08	0.14	0.49
Control Delay	35.3	26.9	9.7	39.5	22.3	25.9	8.8	37.5	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	26.9	9.7	39.5	22.3	25.9	8.8	37.5	24.9
Queue Length 50th (ft)	15	4	0	1	2	106	6	7	42
Queue Length 95th (ft)	73	26	88	9	27	335	44	43	140
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	303	991	1044	162	769	1382	3089	207	1364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.02	0.42	0.01	0.03	0.32	0.05	0.13	0.26

Intersection Summary

HCM 6th Signalized Intersection Summary
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project +Event Friday PM

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	14	400	2	7	14	401	147	2	24	232	92
Future Volume (veh/h)	51	14	400	2	7	14	401	147	2	24	232	92
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	55	15	435	2	8	15	436	160	2	26	252	100
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	83	574	486	5	153	287	500	1442	18	50	373	144
Arrive On Green	0.05	0.31	0.31	0.00	0.27	0.27	0.28	0.40	0.40	0.03	0.15	0.15
Sat Flow, veh/h	1767	1856	1572	1767	578	1083	1767	3566	45	1767	2486	960
Grp Volume(v), veh/h	55	15	435	2	0	23	436	79	83	26	177	175
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1661	1767	1763	1848	1767	1763	1683
Q Serve(g_s), s	2.2	0.4	18.6	0.1	0.0	0.7	16.6	2.0	2.0	1.0	6.7	7.0
Cycle Q Clear(g_c), s	2.2	0.4	18.6	0.1	0.0	0.7	16.6	2.0	2.0	1.0	6.7	7.0
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.02	1.00		0.57
Lane Grp Cap(c), veh/h	83	574	486	5	0	440	500	713	747	50	264	252
V/C Ratio(X)	0.67	0.03	0.89	0.42	0.00	0.05	0.87	0.11	0.11	0.52	0.67	0.70
Avail Cap(c_a), veh/h	238	777	658	128	0	591	1141	1523	1596	163	548	523
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	16.9	23.2	35.1	0.0	19.3	24.1	13.1	13.1	33.8	28.3	28.4
Incr Delay (d2), s/veh	8.8	0.0	11.8	48.5	0.0	0.0	4.9	0.1	0.1	8.1	2.9	3.4
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	0.2	8.0	0.1	0.0	0.3	7.0	0.7	0.8	0.5	2.9	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	17.0	35.0	83.6	0.0	19.3	29.0	13.2	13.2	41.9	31.2	31.9
LnGrp LOS	D	B	D	F	A	B	C	B	B	D	C	C
Approach Vol, veh/h		505			25			598			378	
Approach Delay, s/veh		35.2			24.5			24.7			32.2	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	33.0	4.7	26.3	24.4	15.1	7.8	23.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	60.9	5.1	29.5	45.5	21.9	9.5	25.1				
Max Q Clear Time (g_c+I1), s	3.0	4.0	2.1	20.6	18.6	9.0	4.2	2.7				
Green Ext Time (p_c), s	0.0	0.9	0.0	1.2	1.4	1.6	0.0	0.1				

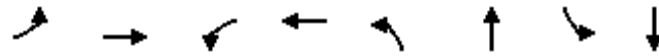
Intersection Summary

HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Queues
9: Ascot Parkway & Redwood Street

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	197	443	54	223	314	420	58	589
v/c Ratio	0.62	0.45	0.33	0.49	0.72	0.30	0.35	0.71
Control Delay	44.8	16.2	49.1	36.3	41.3	18.0	49.1	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	16.2	49.1	36.3	41.3	18.0	49.1	29.4
Queue Length 50th (ft)	96	49	27	48	151	75	29	111
Queue Length 95th (ft)	215	117	82	110	307	135	86	224
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	507	1424	204	784	725	2166	211	1211
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.31	0.26	0.28	0.43	0.19	0.27	0.49

Intersection Summary

HCM 6th Signalized Intersection Summary
9: Ascot Parkway & Redwood Street

Cumulative +Project +Event Friday PM

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↗↘		↗	↗↘	
Traffic Volume (veh/h)	181	192	215	50	151	54	289	314	73	53	304	238
Future Volume (veh/h)	181	192	215	50	151	54	289	314	73	53	304	238
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	197	209	0	54	164	0	314	341	0	58	330	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	259	684		94	355		395	1179		98	587	
Arrive On Green	0.15	0.19	0.00	0.05	0.10	0.00	0.22	0.33	0.00	0.06	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	197	209	0	54	164	0	314	341	0	58	330	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	5.3	2.5	0.0	1.5	2.2	0.0	8.3	3.5	0.0	1.6	4.3	0.0
Cycle Q Clear(g_c), s	5.3	2.5	0.0	1.5	2.2	0.0	8.3	3.5	0.0	1.6	4.3	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	259	684		94	355		395	1179		98	587	
V/C Ratio(X)	0.76	0.31		0.58	0.46		0.80	0.29		0.59	0.56	
Avail Cap(c_a), veh/h	831	2276		335	1288		1187	3621		346	1942	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	17.1	0.0	22.9	21.0	0.0	18.2	12.2	0.0	22.9	19.0	0.0
Incr Delay (d2), s/veh	4.6	0.2	0.0	5.5	0.9	0.0	3.7	0.1	0.0	5.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.9	0.0	0.7	0.8	0.0	3.3	1.2	0.0	0.7	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	17.4	0.0	28.5	22.0	0.0	21.9	12.3	0.0	28.4	19.8	0.0
LnGrp LOS	C	B		C	C		C	B		C	B	
Approach Vol, veh/h		406			218			655			388	
Approach Delay, s/veh		21.0			23.6			16.9			21.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.2	21.1	7.1	14.1	15.6	12.7	11.8	9.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.7	50.9	9.4	32.0	33.3	27.3	23.3	18.1				
Max Q Clear Time (g_c+I1), s	3.6	5.5	3.5	4.5	10.3	6.3	7.3	4.2				
Green Ext Time (p_c), s	0.0	2.4	0.0	1.3	0.9	2.0	0.5	0.7				

Intersection Summary

HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative +Project +Event Friday PM
07/02/2024

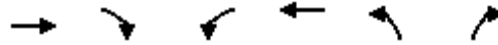


Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	605	332	421	246	277
v/c Ratio	0.64	0.66	0.19	0.59	0.47
Control Delay	23.3	30.5	6.1	32.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	30.5	6.1	32.2	6.7
Queue Length 50th (ft)	91	116	32	88	0
Queue Length 95th (ft)	206	274	73	216	62
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1722	1102	3333	912	949
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.30	0.13	0.27	0.29

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

Cumulative +Project +Event Friday PM
 07/02/2024

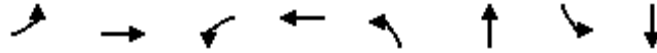


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	345	212	305	387	226	255
Future Volume (veh/h)	345	212	305	387	226	255
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	375	230	332	421	246	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	573	346	412	2085	415	370
Arrive On Green	0.27	0.27	0.23	0.59	0.23	0.23
Sat Flow, veh/h	2205	1276	1767	3618	1767	1572
Grp Volume(v), veh/h	312	293	332	421	246	277
Grp Sat Flow(s),veh/h/ln	1763	1626	1767	1763	1767	1572
Q Serve(g_s), s	8.1	8.3	9.2	2.9	6.4	8.5
Cycle Q Clear(g_c), s	8.1	8.3	9.2	2.9	6.4	8.5
Prop In Lane		0.79	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	478	441	412	2085	415	370
V/C Ratio(X)	0.65	0.66	0.81	0.20	0.59	0.75
Avail Cap(c_a), veh/h	1106	1020	1382	5275	1143	1017
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	16.7	16.8	18.7	4.9	17.6	18.4
Incr Delay (d2), s/veh	1.5	1.7	3.7	0.0	1.4	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.8	3.7	0.7	2.5	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.2	18.5	22.5	5.0	19.0	21.5
LnGrp LOS	B	B	C	A	B	C
Approach Vol, veh/h	605			753	523	
Approach Delay, s/veh	18.4			12.7	20.3	
Approach LOS	B			B	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.7	16.6	18.5		35.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		33.5	40.5	32.5		77.5
Max Q Clear Time (g_c+I1), s		10.5	11.2	10.3		4.9
Green Ext Time (p_c), s		1.7	1.0	3.7		3.0
Intersection Summary						
HCM 6th Ctrl Delay			16.6			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	1040	59	636	321	152	2	10
v/c Ratio	0.16	0.74	0.30	0.37	0.69	0.23	0.01	0.02
Control Delay	47.7	23.7	45.9	15.0	34.6	1.5	22.0	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	23.7	45.9	15.0	34.6	1.5	22.0	12.8
Queue Length 50th (ft)	12	215	28	83	140	0	1	0
Queue Length 95th (ft)	48	392	86	209	295	9	7	12
Internal Link Dist (ft)		424		851		1161		269
Turn Bay Length (ft)	125		125		75			
Base Capacity (vph)	167	2202	269	2412	889	1085	765	1027
Starvation Cap Reductn	0	84	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.49	0.22	0.26	0.36	0.14	0.00	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project +Event Friday PM

07/02/2024

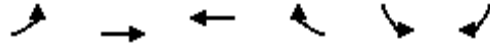


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	23	662	294	54	585	0	295	0	140	2	1	8
Future Volume (veh/h)	23	662	294	54	585	0	295	0	140	2	1	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	720	320	59	636	0	321	0	152	2	1	9
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	51	1009	448	94	1585	0	520	0	453	385	46	414
Arrive On Green	0.03	0.43	0.43	0.05	0.45	0.00	0.29	0.00	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1767	2374	1055	1767	3618	0	1394	0	1572	1225	160	1437
Grp Volume(v), veh/h	25	535	505	59	636	0	321	0	152	2	0	10
Grp Sat Flow(s),veh/h/ln	1767	1763	1666	1767	1763	0	1394	0	1572	1225	0	1597
Q Serve(g_s), s	0.8	14.5	14.5	1.9	7.0	0.0	12.4	0.0	4.4	0.1	0.0	0.3
Cycle Q Clear(g_c), s	0.8	14.5	14.5	1.9	7.0	0.0	12.6	0.0	4.4	4.5	0.0	0.3
Prop In Lane	1.00		0.63	1.00		0.00	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	51	749	708	94	1585	0	520	0	453	385	0	460
V/C Ratio(X)	0.49	0.71	0.71	0.63	0.40	0.00	0.62	0.00	0.34	0.01	0.00	0.02
Avail Cap(c_a), veh/h	199	1480	1399	321	3204	0	1264	0	1293	1039	0	1313
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	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	13.7	13.7	26.8	10.7	0.0	19.3	0.0	16.2	18.0	0.0	14.7
Incr Delay (d2), s/veh	7.3	1.3	1.4	6.8	0.2	0.0	1.2	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.0	4.7	0.9	2.3	0.0	3.8	0.0	1.5	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.9	15.0	15.1	33.6	10.8	0.0	20.4	0.0	16.6	18.0	0.0	14.7
LnGrp LOS	C	B	B	C	B	A	C	A	B	B	A	B
Approach Vol, veh/h		1065			695			473				12
Approach Delay, s/veh		15.5			12.8			19.2				15.3
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.1	7.6	29.1		21.1	6.2	30.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		47.5	10.5	48.5		47.5	6.5	52.5				
Max Q Clear Time (g_c+I1), s		14.6	3.9	16.5		6.5	2.8	9.0				
Green Ext Time (p_c), s		2.0	0.0	8.1		0.0	0.0	4.8				
Intersection Summary												
HCM 6th Ctrl Delay				15.4								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1616	1047	949	382	414	1564
v/c Ratio	1.07	0.41	1.07	0.63	0.65	0.84
Control Delay	76.0	6.4	92.4	16.2	50.6	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	47.4
Total Delay	76.0	6.4	92.4	16.2	50.6	67.8
Queue Length 50th (ft)	~712	139	~427	65	154	473
Queue Length 95th (ft)	#848	171	#558	175	208	607
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	1515	2584	890	605	637	1855
Starvation Cap Reductn	0	0	0	0	0	453
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.41	1.07	0.63	0.65	1.12

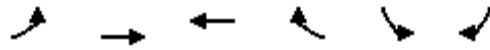
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project +Event Friday PM

07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↖	↑↑	↗↗	↑	↙↙	↘↘	
Traffic Volume (veh/h)	1454	942	854	344	373	1408	
Future Volume (veh/h)	1454	942	854	344	373	1408	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	1616	1047	949	382	414	1564	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	1528	2600	896	400	643	1753	
Arrive On Green	0.45	0.74	0.25	0.25	0.19	0.19	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	1616	1047	949	382	414	1564	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	53.5	13.3	30.5	28.7	13.4	22.5	
Cycle Q Clear(g_c), s	53.5	13.3	30.5	28.7	13.4	22.5	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	1528	2600	896	400	643	1753	
V/C Ratio(X)	1.06	0.40	1.06	0.96	0.64	0.89	
Avail Cap(c_a), veh/h	1528	2600	896	400	643	1753	
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	33.3	5.9	44.8	44.1	45.0	18.5	
Incr Delay (d2), s/veh	39.8	0.1	47.0	33.7	4.9	7.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	29.6	4.2	18.9	26.0	6.1	37.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	73.1	6.0	91.7	77.7	50.0	25.9	
LnGrp LOS	F	A	F	E	D	C	
Approach Vol, veh/h		2663	1331		1978		
Approach Delay, s/veh		46.7	87.7		31.0		
Approach LOS		D	F		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				93.0	27.0	58.0	35.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				88.5	22.5	53.5	30.5
Max Q Clear Time (g_c+I1), s				15.3	24.5	55.5	32.5
Green Ext Time (p_c), s				9.8	0.0	0.0	0.0
Intersection Summary							
HCM 6th Ctrl Delay			50.6				
HCM 6th LOS			D				

Queues
13: Redwood Street

Cumulative +Project +Event Friday PM
07/02/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	114	2082	2077	276	867	137
v/c Ratio	1.01	0.75	1.22	0.36	0.65	0.21
Control Delay	156.6	28.1	138.5	25.7	40.3	15.1
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	156.6	28.1	138.6	25.7	40.3	15.1
Queue Length 50th (ft)	~59	555	~1306	165	356	40
Queue Length 95th (ft)	#128	613	#1438	238	430	89
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	113	2769	1705	763	1326	656
Starvation Cap Reductn	0	0	28	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.75	1.24	0.36	0.65	0.21

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative +Project +Event Friday PM

07/02/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	103	1874	1869	248	780	123
Future Volume (veh/h)	103	1874	1869	248	780	123
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	114	2082	2077	276	867	137
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	114	2786	1716	765	1337	613
Arrive On Green	0.03	0.55	0.49	0.49	0.39	0.39
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	114	2082	2077	276	867	137
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	5.0	47.1	73.0	16.4	31.0	8.7
Cycle Q Clear(g_c), s	5.0	47.1	73.0	16.4	31.0	8.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	2786	1716	765	1337	613
V/C Ratio(X)	1.00	0.75	1.21	0.36	0.65	0.22
Avail Cap(c_a), veh/h	114	2786	1716	765	1337	613
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	72.5	25.8	38.5	24.0	37.4	30.6
Incr Delay (d2), s/veh	83.5	1.1	100.4	0.3	2.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	18.7	54.5	6.2	13.5	9.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	156.0	26.9	138.9	24.3	39.8	31.4
LnGrp LOS	F	C	F	C	D	C
Approach Vol, veh/h		2196	2353		1004	
Approach Delay, s/veh		33.6	125.5		38.7	
Approach LOS		C	F		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		87.0		63.0	9.5	77.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		49.1		33.0	7.0	75.0
Green Ext Time (p_c), s		21.7		4.1	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			73.5			
HCM 6th LOS			E			

Queues
14: Lake Herman Road & Columbus Parkway

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	198	563	27	102	517
v/c Ratio	0.22	0.43	0.48	0.05	0.28	0.26
Control Delay	19.0	7.0	13.7	5.8	18.7	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	7.0	13.7	5.8	18.7	4.4
Queue Length 50th (ft)	16	0	57	0	22	23
Queue Length 95th (ft)	51	44	110	13	63	45
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1362	1263	3412	1527	1175	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.16	0.17	0.02	0.09	0.15

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project +Event Friday PM

07/02/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	69	182	518	25	94	476
Future Volume (veh/h)	69	182	518	25	94	476
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	198	563	27	102	517
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	324	289	1062	474	246	1994
Arrive On Green	0.18	0.18	0.30	0.30	0.14	0.57
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	75	198	563	27	102	517
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	1.3	4.2	4.8	0.4	1.9	2.7
Cycle Q Clear(g_c), s	1.3	4.2	4.8	0.4	1.9	2.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	324	289	1062	474	246	1994
V/C Ratio(X)	0.23	0.69	0.53	0.06	0.42	0.26
Avail Cap(c_a), veh/h	1601	1424	4667	2082	1305	7713
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	13.7	10.4	8.9	14.1	4.0
Incr Delay (d2), s/veh	0.4	2.9	0.4	0.0	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.3	0.1	0.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.8	16.6	10.8	9.0	15.2	4.0
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	273		590			619
Approach Delay, s/veh	15.5		10.8			5.9
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.5	15.3			24.8	11.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	26.5	47.5			78.5	32.5
Max Q Clear Time (g_c+I1), s	3.9	6.8			4.7	6.2
Green Ext Time (p_c), s	0.2	4.0			3.6	0.8
Intersection Summary						
HCM 6th Ctrl Delay			9.6			
HCM 6th LOS			A			

Queues

Cumulative +Project +Event Friday PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/02/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	153	247	117	133	183	72	985	210	183	555
v/c Ratio	0.63	0.74	0.60	0.46	0.46	0.46	0.81	0.72	0.21	0.54
Control Delay	57.1	55.0	60.6	48.4	10.6	59.7	35.9	57.3	19.4	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	55.0	60.6	48.4	10.6	59.7	35.9	57.3	19.4	3.9
Queue Length 50th (ft)	101	158	78	84	0	48	311	138	77	0
Queue Length 95th (ft)	184	268	151	159	65	103	431	239	134	61
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	326	440	243	358	452	191	1539	387	1033	1122
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.56	0.48	0.37	0.40	0.38	0.64	0.54	0.18	0.49

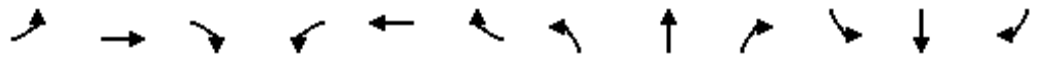
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative +Project +Event Friday PM

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	194	33	108	122	168	66	745	161	193	168	511
Future Volume (veh/h)	141	194	33	108	122	168	66	745	161	193	168	511
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	153	211	36	117	133	183	72	810	175	210	183	555
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	193	268	46	150	276	234	93	1050	227	256	847	718
Arrive On Green	0.11	0.17	0.17	0.08	0.15	0.15	0.05	0.36	0.36	0.14	0.46	0.46
Sat Flow, veh/h	1767	1545	264	1767	1856	1572	1767	2883	623	1767	1856	1572
Grp Volume(v), veh/h	153	0	247	117	133	183	72	495	490	210	183	555
Grp Sat Flow(s),veh/h/ln	1767	0	1808	1767	1856	1572	1767	1763	1743	1767	1856	1572
Q Serve(g_s), s	6.5	0.0	10.1	5.0	5.1	8.7	3.1	19.2	19.2	8.9	4.6	22.9
Cycle Q Clear(g_c), s	6.5	0.0	10.1	5.0	5.1	8.7	3.1	19.2	19.2	8.9	4.6	22.9
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	193	0	313	150	276	234	93	642	635	256	847	718
V/C Ratio(X)	0.79	0.00	0.79	0.78	0.48	0.78	0.77	0.77	0.77	0.82	0.22	0.77
Avail Cap(c_a), veh/h	413	0	549	308	453	384	242	991	980	491	1305	1106
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	30.6	34.7	30.2	31.7	36.2	21.8	21.8	32.1	12.7	17.7
Incr Delay (d2), s/veh	7.1	0.0	4.4	8.4	1.3	5.6	12.8	2.0	2.0	6.4	0.1	1.8
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	0.0	4.6	2.5	2.3	3.6	1.6	7.8	7.7	4.1	1.8	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	0.0	35.0	43.1	31.5	37.3	49.0	23.8	23.8	38.5	12.8	19.5
LnGrp LOS	D	A	D	D	C	D	D	C	C	D	B	B
Approach Vol, veh/h		400			433			1057			948	
Approach Delay, s/veh		37.2			37.1			25.5			22.4	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	32.7	11.1	17.9	8.6	39.8	13.0	16.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	43.5	13.5	23.5	10.6	54.4	18.1	18.9				
Max Q Clear Time (g_c+I1), s	10.9	21.2	7.0	12.1	5.1	24.9	8.5	10.7				
Green Ext Time (p_c), s	0.4	7.0	0.1	1.0	0.1	3.4	0.3	0.8				

Intersection Summary

HCM 6th Ctrl Delay			27.9									
HCM 6th LOS			C									

Queues
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project +Event Friday PM

07/02/2024



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	428	1145	1025	89	1739	292
v/c Ratio	0.32	0.97	0.54	0.10	0.92	0.19
Control Delay	29.9	55.4	21.5	3.1	37.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	55.4	21.5	3.1	37.3	0.3
Queue Length 50th (ft)	139	522	304	0	725	0
Queue Length 95th (ft)	182	#697	365	26	851	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1375	1211	1990	928	1990	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.95	0.52	0.10	0.87	0.19

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project +Event Friday PM

07/02/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔		↔↔		↑↑	↔		↑↑	↔
Traffic Volume (veh/h)	0	0	0	394	0	1053	0	943	82	0	1600	269
Future Volume (veh/h)	0	0	0	394	0	1053	0	943	82	0	1600	269
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				428	0	1145	0	1025	89	0	1739	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1369	0	1105	0	1886	841	0	1886	
Arrive On Green				0.40	0.00	0.40	0.00	0.53	0.53	0.00	0.53	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				428	0	1145	0	1025	89	0	1739	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				11.7	0.0	54.5	0.0	26.0	3.8	0.0	61.8	0.0
Cycle Q Clear(g_c), s				11.7	0.0	54.5	0.0	26.0	3.8	0.0	61.8	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1369	0	1105	0	1886	841	0	1886	
V/C Ratio(X)				0.31	0.00	1.04	0.00	0.54	0.11	0.00	0.92	
Avail Cap(c_a), veh/h				1369	0	1105	0	1976	881	0	1976	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				28.1	0.0	41.0	0.0	20.8	15.7	0.0	29.1	0.0
Incr Delay (d2), s/veh				0.1	0.0	36.9	0.0	0.3	0.1	0.0	7.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.8	0.0	23.5	0.0	10.4	1.4	0.0	26.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.3	0.0	77.9	0.0	21.1	15.7	0.0	36.7	0.0
LnGrp LOS				C	A	F	A	C	B	A	D	
Approach Vol, veh/h					1573			1114			1739	
Approach Delay, s/veh					64.4			20.7			36.7	
Approach LOS					E			C			D	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		77.5				77.5		59.0				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		76.5				76.5		54.5				
Max Q Clear Time (g_c+I1), s		28.0				63.8		56.5				
Green Ext Time (p_c), s		9.2				9.2		0.0				

Intersection Summary

HCM 6th Ctrl Delay	42.5
HCM 6th LOS	D

Notes

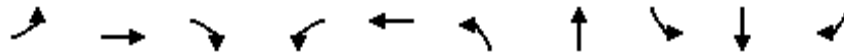
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Cumulative +Project +Event Friday PM - Mit 1

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	521	769	1155	188	836	1306	454	65	78	268
v/c Ratio	0.91	0.93	0.74	0.89	0.88	0.94	0.61	0.43	0.47	0.53
Control Delay	66.8	59.8	3.1	88.8	54.6	46.0	24.6	57.6	57.4	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	59.8	3.1	88.8	54.6	46.0	24.6	57.6	57.4	24.8
Queue Length 50th (ft)	192	288	0	136	212	465	201	45	54	101
Queue Length 95th (ft)	#309	#432	0	#285	#304	#655	330	90	103	182
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	574	831	1568	211	950	1390	742	287	303	505
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.93	0.74	0.89	0.88	0.94	0.61	0.23	0.26	0.53

Intersection Summary

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

HCM 6th Signalized Intersection Summary Cumulative +Project +Event Friday PM - Mit 1
 1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↖	↔↔↔		↔↔	↖		↖	↑	↗
Traffic Volume (veh/h)	521	769	1155	188	714	122	1306	149	305	65	78	268
Future Volume (veh/h)	521	769	1155	188	714	122	1306	149	305	65	78	268
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	521	769	0	188	714	122	1306	149	0	65	78	268
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	529	764		194	752	127	1280	872		95	278	478
Arrive On Green	0.15	0.22	0.00	0.11	0.17	0.17	0.37	0.47	0.00	0.05	0.15	0.15
Sat Flow, veh/h	3428	3526	1572	1767	4362	738	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	521	769	0	188	551	285	1306	149	0	65	78	268
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1767	1689	1723	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	18.2	26.0	0.0	12.7	19.4	19.7	44.8	5.6	0.0	4.3	4.5	17.2
Cycle Q Clear(g_c), s	18.2	26.0	0.0	12.7	19.4	19.7	44.8	5.6	0.0	4.3	4.5	17.2
Prop In Lane	1.00		1.00	1.00		0.43	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	529	764		194	583	297	1280	872		95	278	478
V/C Ratio(X)	0.99	1.01		0.97	0.95	0.96	1.02	0.17		0.69	0.28	0.56
Avail Cap(c_a), veh/h	529	764		194	583	297	1280	872		265	278	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	47.0	0.0	53.2	49.1	49.2	37.6	18.3	0.0	55.8	45.3	35.0
Incr Delay (d2), s/veh	35.4	34.2	0.0	54.9	24.6	41.0	30.4	0.1	0.0	8.5	0.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	14.7	0.0	8.5	10.0	11.6	23.8	2.4	0.0	2.2	2.1	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.0	81.2	0.0	108.1	73.7	90.2	68.0	18.4	0.0	64.3	45.8	36.5
LnGrp LOS	F	F		F	E	F	F	B		E	D	D
Approach Vol, veh/h		1290			1024			1455			411	
Approach Delay, s/veh		83.1			84.6			62.9			42.7	
Approach LOS		F			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	60.9	17.7	30.5	49.3	22.5	23.0	25.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	44.8	13.2	26.0	44.8	18.0	18.5	20.7				
Max Q Clear Time (g_c+I1), s	6.3	7.6	14.7	28.0	46.8	19.2	20.2	21.7				
Green Ext Time (p_c), s	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	72.5
HCM 6th LOS	E

Notes

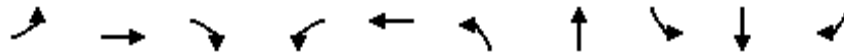
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Cumulative +Project +Event Friday PM - Mit 2

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/01/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	521	769	1155	188	836	1306	454	65	78	268
v/c Ratio	0.90	0.78	0.74	0.79	0.92	0.93	0.61	0.43	0.46	0.53
Control Delay	65.2	43.4	3.1	74.8	58.9	44.1	23.9	57.0	56.8	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	43.4	3.1	74.8	58.9	44.1	23.9	57.0	56.8	24.4
Queue Length 50th (ft)	190	268	0	69	212	457	197	45	54	100
Queue Length 95th (ft)	#306	358	0	#136	#312	#645	325	90	102	181
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	579	987	1568	237	912	1405	756	290	320	508
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.78	0.74	0.79	0.92	0.93	0.60	0.22	0.24	0.53

Intersection Summary

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

HCM 6th Signalized Intersection Summary Cumulative +Project +Event Friday PM - Mit 2
 1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↔		↔↔	↗		↗	↑	↗
Traffic Volume (veh/h)	521	769	1155	188	714	122	1306	149	305	65	78	268
Future Volume (veh/h)	521	769	1155	188	714	122	1306	149	305	65	78	268
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	521	769	0	188	714	122	1306	149	0	65	78	268
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	529	899		217	716	121	1283	887		95	292	490
Arrive On Green	0.15	0.25	0.00	0.06	0.16	0.16	0.37	0.48	0.00	0.05	0.16	0.16
Sat Flow, veh/h	3428	3526	1572	3428	4362	738	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	521	769	0	188	551	285	1306	149	0	65	78	268
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1689	1723	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	18.2	24.9	0.0	6.5	19.6	19.7	44.9	5.5	0.0	4.3	4.4	17.0
Cycle Q Clear(g_c), s	18.2	24.9	0.0	6.5	19.6	19.7	44.9	5.5	0.0	4.3	4.4	17.0
Prop In Lane	1.00		1.00	1.00		0.43	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	529	899		217	554	283	1283	887		95	292	490
V/C Ratio(X)	0.99	0.86		0.87	0.99	1.01	1.02	0.17		0.69	0.27	0.55
Avail Cap(c_a), veh/h	529	899		217	554	283	1283	887		265	292	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	42.6	0.0	55.7	50.1	50.2	37.5	17.8	0.0	55.8	44.5	34.3
Incr Delay (d2), s/veh	35.4	8.1	0.0	28.7	36.6	55.4	29.8	0.1	0.0	8.5	0.5	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	10.2	11.6	0.0	3.6	10.9	12.6	23.7	2.4	0.0	2.2	2.1	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.0	50.7	0.0	84.3	86.7	105.5	67.3	17.9	0.0	64.3	44.9	35.5
LnGrp LOS	F	D		F	F	F	F	B		E	D	D
Approach Vol, veh/h		1290			1024			1455			411	
Approach Delay, s/veh		65.0			91.5			62.2			41.9	
Approach LOS		E			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	61.9	12.1	35.1	49.4	23.4	23.0	24.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	45.8	7.6	30.6	44.9	18.9	18.5	19.7				
Max Q Clear Time (g_c+I1), s	6.3	7.5	8.5	26.9	46.9	19.0	20.2	21.7				
Green Ext Time (p_c), s	0.1	0.9	0.0	1.7	0.0	0.0	0.0	0.0				

Intersection Summary

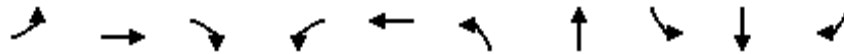
HCM 6th Ctrl Delay	68.3
HCM 6th LOS	E

Notes

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

Queues

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	521	769	1155	188	836	1306	454	65	78	268
v/c Ratio	0.76	0.67	0.74	0.59	0.77	0.81	0.74	0.40	0.42	0.48
Control Delay	48.1	34.2	3.1	56.0	43.1	37.1	33.7	54.6	53.7	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	34.2	3.1	56.0	43.1	37.1	33.7	54.6	53.7	20.4
Queue Length 50th (ft)	179	244	0	67	200	295	228	44	53	92
Queue Length 95th (ft)	253	334	0	#111	265	376	371	90	101	167
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	792	1310	1568	334	1197	1868	713	326	380	607
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.59	0.74	0.56	0.70	0.70	0.64	0.20	0.21	0.44

Intersection Summary

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

HCM 6th Signalized Intersection Summary Cumulative +Project +Event Friday PM - Mit 3
 1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway 07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↔		↔↔↔	↔		↗	↑	↗
Traffic Volume (veh/h)	521	769	1155	188	714	122	1306	149	305	65	78	268
Future Volume (veh/h)	521	769	1155	188	714	122	1306	149	305	65	78	268
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	521	769	0	188	714	122	1306	149	0	65	78	268
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	600	1049		251	854	145	1499	751		98	296	526
Arrive On Green	0.17	0.30	0.00	0.07	0.20	0.20	0.30	0.40	0.00	0.06	0.16	0.16
Sat Flow, veh/h	3428	3526	1572	3428	4362	738	4983	1856	0	1767	1856	1572
Grp Volume(v), veh/h	521	769	0	188	551	285	1306	149	0	65	78	268
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1714	1689	1723	1661	1856	0	1767	1856	1572
Q Serve(g_s), s	15.8	20.9	0.0	5.7	16.7	17.0	26.5	5.5	0.0	3.8	3.9	14.6
Cycle Q Clear(g_c), s	15.8	20.9	0.0	5.7	16.7	17.0	26.5	5.5	0.0	3.8	3.9	14.6
Prop In Lane	1.00		1.00	1.00		0.43	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	1049		251	662	337	1499	751		98	296	526
V/C Ratio(X)	0.87	0.73		0.75	0.83	0.84	0.87	0.20		0.66	0.26	0.51
Avail Cap(c_a), veh/h	723	1193		305	731	373	1705	751		298	346	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	33.7	0.0	48.5	41.2	41.3	35.3	20.5	0.0	49.4	39.3	28.5
Incr Delay (d2), s/veh	9.6	2.0	0.0	8.0	7.6	15.0	4.8	0.1	0.0	7.4	0.5	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	7.3	8.9	0.0	2.7	7.4	8.4	11.2	2.4	0.0	1.9	1.8	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	35.7	0.0	56.5	48.8	56.3	40.1	20.7	0.0	56.8	39.8	29.2
LnGrp LOS	D	D		E	D	E	D	C		E	D	C
Approach Vol, veh/h		1290			1024			1455			411	
Approach Delay, s/veh		42.5			52.3			38.1			35.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	47.7	12.3	36.3	36.6	21.5	23.2	25.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	38.4	9.5	36.1	36.5	19.9	22.5	23.1				
Max Q Clear Time (g_c+I1), s	5.8	7.5	7.7	22.9	28.5	16.6	17.8	19.0				
Green Ext Time (p_c), s	0.1	0.8	0.1	4.1	3.6	0.4	0.9	1.9				

Intersection Summary

HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

Notes

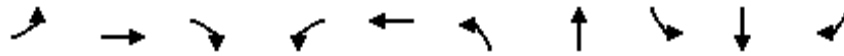
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Cumulative +Project AM (Alt B)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	194	803	623	112	937	419	151	25	32	109
v/c Ratio	0.56	0.56	0.40	0.43	0.61	0.58	0.33	0.15	0.17	0.21
Control Delay	37.7	22.7	0.8	40.3	25.7	33.1	19.1	42.4	41.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	22.7	0.8	40.3	25.7	33.1	19.1	42.4	41.9	7.8
Queue Length 50th (ft)	88	174	0	52	145	97	27	12	15	5
Queue Length 95th (ft)	189	297	0	125	242	182	104	43	50	43
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	629	2082	1568	424	2387	1222	694	475	554	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.39	0.40	0.26	0.39	0.34	0.22	0.05	0.06	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis

Cumulative +Project AM (Alt B)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↘	↖	↗↗↗		↖↖	↗		↖	↗	↘
Traffic Volume (vph)	194	803	623	112	893	44	419	54	97	25	32	109
Future Volume (vph)	194	803	623	112	893	44	419	54	97	25	32	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.97	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	1752	5000		3400	1667		1752	1845	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	1752	5000		3400	1667		1752	1845	1568
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)	194	803	623	112	893	44	419	54	97	25	32	109
RTOR Reduction (vph)	0	0	0	0	4	0	0	53	0	0	0	71
Lane Group Flow (vph)	194	803	623	112	933	0	419	98	0	25	32	38
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			Free									6
Actuated Green, G (s)	15.0	30.5	78.4	9.0	24.5		15.9	18.3		2.6	5.0	20.0
Effective Green, g (s)	15.0	30.5	78.4	9.0	24.5		15.9	18.3		2.6	5.0	20.0
Actuated g/C Ratio	0.19	0.39	1.00	0.11	0.31		0.20	0.23		0.03	0.06	0.26
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	335	1363	1568	201	1562		689	389		58	117	490
v/s Ratio Prot	c0.11	c0.23		0.06	0.19		c0.12	0.06		0.01	0.02	0.01
v/s Ratio Perm			c0.40									0.01
v/c Ratio	0.58	0.59	0.40	0.56	0.60		0.61	0.25		0.43	0.27	0.08
Uniform Delay, d1	28.8	19.0	0.0	32.8	22.8		28.4	24.5		37.2	35.0	22.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.4	0.7	0.8	3.3	0.6		1.5	0.3		5.1	1.3	0.1
Delay (s)	31.3	19.6	0.8	36.1	23.4		29.9	24.8		42.2	36.2	22.3
Level of Service	C	B	A	D	C		C	C		D	D	C
Approach Delay (s)		13.8			24.8			28.6			28.0	
Approach LOS		B			C			C			C	

Intersection Summary

HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

Cumulative +Project AM (Alt B)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑	↗
Traffic Volume (veh/h)	194	803	623	112	893	44	419	54	97	25	32	109
Future Volume (veh/h)	194	803	623	112	893	44	419	54	97	25	32	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	194	803	0	112	893	44	419	54	0	25	32	109
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	249	1227		147	1434	70	589	338		149	175	370
Arrive On Green	0.14	0.35	0.00	0.08	0.29	0.29	0.17	0.18	0.00	0.08	0.09	0.09
Sat Flow, veh/h	1767	3526	1572	1767	4946	243	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	194	803	0	112	609	328	419	54	0	25	32	109
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1812	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	6.3	11.4	0.0	3.7	9.3	9.3	6.9	1.5	0.0	0.8	0.9	3.4
Cycle Q Clear(g_c), s	6.3	11.4	0.0	3.7	9.3	9.3	6.9	1.5	0.0	0.8	0.9	3.4
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	249	1227		147	979	525	589	338		149	175	370
V/C Ratio(X)	0.78	0.65		0.76	0.62	0.62	0.71	0.16		0.17	0.18	0.29
Avail Cap(c_a), veh/h	728	2402		490	1846	990	1413	827		550	640	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	16.4	0.0	26.7	18.3	18.3	23.2	20.5	0.0	25.3	24.8	18.7
Incr Delay (d2), s/veh	5.2	0.6	0.0	7.9	0.7	1.2	1.6	0.2	0.0	0.5	0.5	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	2.7	4.0	0.0	1.7	3.2	3.5	2.7	0.6	0.0	0.3	0.4	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	17.0	0.0	34.6	18.9	19.5	24.8	20.7	0.0	25.8	25.3	19.1
LnGrp LOS	C	B		C	B	B	C	C		C	C	B
Approach Vol, veh/h		997			1049			473				166
Approach Delay, s/veh		19.5			20.8			24.4				21.3
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	15.3	9.4	25.2	14.7	10.1	12.9	21.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	26.5	16.5	40.5	24.5	20.5	24.5	32.5				
Max Q Clear Time (g_c+I1), s	2.8	3.5	5.7	13.4	8.9	5.4	8.3	11.3				
Green Ext Time (p_c), s	0.0	0.2	0.2	5.7	1.4	0.4	0.4	5.9				

Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

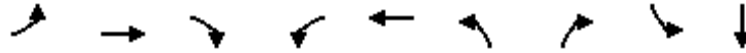
Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project AM (Alt B)

07/03/2024


























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	28	607	352	23	787	324	9	2	5
v/c Ratio	0.10	0.38	0.39	0.08	0.54	0.37	0.01	0.01	0.01
Control Delay	25.7	10.2	3.1	26.0	13.4	18.9	0.0	28.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	10.2	3.1	26.0	13.4	18.9	0.0	28.0	0.0
Queue Length 50th (ft)	5	37	0	4	51	27	0	0	0
Queue Length 95th (ft)	36	158	50	32	214	109	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	375	3164	1450	375	3164	2100	1375	287	910
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.19	0.24	0.06	0.25	0.15	0.01	0.01	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project AM (Alt B)

07/03/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	558	324	21	723	1	298	0	8	2	0	5
Future Volume (vph)	26	558	324	21	723	1	298	0	8	2	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00		0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1752	3504		3400		1568	1752	1568	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1752	3504		3400		1568	1752	1568	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	607	352	23	786	1	324	0	9	2	0	5
RTOR Reduction (vph)	0	0	210	0	0	0	0	0	7	0	5	0
Lane Group Flow (vph)	28	607	142	23	787	0	324	0	2	2	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	2.2	21.1	21.1	1.0	19.9		11.7		11.6	0.7	0.6	
Effective Green, g (s)	2.2	21.1	21.1	1.0	19.9		11.7		11.6	0.7	0.6	
Actuated g/C Ratio	0.04	0.40	0.40	0.02	0.38		0.22		0.22	0.01	0.01	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	73	1411	631	33	1330		759		347	23	17	
v/s Ratio Prot	c0.02	0.17		0.01	c0.22		c0.10			0.00	0.00	
v/s Ratio Perm			0.09						c0.00			
v/c Ratio	0.38	0.43	0.22	0.70	0.59		0.43		0.01	0.09	0.00	
Uniform Delay, d1	24.4	11.3	10.3	25.5	13.0		17.5		15.9	25.5	25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2	3.3	0.2	0.2	48.5	0.7		0.4		0.0	1.6	0.1	
Delay (s)	27.8	11.5	10.5	74.0	13.7		17.9		15.9	27.2	25.7	
Level of Service	C	B	B	E	B		B		B	C	C	
Approach Delay (s)		11.6			15.4			17.8			26.1	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			14.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			52.4				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			44.3%				ICU Level of Service		A			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	26	558	324	21	723	1	298	0	8	2	0	5
Future Volume (veh/h)	26	558	324	21	723	1	298	0	8	2	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	607	0	23	786	1	324	0	9	2	0	5
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	59	1263		50	1275	2	542	326	276	5	0	32
Arrive On Green	0.03	0.36	0.00	0.03	0.35	0.35	0.16	0.00	0.18	0.00	0.00	0.02
Sat Flow, veh/h	1767	3526	1572	1767	3613	5	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	28	607	0	23	383	404	324	0	9	2	0	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1855	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	0.6	5.5	0.0	0.5	7.4	7.4	3.6	0.0	0.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.6	5.5	0.0	0.5	7.4	7.4	3.6	0.0	0.2	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	1263		50	622	655	542	326	276	5	0	32
V/C Ratio(X)	0.48	0.48		0.46	0.62	0.62	0.60	0.00	0.03	0.41	0.00	0.16
Avail Cap(c_a), veh/h	363	4136		363	2068	2176	2032	1728	1464	278	0	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.6	10.3	0.0	19.8	11.1	11.1	16.2	0.0	14.1	20.6	0.0	19.9
Incr Delay (d2), s/veh	5.9	0.3	0.0	6.6	1.0	0.9	1.1	0.0	0.0	47.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.5	0.0	0.3	2.2	2.3	1.3	0.0	0.1	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	10.6	0.0	26.4	12.1	12.0	17.2	0.0	14.2	68.2	0.0	22.2
LnGrp LOS	C	B		C	B	B	B	A	B	E	A	C
Approach Vol, veh/h		635			810			333				7
Approach Delay, s/veh		11.2			12.4			17.2				35.3
Approach LOS		B			B			B				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	11.8	5.7	19.3	11.0	5.3	5.9	19.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	38.5	8.5	48.5	24.5	20.5	8.5	48.5				
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.5	7.5	5.6	2.1	2.6	9.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.3	1.1	0.0	0.0	5.2				

Intersection Summary

HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative +Project AM (Alt B)

07/03/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	473	104	13	484	303	65
v/c Ratio	0.38	0.17	0.04	0.35	0.31	0.13
Control Delay	9.3	3.6	14.7	6.8	11.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	3.6	14.7	6.8	11.0	5.1
Queue Length 50th (ft)	22	0	2	23	15	0
Queue Length 95th (ft)	84	24	15	50	63	22
Internal Link Dist (ft)	1748			2821	1766	
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3501	1566	1239	3505	3242	1498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.07	0.01	0.14	0.09	0.04

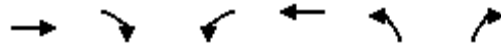
Intersection Summary

HCM Signalized Intersection Capacity Analysis

3: Redwood Street & Columbus Parkway

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Volume (vph)	435	96	12	445	279	60
Future Volume (vph)	435	96	12	445	279	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	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)	3505	1568	1752	3505	3400	1568
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3505	1568	1752	3505	3400	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	473	104	13	484	303	65
RTOR Reduction (vph)	0	71	0	0	0	48
Lane Group Flow (vph)	473	33	13	484	303	17
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	11.0	11.0	0.9	16.4	9.0	9.0
Effective Green, g (s)	11.0	11.0	0.9	16.4	9.0	9.0
Actuated g/C Ratio	0.32	0.32	0.03	0.48	0.26	0.26
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1120	501	45	1670	889	410
v/s Ratio Prot	c0.13		0.01	c0.14	c0.09	
v/s Ratio Perm		0.02				0.01
v/c Ratio	0.42	0.07	0.29	0.29	0.34	0.04
Uniform Delay, d1	9.2	8.1	16.4	5.5	10.3	9.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	3.5	0.1	0.2	0.0
Delay (s)	9.5	8.2	20.0	5.6	10.5	9.5
Level of Service	A	A	B	A	B	A
Approach Delay (s)	9.2			5.9	10.3	
Approach LOS	A			A	B	

Intersection Summary

HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	34.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

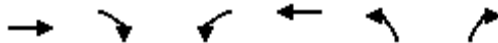
c Critical Lane Group

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Volume (veh/h)	435	96	12	445	279	60
Future Volume (veh/h)	435	96	12	445	279	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	473	104	13	484	303	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	981	438	261	1974	589	270
Arrive On Green	0.28	0.28	0.15	0.56	0.17	0.17
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	473	104	13	484	303	65
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	3.8	1.7	0.2	2.3	2.7	1.2
Cycle Q Clear(g_c), s	3.8	1.7	0.2	2.3	2.7	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	981	438	261	1974	589	270
V/C Ratio(X)	0.48	0.24	0.05	0.25	0.51	0.24
Avail Cap(c_a), veh/h	5096	2273	1080	7723	3832	1757
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	10.1	9.4	12.3	3.8	12.6	12.0
Incr Delay (d2), s/veh	0.4	0.3	0.1	0.1	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.4	0.1	0.2	0.8	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.5	9.6	12.4	3.8	13.3	12.5
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	577			497	368	
Approach Delay, s/veh	10.3			4.1	13.2	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.3	9.5	13.8		23.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	20.5	48.5		73.5
Max Q Clear Time (g_c+I1), s		4.7	2.2	5.8		4.3
Green Ext Time (p_c), s		1.3	0.0	3.6		3.4
Intersection Summary						
HCM 6th Ctrl Delay			8.9			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project AM (Alt B)

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	490	68	613	16	2	25	71	26
v/c Ratio	0.05	0.24	0.13	0.25	0.01	0.00	0.05	0.12	0.05
Control Delay	18.2	10.0	16.4	6.0	0.4	15.5	9.2	15.4	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	10.0	16.4	6.0	0.4	15.5	9.2	15.4	8.4
Queue Length 50th (ft)	5	46	14	29	0	0	1	14	0
Queue Length 95th (ft)	23	92	45	107	2	5	16	45	15
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	1035	3478	1223	3505	1568	1557	1354	1557	1336
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.14	0.06	0.17	0.01	0.00	0.02	0.05	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project AM (Alt B)

07/03/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	446	5	63	564	15	2	3	20	65	1	23
Future Volume (vph)	22	446	5	63	564	15	2	3	20	65	1	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3499		1752	3505	1568	1752	1601		1752	1579	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00	1.00		1.00	1.00	
Satd. Flow (perm)	1752	3499		1752	3505	1568	1845	1601		1845	1579	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	485	5	68	613	16	2	3	22	71	1	25
RTOR Reduction (vph)	0	1	0	0	0	8	0	20	0	0	22	0
Lane Group Flow (vph)	24	489	0	68	613	8	2	5	0	71	4	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	0.9	15.9		3.6	18.6	18.6	3.9	3.9		3.9	3.9	
Effective Green, g (s)	0.9	15.9		3.6	18.6	18.6	3.9	3.9		3.9	3.9	
Actuated g/C Ratio	0.02	0.43		0.10	0.50	0.50	0.11	0.11		0.11	0.11	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	42	1507		170	1766	790	195	169		195	166	
v/s Ratio Prot	0.01	0.14		c0.04	c0.17			0.00			0.00	
v/s Ratio Perm						0.01	0.00			c0.04		
v/c Ratio	0.57	0.32		0.40	0.35	0.01	0.01	0.03		0.36	0.02	
Uniform Delay, d1	17.8	6.9		15.6	5.5	4.6	14.8	14.8		15.3	14.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	17.4	0.1		1.5	0.1	0.0	0.0	0.1		1.2	0.1	
Delay (s)	35.2	7.1		17.2	5.6	4.6	14.8	14.9		16.5	14.8	
Level of Service	D	A		B	A	A	B	B		B	B	
Approach Delay (s)		8.4			6.7			14.9			16.1	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM 2000 Control Delay			8.2	HCM 2000 Level of Service				A				
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			36.9	Sum of lost time (s)				13.5				
Intersection Capacity Utilization			41.3%	ICU Level of Service				A				
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	22	446	5	63	564	15	2	3	20	65	1	23
Future Volume (veh/h)	22	446	5	63	564	15	2	3	20	65	1	23
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	485	5	68	613	16	2	3	22	71	1	25
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1200	12	130	1335	595	387	21	156	389	7	168
Arrive On Green	0.03	0.34	0.34	0.07	0.38	0.38	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1767	3575	37	1767	3526	1572	1374	192	1410	1375	61	1521
Grp Volume(v), veh/h	24	239	251	68	613	16	2	0	25	71	0	26
Grp Sat Flow(s),veh/h/ln	1767	1763	1849	1767	1763	1572	1374	0	1602	1375	0	1582
Q Serve(g_s), s	0.4	2.9	2.9	1.0	3.7	0.2	0.0	0.0	0.4	1.4	0.0	0.4
Cycle Q Clear(g_c), s	0.4	2.9	2.9	1.0	3.7	0.2	0.5	0.0	0.4	1.8	0.0	0.4
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	54	592	621	130	1335	595	387	0	177	389	0	175
V/C Ratio(X)	0.45	0.40	0.40	0.53	0.46	0.03	0.01	0.00	0.14	0.18	0.00	0.15
Avail Cap(c_a), veh/h	912	3169	3324	1415	7342	3275	1874	0	1910	1877	0	1886
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	0.00	1.00
Uniform Delay (d), s/veh	13.4	7.2	7.2	12.5	6.6	5.5	11.5	0.0	11.3	12.1	0.0	11.3
Incr Delay (d2), s/veh	5.7	0.4	0.4	3.3	0.2	0.0	0.0	0.0	0.4	0.2	0.0	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	0.2	0.7	0.7	0.4	0.8	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	7.6	7.6	15.8	6.8	5.5	11.5	0.0	11.7	12.3	0.0	11.7
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		514			697			27				97
Approach Delay, s/veh		8.1			7.7			11.6				12.2
Approach LOS		A			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.6	6.6	13.9		7.6	5.4	15.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		33.5	22.5	50.5		33.5	14.5	58.5				
Max Q Clear Time (g_c+I1), s		2.5	3.0	4.9		3.8	2.4	5.7				
Green Ext Time (p_c), s		0.1	0.1	3.3		0.3	0.0	5.0				
Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

Queues

Cumulative +Project AM (Alt B)

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	327	214	409	28	23	105	58	14	20
v/c Ratio	0.17	0.40	0.46	0.23	0.11	0.09	0.31	0.20	0.04	0.05
Control Delay	26.1	20.7	22.6	12.2	26.7	27.0	6.5	25.8	23.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	20.7	22.6	12.2	26.7	27.0	6.5	25.8	23.6	0.2
Queue Length 50th (ft)	14	48	62	48	8	7	0	17	3	0
Queue Length 95th (ft)	46	99	137	93	33	29	28	54	20	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	506	1877	1194	2782	789	1066	963	830	1093	985
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.17	0.18	0.15	0.04	0.02	0.11	0.07	0.01	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project AM (Alt B)

07/03/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	266	35	197	278	98	26	21	97	53	13	18
Future Volume (vph)	42	266	35	197	278	98	26	21	97	53	13	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3444		1752	3367		1752	1845	1568	1752	1845	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3444		1752	3367		1752	1845	1568	1752	1845	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	289	38	214	302	107	28	23	105	58	14	20
RTOR Reduction (vph)	0	8	0	0	27	0	0	0	94	0	0	17
Lane Group Flow (vph)	46	319	0	214	382	0	28	23	11	58	14	3
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	4.0	14.7		13.3	24.0		2.4	5.6	5.6	4.3	7.5	7.5
Effective Green, g (s)	4.0	14.7		13.3	24.0		2.4	5.6	5.6	4.3	7.5	7.5
Actuated g/C Ratio	0.07	0.26		0.24	0.43		0.04	0.10	0.10	0.08	0.13	0.13
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	125	905		416	1445		75	184	157	134	247	210
v/s Ratio Prot	0.03	c0.09		c0.12	0.11		0.02	c0.01		c0.03	0.01	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.37	0.35		0.51	0.26		0.37	0.12	0.07	0.43	0.06	0.01
Uniform Delay, d1	24.7	16.7		18.5	10.3		26.0	22.9	22.8	24.6	21.1	21.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.2		1.1	0.1		3.1	0.3	0.2	2.2	0.1	0.0
Delay (s)	26.6	17.0		19.6	10.4		29.1	23.2	23.0	26.9	21.2	21.0
Level of Service	C	B		B	B		C	C	C	C	C	C
Approach Delay (s)		18.2			13.5			24.1			24.7	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			17.1									B
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			55.9									18.0
Intersection Capacity Utilization			40.2%									A
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (veh/h)	42	266	35	197	278	98	26	21	97	53	13	18
Future Volume (veh/h)	42	266	35	197	278	98	26	21	97	53	13	18
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	46	289	38	214	302	107	28	23	105	58	14	20
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	88	551	72	288	742	258	196	245	208	160	208	176
Arrive On Green	0.05	0.18	0.18	0.16	0.29	0.29	0.11	0.13	0.13	0.09	0.11	0.11
Sat Flow, veh/h	1767	3136	408	1767	2567	891	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	46	161	166	214	205	204	28	23	105	58	14	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1782	1767	1763	1695	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	3.4	3.5	4.7	3.9	4.0	0.6	0.4	2.6	1.3	0.3	0.5
Cycle Q Clear(g_c), s	1.0	3.4	3.5	4.7	3.9	4.0	0.6	0.4	2.6	1.3	0.3	0.5
Prop In Lane	1.00		0.23	1.00		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	309	313	288	510	490	196	245	208	160	208	176
V/C Ratio(X)	0.52	0.52	0.53	0.74	0.40	0.42	0.14	0.09	0.51	0.36	0.07	0.11
Avail Cap(c_a), veh/h	538	1009	1020	1398	1867	1795	839	1152	976	882	1197	1015
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	15.4	15.4	16.4	11.7	11.8	16.5	15.7	16.6	17.6	16.3	16.4
Incr Delay (d2), s/veh	4.8	1.4	1.4	3.8	0.5	0.6	0.3	0.2	1.9	1.4	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.3	1.3	1.9	1.3	1.3	0.2	0.2	0.9	0.5	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	16.7	16.8	20.1	12.3	12.4	16.8	15.8	18.5	18.9	16.5	16.7
LnGrp LOS	C	B	B	C	B	B	B	B	B	B	B	B
Approach Vol, veh/h		373			623			156				92
Approach Delay, s/veh		17.6			15.0			17.8				18.1
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	9.9	11.2	11.7	9.1	9.1	6.5	16.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.5	25.5	32.5	23.5	19.5	26.5	12.5	43.5				
Max Q Clear Time (g_c+I1), s	3.3	4.6	6.7	5.5	2.6	2.5	3.0	6.0				
Green Ext Time (p_c), s	0.1	0.4	0.6	1.7	0.0	0.1	0.0	2.7				

Intersection Summary

HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project AM (Alt B)

07/03/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	140	19	698	55	308
v/c Ratio	0.16	0.05	0.38	0.13	0.14
Control Delay	15.9	9.9	7.9	17.2	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	9.9	7.9	17.2	3.9
Queue Length 50th (ft)	9	0	27	7	13
Queue Length 95th (ft)	39	15	108	40	25
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2534	1067	3333	1042	3505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.02	0.21	0.05	0.09
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project AM (Alt B)

07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	127	19	431	212	51	283
Future Volume (vph)	127	19	431	212	51	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3403	1427	3332		1752	3505
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3403	1427	3332		1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	21	468	230	55	308
RTOR Reduction (vph)	1	16	59	0	0	0
Lane Group Flow (vph)	139	3	639	0	55	308
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	5.7	5.7	16.6		2.3	23.4
Effective Green, g (s)	5.7	5.7	16.6		2.3	23.4
Actuated g/C Ratio	0.15	0.15	0.44		0.06	0.61
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	509	213	1451		105	2152
v/s Ratio Prot	c0.04		c0.19		c0.03	0.09
v/s Ratio Perm		0.00				
v/c Ratio	0.27	0.01	0.44		0.52	0.14
Uniform Delay, d1	14.4	13.8	7.5		17.4	3.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.0	0.2		4.7	0.0
Delay (s)	14.7	13.8	7.7		22.0	3.1
Level of Service	B	B	A		C	A
Approach Delay (s)	14.6		7.7			6.0
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	38.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project AM (Alt B)
07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	127	19	431	212	51	283
Future Volume (veh/h)	127	19	431	212	51	283
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	138	21	468	230	55	308
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	422	188	895	437	107	2093
Arrive On Green	0.12	0.12	0.39	0.39	0.06	0.59
Sat Flow, veh/h	3534	1572	2389	1121	1767	3618
Grp Volume(v), veh/h	138	21	359	339	55	308
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1654	1767	1763
Q Serve(g_s), s	1.1	0.4	4.9	4.9	0.9	1.2
Cycle Q Clear(g_c), s	1.1	0.4	4.9	4.9	0.9	1.2
Prop In Lane	1.00	1.00		0.68	1.00	
Lane Grp Cap(c), veh/h	422	188	687	644	107	2093
V/C Ratio(X)	0.33	0.11	0.52	0.53	0.51	0.15
Avail Cap(c_a), veh/h	2872	1278	3510	3293	1042	9604
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	12.7	12.3	7.3	7.4	14.3	2.8
Incr Delay (d2), s/veh	0.4	0.3	0.6	0.7	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	1.2	1.2	0.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.1	12.6	8.0	8.0	18.0	2.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h			698			363
Approach Delay, s/veh			8.0			5.2
Approach LOS			A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.4	16.7			23.1	8.2
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	18.5	62.5			85.5	25.5
Max Q Clear Time (g_c+I1), s	2.9	6.9			3.2	3.1
Green Ext Time (p_c), s	0.1	5.3			2.3	0.5

Intersection Summary

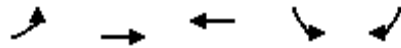
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: Turner Parkway & Plaza Drive



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	150	104	313	124	56
v/c Ratio	0.29	0.05	0.34	0.15	0.15
Control Delay	13.7	3.7	6.6	12.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	3.7	6.6	12.6	6.5
Queue Length 50th (ft)	24	3	9	9	0
Queue Length 95th (ft)	64	10	35	27	21
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1726	3505	3014	2947	1257
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.10	0.04	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Turner Parkway & Plaza Drive

Cumulative +Project AM (Alt B)
07/03/2024

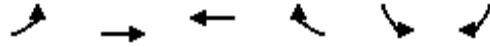


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	138	96	100	188	98	67
Future Volume (vph)	138	96	100	188	98	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frt	1.00	1.00	0.90		0.98	0.85
Flt Protected	0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1752	3505	3162		3360	1427
Flt Permitted	0.95	1.00	1.00		0.96	1.00
Satd. Flow (perm)	1752	3505	3162		3360	1427
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	104	109	204	107	73
RTOR Reduction (vph)	0	0	155	0	13	48
Lane Group Flow (vph)	150	104	158	0	111	8
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	6.5	19.0	8.0		5.0	5.0
Effective Green, g (s)	6.5	19.0	8.0		5.0	5.0
Actuated g/C Ratio	0.20	0.58	0.24		0.15	0.15
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	345	2018	766		509	216
v/s Ratio Prot	c0.09	0.03	c0.05		c0.03	
v/s Ratio Perm						0.01
v/c Ratio	0.43	0.05	0.21		0.22	0.04
Uniform Delay, d1	11.6	3.1	10.0		12.3	11.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.0	0.1		0.2	0.1
Delay (s)	12.5	3.1	10.1		12.5	12.0
Level of Service	B	A	B		B	B
Approach Delay (s)		8.6	10.1		12.4	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			10.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.29			
Actuated Cycle Length (s)			33.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			31.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	138	96	100	188	98	67	
Future Volume (veh/h)	138	96	100	188	98	67	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	150	104	109	204	119	60	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	219	1893	439	392	479	213	
Arrive On Green	0.12	0.54	0.25	0.25	0.14	0.14	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	150	104	109	204	119	60	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	2.2	0.4	1.4	3.1	0.8	0.9	
Cycle Q Clear(g_c), s	2.2	0.4	1.4	3.1	0.8	0.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	219	1893	439	392	479	213	
V/C Ratio(X)	0.68	0.05	0.25	0.52	0.25	0.28	
Avail Cap(c_a), veh/h	2540	10201	2278	2032	4052	1803	
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	11.5	3.0	8.3	8.9	10.6	10.7	
Incr Delay (d2), s/veh	3.7	0.0	0.3	1.1	0.3	0.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.4	0.8	0.2	0.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	15.3	3.0	8.6	10.0	10.9	11.4	
LnGrp LOS	B	A	A	A	B	B	
Approach Vol, veh/h		254	313		179		
Approach Delay, s/veh		10.3	9.5		11.1		
Approach LOS		B	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				19.3	8.2	7.9	11.3
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				79.5	31.5	39.5	35.5
Max Q Clear Time (g_c+I1), s				2.4	2.9	4.2	5.1
Green Ext Time (p_c), s				0.7	0.6	0.4	2.1

Intersection Summary

HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

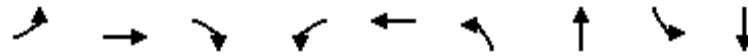
Notes

User approved volume balancing among the lanes for turning movement.

Queues

8: Ascot Parkway & Turner Parkway/Turner St

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	8	140	4	33	238	280	10	367
v/c Ratio	0.11	0.02	0.34	0.02	0.13	0.47	0.12	0.04	0.42
Control Delay	25.6	21.7	8.0	27.0	15.9	20.8	7.3	26.4	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	21.7	8.0	27.0	15.9	20.8	7.3	26.4	18.9
Queue Length 50th (ft)	7	2	0	1	2	48	9	2	37
Queue Length 95th (ft)	35	14	45	10	27	149	62	17	107
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	399	1118	1005	315	932	1397	3405	315	2410
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.01	0.14	0.01	0.04	0.17	0.08	0.03	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	7	129	4	7	23	219	253	5	9	288	50
Future Volume (vph)	28	7	129	4	7	23	219	253	5	9	288	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1568	1752	1635		1752	3495		1752	3427	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1568	1752	1635		1752	3495		1752	3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	8	140	4	8	25	238	275	5	10	313	54
RTOR Reduction (vph)	0	0	123	0	23	0	0	1	0	0	11	0
Lane Group Flow (vph)	30	8	17	4	10	0	238	279	0	10	356	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	2.3	6.9	6.9	0.9	5.5		13.6	29.2		0.9	16.5	
Effective Green, g (s)	2.3	6.9	6.9	0.9	5.5		13.6	29.2		0.9	16.5	
Actuated g/C Ratio	0.04	0.12	0.12	0.02	0.10		0.24	0.52		0.02	0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	72	227	193	28	160		426	1825		28	1011	
v/s Ratio Prot	c0.02	0.00		0.00	0.01		c0.14	0.08		0.01	c0.10	
v/s Ratio Perm			c0.01									
v/c Ratio	0.42	0.04	0.09	0.14	0.07		0.56	0.15		0.36	0.35	
Uniform Delay, d1	26.1	21.6	21.7	27.1	22.9		18.5	6.9		27.2	15.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.1	0.2	2.3	0.2		1.6	0.0		7.7	0.2	
Delay (s)	30.0	21.6	21.9	29.5	23.0		20.1	7.0		34.9	15.7	
Level of Service	C	C	C	C	C		C	A		C	B	
Approach Delay (s)		23.3			23.7			13.0			16.2	
Approach LOS		C			C			B			B	

Intersection Summary

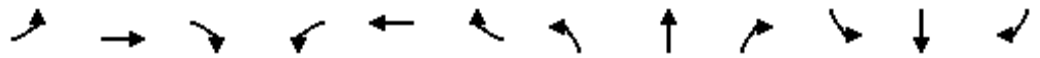
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	7	129	4	7	23	219	253	5	9	288	50
Future Volume (veh/h)	28	7	129	4	7	23	219	253	5	9	288	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	8	140	4	8	25	238	275	5	10	313	54
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	63	264	224	10	44	139	321	1309	24	23	605	103
Arrive On Green	0.04	0.14	0.14	0.01	0.11	0.11	0.18	0.37	0.37	0.01	0.20	0.20
Sat Flow, veh/h	1767	1856	1572	1767	396	1237	1767	3542	64	1767	3012	514
Grp Volume(v), veh/h	30	8	140	4	0	33	238	137	143	10	182	185
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1633	1767	1763	1844	1767	1763	1763
Q Serve(g_s), s	0.6	0.1	3.2	0.1	0.0	0.7	4.9	2.0	2.0	0.2	3.5	3.6
Cycle Q Clear(g_c), s	0.6	0.1	3.2	0.1	0.0	0.7	4.9	2.0	2.0	0.2	3.5	3.6
Prop In Lane	1.00		1.00	1.00		0.76	1.00		0.03	1.00		0.29
Lane Grp Cap(c), veh/h	63	264	224	10	0	183	321	651	681	23	354	354
V/C Ratio(X)	0.48	0.03	0.62	0.42	0.00	0.18	0.74	0.21	0.21	0.43	0.51	0.52
Avail Cap(c_a), veh/h	438	1234	1046	346	0	1001	1728	2827	2958	346	1448	1448
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	14.2	15.5	19.0	0.0	15.4	14.8	8.3	8.3	18.8	13.6	13.7
Incr Delay (d2), s/veh	5.5	0.0	2.8	26.2	0.0	0.5	3.4	0.2	0.2	12.0	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	1.1	0.1	0.0	0.2	1.8	0.6	0.6	0.2	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	14.2	18.3	45.2	0.0	15.9	18.2	8.4	8.4	30.8	14.8	14.9
LnGrp LOS	C	B	B	D	A	B	B	A	A	C	B	B
Approach Vol, veh/h		178			37			518			377	
Approach Delay, s/veh		19.0			19.1			12.9			15.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	18.7	4.7	10.0	11.5	12.2	5.9	8.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	61.5	7.5	25.5	37.5	31.5	9.5	23.5				
Max Q Clear Time (g_c+I1), s	2.2	4.0	2.1	5.2	6.9	5.6	2.6	2.7				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.4	0.7	2.1	0.0	0.1				

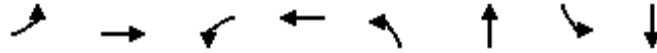
Intersection Summary

HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Queues
9: Ascot Parkway & Redwood Street

Cumulative +Project AM (Alt B)

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	870	141	326	527	356	196	353
v/c Ratio	0.68	0.90	0.78	0.42	0.90	0.33	0.71	0.69
Control Delay	60.0	45.7	78.0	39.0	55.1	29.0	59.1	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	45.7	78.0	39.0	55.1	29.0	59.1	42.4
Queue Length 50th (ft)	117	274	103	104	355	97	139	101
Queue Length 95th (ft)	192	#421	#223	165	#584	146	218	153
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	328	1014	187	780	660	1224	375	699
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.86	0.75	0.42	0.80	0.29	0.52	0.51

























Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
9: Ascot Parkway & Redwood Street

Cumulative +Project AM (Alt B)

07/03/2024

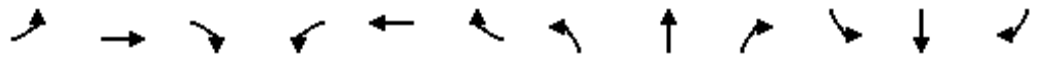
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	152	446	354	130	257	43	485	279	49	180	206	119
Future Volume (vph)	152	446	354	130	257	43	485	279	49	180	206	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.98		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3272		1752	3429		1752	3427		1752	3313	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3272		1752	3429		1752	3427		1752	3313	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	485	385	141	279	47	527	303	53	196	224	129
RTOR Reduction (vph)	0	117	0	0	11	0	0	12	0	0	71	0
Lane Group Flow (vph)	165	753	0	141	315	0	527	344	0	196	282	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.2	28.3		11.3	24.4		36.4	33.8		17.2	14.6	
Effective Green, g (s)	15.2	28.3		11.3	24.4		36.4	33.8		17.2	14.6	
Actuated g/C Ratio	0.14	0.26		0.10	0.22		0.34	0.31		0.16	0.13	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	245	852		182	770		587	1066		277	445	
v/s Ratio Prot	c0.09	c0.23		0.08	0.09		c0.30	0.10		0.11	c0.09	
v/s Ratio Perm												
v/c Ratio	0.67	0.88		0.77	0.41		0.90	0.32		0.71	0.63	
Uniform Delay, d1	44.3	38.6		47.4	35.9		34.3	28.6		43.3	44.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	10.8		18.4	0.4		16.4	0.2		8.0	2.9	
Delay (s)	51.5	49.4		65.8	36.3		50.7	28.8		51.3	47.4	
Level of Service	D	D		E	D		D	C		D	D	
Approach Delay (s)		49.7			45.2			41.9			48.8	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			46.5				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			108.6				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			82.3%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	152	446	354	130	257	43	485	279	49	180	206	119
Future Volume (veh/h)	152	446	354	130	257	43	485	279	49	180	206	119
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	165	485	0	141	279	0	527	303	0	196	224	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	210	702		179	640		592	1061		246	370	
Arrive On Green	0.12	0.20	0.00	0.10	0.18	0.00	0.34	0.30	0.00	0.14	0.10	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	165	485	0	141	279	0	527	303	0	196	224	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	6.3	8.9	0.0	5.4	4.9	0.0	19.6	4.6	0.0	7.4	4.2	0.0
Cycle Q Clear(g_c), s	6.3	8.9	0.0	5.4	4.9	0.0	19.6	4.6	0.0	7.4	4.2	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	210	702		179	640		592	1061		246	370	
V/C Ratio(X)	0.78	0.69		0.79	0.44		0.89	0.29		0.80	0.61	
Avail Cap(c_a), veh/h	512	1500		293	1063		1032	1932		586	1042	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.7	25.8	0.0	30.4	25.2	0.0	21.8	18.5	0.0	28.9	29.7	0.0
Incr Delay (d2), s/veh	6.3	1.2	0.0	7.5	0.5	0.0	5.2	0.1	0.0	5.8	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.6	0.0	2.5	2.0	0.0	8.1	1.7	0.0	3.4	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	27.0	0.0	37.9	25.7	0.0	27.0	18.7	0.0	34.7	31.3	0.0
LnGrp LOS	D	C		D	C		C	B		C	C	
Approach Vol, veh/h		650			420			830			420	
Approach Delay, s/veh		29.3			29.8			24.0			32.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	25.4	11.5	18.3	27.7	11.8	12.8	17.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	23.0	38.0	11.5	29.5	40.5	20.5	20.1	20.9				
Max Q Clear Time (g_c+I1), s	9.4	6.6	7.4	10.9	21.6	6.2	8.3	6.9				
Green Ext Time (p_c), s	0.4	2.0	0.1	3.0	1.6	1.1	0.3	1.4				

Intersection Summary

HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative +Project AM (Alt B)

07/03/2024

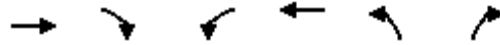


Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	743	438	493	338	537
v/c Ratio	0.77	0.81	0.22	0.73	0.66
Control Delay	36.6	44.0	8.0	44.1	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	44.0	8.0	44.1	7.4
Queue Length 50th (ft)	198	245	60	190	0
Queue Length 95th (ft)	335	425	104	338	91
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1237	806	2849	686	941
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.54	0.17	0.49	0.57
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
 10: Oakwood Avenue & Redwood Street

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	455	228	403	454	311	494
Future Volume (vph)	455	228	403	454	311	494
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3329		1752	3505	1752	1568
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3329		1752	3505	1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	495	248	438	493	338	537
RTOR Reduction (vph)	51	0	0	0	0	395
Lane Group Flow (vph)	692	0	438	493	338	142
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	25.9		29.2	59.6	24.7	24.7
Effective Green, g (s)	25.9		29.2	59.6	24.7	24.7
Actuated g/C Ratio	0.28		0.31	0.64	0.26	0.26
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	924		548	2238	463	415
v/s Ratio Prot	c0.21		c0.25	0.14	c0.19	
v/s Ratio Perm						0.09
v/c Ratio	0.75		0.80	0.22	0.73	0.34
Uniform Delay, d1	30.7		29.4	7.1	31.3	27.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4		8.0	0.0	5.8	0.5
Delay (s)	34.1		37.4	7.1	37.1	28.2
Level of Service	C		D	A	D	C
Approach Delay (s)	34.1			21.4	31.7	
Approach LOS	C			C	C	

Intersection Summary

HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	93.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

Cumulative +Project AM (Alt B)

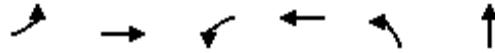
07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	455	228	403	454	311	494
Future Volume (veh/h)	455	228	403	454	311	494
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	495	248	438	493	338	537
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	584	291	480	2017	600	534
Arrive On Green	0.26	0.26	0.27	0.57	0.34	0.34
Sat Flow, veh/h	2371	1136	1767	3618	1767	1572
Grp Volume(v), veh/h	383	360	438	493	338	537
Grp Sat Flow(s),veh/h/ln	1763	1651	1767	1763	1767	1572
Q Serve(g_s), s	21.0	21.1	24.4	7.1	15.9	34.5
Cycle Q Clear(g_c), s	21.0	21.1	24.4	7.1	15.9	34.5
Prop In Lane		0.69	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	452	423	480	2017	600	534
V/C Ratio(X)	0.85	0.85	0.91	0.24	0.56	1.01
Avail Cap(c_a), veh/h	546	512	704	2653	600	534
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	35.9	36.0	35.9	10.8	27.4	33.6
Incr Delay (d2), s/veh	10.1	11.2	12.2	0.1	1.2	40.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	9.6	11.8	2.6	6.8	18.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.1	47.2	48.1	10.9	28.7	74.1
LnGrp LOS	D	D	D	B	C	F
Approach Vol, veh/h	743			931	875	
Approach Delay, s/veh	46.6			28.4	56.6	
Approach LOS	D			C	E	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		39.0	32.1	30.6		62.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		34.5	40.5	31.5		76.5
Max Q Clear Time (g_c+I1), s		36.5	26.4	23.1		9.1
Green Ext Time (p_c), s		0.0	1.2	2.9		3.6
Intersection Summary						
HCM 6th Ctrl Delay			43.4			
HCM 6th LOS			D			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project AM (Alt B)
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	25	798	96	759	148	97
v/c Ratio	0.11	0.59	0.32	0.42	0.46	0.15
Control Delay	29.1	16.2	27.5	10.4	26.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	16.2	27.5	10.4	26.8	0.5
Queue Length 50th (ft)	7	104	28	53	42	0
Queue Length 95th (ft)	34	204	84	171	114	0
Internal Link Dist (ft)		424		851		1161
Turn Bay Length (ft)	125		125		75	
Base Capacity (vph)	337	3022	691	3334	947	1177
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.26	0.14	0.23	0.16	0.08
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
 11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project AM (Alt B)

07/03/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	617	117	88	697	1	136	0	89	0	0	0
Future Volume (vph)	23	617	117	88	697	1	136	0	89	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00				
Frt	1.00	0.98		1.00	1.00		1.00	0.85				
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00				
Satd. Flow (prot)	1752	3421		1752	3504		1752	1568				
Flt Permitted	0.95	1.00		0.95	1.00		0.76	1.00				
Satd. Flow (perm)	1752	3421		1752	3504		1397	1568				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	671	127	96	758	1	148	0	97	0	0	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	75	0	0	0	0
Lane Group Flow (vph)	25	784	0	96	759	0	148	22	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	2.4	23.5		7.2	28.3		12.8	12.8				
Effective Green, g (s)	2.4	23.5		7.2	28.3		12.8	12.8				
Actuated g/C Ratio	0.04	0.41		0.13	0.50		0.22	0.22				
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5				
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)	73	1410		221	1739		313	352				
v/s Ratio Prot	0.01	c0.23		c0.05	0.22			0.01				
v/s Ratio Perm							c0.11					
v/c Ratio	0.34	0.56		0.43	0.44		0.47	0.06				
Uniform Delay, d1	26.5	12.8		23.0	9.2		19.2	17.4				
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00				
Incremental Delay, d2	2.8	0.5		1.4	0.2		1.1	0.1				
Delay (s)	29.3	13.3		24.4	9.4		20.3	17.5				
Level of Service	C	B		C	A		C	B				
Approach Delay (s)		13.7			11.1			19.2			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			57.0				Sum of lost time (s)		13.5			
Intersection Capacity Utilization			44.4%				ICU Level of Service		A			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project AM (Alt B)

07/03/2024

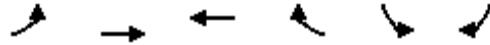


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	23	617	117	88	697	1	136	0	89	0	0	0
Future Volume (veh/h)	23	617	117	88	697	1	136	0	89	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	671	127	96	758	1	148	0	97	0	0	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1161	220	151	1617	2	460	0	232	200	273	0
Arrive On Green	0.03	0.39	0.39	0.09	0.45	0.45	0.15	0.00	0.15	0.00	0.00	0.00
Sat Flow, veh/h	1767	2958	559	1767	3613	5	1767	0	1572	1288	1856	0
Grp Volume(v), veh/h	25	400	398	96	370	389	148	0	97	0	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1755	1767	1763	1855	1767	0	1572	1288	1856	0
Q Serve(g_s), s	0.5	6.4	6.4	1.9	5.3	5.3	2.8	0.0	2.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	6.4	6.4	1.9	5.3	5.3	2.8	0.0	2.0	0.0	0.0	0.0
Prop In Lane	1.00		0.32	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	54	692	689	151	789	830	460	0	232	200	273	0
V/C Ratio(X)	0.46	0.58	0.58	0.63	0.47	0.47	0.32	0.00	0.42	0.00	0.00	0.00
Avail Cap(c_a), veh/h	466	2518	2507	956	3007	3164	1940	0	1548	1278	1827	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	17.2	8.6	8.6	15.9	7.0	7.0	14.3	0.0	14.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.0	0.8	0.8	4.3	0.4	0.4	0.4	0.0	1.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.7	1.7	0.8	1.2	1.3	1.0	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	9.4	9.4	20.3	7.4	7.4	14.7	0.0	15.2	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	B	A	B	A	A	A
Approach Vol, veh/h		823			855			245				0
Approach Delay, s/veh		9.8			8.8			14.9				0.0
Approach LOS		A			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.8	7.6	18.7		9.8	5.6	20.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		35.5	19.5	51.5		35.5	9.5	61.5				
Max Q Clear Time (g_c+I1), s		4.8	3.9	8.4		0.0	2.5	7.3				
Green Ext Time (p_c), s		1.0	0.2	5.7		0.0	0.0	5.3				
Intersection Summary												
HCM 6th Ctrl Delay				10.0								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project AM (Alt B)

07/03/2024



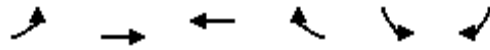
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	477	480	646	241	99	1118
v/c Ratio	0.58	0.26	0.75	0.43	0.07	0.59
Control Delay	41.9	14.9	45.6	6.6	23.0	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.3
Total Delay	41.9	14.9	45.6	6.6	23.0	13.4
Queue Length 50th (ft)	159	96	230	0	23	208
Queue Length 95th (ft)	228	127	295	60	44	321
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	826	2059	1068	645	1336	1896
Starvation Cap Reductn	0	0	0	0	0	612
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.23	0.60	0.37	0.07	0.87

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	429	432	581	217	89	1006
Future Volume (vph)	429	432	581	217	89	1006
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	3505	3505	1568	3400	2760
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3400	3505	3505	1568	3400	2760
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	477	480	646	241	99	1118
RTOR Reduction (vph)	0	0	0	182	0	30
Lane Group Flow (vph)	477	480	646	59	99	1088
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov
Protected Phases	7	4	8		1	17
Permitted Phases				8		
Actuated Green, G (s)	27.6	59.8	27.7	27.7	44.6	76.7
Effective Green, g (s)	27.6	59.8	27.7	27.7	44.6	76.7
Actuated g/C Ratio	0.24	0.53	0.24	0.24	0.39	0.68
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	827	1848	856	383	1337	1866
v/s Ratio Prot	0.14	0.14	c0.18		0.03	c0.39
v/s Ratio Perm				0.04		
v/c Ratio	0.58	0.26	0.75	0.15	0.07	0.58
Uniform Delay, d1	37.8	14.7	39.7	33.6	21.5	9.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	0.1	3.8	0.2	0.1	1.3
Delay (s)	40.7	14.8	43.5	33.8	21.6	11.1
Level of Service	D	B	D	C	C	B
Approach Delay (s)		27.7	40.9		12.0	
Approach LOS		C	D		B	

Intersection Summary

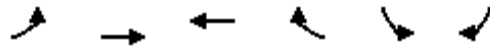
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↗	↑↑	↑↑	↖	↖↗	↖↗	
Traffic Volume (veh/h)	429	432	581	217	89	1006	
Future Volume (veh/h)	429	432	581	217	89	1006	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	477	480	646	241	99	1118	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	850	1826	809	361	1375	1796	
Arrive On Green	0.25	0.52	0.23	0.23	0.40	0.40	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	477	480	646	241	99	1118	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	13.5	8.4	19.2	15.5	2.0	26.4	
Cycle Q Clear(g_c), s	13.5	8.4	19.2	15.5	2.0	26.4	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	850	1826	809	361	1375	1796	
V/C Ratio(X)	0.56	0.26	0.80	0.67	0.07	0.62	
Avail Cap(c_a), veh/h	850	2113	1096	489	1375	1796	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	36.5	14.9	40.3	38.9	20.5	11.5	
Incr Delay (d2), s/veh	2.7	0.1	3.0	2.1	0.1	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.9	3.3	8.5	13.4	0.8	23.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	39.1	15.0	43.4	41.0	20.6	13.1	
LnGrp LOS	D	B	D	D	C	B	
Approach Vol, veh/h		957	887		1217		
Approach Delay, s/veh		27.0	42.7		13.7		
Approach LOS		C	D		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				62.0	49.0	32.0	30.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				66.5	44.5	27.5	34.5
Max Q Clear Time (g_c+I1), s				10.4	28.4	15.5	21.2
Green Ext Time (p_c), s				3.5	5.3	1.4	4.3
Intersection Summary							
HCM 6th Ctrl Delay			26.3				
HCM 6th LOS			C				

Queues
13: Redwood Street

Cumulative +Project AM (Alt B)
07/03/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	96	668	1141	219	151	187
v/c Ratio	0.73	0.28	0.81	0.35	0.10	0.24
Control Delay	92.8	20.5	39.3	28.0	22.3	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.8	20.5	39.3	28.0	22.3	10.8
Queue Length 50th (ft)	41	120	439	126	36	34
Queue Length 95th (ft)	#101	146	520	188	70	99
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	132	3234	1992	891	1548	776
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.21	0.57	0.25	0.10	0.24

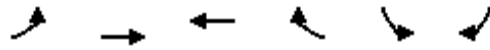
Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
13: Redwood Street

Cumulative +Project AM (Alt B)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	86	601	1027	197	136	168
Future Volume (vph)	86	601	1027	197	136	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.91	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	5036	3505	1568	3400	1568
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3400	5036	3505	1568	3400	1568
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	668	1141	219	151	187
RTOR Reduction (vph)	0	0	0	0	0	62
Lane Group Flow (vph)	96	668	1141	219	151	125
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases				6		
Actuated Green, G (s)	5.0	61.3	51.8	51.8	58.9	58.9
Effective Green, g (s)	5.0	61.3	51.8	51.8	58.9	58.9
Actuated g/C Ratio	0.04	0.47	0.40	0.40	0.46	0.46
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	131	2389	1405	628	1550	714
v/s Ratio Prot	c0.03	0.13	c0.33		0.04	c0.08
v/s Ratio Perm				0.14		
v/c Ratio	0.73	0.28	0.81	0.35	0.10	0.18
Uniform Delay, d1	61.4	20.6	34.4	27.0	20.0	20.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	30.1	0.1	3.7	0.3	0.1	0.5
Delay (s)	91.6	20.6	38.1	27.3	20.1	21.3
Level of Service	F	C	D	C	C	C
Approach Delay (s)		29.5	36.3		20.8	
Approach LOS		C	D		C	

Intersection Summary

HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	129.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 13: Redwood Street

Cumulative +Project AM (Alt B)
 07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑	↑↑	↖	↖↗	↖
Traffic Volume (veh/h)	86	601	1027	197	136	168
Future Volume (veh/h)	86	601	1027	197	136	168
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	96	668	1141	219	151	187
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	135	2375	1389	620	1578	724
Arrive On Green	0.04	0.47	0.39	0.39	0.46	0.46
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	96	668	1141	219	151	187
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	3.5	10.3	36.8	12.5	3.2	9.3
Cycle Q Clear(g_c), s	3.5	10.3	36.8	12.5	3.2	9.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	135	2375	1389	620	1578	724
V/C Ratio(X)	0.71	0.28	0.82	0.35	0.10	0.26
Avail Cap(c_a), veh/h	135	3289	2025	903	1578	724
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	60.3	20.7	34.5	27.1	19.4	21.0
Incr Delay (d2), s/veh	27.2	0.1	1.8	0.3	0.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	4.0	15.8	4.7	1.3	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	87.5	20.7	36.3	27.4	19.5	21.9
LnGrp LOS	F	C	D	C	B	C
Approach Vol, veh/h		764	1360		338	
Approach Delay, s/veh		29.1	34.9		20.8	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.1		63.0	9.5	54.6
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		12.3		11.3	5.5	38.8
Green Ext Time (p_c), s		5.2		1.2	0.0	11.2
Intersection Summary						
HCM 6th Ctrl Delay			31.2			
HCM 6th LOS			C			

Queues
14: Lake Herman Road & Columbus Parkway

Cumulative +Project AM (Alt B)
07/03/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	96	427	98	223	287
v/c Ratio	0.14	0.28	0.43	0.19	0.45	0.11
Control Delay	19.9	8.2	15.1	5.0	17.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	8.2	15.1	5.0	17.7	3.0
Queue Length 50th (ft)	9	0	45	0	45	11
Queue Length 95th (ft)	34	33	92	26	112	22
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1133	1048	3121	1407	1603	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.09	0.14	0.07	0.14	0.08
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project AM (Alt B)

07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	37	88	393	90	205	264
Future Volume (vph)	37	88	393	90	205	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1568	3505	1568	1752	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	1568	3505	1568	1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	96	427	98	223	287
RTOR Reduction (vph)	0	84	0	70	0	0
Lane Group Flow (vph)	40	12	427	28	223	287
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	5.2	5.2	12.5	12.5	11.9	28.9
Effective Green, g (s)	5.2	5.2	12.5	12.5	11.9	28.9
Actuated g/C Ratio	0.12	0.12	0.29	0.29	0.28	0.67
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	211	189	1016	454	483	2350
v/s Ratio Prot	c0.02		c0.12		c0.13	0.08
v/s Ratio Perm		0.01		0.02		
v/c Ratio	0.19	0.06	0.42	0.06	0.46	0.12
Uniform Delay, d1	17.1	16.8	12.4	11.1	12.9	2.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.3	0.1	0.7	0.0
Delay (s)	17.5	16.9	12.7	11.1	13.6	2.6
Level of Service	B	B	B	B	B	A
Approach Delay (s)	17.1		12.4			7.4
Approach LOS	B		B			A

Intersection Summary













HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	43.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project AM (Alt B)

07/03/2024

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	88	393	90	205	264
Future Volume (veh/h)	37	88	393	90	205	264
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	40	96	427	98	223	287
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	195	174	932	416	348	2130
Arrive On Green	0.11	0.11	0.26	0.26	0.20	0.60
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	40	96	427	98	223	287
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	0.6	1.8	3.2	1.5	3.7	1.1
Cycle Q Clear(g_c), s	0.6	1.8	3.2	1.5	3.7	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	195	174	932	416	348	2130
V/C Ratio(X)	0.21	0.55	0.46	0.24	0.64	0.13
Avail Cap(c_a), veh/h	1429	1271	4416	1969	2325	9558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	13.3	9.7	9.1	11.6	2.7
Incr Delay (d2), s/veh	0.5	2.7	0.4	0.3	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.6	0.8	0.4	1.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.3	16.0	10.1	9.4	13.6	2.7
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	136		525			510
Approach Delay, s/veh	15.2		9.9			7.5
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.7	12.8			23.6	8.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	41.5	39.5			85.5	25.5
Max Q Clear Time (g_c+I1), s	5.7	5.2			3.1	3.8
Green Ext Time (p_c), s	0.6	3.1			1.9	0.3
Intersection Summary						
HCM 6th Ctrl Delay			9.5			
HCM 6th LOS			A			

Queues

Cumulative +Project AM (Alt B)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	70	108	170	168	113	43	378	103	140	615
v/c Ratio	0.26	0.34	0.44	0.39	0.24	0.18	0.45	0.33	0.24	0.67
Control Delay	31.0	28.8	29.0	26.3	5.0	32.0	23.7	30.2	20.8	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	28.8	29.0	26.3	5.0	32.0	23.7	30.2	20.8	6.4
Queue Length 50th (ft)	24	34	57	54	0	15	62	35	42	0
Queue Length 95th (ft)	73	95	138	130	29	53	128	95	101	81
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	406	710	795	1057	956	300	2561	547	1531	1406
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.15	0.21	0.16	0.12	0.14	0.15	0.19	0.09	0.44

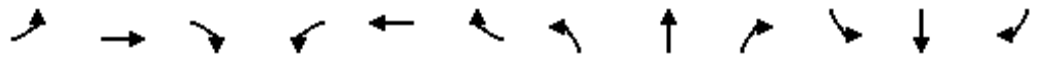
Intersection Summary

HCM Signalized Intersection Capacity Analysis

Cumulative +Project AM (Alt B)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	81	18	156	155	104	40	301	47	95	129	566
Future Volume (vph)	64	81	18	156	155	104	40	301	47	95	129	566
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1793		1752	1845	1568	1752	3434		1752	1845	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1752	1793		1752	1845	1568	1752	3434		1752	1845	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	88	20	170	168	113	43	327	51	103	140	615
RTOR Reduction (vph)	0	7	0	0	0	87	0	12	0	0	0	428
Lane Group Flow (vph)	70	101	0	170	168	26	43	366	0	103	140	187
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	6.3	7.3		12.9	13.9	13.9	4.0	15.1		7.4	18.5	18.5
Effective Green, g (s)	6.3	7.3		12.9	13.9	13.9	4.0	15.1		7.4	18.5	18.5
Actuated g/C Ratio	0.10	0.12		0.21	0.23	0.23	0.07	0.25		0.12	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	181	215		372	422	359	115	854		213	562	477
v/s Ratio Prot	0.04	0.06		c0.10	c0.09		0.02	0.11		c0.06	0.08	
v/s Ratio Perm						0.02						c0.12
v/c Ratio	0.39	0.47		0.46	0.40	0.07	0.37	0.43		0.48	0.25	0.39
Uniform Delay, d1	25.4	24.9		20.8	19.9	18.3	27.2	19.2		24.9	15.9	16.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	1.6		0.9	0.6	0.1	2.0	0.3		1.7	0.2	0.5
Delay (s)	26.8	26.5		21.7	20.5	18.4	29.2	19.5		26.6	16.1	17.2
Level of Service	C	C		C	C	B	C	B		C	B	B
Approach Delay (s)		26.6			20.4			20.5			18.2	
Approach LOS		C			C			C			B	

Intersection Summary

HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

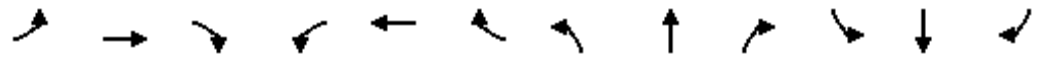
c Critical Lane Group

HCM 6th Signalized Intersection Summary

Cumulative +Project AM (Alt B)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	↖
Traffic Volume (veh/h)	64	81	18	156	155	104	40	301	47	95	129	566
Future Volume (veh/h)	64	81	18	156	155	104	40	301	47	95	129	566
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	88	20	170	168	113	43	327	51	103	140	615
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	100	141	32	220	305	259	75	1257	194	135	825	700
Arrive On Green	0.06	0.10	0.10	0.12	0.16	0.16	0.04	0.41	0.41	0.08	0.44	0.44
Sat Flow, veh/h	1767	1463	333	1767	1856	1572	1767	3061	473	1767	1856	1572
Grp Volume(v), veh/h	70	0	108	170	168	113	43	187	191	103	140	615
Grp Sat Flow(s),veh/h/ln	1767	0	1796	1767	1856	1572	1767	1763	1770	1767	1856	1572
Q Serve(g_s), s	2.4	0.0	3.6	5.7	5.1	4.0	1.5	4.3	4.4	3.5	2.8	22.0
Cycle Q Clear(g_c), s	2.4	0.0	3.6	5.7	5.1	4.0	1.5	4.3	4.4	3.5	2.8	22.0
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	100	0	173	220	305	259	75	724	727	135	825	700
V/C Ratio(X)	0.70	0.00	0.62	0.77	0.55	0.44	0.58	0.26	0.26	0.76	0.17	0.88
Avail Cap(c_a), veh/h	329	0	568	645	917	777	243	1272	1277	444	1549	1313
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	26.8	26.2	23.7	23.2	29.0	12.0	12.0	27.9	10.3	15.6
Incr Delay (d2), s/veh	8.5	0.0	3.6	5.7	1.5	1.2	6.8	0.2	0.2	8.6	0.1	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.6	2.6	2.2	1.5	0.7	1.5	1.6	1.7	1.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	0.0	30.4	31.8	25.2	24.4	35.8	12.2	12.2	36.6	10.4	19.4
LnGrp LOS	D	A	C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		178			451			421			858	
Approach Delay, s/veh		33.0			27.5			14.6			20.0	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	29.8	12.2	10.5	7.1	31.9	8.0	14.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	44.5	22.5	19.5	8.5	51.5	11.5	30.5				
Max Q Clear Time (g_c+I1), s	5.5	6.4	7.7	5.6	3.5	24.0	4.4	7.1				
Green Ext Time (p_c), s	0.2	2.4	0.4	0.4	0.0	3.4	0.1	1.3				

Intersection Summary

HCM 6th Ctrl Delay			21.8									
HCM 6th LOS			C									

Queues

16: Sonoma Blvd (SR-29) & SR-37 Ramps

























Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	482	1018	636	40	1714	235
v/c Ratio	0.45	0.85	0.31	0.04	0.83	0.15
Control Delay	32.0	26.1	12.0	3.5	22.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	26.1	12.0	3.5	22.6	0.2
Queue Length 50th (ft)	136	209	107	0	465	0
Queue Length 95th (ft)	225	378	179	16	725	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1622	1567	2751	1239	2751	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.65	0.23	0.03	0.62	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project AM (Alt B)

07/03/2024



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 		 		 			 	
Traffic Volume (vph)	0	0	0	443	0	937	0	585	37	0	1577	216
Future Volume (vph)	0	0	0	443	0	937	0	585	37	0	1577	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5		4.5	4.0
Lane Util. Factor				0.97		0.88		0.95	1.00		0.95	1.00
Frt				1.00		0.85		1.00	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		2760		3505	1568		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		2760		3505	1568		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	482	0	1018	0	636	40	0	1714	235
RTOR Reduction (vph)	0	0	0	0	0	326	0	0	16	0	0	0
Lane Group Flow (vph)	0	0	0	482	0	692	0	636	24	0	1714	235
Turn Type				Prot		Prot		NA	Perm		NA	Free
Protected Phases				8		8		2			6	
Permitted Phases									2			Free
Actuated Green, G (s)				34.2		34.2		63.7	63.7		63.7	106.9
Effective Green, g (s)				34.2		34.2		63.7	63.7		63.7	106.9
Actuated g/C Ratio				0.32		0.32		0.60	0.60		0.60	1.00
Clearance Time (s)				4.5		4.5		4.5	4.5		4.5	
Vehicle Extension (s)				3.0		3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)				1087		882		2088	934		2088	1568
v/s Ratio Prot				0.14		c0.25		0.18			c0.49	
v/s Ratio Perm									0.02			0.15
v/c Ratio				0.44		0.78		0.30	0.03		0.82	0.15
Uniform Delay, d1				28.8		33.0		10.7	8.9		17.1	0.0
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.3		4.6		0.1	0.0		2.7	0.2
Delay (s)				29.1		37.6		10.7	8.9		19.8	0.2
Level of Service				C		D		B	A		B	A
Approach Delay (s)		0.0			34.9			10.6			17.4	
Approach LOS		A			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			22.7	HCM 2000 Level of Service					C			
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			106.9	Sum of lost time (s)					9.0			
Intersection Capacity Utilization			63.3%	ICU Level of Service					B			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

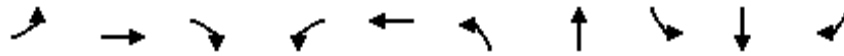
Cumulative +Project AM (Alt B)

07/03/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	443	0	937	0	585	37	0	1577	216
Future Volume (veh/h)	0	0	0	443	0	937	0	585	37	0	1577	216
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				482	0	1018	0	636	40	0	1714	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1275	0	1029	0	1966	877	0	1966	
Arrive On Green				0.37	0.00	0.37	0.00	0.56	0.56	0.00	0.56	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				482	0	1018	0	636	40	0	1714	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				13.1	0.0	46.7	0.0	12.4	1.5	0.0	53.5	0.0
Cycle Q Clear(g_c), s				13.1	0.0	46.7	0.0	12.4	1.5	0.0	53.5	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1275	0	1029	0	1966	877	0	1966	
V/C Ratio(X)				0.38	0.00	0.99	0.00	0.32	0.05	0.00	0.87	
Avail Cap(c_a), veh/h				1275	0	1029	0	2305	1028	0	2305	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				29.3	0.0	39.8	0.0	15.2	12.8	0.0	24.3	0.0
Incr Delay (d2), s/veh				0.2	0.0	25.3	0.0	0.1	0.0	0.0	3.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.3	0.0	18.9	0.0	4.8	0.5	0.0	21.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.5	0.0	65.1	0.0	15.3	12.8	0.0	27.8	0.0
LnGrp LOS				C	A	E	A	B	B	A	C	
Approach Vol, veh/h					1500			676			1714	
Approach Delay, s/veh					53.7			15.2			27.8	
Approach LOS					D			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		75.7				75.7		52.0				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		83.5				83.5		47.5				
Max Q Clear Time (g_c+I1), s		14.4				55.5		48.7				
Green Ext Time (p_c), s		4.8				15.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				35.6								
HCM 6th LOS				D								
Notes												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	292	745	1093	173	866	1321	342	53	64	219
v/c Ratio	0.92	0.86	0.70	0.86	0.95	0.96	0.45	0.38	0.41	0.42
Control Delay	78.6	50.6	2.6	83.4	63.9	48.6	14.1	55.6	55.6	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.6	50.6	2.6	83.4	63.9	48.6	14.1	55.6	55.6	19.3
Queue Length 50th (ft)	205	266	0	122	221	465	84	36	44	66
Queue Length 95th (ft)	#387	#387	0	#258	#328	#655	173	77	87	133
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	318	869	1568	202	912	1378	780	294	335	517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.86	0.70	0.86	0.95	0.96	0.44	0.18	0.19	0.42

Intersection Summary

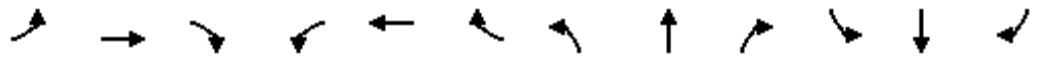
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

Cumulative +Project PM (Alt B)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	745	1093	173	801	65	1321	77	265	53	64	219
Future Volume (vph)	292	745	1093	173	801	65	1321	77	265	53	64	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.97	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	1752	4979		3400	1630		1752	1845	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	1752	4979		3400	1630		1752	1845	1568
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)	292	745	1093	173	801	65	1321	77	265	53	64	219
RTOR Reduction (vph)	0	0	0	0	7	0	0	98	0	0	0	71
Lane Group Flow (vph)	292	745	1093	173	859	0	1321	244	0	53	64	148
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			Free									6
Actuated Green, G (s)	19.6	26.8	108.6	12.4	19.6		43.6	44.0		7.4	7.8	27.4
Effective Green, g (s)	19.6	26.8	108.6	12.4	19.6		43.6	44.0		7.4	7.8	27.4
Actuated g/C Ratio	0.18	0.25	1.00	0.11	0.18		0.40	0.41		0.07	0.07	0.25
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	316	864	1568	200	898		1365	660		119	132	460
v/s Ratio Prot	c0.17	c0.21		0.10	0.17		c0.39	0.15		0.03	0.03	0.06
v/s Ratio Perm			c0.70									0.04
v/c Ratio	0.92	0.86	0.70	0.86	0.96		0.97	0.37		0.45	0.48	0.32
Uniform Delay, d1	43.8	39.1	0.0	47.3	44.1		31.8	22.6		48.6	48.5	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	31.5	8.9	2.6	30.0	20.0		17.0	0.4		2.6	2.8	0.4
Delay (s)	75.2	48.0	2.6	77.2	64.1		48.9	22.9		51.3	51.3	33.4
Level of Service	E	D	A	E	E		D	C		D	D	C
Approach Delay (s)		28.4			66.3			43.5			39.7	
Approach LOS		C			E			D			D	

Intersection Summary

HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

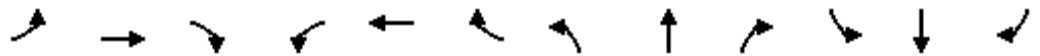
c Critical Lane Group

HCM 6th Signalized Intersection Summary

Cumulative +Project PM (Alt B)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑	↗
Traffic Volume (veh/h)	292	745	1093	173	801	65	1321	77	265	53	64	219
Future Volume (veh/h)	292	745	1093	173	801	65	1321	77	265	53	64	219
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	292	745	0	173	801	65	1321	77	0	53	64	219
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	297	808		189	803	65	1285	856		84	248	475
Arrive On Green	0.17	0.23	0.00	0.11	0.17	0.17	0.37	0.46	0.00	0.05	0.13	0.13
Sat Flow, veh/h	1767	3526	1572	1767	4777	386	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	292	745	0	173	565	301	1321	77	0	53	64	219
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1786	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	19.1	24.0	0.0	11.2	19.4	19.5	43.5	2.7	0.0	3.4	3.6	13.1
Cycle Q Clear(g_c), s	19.1	24.0	0.0	11.2	19.4	19.5	43.5	2.7	0.0	3.4	3.6	13.1
Prop In Lane	1.00		1.00	1.00		0.22	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	297	808		189	568	300	1285	856		84	248	475
V/C Ratio(X)	0.98	0.92		0.92	1.00	1.00	1.03	0.09		0.63	0.26	0.46
Avail Cap(c_a), veh/h	297	808		189	568	300	1285	856		274	312	529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	43.7	0.0	51.3	48.2	48.3	36.3	17.6	0.0	54.3	45.1	32.8
Incr Delay (d2), s/veh	47.5	15.9	0.0	42.5	36.7	52.5	32.5	0.0	0.0	7.7	0.5	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	12.1	11.9	0.0	7.1	10.9	12.8	23.6	1.2	0.0	1.7	1.7	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.6	59.6	0.0	93.8	84.9	100.8	68.7	17.6	0.0	62.0	45.6	33.5
LnGrp LOS	F	E		F	F	F	F	B		E	D	C
Approach Vol, veh/h		1037			1039			1398			336	
Approach Delay, s/veh		69.7			91.0			65.9			40.3	
Approach LOS		E			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	58.1	16.9	31.1	48.0	20.0	24.0	24.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	45.0	12.4	26.6	43.5	19.5	19.5	19.5				
Max Q Clear Time (g_c+I1), s	5.4	4.7	13.2	26.0	45.5	15.1	21.1	21.5				
Green Ext Time (p_c), s	0.1	0.4	0.0	0.3	0.0	0.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	71.5
HCM 6th LOS	E

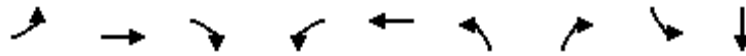
Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	70	895	298	39	871	209	34	2	5
v/c Ratio	0.23	0.51	0.32	0.15	0.57	0.31	0.06	0.01	0.01
Control Delay	27.1	11.4	2.8	28.5	14.2	23.9	0.2	31.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	11.4	2.8	28.5	14.2	23.9	0.2	31.0	0.0
Queue Length 50th (ft)	19	53	0	11	104	28	0	1	0
Queue Length 95th (ft)	73	236	42	48	242	85	0	8	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	534	3207	1460	376	3122	1267	1176	257	873
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.28	0.20	0.10	0.28	0.16	0.03	0.01	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project PM (Alt B)

07/03/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	823	274	36	801	0	192	0	31	2	0	5
Future Volume (vph)	64	823	274	36	801	0	192	0	31	2	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00		0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1752	3505		3400		1568	1752	1568	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1752	3505		3400		1568	1752	1568	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	895	298	39	871	0	209	0	34	2	0	5
RTOR Reduction (vph)	0	0	164	0	0	0	0	0	28	0	5	0
Lane Group Flow (vph)	70	895	134	39	871	0	209	0	6	2	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	4.7	25.7	25.7	2.5	23.5		10.2		10.2	0.7	0.7	
Effective Green, g (s)	4.7	25.7	25.7	2.5	23.5		10.2		10.2	0.7	0.7	
Actuated g/C Ratio	0.08	0.45	0.45	0.04	0.41		0.18		0.18	0.01	0.01	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	144	1577	705	76	1442		607		280	21	19	
v/s Ratio Prot	c0.04	c0.26		0.02	0.25		c0.06			0.00	0.00	
v/s Ratio Perm			0.09						c0.00			
v/c Ratio	0.49	0.57	0.19	0.51	0.60		0.34		0.02	0.10	0.00	
Uniform Delay, d1	25.0	11.6	9.4	26.7	13.2		20.5		19.3	27.9	27.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.6	0.5	0.1	5.7	0.7		0.3		0.0	2.0	0.1	
Delay (s)	27.6	12.1	9.6	32.4	13.9		20.9		19.4	29.9	27.9	
Level of Service	C	B	A	C	B		C		B	C	C	
Approach Delay (s)		12.3			14.7			20.7			28.5	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			14.1				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			57.1				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			50.3%				ICU Level of Service		A			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 2: N Ascot Parkway & Columbus Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	823	274	36	801	0	192	0	31	2	0	5
Future Volume (veh/h)	64	823	274	36	801	0	192	0	31	2	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	895	0	39	871	0	209	0	34	2	0	5
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	114	1459		76	1382	0	361	273	231	5	0	70
Arrive On Green	0.06	0.41	0.00	0.04	0.39	0.00	0.11	0.00	0.15	0.00	0.00	0.04
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	70	895	0	39	871	0	209	0	34	2	0	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.8	9.1	0.0	1.0	9.1	0.0	2.7	0.0	0.9	0.1	0.0	0.1
Cycle Q Clear(g_c), s	1.8	9.1	0.0	1.0	9.1	0.0	2.7	0.0	0.9	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	1459		76	1382	0	361	273	231	5	0	70
V/C Ratio(X)	0.61	0.61		0.52	0.63	0.00	0.58	0.00	0.15	0.41	0.00	0.07
Avail Cap(c_a), veh/h	522	4205		367	3896	0	1238	1279	1084	251	0	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.8	10.5	0.0	21.4	11.2	0.0	19.5	0.0	17.0	22.7	0.0	20.9
Incr Delay (d2), s/veh	5.3	0.4	0.0	5.4	0.5	0.0	1.5	0.0	0.3	47.7	0.0	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	0.8	2.5	0.0	0.5	2.6	0.0	1.0	0.0	0.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	10.9	0.0	26.8	11.7	0.0	21.0	0.0	17.3	70.5	0.0	21.4
LnGrp LOS	C	B		C	B	A	C	A	B	E	A	C
Approach Vol, veh/h		965			910			243				7
Approach Delay, s/veh		12.0			12.3			20.4				35.4
Approach LOS		B			B			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	11.2	6.5	23.4	9.3	6.5	7.4	22.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	31.5	9.5	54.5	16.5	21.5	13.5	50.5				
Max Q Clear Time (g_c+I1), s	2.1	2.9	3.0	11.1	4.7	2.1	3.8	11.1				
Green Ext Time (p_c), s	0.0	0.1	0.0	7.1	0.5	0.0	0.1	6.8				

Intersection Summary

HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

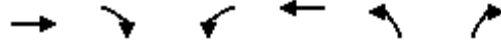
Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	625	271	50	701	154	27
v/c Ratio	0.33	0.28	0.12	0.31	0.18	0.06
Control Delay	8.9	2.7	17.7	4.6	16.0	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	2.7	17.7	4.6	16.0	9.1
Queue Length 50th (ft)	30	0	7	34	10	0
Queue Length 95th (ft)	110	35	39	61	43	17
Internal Link Dist (ft)	1748		2821		1766	
Turn Bay Length (ft)	175		250		225	
Base Capacity (vph)	3488	1562	1244	3505	2698	1250
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.17	0.04	0.20	0.06	0.02

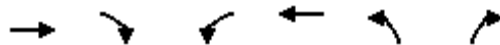
Intersection Summary

HCM Signalized Intersection Capacity Analysis

3: Redwood Street & Columbus Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (vph)	575	249	46	645	142	25
Future Volume (vph)	575	249	46	645	142	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	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)	3505	1568	1752	3505	3400	1568
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3505	1568	1752	3505	3400	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	625	271	50	701	154	27
RTOR Reduction (vph)	0	152	0	0	0	23
Lane Group Flow (vph)	625	119	50	701	154	4
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	17.0	17.0	2.3	23.8	5.9	5.9
Effective Green, g (s)	17.0	17.0	2.3	23.8	5.9	5.9
Actuated g/C Ratio	0.44	0.44	0.06	0.61	0.15	0.15
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1539	688	104	2155	518	239
v/s Ratio Prot	c0.18		0.03	c0.20	c0.05	
v/s Ratio Perm		0.08				0.00
v/c Ratio	0.41	0.17	0.48	0.33	0.30	0.02
Uniform Delay, d1	7.4	6.6	17.6	3.6	14.6	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	3.5	0.1	0.3	0.0
Delay (s)	7.6	6.7	21.1	3.7	14.9	14.0
Level of Service	A	A	C	A	B	B
Approach Delay (s)	7.3			4.8	14.7	
Approach LOS	A			A	B	

Intersection Summary

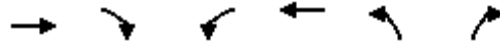
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	38.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
3: Redwood Street & Columbus Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	575	249	46	645	142	25
Future Volume (veh/h)	575	249	46	645	142	25
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	625	271	50	701	154	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1254	559	251	2207	404	186
Arrive On Green	0.36	0.36	0.14	0.63	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	625	271	50	701	154	27
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	4.9	4.7	0.9	3.3	1.5	0.5
Cycle Q Clear(g_c), s	4.9	4.7	0.9	3.3	1.5	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1254	559	251	2207	404	186
V/C Ratio(X)	0.50	0.48	0.20	0.32	0.38	0.15
Avail Cap(c_a), veh/h	5367	2394	1232	8276	2780	1275
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	8.9	8.8	13.3	3.1	14.3	13.9
Incr Delay (d2), s/veh	0.3	0.7	0.4	0.1	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.1	0.3	0.2	0.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	9.5	13.7	3.2	14.9	14.3
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	896			751	181	
Approach Delay, s/veh	9.3			3.9	14.8	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.6	9.5	17.0		26.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		28.5	24.5	53.5		82.5
Max Q Clear Time (g_c+I1), s		3.5	2.9	6.9		5.3
Green Ext Time (p_c), s		0.6	0.1	5.6		5.3
Intersection Summary						
HCM 6th Ctrl Delay			7.6			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project PM (Alt B)

07/03/2024
























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	1415	203	1049	40	17	185	133	91
v/c Ratio	0.44	0.83	0.69	0.50	0.04	0.07	0.41	0.75	0.24
Control Delay	56.0	27.7	55.1	14.6	2.2	35.8	10.0	65.6	13.5
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	27.9	55.1	14.6	2.2	35.8	10.0	65.6	13.5
Queue Length 50th (ft)	49	395	130	207	0	9	7	86	9
Queue Length 95th (ft)	106	604	233	330	11	30	66	164	52
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	227	2119	385	2434	1106	408	620	285	563
Starvation Cap Reductn	0	166	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.72	0.53	0.43	0.04	0.04	0.30	0.47	0.16

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project PM (Alt B)

07/03/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	1265	37	187	965	37	16	12	158	122	15	69
Future Volume (vph)	69	1265	37	187	965	37	16	12	158	122	15	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.86		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3490		1752	3505	1568	1752	1587		1752	1617	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.70	1.00		0.49	1.00	
Satd. Flow (perm)	1752	3490		1752	3505	1568	1288	1587		902	1617	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	1375	40	203	1049	40	17	13	172	133	16	75
RTOR Reduction (vph)	0	2	0	0	0	16	0	138	0	0	60	0
Lane Group Flow (vph)	75	1414	0	203	1049	24	17	47	0	133	31	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	7.7	49.4		16.5	58.2	58.2	19.4	19.4		19.4	19.4	
Effective Green, g (s)	7.7	49.4		16.5	58.2	58.2	19.4	19.4		19.4	19.4	
Actuated g/C Ratio	0.08	0.50		0.17	0.59	0.59	0.20	0.20		0.20	0.20	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	136	1745		292	2064	923	252	311		177	317	
v/s Ratio Prot	0.04	c0.41		c0.12	0.30			0.03			0.02	
v/s Ratio Perm						0.02	0.01			c0.15		
v/c Ratio	0.55	0.81		0.70	0.51	0.03	0.07	0.15		0.75	0.10	
Uniform Delay, d1	43.9	20.8		38.8	11.9	8.5	32.3	32.9		37.4	32.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.8	3.0		7.0	0.2	0.0	0.1	0.2		16.4	0.1	
Delay (s)	48.7	23.7		45.8	12.1	8.5	32.4	33.1		53.8	32.7	
Level of Service	D	C		D	B	A	C	C		D	C	
Approach Delay (s)		25.0			17.3			33.0			45.2	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			23.8									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			98.8									Sum of lost time (s) 13.5
Intersection Capacity Utilization			78.7%									ICU Level of Service D
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	69	1265	37	187	965	37	16	12	158	122	15	69
Future Volume (veh/h)	69	1265	37	187	965	37	16	12	158	122	15	69
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	1375	40	203	1049	40	17	13	172	133	16	75
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	97	1680	49	241	1981	884	326	26	350	240	67	316
Arrive On Green	0.05	0.48	0.48	0.14	0.56	0.56	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1767	3498	102	1767	3526	1572	1295	112	1478	1189	284	1332
Grp Volume(v), veh/h	75	692	723	203	1049	40	17	0	185	133	0	91
Grp Sat Flow(s),veh/h/ln	1767	1763	1837	1767	1763	1572	1295	0	1590	1189	0	1616
Q Serve(g_s), s	3.9	31.1	31.2	10.4	17.2	1.1	1.0	0.0	9.3	10.1	0.0	4.2
Cycle Q Clear(g_c), s	3.9	31.1	31.2	10.4	17.2	1.1	5.2	0.0	9.3	19.3	0.0	4.2
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	97	846	882	241	1981	884	326	0	377	240	0	383
V/C Ratio(X)	0.77	0.82	0.82	0.84	0.53	0.05	0.05	0.00	0.49	0.55	0.00	0.24
Avail Cap(c_a), veh/h	231	1077	1123	392	2474	1104	432	0	507	338	0	515
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	0.00	1.00
Uniform Delay (d), s/veh	43.1	20.6	20.6	38.9	12.6	9.1	30.6	0.0	30.4	38.8	0.0	28.5
Incr Delay (d2), s/veh	12.2	4.0	3.9	8.6	0.2	0.0	0.1	0.0	1.0	2.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	12.9	13.4	5.0	6.3	0.3	0.3	0.0	3.6	3.0	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.4	24.6	24.5	47.5	12.8	9.1	30.7	0.0	31.4	40.8	0.0	28.8
LnGrp LOS	E	C	C	D	B	A	C	A	C	D	A	C
Approach Vol, veh/h		1490			1292			202			224	
Approach Delay, s/veh		26.1			18.2			31.4			35.9	
Approach LOS		C			B			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.4	17.1	48.9		26.4	9.6	56.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		29.5	20.5	56.5		29.5	12.1	64.9				
Max Q Clear Time (g_c+I1), s		11.3	12.4	33.2		21.3	5.9	19.2				
Green Ext Time (p_c), s		1.1	0.3	11.2		0.6	0.1	10.2				
Intersection Summary												
HCM 6th Ctrl Delay			23.9									
HCM 6th LOS			C									

Queues

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	1101	284	749	92	48	267	109	58	60
v/c Ratio	0.45	0.82	0.77	0.41	0.48	0.28	0.69	0.52	0.24	0.19
Control Delay	55.1	33.8	53.0	15.5	52.2	48.3	15.7	52.1	45.7	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	33.8	53.0	15.5	52.2	48.3	15.7	52.1	45.7	1.3
Queue Length 50th (ft)	45	316	170	137	57	30	0	67	36	0
Queue Length 95th (ft)	101	#533	#336	241	116	69	77	133	78	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	198	1486	434	1930	334	387	540	334	387	437
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.74	0.65	0.39	0.28	0.12	0.49	0.33	0.15	0.14

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	939	74	261	555	134	85	44	246	100	53	55
Future Volume (vph)	67	939	74	261	555	134	85	44	246	100	53	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3467		1752	3402		1752	1845	1568	1752	1845	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3467		1752	3402		1752	1845	1568	1752	1845	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	1021	80	284	603	146	92	48	267	109	58	60
RTOR Reduction (vph)	0	4	0	0	15	0	0	0	240	0	0	52
Lane Group Flow (vph)	73	1097	0	284	734	0	92	48	27	109	58	8
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.3	38.8		20.4	51.9		8.9	10.1	10.1	11.6	12.8	12.8
Effective Green, g (s)	7.3	38.8		20.4	51.9		8.9	10.1	10.1	11.6	12.8	12.8
Actuated g/C Ratio	0.07	0.39		0.21	0.52		0.09	0.10	0.10	0.12	0.13	0.13
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	129	1360		361	1785		157	188	160	205	238	202
v/s Ratio Prot	0.04	c0.32		c0.16	0.22		0.05	0.03		c0.06	c0.03	
v/s Ratio Perm									0.02			0.00
v/c Ratio	0.57	0.81		0.79	0.41		0.59	0.26	0.17	0.53	0.24	0.04
Uniform Delay, d1	44.3	26.7		37.2	14.2		43.2	40.9	40.6	41.1	38.7	37.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.6	3.6		10.8	0.2		5.5	0.7	0.5	2.6	0.5	0.1
Delay (s)	49.9	30.3		48.0	14.4		48.7	41.7	41.1	43.7	39.2	37.7
Level of Service	D	C		D	B		D	D	D	D	D	D
Approach Delay (s)		31.5			23.6			42.9			41.0	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.69	
Actuated Cycle Length (s)	98.9	Sum of lost time (s) 18.0
Intersection Capacity Utilization	66.2%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↖	↖	↑	↖
Traffic Volume (veh/h)	67	939	74	261	555	134	85	44	246	100	53	55
Future Volume (veh/h)	67	939	74	261	555	134	85	44	246	100	53	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	1021	80	284	603	146	92	48	267	109	58	60
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	1195	94	321	1378	333	129	350	297	146	368	312
Arrive On Green	0.05	0.36	0.36	0.18	0.49	0.49	0.07	0.19	0.19	0.08	0.20	0.20
Sat Flow, veh/h	1767	3312	259	1767	2816	680	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	73	543	558	284	377	372	92	48	267	109	58	60
Grp Sat Flow(s),veh/h/ln	1767	1763	1809	1767	1763	1733	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.0	27.6	27.6	15.2	13.5	13.5	4.9	2.1	16.1	5.8	2.5	3.1
Cycle Q Clear(g_c), s	4.0	27.6	27.6	15.2	13.5	13.5	4.9	2.1	16.1	5.8	2.5	3.1
Prop In Lane	1.00		0.14	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	636	653	321	863	848	129	350	297	146	368	312
V/C Ratio(X)	0.78	0.85	0.85	0.88	0.44	0.44	0.71	0.14	0.90	0.75	0.16	0.19
Avail Cap(c_a), veh/h	195	737	756	428	969	953	330	381	323	330	381	323
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	28.6	28.6	38.6	16.1	16.1	43.9	32.7	38.4	43.5	32.1	32.4
Incr Delay (d2), s/veh	12.7	8.6	8.4	15.4	0.3	0.4	7.1	0.2	25.3	7.4	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	12.8	13.1	7.8	5.3	5.2	2.4	1.0	8.2	2.8	1.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	37.2	37.1	54.1	16.4	16.4	51.0	32.9	63.7	50.8	32.3	32.7
LnGrp LOS	E	D	D	D	B	B	D	C	E	D	C	C
Approach Vol, veh/h		1174			1033			407			227	
Approach Delay, s/veh		38.5			26.8			57.2			41.3	
Approach LOS		D			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	22.8	22.1	39.5	11.6	23.7	9.7	51.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.1	19.9	23.5	40.5	18.1	19.9	10.7	53.3				
Max Q Clear Time (g_c+I1), s	7.8	18.1	17.2	29.6	6.9	5.1	6.0	15.5				
Green Ext Time (p_c), s	0.2	0.2	0.5	5.4	0.1	0.3	0.0	5.5				

Intersection Summary

HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	616	32	1628	93	791
v/c Ratio	0.79	0.09	0.82	0.58	0.33
Control Delay	48.6	12.8	22.5	66.5	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	12.8	22.5	66.5	7.2
Queue Length 50th (ft)	231	0	485	70	110
Queue Length 95th (ft)	301	29	607	#138	143
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	938	416	2308	184	2752
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.08	0.71	0.51	0.29

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	563	33	1071	427	86	728
Future Volume (vph)	563	33	1071	427	86	728
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3406	1427	3355		1752	3505
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3406	1427	3355		1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	612	36	1164	464	93	791
RTOR Reduction (vph)	0	25	35	0	0	0
Lane Group Flow (vph)	616	7	1593	0	93	791
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	24.0	24.0	60.8		7.5	72.8
Effective Green, g (s)	24.0	24.0	60.8		7.5	72.8
Actuated g/C Ratio	0.23	0.23	0.57		0.07	0.69
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	772	323	1928		124	2411
v/s Ratio Prot	c0.18		c0.47		c0.05	0.23
v/s Ratio Perm		0.01				
v/c Ratio	0.80	0.02	0.83		0.75	0.33
Uniform Delay, d1	38.6	31.8	18.2		48.2	6.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.8	0.0	3.0		22.2	0.1
Delay (s)	44.4	31.8	21.3		70.4	6.7
Level of Service	D	C	C		E	A
Approach Delay (s)	43.8		21.3			13.4
Approach LOS	D		C			B

Intersection Summary

HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	105.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	563	33	1071	427	86	728
Future Volume (veh/h)	563	33	1071	427	86	728
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	612	36	1164	464	93	791
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	732	326	1446	559	119	2458
Arrive On Green	0.21	0.21	0.58	0.58	0.07	0.70
Sat Flow, veh/h	3534	1572	2577	961	1767	3618
Grp Volume(v), veh/h	612	36	815	813	93	791
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1683	1767	1763
Q Serve(g_s), s	15.6	1.7	33.8	36.7	4.9	8.2
Cycle Q Clear(g_c), s	15.6	1.7	33.8	36.7	4.9	8.2
Prop In Lane	1.00	1.00		0.57	1.00	
Lane Grp Cap(c), veh/h	732	326	1026	980	119	2458
V/C Ratio(X)	0.84	0.11	0.79	0.83	0.78	0.32
Avail Cap(c_a), veh/h	1034	460	1284	1226	197	3131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	30.3	15.3	15.9	43.2	5.6
Incr Delay (d2), s/veh	4.3	0.1	2.8	4.0	10.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.7	13.0	13.7	2.5	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.0	30.4	18.1	19.9	53.8	5.6
LnGrp LOS	D	C	B	B	D	A
Approach Vol, veh/h	648		1628			884
Approach Delay, s/veh	39.5		19.0			10.7
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.8	59.2			70.1	24.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	10.5	68.5			83.5	27.5
Max Q Clear Time (g_c+I1), s	6.9	38.7			10.2	17.6
Green Ext Time (p_c), s	0.1	16.0			6.9	1.9

Intersection Summary

HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Queues
7: Turner Parkway & Plaza Drive



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	158	250	531	388	177
v/c Ratio	0.37	0.14	0.52	0.43	0.35
Control Delay	20.0	5.4	9.6	16.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	5.4	9.6	16.2	5.7
Queue Length 50th (ft)	35	13	27	41	0
Queue Length 95th (ft)	96	32	75	92	43
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1272	3505	2748	2711	1189
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.07	0.19	0.14	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Turner Parkway & Plaza Drive

Cumulative +Project PM (Alt B)
07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	145	230	212	277	290	230
Future Volume (vph)	145	230	212	277	290	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frt	1.00	1.00	0.91		0.97	0.85
Flt Protected	0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1752	3505	3207		3342	1427
Flt Permitted	0.95	1.00	1.00		0.96	1.00
Satd. Flow (perm)	1752	3505	3207		3342	1427
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	250	230	301	315	250
RTOR Reduction (vph)	0	0	218	0	18	130
Lane Group Flow (vph)	158	250	313	0	370	47
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	8.0	23.4	10.9		11.8	11.8
Effective Green, g (s)	8.0	23.4	10.9		11.8	11.8
Actuated g/C Ratio	0.18	0.53	0.25		0.27	0.27
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	317	1855	790		892	380
v/s Ratio Prot	c0.09	0.07	c0.10		c0.11	
v/s Ratio Perm						0.03
v/c Ratio	0.50	0.13	0.40		0.41	0.12
Uniform Delay, d1	16.3	5.3	13.9		13.4	12.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.2	0.0	0.3		0.3	0.1
Delay (s)	17.5	5.3	14.2		13.7	12.4
Level of Service	B	A	B		B	B
Approach Delay (s)		10.0	14.2		13.3	
Approach LOS		B	B		B	

Intersection Summary

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative +Project PM (Alt B)
07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	145	230	212	277	290	230	
Future Volume (veh/h)	145	230	212	277	290	230	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	158	250	230	301	373	188	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	215	1946	551	491	751	334	
Arrive On Green	0.12	0.55	0.31	0.31	0.21	0.21	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	158	250	230	301	373	188	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	3.3	1.3	3.9	6.2	3.5	4.1	
Cycle Q Clear(g_c), s	3.3	1.3	3.9	6.2	3.5	4.1	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	215	1946	551	491	751	334	
V/C Ratio(X)	0.73	0.13	0.42	0.61	0.50	0.56	
Avail Cap(c_a), veh/h	1457	6875	1776	1585	3377	1502	
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	16.2	4.1	10.4	11.2	13.2	13.5	
Incr Delay (d2), s/veh	4.8	0.0	0.5	1.2	0.5	1.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.4	0.3	1.2	1.8	1.2	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.0	4.2	10.9	12.4	13.8	14.9	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		408	531		561		
Approach Delay, s/veh		10.7	11.8		14.1		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				25.6	12.6	9.2	16.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				74.5	36.5	31.5	38.5
Max Q Clear Time (g_c+I1), s				3.3	6.1	5.3	8.2
Green Ext Time (p_c), s				1.8	2.1	0.4	3.7

Intersection Summary

HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

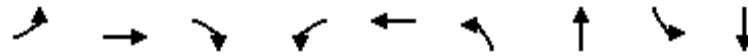
Notes

User approved volume balancing among the lanes for turning movement.

Queues

8: Ascot Parkway & Turner Parkway/Turner St

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	76	13	440	7	22	410	167	27	306
v/c Ratio	0.29	0.04	0.67	0.04	0.10	0.68	0.09	0.14	0.45
Control Delay	31.8	24.6	8.8	36.0	25.1	25.0	9.5	35.2	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	24.6	8.8	36.0	25.1	25.0	9.5	35.2	21.8
Queue Length 50th (ft)	19	3	0	2	3	94	6	7	30
Queue Length 95th (ft)	85	22	84	18	29	298	45	42	107
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	415	1068	1093	182	772	1432	3109	216	1398
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.01	0.40	0.04	0.03	0.29	0.05	0.13	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	12	405	6	11	9	377	150	4	25	183	98
Future Volume (vph)	70	12	405	6	11	9	377	150	4	25	183	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1568	1752	1719		1752	3492		1752	3321	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1568	1752	1719		1752	3492		1752	3321	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	13	440	7	12	10	410	163	4	27	199	107
RTOR Reduction (vph)	0	0	362	0	9	0	0	1	0	0	56	0
Lane Group Flow (vph)	76	13	78	7	13	0	410	166	0	27	250	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	7.1	11.5	11.5	0.7	5.1		20.3	33.1		1.9	14.7	
Effective Green, g (s)	7.1	11.5	11.5	0.7	5.1		20.3	33.1		1.9	14.7	
Actuated g/C Ratio	0.11	0.18	0.18	0.01	0.08		0.31	0.51		0.03	0.23	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	190	325	276	18	134		545	1772		51	748	
v/s Ratio Prot	c0.04	0.01		0.00	0.01		c0.23	0.05		0.02	c0.08	
v/s Ratio Perm			c0.05									
v/c Ratio	0.40	0.04	0.28	0.39	0.10		0.75	0.09		0.53	0.33	
Uniform Delay, d1	27.1	22.3	23.3	32.0	27.9		20.2	8.3		31.2	21.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.1	0.6	13.4	0.3		5.8	0.0		9.6	0.3	
Delay (s)	28.4	22.3	23.8	45.4	28.2		26.0	8.3		40.8	21.4	
Level of Service	C	C	C	D	C		C	A		D	C	
Approach Delay (s)		24.5			32.4			20.9			23.0	
Approach LOS		C			C			C			C	

Intersection Summary

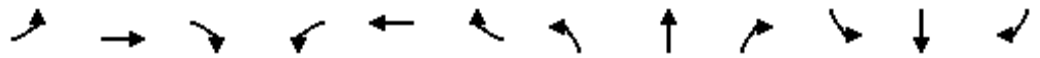
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	12	405	6	11	9	377	150	4	25	183	98
Future Volume (veh/h)	70	12	405	6	11	9	377	150	4	25	183	98
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	13	440	7	12	10	410	163	4	27	199	107
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	100	585	496	16	251	209	476	1330	33	52	311	160
Arrive On Green	0.06	0.32	0.32	0.01	0.27	0.27	0.27	0.38	0.38	0.03	0.14	0.14
Sat Flow, veh/h	1767	1856	1572	1767	936	780	1767	3517	86	1767	2250	1160
Grp Volume(v), veh/h	76	13	440	7	0	22	410	81	86	27	154	152
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1715	1767	1763	1840	1767	1763	1647
Q Serve(g_s), s	2.8	0.3	17.9	0.3	0.0	0.6	14.8	2.0	2.0	1.0	5.5	5.9
Cycle Q Clear(g_c), s	2.8	0.3	17.9	0.3	0.0	0.6	14.8	2.0	2.0	1.0	5.5	5.9
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.05	1.00		0.70
Lane Grp Cap(c), veh/h	100	585	496	16	0	460	476	667	696	52	244	228
V/C Ratio(X)	0.76	0.02	0.89	0.43	0.00	0.05	0.86	0.12	0.12	0.52	0.63	0.67
Avail Cap(c_a), veh/h	329	843	714	145	0	600	1171	1562	1630	171	564	527
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	15.9	21.9	33.1	0.0	18.2	23.3	13.6	13.6	32.1	27.3	27.5
Incr Delay (d2), s/veh	11.3	0.0	9.6	17.4	0.0	0.0	4.7	0.1	0.1	7.8	2.7	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.1	7.4	0.2	0.0	0.2	6.2	0.7	0.8	0.5	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	15.9	31.4	50.5	0.0	18.3	28.1	13.7	13.7	39.9	30.0	30.8
LnGrp LOS	D	B	C	D	A	B	C	B	B	D	C	C
Approach Vol, veh/h		529			29			577			333	
Approach Delay, s/veh		32.7			26.0			23.9			31.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	29.9	5.1	25.7	22.6	13.8	8.3	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	59.5	5.5	30.5	44.5	21.5	12.5	23.5				
Max Q Clear Time (g_c+I1), s	3.0	4.0	2.3	19.9	16.8	7.9	4.8	2.6				
Green Ext Time (p_c), s	0.0	1.0	0.0	1.3	1.3	1.4	0.1	0.1				

Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Queues
9: Ascot Parkway & Redwood Street

Cumulative +Project PM (Alt B)

07/03/2024























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	135	454	48	219	291	422	40	522
v/c Ratio	0.49	0.45	0.27	0.45	0.67	0.28	0.25	0.65
Control Delay	39.9	16.4	42.4	33.3	36.2	15.1	43.8	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	16.4	42.4	33.3	36.2	15.1	43.8	26.0
Queue Length 50th (ft)	58	51	21	44	121	67	17	85
Queue Length 95th (ft)	145	123	70	103	262	122	62	182
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	471	1402	229	884	834	2622	181	1420
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.32	0.21	0.25	0.35	0.16	0.22	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 9: Ascot Parkway & Redwood Street

Cumulative +Project PM (Alt B)

07/03/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	201	217	44	157	44	268	323	65	37	285	195
Future Volume (vph)	124	201	217	44	157	44	268	323	65	37	285	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.97		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3232		1752	3390		1752	3416		1752	3291	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3232		1752	3390		1752	3416		1752	3291	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	218	236	48	171	48	291	351	71	40	310	212
RTOR Reduction (vph)	0	161	0	0	21	0	0	16	0	0	103	0
Lane Group Flow (vph)	135	293	0	48	198	0	291	406	0	40	419	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.1	20.4		4.6	12.9		19.0	33.7		3.9	18.6	
Effective Green, g (s)	12.1	20.4		4.6	12.9		19.0	33.7		3.9	18.6	
Actuated g/C Ratio	0.15	0.25		0.06	0.16		0.24	0.42		0.05	0.23	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	263	818		99	542		413	1428		84	759	
v/s Ratio Prot	c0.08	c0.09		0.03	0.06		c0.17	0.12		0.02	c0.13	
v/s Ratio Perm												
v/c Ratio	0.51	0.36		0.48	0.37		0.70	0.28		0.48	0.55	
Uniform Delay, d1	31.5	24.7		36.9	30.2		28.2	15.5		37.4	27.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.3		3.7	0.4		5.4	0.1		4.2	0.9	
Delay (s)	33.2	25.0		40.6	30.6		33.6	15.6		41.6	28.2	
Level of Service	C	C		D	C		C	B		D	C	
Approach Delay (s)		26.9			32.4			23.0			29.2	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			26.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			80.6				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			60.7%				ICU Level of Service		B			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	124	201	217	44	157	44	268	323	65	37	285	195
Future Volume (veh/h)	124	201	217	44	157	44	268	323	65	37	285	195
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	135	218	0	48	171	0	291	351	0	40	310	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	180	576		89	395		377	1190		77	593	
Arrive On Green	0.10	0.16	0.00	0.05	0.11	0.00	0.21	0.34	0.00	0.04	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	135	218	0	48	171	0	291	351	0	40	310	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	3.3	2.5	0.0	1.2	2.0	0.0	6.9	3.3	0.0	1.0	3.6	0.0
Cycle Q Clear(g_c), s	3.3	2.5	0.0	1.2	2.0	0.0	6.9	3.3	0.0	1.0	3.6	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	180	576		89	395		377	1190		77	593	
V/C Ratio(X)	0.75	0.38		0.54	0.43		0.77	0.29		0.52	0.52	
Avail Cap(c_a), veh/h	775	2261		378	1467		1372	4482		298	2340	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.4	16.6	0.0	20.6	18.4	0.0	16.5	10.8	0.0	20.8	16.9	0.0
Incr Delay (d2), s/veh	6.2	0.4	0.0	5.0	0.8	0.0	3.4	0.1	0.0	5.2	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.9	0.0	0.5	0.7	0.0	2.7	1.0	0.0	0.5	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	17.0	0.0	25.6	19.2	0.0	19.9	11.0	0.0	26.0	17.6	0.0
LnGrp LOS	C	B		C	B		B	B		C	B	
Approach Vol, veh/h		353			219			642			350	
Approach Delay, s/veh		20.3			20.6			15.0			18.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	19.5	6.7	11.8	14.0	12.0	9.0	9.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	56.5	9.5	28.5	34.5	29.5	19.5	18.5				
Max Q Clear Time (g_c+I1), s	3.0	5.3	3.2	4.5	8.9	5.6	5.3	4.0				
Green Ext Time (p_c), s	0.0	2.5	0.0	1.3	0.8	1.9	0.3	0.8				

Intersection Summary

HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative +Project PM (Alt B)

07/03/2024



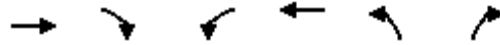
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	540	233	435	211	242
v/c Ratio	0.57	0.54	0.21	0.51	0.44
Control Delay	19.8	25.8	5.7	26.1	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	25.8	5.7	26.1	6.4
Queue Length 50th (ft)	71	67	29	61	0
Queue Length 95th (ft)	153	165	63	153	53
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	2197	1140	3463	1140	1105
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.20	0.13	0.19	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 10: Oakwood Avenue & Redwood Street

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	346	151	214	400	194	223
Future Volume (vph)	346	151	214	400	194	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3345		1752	3505	1752	1568
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3345		1752	3505	1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	164	233	435	211	242
RTOR Reduction (vph)	42	0	0	0	0	184
Lane Group Flow (vph)	498	0	233	435	211	58
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	15.8		14.3	34.6	13.6	13.6
Effective Green, g (s)	15.8		14.3	34.6	13.6	13.6
Actuated g/C Ratio	0.28		0.25	0.60	0.24	0.24
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	923		438	2120	416	372
v/s Ratio Prot	c0.15		c0.13	0.12	c0.12	
v/s Ratio Perm						0.04
v/c Ratio	0.54		0.53	0.21	0.51	0.15
Uniform Delay, d1	17.6		18.6	5.1	18.9	17.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		1.2	0.0	1.0	0.2
Delay (s)	18.2		19.8	5.1	19.9	17.4
Level of Service	B		B	A	B	B
Approach Delay (s)	18.2			10.3	18.6	
Approach LOS	B			B	B	

Intersection Summary

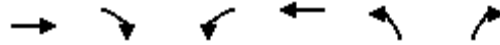
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	57.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

Cumulative +Project PM (Alt B)

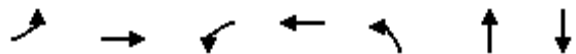
07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	346	151	214	400	194	223
Future Volume (veh/h)	346	151	214	400	194	223
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	376	164	233	435	211	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	648	278	312	1961	397	353
Arrive On Green	0.27	0.27	0.18	0.56	0.22	0.22
Sat Flow, veh/h	2493	1032	1767	3618	1767	1572
Grp Volume(v), veh/h	275	265	233	435	211	242
Grp Sat Flow(s),veh/h/ln	1763	1670	1767	1763	1767	1572
Q Serve(g_s), s	5.5	5.7	5.1	2.6	4.3	5.8
Cycle Q Clear(g_c), s	5.5	5.7	5.1	2.6	4.3	5.8
Prop In Lane		0.62	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	476	451	312	1961	397	353
V/C Ratio(X)	0.58	0.59	0.75	0.22	0.53	0.69
Avail Cap(c_a), veh/h	1525	1444	1529	6486	1529	1360
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.0	13.0	16.0	4.6	14.0	14.6
Incr Delay (d2), s/veh	1.1	1.2	3.6	0.1	1.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.8	2.0	0.5	1.6	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.1	14.2	19.6	4.7	15.1	16.9
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	540			668	453	
Approach Delay, s/veh	14.2			9.9	16.1	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.7	11.7	15.6		27.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		35.5	35.5	35.5		75.5
Max Q Clear Time (g_c+I1), s		7.8	7.1	7.7		4.6
Green Ext Time (p_c), s		1.5	0.7	3.4		3.1
Intersection Summary						
HCM 6th Ctrl Delay			13.0			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project PM (Alt B)
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	1050	71	648	304	121	8
v/c Ratio	0.18	0.73	0.34	0.37	0.69	0.19	0.01
Control Delay	47.5	23.2	45.2	14.1	35.5	0.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	23.2	45.2	14.1	35.5	0.6	0.0
Queue Length 50th (ft)	13	211	33	79	132	0	0
Queue Length 95th (ft)	51	390	98	205	285	0	0
Internal Link Dist (ft)		424		851		1161	269
Turn Bay Length (ft)	125		125		75		
Base Capacity (vph)	169	2249	299	2494	870	1066	1085
Starvation Cap Reductn	0	90	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.49	0.24	0.26	0.35	0.11	0.01
Intersection Summary							

HCM Signalized Intersection Capacity Analysis
 11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	26	682	284	65	595	1	280	0	111	0	0	7
Future Volume (vph)	26	682	284	65	595	1	280	0	111	0	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1752	3350		1752	3504		1752	1568			1568	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	1.00			1.00	
Satd. Flow (perm)	1752	3350		1752	3504		1388	1568			1568	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	741	309	71	647	1	304	0	121	0	0	8
RTOR Reduction (vph)	0	37	0	0	0	0	0	83	0	0	6	0
Lane Group Flow (vph)	28	1013	0	71	648	0	304	38	0	0	2	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	1.9	34.7		6.9	39.7		25.0	25.0			25.0	
Effective Green, g (s)	1.9	34.7		6.9	39.7		25.0	25.0			25.0	
Actuated g/C Ratio	0.02	0.43		0.09	0.50		0.31	0.31			0.31	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	41	1451		150	1736		433	489			489	
v/s Ratio Prot	0.02	c0.30		c0.04	0.18			0.02			0.00	
v/s Ratio Perm							c0.22					
v/c Ratio	0.68	0.70		0.47	0.37		0.70	0.08			0.01	
Uniform Delay, d1	38.8	18.4		34.9	12.5		24.3	19.4			19.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	37.9	1.5		2.3	0.1		5.1	0.1			0.0	
Delay (s)	76.7	19.9		37.2	12.6		29.4	19.5			19.0	
Level of Service	E	B		D	B		C	B			B	
Approach Delay (s)		21.4			15.1			26.6			19.0	
Approach LOS		C			B			C			B	

Intersection Summary

HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	80.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

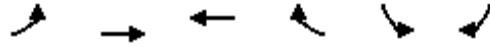
Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	26	682	284	65	595	1	280	0	111	0	0	7
Future Volume (veh/h)	26	682	284	65	595	1	280	0	111	0	0	7
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	741	309	71	647	1	304	0	121	0	0	8
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	1045	436	105	1657	3	502	0	428	127	0	428
Arrive On Green	0.03	0.43	0.43	0.06	0.46	0.46	0.27	0.00	0.27	0.00	0.00	0.27
Sat Flow, veh/h	1767	2425	1011	1767	3612	6	1396	0	1572	1260	0	1572
Grp Volume(v), veh/h	28	538	512	71	316	332	304	0	121	0	0	8
Grp Sat Flow(s),veh/h/ln	1767	1763	1674	1767	1763	1855	1396	0	1572	1260	0	1572
Q Serve(g_s), s	0.9	14.2	14.2	2.2	6.7	6.7	11.6	0.0	3.4	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.9	14.2	14.2	2.2	6.7	6.7	11.8	0.0	3.4	0.0	0.0	0.2
Prop In Lane	1.00		0.60	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	759	721	105	809	851	502	0	428	127	0	428
V/C Ratio(X)	0.50	0.71	0.71	0.68	0.39	0.39	0.61	0.00	0.28	0.00	0.00	0.02
Avail Cap(c_a), veh/h	202	1535	1457	357	1690	1778	1239	0	1258	792	0	1258
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	0.00	0.00	1.00
Uniform Delay (d), s/veh	27.1	13.3	13.3	26.2	10.1	10.1	19.4	0.0	16.3	0.0	0.0	15.1
Incr Delay (d2), s/veh	6.9	1.2	1.3	7.4	0.3	0.3	1.2	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.8	4.6	1.1	2.2	2.3	3.5	0.0	1.2	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	14.5	14.6	33.6	10.5	10.4	20.6	0.0	16.7	0.0	0.0	15.1
LnGrp LOS	C	B	B	C	B	B	C	A	B	A	A	B
Approach Vol, veh/h		1078			719			425				8
Approach Delay, s/veh		15.0			12.7			19.5				15.1
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.0	7.9	29.0		20.0	6.3	30.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		45.5	11.5	49.5		45.5	6.5	54.5				
Max Q Clear Time (g_c+I1), s		13.8	4.2	16.2		2.2	2.9	8.7				
Green Ext Time (p_c), s		1.7	0.1	8.3		0.0	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay				15.1								
HCM 6th LOS				B								

Queues
12: Redwood Street & Admiral Callaghan Ln



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1558	1022	927	358	402	1517
v/c Ratio	1.03	0.39	1.03	0.59	0.64	0.82
Control Delay	63.9	6.2	81.2	14.8	50.7	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	47.6
Total Delay	63.9	6.2	81.2	14.8	50.7	67.1
Queue Length 50th (ft)	~664	132	~403	56	150	446
Queue Length 95th (ft)	#802	163	#534	156	204	569
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	1515	2596	902	602	626	1846
Starvation Cap Reductn	0	0	0	0	0	468
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.39	1.03	0.59	0.64	1.10

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project PM (Alt B)
 07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1402	920	834	322	362	1365
Future Volume (vph)	1402	920	834	322	362	1365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	3505	3505	1568	3400	2760
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3400	3505	3505	1568	3400	2760
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1558	1022	927	358	402	1517
RTOR Reduction (vph)	0	0	0	198	0	4
Lane Group Flow (vph)	1558	1022	927	160	402	1513
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov
Protected Phases	7	4	8		1	17
Permitted Phases				8		
Actuated Green, G (s)	53.5	88.9	30.9	30.9	22.1	80.1
Effective Green, g (s)	53.5	88.9	30.9	30.9	22.1	80.1
Actuated g/C Ratio	0.45	0.74	0.26	0.26	0.18	0.67
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1515	2596	902	403	626	1842
v/s Ratio Prot	c0.46	0.29	c0.26		0.12	c0.55
v/s Ratio Perm				0.10		
v/c Ratio	1.03	0.39	1.03	0.40	0.64	0.82
Uniform Delay, d1	33.2	5.7	44.6	36.8	45.3	14.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	30.7	0.1	37.2	0.6	5.0	4.3
Delay (s)	63.9	5.8	81.8	37.5	50.3	18.9
Level of Service	E	A	F	D	D	B
Approach Delay (s)		40.9	69.5		25.5	
Approach LOS		D	E		C	

Intersection Summary			
HCM 2000 Control Delay	42.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↖	↑↑	↗↗	↑	↙↙	↘↘	
Traffic Volume (veh/h)	1402	920	834	322	362	1365	
Future Volume (veh/h)	1402	920	834	322	362	1365	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	1558	1022	927	358	402	1517	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	1528	2612	908	405	631	1744	
Arrive On Green	0.45	0.74	0.26	0.26	0.18	0.18	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	1558	1022	927	358	402	1517	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	53.5	12.7	30.9	26.3	13.0	22.1	
Cycle Q Clear(g_c), s	53.5	12.7	30.9	26.3	13.0	22.1	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	1528	2612	908	405	631	1744	
V/C Ratio(X)	1.02	0.39	1.02	0.88	0.64	0.87	
Avail Cap(c_a), veh/h	1528	2612	908	405	631	1744	
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	33.3	5.7	44.5	42.8	45.2	18.2	
Incr Delay (d2), s/veh	28.0	0.1	35.3	20.0	4.9	6.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	27.1	4.0	17.7	23.0	6.0	36.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	61.2	5.8	79.9	62.9	50.1	24.4	
LnGrp LOS	F	A	F	E	D	C	
Approach Vol, veh/h		2580	1285		1919		
Approach Delay, s/veh		39.3	75.1		29.8		
Approach LOS		D	E		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				93.4	26.6	58.0	35.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				88.9	22.1	53.5	30.9
Max Q Clear Time (g_c+I1), s				14.7	24.1	55.5	32.9
Green Ext Time (p_c), s				9.4	0.0	0.0	0.0
Intersection Summary							
HCM 6th Ctrl Delay			44.1				
HCM 6th LOS			D				

Queues
13: Redwood Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	112	2006	2023	266	834	133
v/c Ratio	0.99	0.72	1.19	0.35	0.63	0.20
Control Delay	152.5	27.2	125.5	25.5	39.6	14.7
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	152.5	27.2	125.5	25.5	39.6	14.7
Queue Length 50th (ft)	57	521	~1249	158	338	37
Queue Length 95th (ft)	#125	577	#1381	228	409	85
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	113	2769	1705	763	1326	656
Starvation Cap Reductn	0	0	29	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.72	1.21	0.35	0.63	0.20

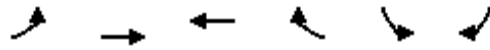
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: Redwood Street

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑	↑↑	↗	↖↗	↗
Traffic Volume (vph)	101	1805	1821	239	751	120
Future Volume (vph)	101	1805	1821	239	751	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.91	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	5036	3505	1568	3400	1568
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3400	5036	3505	1568	3400	1568
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	112	2006	2023	266	834	133
RTOR Reduction (vph)	0	0	0	0	0	45
Lane Group Flow (vph)	112	2006	2023	266	834	88
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases				6		
Actuated Green, G (s)	5.0	82.5	73.0	73.0	58.5	58.5
Effective Green, g (s)	5.0	82.5	73.0	73.0	58.5	58.5
Actuated g/C Ratio	0.03	0.55	0.49	0.49	0.39	0.39
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	113	2769	1705	763	1326	611
v/s Ratio Prot	0.03	c0.40	c0.58		c0.25	0.06
v/s Ratio Perm				0.17		
v/c Ratio	0.99	0.72	1.19	0.35	0.63	0.14
Uniform Delay, d1	72.5	25.2	38.5	23.8	37.0	29.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	82.3	1.0	90.2	0.3	2.3	0.5
Delay (s)	154.8	26.2	128.7	24.1	39.2	30.1
Level of Service	F	C	F	C	D	C
Approach Delay (s)		33.0	116.5		38.0	
Approach LOS		C	F		D	

Intersection Summary

HCM 2000 Control Delay	69.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	1805	1821	239	751	120
Future Volume (veh/h)	101	1805	1821	239	751	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	112	2006	2023	266	834	133
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	114	2786	1716	765	1337	613
Arrive On Green	0.03	0.55	0.49	0.49	0.39	0.39
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	112	2006	2023	266	834	133
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	4.9	44.3	73.0	15.7	29.4	8.5
Cycle Q Clear(g_c), s	4.9	44.3	73.0	15.7	29.4	8.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	2786	1716	765	1337	613
V/C Ratio(X)	0.98	0.72	1.18	0.35	0.62	0.22
Avail Cap(c_a), veh/h	114	2786	1716	765	1337	613
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	72.5	25.1	38.5	23.8	36.9	30.5
Incr Delay (d2), s/veh	79.0	0.9	87.0	0.3	2.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	17.5	51.3	5.9	12.8	9.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	151.4	26.1	125.5	24.1	39.1	31.3
LnGrp LOS	F	C	F	C	D	C
Approach Vol, veh/h		2118	2289		967	
Approach Delay, s/veh		32.7	113.7		38.0	
Approach LOS		C	F		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		87.0		63.0	9.5	77.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		46.3		31.4	6.9	75.0
Green Ext Time (p_c), s		21.8		4.0	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			68.2			
HCM 6th LOS			E			

Queues

14: Lake Herman Road & Columbus Parkway



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	117	349	502	39	92	532
v/c Ratio	0.30	0.56	0.47	0.08	0.26	0.28
Control Delay	18.6	6.7	14.4	5.7	19.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	6.7	14.4	5.7	19.0	5.2
Queue Length 50th (ft)	25	0	52	0	20	27
Queue Length 95th (ft)	69	55	103	16	59	54
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1648	1496	3081	1383	1107	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.23	0.16	0.03	0.08	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project PM (Alt B)

07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	108	321	462	36	85	489
Future Volume (vph)	108	321	462	36	85	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1568	3505	1568	1752	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	1568	3505	1568	1752	3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	349	502	39	92	532
RTOR Reduction (vph)	0	272	0	27	0	0
Lane Group Flow (vph)	117	77	502	12	92	532
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	9.2	9.2	12.7	12.7	6.4	23.6
Effective Green, g (s)	9.2	9.2	12.7	12.7	6.4	23.6
Actuated g/C Ratio	0.22	0.22	0.30	0.30	0.15	0.56
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	385	345	1064	476	268	1978
v/s Ratio Prot	c0.07		c0.14		0.05	c0.15
v/s Ratio Perm		0.05		0.01		
v/c Ratio	0.30	0.22	0.47	0.02	0.34	0.27
Uniform Delay, d1	13.6	13.4	11.8	10.2	15.8	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	0.3	0.0	0.8	0.1
Delay (s)	14.1	13.7	12.2	10.2	16.6	4.7
Level of Service	B	B	B	B	B	A
Approach Delay (s)	13.8		12.0			6.5
Approach LOS	B		B			A

Intersection Summary













HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	41.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project PM (Alt B)

07/03/2024

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	108	321	462	36	85	489
Future Volume (veh/h)	108	321	462	36	85	489
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	117	349	502	39	92	532
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	510	454	909	405	216	1730
Arrive On Green	0.29	0.29	0.26	0.26	0.12	0.49
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	117	349	502	39	92	532
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	2.1	8.3	5.0	0.8	2.0	3.7
Cycle Q Clear(g_c), s	2.1	8.3	5.0	0.8	2.0	3.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	510	454	909	405	216	1730
V/C Ratio(X)	0.23	0.77	0.55	0.10	0.43	0.31
Avail Cap(c_a), veh/h	1885	1677	3328	1484	1062	5835
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	11.0	13.3	13.1	11.5	16.6	6.2
Incr Delay (d2), s/veh	0.2	2.8	0.5	0.1	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.5	1.6	0.2	0.7	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.3	16.0	13.6	11.6	17.9	6.3
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	466		541			624
Approach Delay, s/veh	14.8		13.5			8.0
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.5	15.0			24.5	16.3
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	24.5	38.5			67.5	43.5
Max Q Clear Time (g_c+I1), s	4.0	7.0			5.7	10.3
Green Ext Time (p_c), s	0.2	3.5			3.8	1.6
Intersection Summary						
HCM 6th Ctrl Delay			11.8			
HCM 6th LOS			B			

Queues

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	102	234	127	135	191	90	1106	198	152	515
v/c Ratio	0.56	0.76	0.65	0.36	0.40	0.52	0.82	0.73	0.17	0.51
Control Delay	60.8	60.2	64.6	44.8	9.1	60.6	34.8	61.7	18.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	60.2	64.6	44.8	9.1	60.6	34.8	61.7	18.8	3.6
Queue Length 50th (ft)	74	162	92	89	0	65	375	142	66	0
Queue Length 95th (ft)	135	#283	#173	159	64	122	471	#243	111	59
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	235	367	232	388	480	221	1638	335	998	1084
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.64	0.55	0.35	0.40	0.41	0.68	0.59	0.15	0.48

Intersection Summary

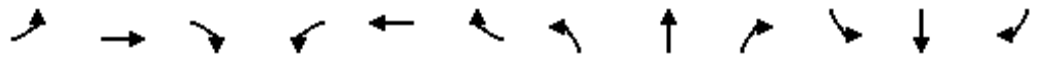
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

Cumulative +Project PM (Alt B)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	179	36	117	124	176	83	838	179	182	140	474
Future Volume (vph)	94	179	36	117	124	176	83	838	179	182	140	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1799		1752	1845	1568	1752	3412		1752	1845	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1752	1799		1752	1845	1568	1752	3412		1752	1845	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	195	39	127	135	191	90	911	195	198	152	515
RTOR Reduction (vph)	0	6	0	0	0	153	0	15	0	0	0	275
Lane Group Flow (vph)	102	228	0	127	135	38	90	1091	0	198	152	240
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	9.1	18.9		11.8	21.6	21.6	8.6	42.4		16.3	50.1	50.1
Effective Green, g (s)	9.1	18.9		11.8	21.6	21.6	8.6	42.4		16.3	50.1	50.1
Actuated g/C Ratio	0.08	0.18		0.11	0.20	0.20	0.08	0.39		0.15	0.47	0.47
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	148	316		192	371	315	140	1347		265	860	731
v/s Ratio Prot	0.06	c0.13		c0.07	c0.07		0.05	c0.32		c0.11	0.08	
v/s Ratio Perm						0.02						0.15
v/c Ratio	0.69	0.72		0.66	0.36	0.12	0.64	0.81		0.75	0.18	0.33
Uniform Delay, d1	47.8	41.8		45.9	37.0	35.1	47.9	28.9		43.6	16.7	18.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.6	7.9		8.3	0.6	0.2	9.7	3.7		10.9	0.1	0.3
Delay (s)	60.3	49.7		54.2	37.6	35.3	57.6	32.6		54.5	16.8	18.3
Level of Service	E	D		D	D	D	E	C		D	B	B
Approach Delay (s)		52.9			41.3			34.5			26.3	
Approach LOS		D			D			C			C	

Intersection Summary

HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	107.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

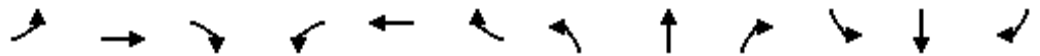
c Critical Lane Group

HCM 6th Signalized Intersection Summary

Cumulative +Project PM (Alt B)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	179	36	117	124	176	83	838	179	182	140	474
Future Volume (veh/h)	94	179	36	117	124	176	83	838	179	182	140	474
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	102	195	39	127	135	191	90	911	195	198	152	515
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	131	238	48	161	325	276	116	1154	247	240	870	738
Arrive On Green	0.07	0.16	0.16	0.09	0.18	0.18	0.07	0.40	0.40	0.14	0.47	0.47
Sat Flow, veh/h	1767	1501	300	1767	1856	1572	1767	2889	618	1767	1856	1572
Grp Volume(v), veh/h	102	0	234	127	135	191	90	556	550	198	152	515
Grp Sat Flow(s),veh/h/ln	1767	0	1801	1767	1856	1572	1767	1763	1744	1767	1856	1572
Q Serve(g_s), s	4.7	0.0	10.5	5.9	5.4	9.5	4.2	23.1	23.1	9.1	4.0	21.6
Cycle Q Clear(g_c), s	4.7	0.0	10.5	5.9	5.4	9.5	4.2	23.1	23.1	9.1	4.0	21.6
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	131	0	286	161	325	276	116	704	697	240	870	738
V/C Ratio(X)	0.78	0.00	0.82	0.79	0.42	0.69	0.77	0.79	0.79	0.83	0.17	0.70
Avail Cap(c_a), veh/h	290	0	442	286	451	382	273	1023	1012	412	1224	1037
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	34.0	37.2	30.6	32.3	38.4	22.0	22.0	35.2	12.8	17.5
Incr Delay (d2), s/veh	9.4	0.0	6.9	8.4	0.8	3.1	10.3	2.6	2.7	7.1	0.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	5.0	2.9	2.4	3.8	2.1	9.5	9.4	4.3	1.6	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	0.0	40.8	45.6	31.5	35.5	48.8	24.7	24.7	42.2	12.9	18.7
LnGrp LOS	D	A	D	D	C	D	D	C	C	D	B	B
Approach Vol, veh/h		336			453			1196			865	
Approach Delay, s/veh		42.8			37.1			26.5			23.1	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	37.9	12.1	17.8	10.0	43.7	10.7	19.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	48.5	13.5	20.5	12.9	55.1	13.7	20.3				
Max Q Clear Time (g_c+I1), s	11.1	25.1	7.9	12.5	6.2	23.6	6.7	11.5				
Green Ext Time (p_c), s	0.3	8.2	0.1	0.8	0.1	3.0	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Queues

16: Sonoma Blvd (SR-29) & SR-37 Ramps



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	403	1034	1087	98	1549	304
v/c Ratio	0.30	0.88	0.59	0.11	0.84	0.19
Control Delay	26.2	39.9	21.7	3.3	30.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	39.9	21.7	3.3	30.2	0.3
Queue Length 50th (ft)	114	396	313	0	553	0
Queue Length 95th (ft)	167	551	410	28	709	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1681	1429	2285	1056	2285	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.72	0.48	0.09	0.68	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project PM (Alt B)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔		↔↔		↑↑	↔		↑↑	↔
Traffic Volume (vph)	0	0	0	371	0	951	0	1000	90	0	1425	280
Future Volume (vph)	0	0	0	371	0	951	0	1000	90	0	1425	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5		4.5	4.5		4.5	4.0
Lane Util. Factor				0.97		0.88		0.95	1.00		0.95	1.00
Frt				1.00		0.85		1.00	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				3400		2760		3505	1568		3505	1568
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				3400		2760		3505	1568		3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	403	0	1034	0	1087	98	0	1549	304
RTOR Reduction (vph)	0	0	0	0	0	76	0	0	47	0	0	0
Lane Group Flow (vph)	0	0	0	403	0	958	0	1087	51	0	1549	304
Turn Type				Prot		Prot		NA	Perm		NA	Free
Protected Phases				8		8		2			6	
Permitted Phases									2			Free
Actuated Green, G (s)				47.4		47.4		62.4	62.4		62.4	118.8
Effective Green, g (s)				47.4		47.4		62.4	62.4		62.4	118.8
Actuated g/C Ratio				0.40		0.40		0.53	0.53		0.53	1.00
Clearance Time (s)				4.5		4.5		4.5	4.5		4.5	
Vehicle Extension (s)				3.0		3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)				1356		1101		1841	823		1841	1568
v/s Ratio Prot				0.12		c0.35		0.31			c0.44	
v/s Ratio Perm									0.03			0.19
v/c Ratio				0.30		0.87		0.59	0.06		0.84	0.19
Uniform Delay, d1				24.3		32.9		19.4	13.8		24.0	0.0
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.1		7.7		0.5	0.0		3.7	0.3
Delay (s)				24.5		40.6		19.9	13.9		27.7	0.3
Level of Service				C		D		B	B		C	A
Approach Delay (s)		0.0			36.0			19.4			23.2	
Approach LOS		A			D			B			C	

Intersection Summary



















HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	118.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project PM (Alt B)

07/03/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	371	0	951	0	1000	90	0	1425	280
Future Volume (veh/h)	0	0	0	371	0	951	0	1000	90	0	1425	280
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				403	0	1034	0	1087	98	0	1549	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1411	0	1139	0	1807	806	0	1807	
Arrive On Green				0.41	0.00	0.41	0.00	0.51	0.51	0.00	0.51	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				403	0	1034	0	1087	98	0	1549	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				9.3	0.0	41.7	0.0	25.8	3.8	0.0	45.4	0.0
Cycle Q Clear(g_c), s				9.3	0.0	41.7	0.0	25.8	3.8	0.0	45.4	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1411	0	1139	0	1807	806	0	1807	
V/C Ratio(X)				0.29	0.00	0.91	0.00	0.60	0.12	0.00	0.86	
Avail Cap(c_a), veh/h				1630	0	1316	0	2210	986	0	2210	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				23.3	0.0	32.8	0.0	20.4	15.0	0.0	25.2	0.0
Incr Delay (d2), s/veh				0.1	0.0	8.6	0.0	0.3	0.1	0.0	3.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.7	0.0	14.6	0.0	10.1	1.3	0.0	18.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.4	0.0	41.4	0.0	20.7	15.1	0.0	28.2	0.0
LnGrp LOS				C	A	D	A	C	B	A	C	
Approach Vol, veh/h					1437			1185			1549	
Approach Delay, s/veh					36.4			20.3			28.2	
Approach LOS					D			C			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		65.4				65.4		53.4				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.5				74.5		56.5				
Max Q Clear Time (g_c+I1), s		27.8				47.4		43.7				
Green Ext Time (p_c), s		10.0				13.5		5.2				

Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

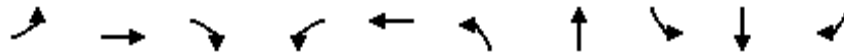
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues

Cumulative +Project AM (Alt C)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	90	803	623	112	912	419	120	20	25	84
v/c Ratio	0.34	0.61	0.40	0.38	0.47	0.52	0.26	0.11	0.12	0.21
Control Delay	37.0	22.2	0.8	36.3	18.5	29.2	11.6	39.9	39.4	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	22.2	0.8	36.3	18.5	29.2	11.6	39.9	39.4	6.6
Queue Length 50th (ft)	32	128	0	40	93	74	7	7	9	0
Queue Length 95th (ft)	103	294	0	121	203	176	59	37	42	30
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	436	2278	1568	496	3376	1431	791	557	650	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.35	0.40	0.23	0.27	0.29	0.15	0.04	0.04	0.16

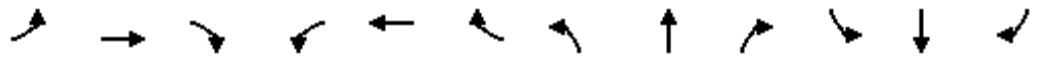
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative +Project AM (Alt C)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	90	803	623	112	893	19	419	23	97	20	25	84
Future Volume (veh/h)	90	803	623	112	893	19	419	23	97	20	25	84
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	803	0	112	893	19	419	23	0	20	25	84
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	119	1183		147	1793	38	601	309		159	151	234
Arrive On Green	0.07	0.34	0.00	0.08	0.35	0.35	0.18	0.17	0.00	0.09	0.08	0.08
Sat Flow, veh/h	1767	3526	1572	1767	5105	109	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	90	803	0	112	590	322	419	23	0	20	25	84
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1836	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	2.8	10.9	0.0	3.4	7.6	7.6	6.4	0.6	0.0	0.6	0.7	2.7
Cycle Q Clear(g_c), s	2.8	10.9	0.0	3.4	7.6	7.6	6.4	0.6	0.0	0.6	0.7	2.7
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	1183		147	1186	645	601	309		159	151	234
V/C Ratio(X)	0.75	0.68		0.76	0.50	0.50	0.70	0.07		0.13	0.17	0.36
Avail Cap(c_a), veh/h	462	2573		525	2586	1406	1514	886		589	685	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	15.9	0.0	24.9	14.2	14.2	21.5	19.5	0.0	23.2	23.7	21.2
Incr Delay (d2), s/veh	9.2	0.7	0.0	7.9	0.3	0.6	1.5	0.1	0.0	0.4	0.5	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	1.4	3.7	0.0	1.6	2.4	2.7	2.5	0.2	0.0	0.2	0.3	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	16.6	0.0	32.8	14.5	14.8	23.0	19.6	0.0	23.6	24.2	22.1
LnGrp LOS	C	B		C	B	B	C	B		C	C	C
Approach Vol, veh/h		893			1024			442			129	
Approach Delay, s/veh		18.4			16.6			22.8			22.8	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	13.8	9.1	23.1	14.2	9.0	8.3	24.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	26.5	16.5	40.5	24.5	20.5	14.5	42.5				
Max Q Clear Time (g_c+I1), s	2.6	2.6	5.4	12.9	8.4	4.7	4.8	9.6				
Green Ext Time (p_c), s	0.0	0.1	0.2	5.7	1.4	0.3	0.1	6.4				

Intersection Summary

HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

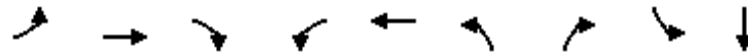
Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project AM (Alt C)

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	28	601	352	23	765	318	9	2	5
v/c Ratio	0.10	0.38	0.39	0.08	0.53	0.37	0.01	0.01	0.01
Control Delay	25.3	10.2	3.1	25.8	13.3	18.7	0.0	28.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	10.2	3.1	25.8	13.3	18.7	0.0	28.0	0.0
Queue Length 50th (ft)	5	36	0	4	49	26	0	0	0
Queue Length 95th (ft)	36	156	50	32	206	107	0	7	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	424	3198	1461	380	3176	2127	1369	290	887
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.19	0.24	0.06	0.24	0.15	0.01	0.01	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	26	553	324	21	703	1	293	0	8	2	0	5
Future Volume (veh/h)	26	553	324	21	703	1	293	0	8	2	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	601	0	23	764	1	318	0	9	2	0	5
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	59	1241		50	1253	2	537	323	274	5	0	32
Arrive On Green	0.03	0.35	0.00	0.03	0.35	0.35	0.16	0.00	0.17	0.00	0.00	0.02
Sat Flow, veh/h	1767	3526	1572	1767	3613	5	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	28	601	0	23	373	392	318	0	9	2	0	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1855	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	0.6	5.4	0.0	0.5	7.1	7.1	3.5	0.0	0.2	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.6	5.4	0.0	0.5	7.1	7.1	3.5	0.0	0.2	0.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	1241		50	611	643	537	323	274	5	0	32
V/C Ratio(X)	0.48	0.48		0.46	0.61	0.61	0.59	0.00	0.03	0.41	0.00	0.16
Avail Cap(c_a), veh/h	413	4294		370	2104	2213	2067	1712	1451	283	0	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.3	10.3	0.0	19.4	11.0	11.0	15.9	0.0	13.9	20.2	0.0	19.6
Incr Delay (d2), s/veh	5.8	0.3	0.0	6.6	1.0	0.9	1.0	0.0	0.0	47.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.5	0.0	0.3	2.1	2.2	1.2	0.0	0.1	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	10.6	0.0	26.0	12.0	11.9	17.0	0.0	14.0	67.8	0.0	21.8
LnGrp LOS	C	B		C	B	B	B	A	B	E	A	C
Approach Vol, veh/h		629			788			327				7
Approach Delay, s/veh		11.2			12.4			16.9				35.0
Approach LOS		B			B			B				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	11.6	5.6	18.8	10.9	5.3	5.9	18.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	37.5	8.5	49.5	24.5	19.5	9.5	48.5				
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.5	7.4	5.5	2.1	2.6	9.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.3	1.0	0.0	0.0	5.0				

Intersection Summary

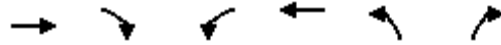
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Notes

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

Queues

3: Redwood Street & Columbus Parkway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	467	104	13	462	303	65
v/c Ratio	0.38	0.17	0.04	0.33	0.31	0.13
Control Delay	9.4	3.6	14.6	6.8	11.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	3.6	14.6	6.8	11.0	5.0
Queue Length 50th (ft)	22	0	1	22	15	0
Queue Length 95th (ft)	83	24	15	47	63	22
Internal Link Dist (ft)	1748			2821		1766
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3502	1567	1244	3505	3244	1499
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.07	0.01	0.13	0.09	0.04

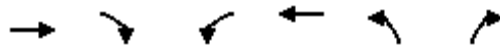
Intersection Summary

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (veh/h)	430	96	12	425	279	60
Future Volume (veh/h)	430	96	12	425	279	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	467	104	13	462	303	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	974	434	261	1969	590	271
Arrive On Green	0.28	0.28	0.15	0.56	0.17	0.17
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	467	104	13	462	303	65
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	3.7	1.7	0.2	2.2	2.7	1.2
Cycle Q Clear(g_c), s	3.7	1.7	0.2	2.2	2.7	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	974	434	261	1969	590	271
V/C Ratio(X)	0.48	0.24	0.05	0.23	0.51	0.24
Avail Cap(c_a), veh/h	5116	2282	1084	7753	3847	1764
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	10.1	9.4	12.2	3.7	12.6	11.9
Incr Delay (d2), s/veh	0.4	0.3	0.1	0.1	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.4	0.1	0.2	0.8	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.5	9.7	12.3	3.8	13.3	12.4
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	571			475	368	
Approach Delay, s/veh	10.3			4.0	13.1	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.3	9.4	13.7		23.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		37.5	20.5	48.5		73.5
Max Q Clear Time (g_c+I1), s		4.7	2.2	5.7		4.2
Green Ext Time (p_c), s		1.3	0.0	3.5		3.2
Intersection Summary						
HCM 6th Ctrl Delay			8.9			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project AM (Alt C)

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	456	68	605	16	2	25	71	26
v/c Ratio	0.05	0.22	0.13	0.24	0.01	0.00	0.05	0.12	0.05
Control Delay	17.9	10.0	16.1	6.0	0.4	15.0	9.1	15.1	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	10.0	16.1	6.0	0.4	15.0	9.1	15.1	8.4
Queue Length 50th (ft)	5	43	13	28	0	0	1	13	0
Queue Length 95th (ft)	23	85	45	105	2	5	16	45	15
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	1042	3483	1234	3505	1568	1575	1370	1575	1351
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.13	0.06	0.17	0.01	0.00	0.02	0.05	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	22	415	5	63	557	15	2	3	20	65	1	23
Future Volume (veh/h)	22	415	5	63	557	15	2	3	20	65	1	23
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	451	5	68	605	16	2	3	22	71	1	25
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1189	13	130	1325	591	389	21	156	390	7	168
Arrive On Green	0.03	0.33	0.33	0.07	0.38	0.38	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1767	3572	40	1767	3526	1572	1374	192	1410	1375	61	1521
Grp Volume(v), veh/h	24	222	234	68	605	16	2	0	25	71	0	26
Grp Sat Flow(s),veh/h/ln	1767	1763	1848	1767	1763	1572	1374	0	1602	1375	0	1582
Q Serve(g_s), s	0.4	2.7	2.7	1.0	3.6	0.2	0.0	0.0	0.4	1.4	0.0	0.4
Cycle Q Clear(g_c), s	0.4	2.7	2.7	1.0	3.6	0.2	0.5	0.0	0.4	1.8	0.0	0.4
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	54	587	615	130	1325	591	389	0	177	390	0	175
V/C Ratio(X)	0.45	0.38	0.38	0.52	0.46	0.03	0.01	0.00	0.14	0.18	0.00	0.15
Avail Cap(c_a), veh/h	917	3186	3341	1423	7382	3293	1884	0	1921	1887	0	1897
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	0.00	1.00
Uniform Delay (d), s/veh	13.3	7.1	7.1	12.5	6.6	5.5	11.4	0.0	11.2	12.0	0.0	11.2
Incr Delay (d2), s/veh	5.7	0.4	0.4	3.3	0.2	0.0	0.0	0.0	0.4	0.2	0.0	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	0.2	0.6	0.7	0.4	0.8	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.0	7.5	7.5	15.7	6.8	5.5	11.4	0.0	11.6	12.2	0.0	11.6
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		480			689			27				97
Approach Delay, s/veh		8.1			7.7			11.6				12.1
Approach LOS		A			A			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.6	6.6	13.8		7.6	5.3	15.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		33.5	22.5	50.5		33.5	14.5	58.5				
Max Q Clear Time (g_c+I1), s		2.5	3.0	4.7		3.8	2.4	5.6				
Green Ext Time (p_c), s		0.1	0.1	3.0		0.3	0.0	4.9				
Intersection Summary												
HCM 6th Ctrl Delay			8.2									
HCM 6th LOS			A									

Queues

Cumulative +Project AM (Alt C)

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

07/03/2024



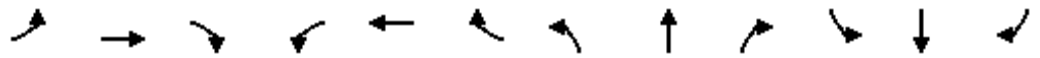
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	300	213	402	28	23	99	58	14	20
v/c Ratio	0.17	0.38	0.46	0.23	0.11	0.09	0.29	0.20	0.04	0.05
Control Delay	25.6	20.5	22.3	12.3	26.3	26.4	5.5	25.3	23.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	20.5	22.3	12.3	26.3	26.4	5.5	25.3	23.2	0.2
Queue Length 50th (ft)	14	44	61	47	8	7	0	17	3	0
Queue Length 95th (ft)	45	91	135	91	33	29	24	53	20	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	514	1901	1206	2800	801	1076	971	842	1104	993
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.16	0.18	0.14	0.03	0.02	0.10	0.07	0.01	0.02

Intersection Summary

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↑	↗	↗	↑	↗
Traffic Volume (veh/h)	42	241	35	196	271	98	26	21	91	53	13	18
Future Volume (veh/h)	42	241	35	196	271	98	26	21	91	53	13	18
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	46	262	38	213	295	107	28	23	99	58	14	20
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	88	516	74	288	713	253	198	247	209	162	209	177
Arrive On Green	0.05	0.17	0.17	0.16	0.28	0.28	0.11	0.13	0.13	0.09	0.11	0.11
Sat Flow, veh/h	1767	3095	444	1767	2550	906	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	46	148	152	213	202	200	28	23	99	58	14	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1776	1767	1763	1693	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	3.1	3.2	4.6	3.8	3.9	0.6	0.4	2.4	1.2	0.3	0.5
Cycle Q Clear(g_c), s	1.0	3.1	3.2	4.6	3.8	3.9	0.6	0.4	2.4	1.2	0.3	0.5
Prop In Lane	1.00		0.25	1.00		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	294	296	288	493	473	198	247	209	162	209	177
V/C Ratio(X)	0.52	0.50	0.51	0.74	0.41	0.42	0.14	0.09	0.47	0.36	0.07	0.11
Avail Cap(c_a), veh/h	547	1026	1034	1423	1900	1824	854	1172	993	898	1218	1032
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	15.3	15.3	16.1	11.8	11.9	16.2	15.4	16.2	17.2	16.0	16.1
Incr Delay (d2), s/veh	4.7	1.3	1.4	3.7	0.5	0.6	0.3	0.2	1.7	1.3	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.2	1.2	1.9	1.3	1.3	0.2	0.2	0.8	0.5	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	16.6	16.7	19.8	12.4	12.5	16.5	15.5	17.9	18.6	16.1	16.4
LnGrp LOS	C	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		346			615			150				92
Approach Delay, s/veh		17.6			15.0			17.2				17.7
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	9.9	11.1	11.2	9.0	9.0	6.5	15.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.5	25.5	32.5	23.5	19.5	26.5	12.5	43.5				
Max Q Clear Time (g_c+I1), s	3.2	4.4	6.6	5.2	2.6	2.5	3.0	5.9				
Green Ext Time (p_c), s	0.1	0.4	0.6	1.6	0.0	0.1	0.0	2.7				

Intersection Summary

HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project AM (Alt C)

07/03/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	139	19	666	55	300
v/c Ratio	0.16	0.05	0.37	0.13	0.13
Control Delay	15.4	9.6	7.9	16.7	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	9.6	7.9	16.7	3.9
Queue Length 50th (ft)	9	0	25	7	12
Queue Length 95th (ft)	38	15	102	39	25
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	2752	1157	3326	1097	3505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.02	0.20	0.05	0.09
Intersection Summary					

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project AM (Alt C)
07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↷	↶↷		↶	↶↶
Traffic Volume (veh/h)	126	19	406	207	51	276
Future Volume (veh/h)	126	19	406	207	51	276
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	137	21	441	225	55	300
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	426	190	859	434	108	2067
Arrive On Green	0.12	0.12	0.38	0.38	0.06	0.59
Sat Flow, veh/h	3534	1572	2359	1146	1767	3618
Grp Volume(v), veh/h	137	21	342	324	55	300
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1649	1767	1763
Q Serve(g_s), s	1.1	0.4	4.6	4.7	0.9	1.2
Cycle Q Clear(g_c), s	1.1	0.4	4.6	4.7	0.9	1.2
Prop In Lane	1.00	1.00		0.69	1.00	
Lane Grp Cap(c), veh/h	426	190	668	625	108	2067
V/C Ratio(X)	0.32	0.11	0.51	0.52	0.51	0.15
Avail Cap(c_a), veh/h	3050	1357	3473	3249	1122	9701
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	12.4	12.0	7.4	7.4	14.0	2.9
Incr Delay (d2), s/veh	0.4	0.3	0.6	0.7	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	1.1	1.1	0.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.8	12.3	8.0	8.0	17.7	2.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h			666			355
Approach Delay, s/veh			8.0			5.2
Approach LOS			A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.4	16.1			22.5	8.2
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	19.5	60.5			84.5	26.5
Max Q Clear Time (g_c+I1), s	2.9	6.7			3.2	3.1
Green Ext Time (p_c), s	0.1	5.0			2.2	0.5

Intersection Summary

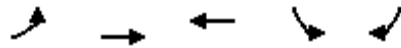
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			

Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: Turner Parkway & Plaza Drive



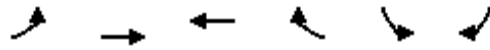
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	145	104	312	123	56
v/c Ratio	0.28	0.05	0.33	0.15	0.15
Control Delay	13.7	3.7	6.5	12.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	3.7	6.5	12.6	6.5
Queue Length 50th (ft)	23	3	9	9	0
Queue Length 95th (ft)	62	10	35	26	21
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1720	3505	3022	3029	1291
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.03	0.10	0.04	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Turner Parkway & Plaza Drive

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	133	96	100	187	98	66	
Future Volume (veh/h)	133	96	100	187	98	66	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	145	104	109	203	119	60	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	216	1887	438	391	480	214	
Arrive On Green	0.12	0.54	0.25	0.25	0.14	0.14	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	145	104	109	203	119	60	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	2.1	0.4	1.4	3.0	0.8	0.9	
Cycle Q Clear(g_c), s	2.1	0.4	1.4	3.0	0.8	0.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	216	1887	438	391	480	214	
V/C Ratio(X)	0.67	0.06	0.25	0.52	0.25	0.28	
Avail Cap(c_a), veh/h	2487	10116	2287	2040	4199	1868	
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	11.5	3.0	8.2	8.9	10.6	10.6	
Incr Delay (d2), s/veh	3.6	0.0	0.3	1.1	0.3	0.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.4	0.8	0.2	0.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	15.1	3.1	8.5	9.9	10.8	11.3	
LnGrp LOS	B	A	A	A	B	B	
Approach Vol, veh/h		249	312		179		
Approach Delay, s/veh		10.1	9.4		11.0		
Approach LOS		B	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				19.1	8.2	7.8	11.3
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				78.5	32.5	38.5	35.5
Max Q Clear Time (g_c+I1), s				2.4	2.9	4.1	5.0
Green Ext Time (p_c), s				0.7	0.6	0.4	2.1

Intersection Summary

HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

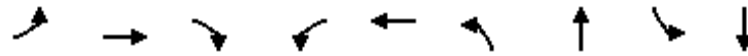
Notes

User approved volume balancing among the lanes for turning movement.

Queues
8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project AM (Alt C)

07/03/2024

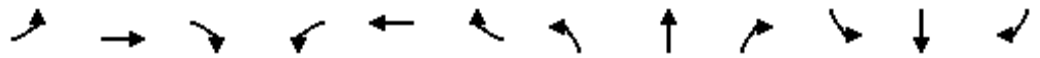


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	8	140	4	33	237	275	10	367
v/c Ratio	0.11	0.02	0.34	0.02	0.13	0.47	0.12	0.04	0.42
Control Delay	25.5	21.7	8.0	27.0	15.9	20.8	7.3	26.4	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	21.7	8.0	27.0	15.9	20.8	7.3	26.4	18.8
Queue Length 50th (ft)	7	2	0	1	2	47	9	2	37
Queue Length 95th (ft)	35	14	45	10	27	148	61	17	107
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	400	1120	1006	315	933	1399	3406	315	2413
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.01	0.14	0.01	0.04	0.17	0.08	0.03	0.15
Intersection Summary									

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	7	129	4	7	23	218	248	5	9	288	50
Future Volume (veh/h)	28	7	129	4	7	23	218	248	5	9	288	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	8	140	4	8	25	237	270	5	10	313	54
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	63	264	224	10	44	139	320	1306	24	23	605	103
Arrive On Green	0.04	0.14	0.14	0.01	0.11	0.11	0.18	0.37	0.37	0.01	0.20	0.20
Sat Flow, veh/h	1767	1856	1572	1767	396	1237	1767	3541	65	1767	3012	514
Grp Volume(v), veh/h	30	8	140	4	0	33	237	134	141	10	182	185
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1633	1767	1763	1844	1767	1763	1763
Q Serve(g_s), s	0.6	0.1	3.2	0.1	0.0	0.7	4.9	2.0	2.0	0.2	3.5	3.6
Cycle Q Clear(g_c), s	0.6	0.1	3.2	0.1	0.0	0.7	4.9	2.0	2.0	0.2	3.5	3.6
Prop In Lane	1.00		1.00	1.00		0.76	1.00		0.04	1.00		0.29
Lane Grp Cap(c), veh/h	63	264	224	10	0	183	320	650	680	23	354	354
V/C Ratio(X)	0.48	0.03	0.62	0.42	0.00	0.18	0.74	0.21	0.21	0.43	0.51	0.52
Avail Cap(c_a), veh/h	438	1235	1047	346	0	1002	1730	2830	2960	346	1450	1450
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	14.1	15.5	19.0	0.0	15.4	14.8	8.3	8.3	18.8	13.6	13.7
Incr Delay (d2), s/veh	5.5	0.0	2.8	26.2	0.0	0.5	3.4	0.2	0.1	12.0	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	1.1	0.1	0.0	0.2	1.8	0.5	0.6	0.2	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	14.2	18.3	45.2	0.0	15.9	18.2	8.4	8.4	30.8	14.8	14.9
LnGrp LOS	C	B	B	D	A	B	B	A	A	C	B	B
Approach Vol, veh/h		178			37			512			377	
Approach Delay, s/veh		19.0			19.0			12.9			15.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	18.6	4.7	10.0	11.4	12.2	5.9	8.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	61.5	7.5	25.5	37.5	31.5	9.5	23.5				
Max Q Clear Time (g_c+I1), s	2.2	4.0	2.1	5.2	6.9	5.6	2.6	2.7				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.4	0.7	2.1	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									

Queues
9: Ascot Parkway & Redwood Street

Cumulative +Project AM (Alt C)

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	161	870	141	326	527	354	196	353
v/c Ratio	0.67	0.90	0.78	0.41	0.90	0.33	0.71	0.69
Control Delay	60.6	45.7	78.0	38.5	55.1	28.9	59.1	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.6	45.7	78.0	38.5	55.1	28.9	59.1	42.4
Queue Length 50th (ft)	114	274	103	104	355	96	139	101
Queue Length 95th (ft)	189	#421	#223	163	#584	146	218	153
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	311	1014	187	790	660	1224	375	699
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.86	0.75	0.41	0.80	0.29	0.52	0.51

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	148	446	354	130	257	43	485	277	49	180	206	119
Future Volume (veh/h)	148	446	354	130	257	43	485	277	49	180	206	119
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	161	485	0	141	279	0	527	301	0	196	224	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	205	702		179	650		592	1061		246	370	
Arrive On Green	0.12	0.20	0.00	0.10	0.18	0.00	0.34	0.30	0.00	0.14	0.10	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	161	485	0	141	279	0	527	301	0	196	224	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	6.1	8.9	0.0	5.4	4.9	0.0	19.6	4.5	0.0	7.4	4.2	0.0
Cycle Q Clear(g_c), s	6.1	8.9	0.0	5.4	4.9	0.0	19.6	4.5	0.0	7.4	4.2	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	205	702		179	650		592	1061		246	370	
V/C Ratio(X)	0.78	0.69		0.79	0.43		0.89	0.28		0.80	0.61	
Avail Cap(c_a), veh/h	487	1500		293	1113		1032	1932		586	1042	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.8	25.8	0.0	30.4	25.1	0.0	21.8	18.5	0.0	28.9	29.7	0.0
Incr Delay (d2), s/veh	6.4	1.2	0.0	7.5	0.4	0.0	5.2	0.1	0.0	5.8	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	3.6	0.0	2.5	2.0	0.0	8.1	1.7	0.0	3.4	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	27.0	0.0	37.9	25.5	0.0	27.0	18.7	0.0	34.7	31.3	0.0
LnGrp LOS	D	C		D	C		C	B		C	C	
Approach Vol, veh/h		646			420			828			420	
Approach Delay, s/veh		29.3			29.7			24.0			32.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	25.4	11.5	18.3	27.7	11.8	12.6	17.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	23.0	38.0	11.5	29.5	40.5	20.5	19.1	21.9				
Max Q Clear Time (g_c+I1), s	9.4	6.5	7.4	10.9	21.6	6.2	8.1	6.9				
Green Ext Time (p_c), s	0.4	2.0	0.1	3.0	1.6	1.1	0.3	1.4				

Intersection Summary

HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative +Project AM (Alt C)
07/03/2024

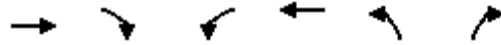


Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	743	438	493	338	533
v/c Ratio	0.77	0.81	0.22	0.73	0.66
Control Delay	36.6	44.0	8.0	44.1	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	44.0	8.0	44.1	7.4
Queue Length 50th (ft)	198	245	60	190	0
Queue Length 95th (ft)	335	425	104	338	90
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	1237	806	2849	686	938
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.54	0.17	0.49	0.57
Intersection Summary					

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	455	228	403	454	311	490
Future Volume (veh/h)	455	228	403	454	311	490
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	495	248	438	493	338	533
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	584	291	480	2017	600	534
Arrive On Green	0.26	0.26	0.27	0.57	0.34	0.34
Sat Flow, veh/h	2371	1136	1767	3618	1767	1572
Grp Volume(v), veh/h	383	360	438	493	338	533
Grp Sat Flow(s),veh/h/ln	1763	1651	1767	1763	1767	1572
Q Serve(g_s), s	21.0	21.1	24.4	7.1	15.9	34.4
Cycle Q Clear(g_c), s	21.0	21.1	24.4	7.1	15.9	34.4
Prop In Lane		0.69	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	452	423	480	2017	600	534
V/C Ratio(X)	0.85	0.85	0.91	0.24	0.56	1.00
Avail Cap(c_a), veh/h	546	512	704	2653	600	534
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	35.9	36.0	35.9	10.8	27.4	33.6
Incr Delay (d2), s/veh	10.1	11.2	12.2	0.1	1.2	38.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	9.6	11.8	2.6	6.8	18.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.1	47.2	48.1	10.9	28.7	72.2
LnGrp LOS	D	D	D	B	C	E
Approach Vol, veh/h	743			931	871	
Approach Delay, s/veh	46.6			28.4	55.3	
Approach LOS	D			C	E	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		39.0	32.1	30.6		62.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		34.5	40.5	31.5		76.5
Max Q Clear Time (g_c+I1), s		36.4	26.4	23.1		9.1
Green Ext Time (p_c), s		0.0	1.2	2.9		3.6
Intersection Summary						
HCM 6th Ctrl Delay			42.9			
HCM 6th LOS			D			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project AM (Alt C)
07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	25	796	96	759	140	97
v/c Ratio	0.11	0.58	0.31	0.42	0.44	0.15
Control Delay	28.5	15.9	27.0	10.2	26.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	15.9	27.0	10.2	26.5	0.5
Queue Length 50th (ft)	7	102	28	51	39	0
Queue Length 95th (ft)	33	199	82	167	108	0
Internal Link Dist (ft)		424		851		1161
Turn Bay Length (ft)	125		125		75	
Base Capacity (vph)	341	3079	700	3375	938	1170
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.26	0.14	0.22	0.15	0.08
Intersection Summary						

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project AM (Alt C)

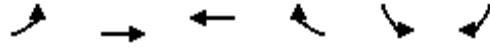
07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	23	617	115	88	697	1	129	0	89	0	0	0
Future Volume (veh/h)	23	617	115	88	697	1	129	0	89	0	0	0
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	25	671	125	96	758	1	140	0	97	0	0	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	1168	217	152	1621	2	453	0	223	202	264	0
Arrive On Green	0.03	0.39	0.39	0.09	0.45	0.45	0.14	0.00	0.14	0.00	0.00	0.00
Sat Flow, veh/h	1767	2967	552	1767	3613	5	1767	0	1572	1288	1856	0
Grp Volume(v), veh/h	25	398	398	96	370	389	140	0	97	0	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1756	1767	1763	1855	1767	0	1572	1288	1856	0
Q Serve(g_s), s	0.5	6.3	6.3	1.9	5.2	5.2	2.6	0.0	2.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	6.3	6.3	1.9	5.2	5.2	2.6	0.0	2.0	0.0	0.0	0.0
Prop In Lane	1.00		0.31	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	54	694	691	152	791	832	453	0	223	202	264	0
V/C Ratio(X)	0.46	0.57	0.58	0.63	0.47	0.47	0.31	0.00	0.43	0.00	0.00	0.00
Avail Cap(c_a), veh/h	470	2593	2584	966	3087	3248	1910	0	1520	1264	1794	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	17.0	8.5	8.5	15.8	6.9	6.9	14.3	0.0	14.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.8	0.8	4.3	0.4	0.4	0.4	0.0	1.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.6	1.6	0.8	1.2	1.3	0.9	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	9.2	9.2	20.0	7.3	7.3	14.6	0.0	15.3	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	B	A	B	A	A	A
Approach Vol, veh/h		821			855			237				0
Approach Delay, s/veh		9.7			8.7			14.9				0.0
Approach LOS		A			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.6	7.6	18.5		9.6	5.6	20.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		34.5	19.5	52.5		34.5	9.5	62.5				
Max Q Clear Time (g_c+I1), s		4.6	3.9	8.3		0.0	2.5	7.2				
Green Ext Time (p_c), s		1.0	0.2	5.7		0.0	0.0	5.3				
Intersection Summary												
HCM 6th Ctrl Delay			9.9									
HCM 6th LOS			A									

Queues
12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project AM (Alt C)
07/03/2024

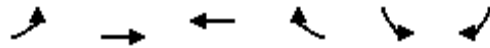


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	451	480	646	233	97	1112
v/c Ratio	0.57	0.26	0.75	0.42	0.07	0.59
Control Delay	42.4	15.5	45.6	6.6	22.4	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.2
Total Delay	42.4	15.5	45.6	6.6	22.4	13.3
Queue Length 50th (ft)	151	98	230	0	22	206
Queue Length 95th (ft)	218	130	295	60	43	318
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	796	2028	1068	639	1367	1896
Starvation Cap Reductn	0	0	0	0	0	614
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.24	0.60	0.36	0.07	0.87
Intersection Summary						

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↖	↗↗	↖↖	↗	↖↖	↗↗	
Traffic Volume (veh/h)	406	432	581	210	87	1001	
Future Volume (veh/h)	406	432	581	210	87	1001	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	451	480	646	233	97	1112	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	819	1794	808	361	1406	1796	
Arrive On Green	0.24	0.51	0.23	0.23	0.41	0.41	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	451	480	646	233	97	1112	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	12.8	8.6	19.2	14.9	1.9	26.2	
Cycle Q Clear(g_c), s	12.8	8.6	19.2	14.9	1.9	26.2	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	819	1794	808	361	1406	1796	
V/C Ratio(X)	0.55	0.27	0.80	0.65	0.07	0.62	
Avail Cap(c_a), veh/h	819	2082	1096	489	1406	1796	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	37.0	15.5	40.3	38.7	19.9	11.4	
Incr Delay (d2), s/veh	2.7	0.1	3.1	1.9	0.1	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.6	3.4	8.5	0.2	0.8	0.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	39.7	15.6	43.4	40.6	20.0	13.0	
LnGrp LOS	D	B	D	D	B	B	
Approach Vol, veh/h		931	879		1209		
Approach Delay, s/veh		27.2	42.7		13.6		
Approach LOS		C	D		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				60.9	50.0	31.0	29.9
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				65.5	45.5	26.5	34.5
Max Q Clear Time (g_c+I1), s				10.6	28.2	14.8	21.2
Green Ext Time (p_c), s				3.5	5.4	1.3	4.3
Intersection Summary							
HCM 6th Ctrl Delay			26.3				
HCM 6th LOS			C				

Queues
13: Redwood Street

Cumulative +Project AM (Alt C)
07/03/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	96	654	1139	218	146	187
v/c Ratio	0.73	0.27	0.81	0.35	0.09	0.24
Control Delay	92.6	20.4	39.3	28.0	22.2	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.6	20.4	39.3	28.0	22.2	10.8
Queue Length 50th (ft)	41	117	438	125	35	34
Queue Length 95th (ft)	#100	143	519	187	68	99
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	132	3237	1993	891	1549	776
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.20	0.57	0.24	0.09	0.24

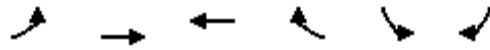
Intersection Summary

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

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative +Project AM (Alt C)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	86	589	1025	196	131	168
Future Volume (veh/h)	86	589	1025	196	131	168
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	96	654	1139	218	146	187
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	135	2372	1387	619	1580	725
Arrive On Green	0.04	0.47	0.39	0.39	0.46	0.46
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	96	654	1139	218	146	187
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	3.5	10.0	36.7	12.4	3.0	9.2
Cycle Q Clear(g_c), s	3.5	10.0	36.7	12.4	3.0	9.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	135	2372	1387	619	1580	725
V/C Ratio(X)	0.71	0.28	0.82	0.35	0.09	0.26
Avail Cap(c_a), veh/h	135	3292	2027	904	1580	725
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	60.3	20.6	34.5	27.1	19.3	20.9
Incr Delay (d2), s/veh	27.1	0.1	1.8	0.3	0.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.9	15.7	4.7	1.3	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	87.4	20.7	36.3	27.5	19.4	21.8
LnGrp LOS	F	C	D	C	B	C
Approach Vol, veh/h		750	1357		333	
Approach Delay, s/veh		29.2	34.9		20.7	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.0		63.0	9.5	54.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		12.0		11.2	5.5	38.7
Green Ext Time (p_c), s		5.1		1.2	0.0	11.2
Intersection Summary						
HCM 6th Ctrl Delay			31.2			
HCM 6th LOS			C			

Queues

14: Lake Herman Road & Columbus Parkway



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	88	413	98	221	284
v/c Ratio	0.13	0.26	0.42	0.19	0.45	0.11
Control Delay	19.7	8.2	15.0	5.0	17.5	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	8.2	15.0	5.0	17.5	3.0
Queue Length 50th (ft)	8	0	43	0	44	11
Queue Length 95th (ft)	34	32	88	26	110	22
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1141	1051	3088	1393	1632	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.08	0.13	0.07	0.14	0.08

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project AM (Alt C)

07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	81	380	90	203	261
Future Volume (veh/h)	37	81	380	90	203	261
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	40	88	413	98	221	284
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	190	169	917	409	348	2123
Arrive On Green	0.11	0.11	0.26	0.26	0.20	0.60
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	40	88	413	98	221	284
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	0.6	1.6	3.0	1.5	3.6	1.1
Cycle Q Clear(g_c), s	0.6	1.6	3.0	1.5	3.6	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	190	169	917	409	348	2123
V/C Ratio(X)	0.21	0.52	0.45	0.24	0.63	0.13
Avail Cap(c_a), veh/h	1453	1293	4375	1951	2421	9716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	13.1	9.6	9.1	11.4	2.7
Incr Delay (d2), s/veh	0.5	2.5	0.3	0.3	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	0.7	0.3	1.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.2	15.5	10.0	9.4	13.4	2.7
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	128		511			505
Approach Delay, s/veh	14.8		9.8			7.4
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.6	12.6			23.2	7.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	42.5	38.5			85.5	25.5
Max Q Clear Time (g_c+I1), s	5.6	5.0			3.1	3.6
Green Ext Time (p_c), s	0.6	3.0			1.9	0.3

Intersection Summary

HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Queues

Cumulative +Project AM (Alt C)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	70	108	170	168	113	43	365	103	140	613
v/c Ratio	0.26	0.34	0.44	0.39	0.24	0.18	0.44	0.33	0.24	0.67
Control Delay	30.8	28.6	28.8	26.2	5.0	31.8	23.4	30.1	20.9	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	28.6	28.8	26.2	5.0	31.8	23.4	30.1	20.9	6.5
Queue Length 50th (ft)	24	33	56	54	0	15	60	34	42	0
Queue Length 95th (ft)	73	95	138	130	29	53	123	95	100	81
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	408	713	799	1061	959	302	2569	550	1538	1409
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.15	0.21	0.16	0.12	0.14	0.14	0.19	0.09	0.44

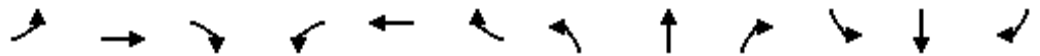
Intersection Summary

HCM 6th Signalized Intersection Summary

Cumulative +Project AM (Alt C)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	81	18	156	155	104	40	289	47	95	129	564
Future Volume (veh/h)	64	81	18	156	155	104	40	289	47	95	129	564
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	88	20	170	168	113	43	314	51	103	140	613
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	100	141	32	220	305	259	75	1246	200	135	823	698
Arrive On Green	0.06	0.10	0.10	0.12	0.16	0.16	0.04	0.41	0.41	0.08	0.44	0.44
Sat Flow, veh/h	1767	1463	333	1767	1856	1572	1767	3042	489	1767	1856	1572
Grp Volume(v), veh/h	70	0	108	170	168	113	43	181	184	103	140	613
Grp Sat Flow(s),veh/h/ln	1767	0	1796	1767	1856	1572	1767	1763	1768	1767	1856	1572
Q Serve(g_s), s	2.4	0.0	3.6	5.7	5.1	4.0	1.5	4.1	4.2	3.5	2.8	21.9
Cycle Q Clear(g_c), s	2.4	0.0	3.6	5.7	5.1	4.0	1.5	4.1	4.2	3.5	2.8	21.9
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	100	0	174	220	305	259	75	722	724	135	823	698
V/C Ratio(X)	0.70	0.00	0.62	0.77	0.55	0.44	0.58	0.25	0.25	0.76	0.17	0.88
Avail Cap(c_a), veh/h	330	0	569	646	920	780	244	1275	1279	445	1554	1317
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	0.0	26.7	26.1	23.6	23.1	28.9	11.9	12.0	27.9	10.3	15.6
Incr Delay (d2), s/veh	8.5	0.0	3.6	5.7	1.5	1.2	6.8	0.2	0.2	8.6	0.1	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.6	2.6	2.2	1.5	0.7	1.5	1.5	1.7	1.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	0.0	30.3	31.7	25.1	24.3	35.7	12.1	12.1	36.5	10.4	19.4
LnGrp LOS	D	A	C	C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		178			451			408			856	
Approach Delay, s/veh		32.9			27.4			14.6			20.0	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	29.7	12.2	10.4	7.1	31.8	8.0	14.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	44.5	22.5	19.5	8.5	51.5	11.5	30.5				
Max Q Clear Time (g_c+I1), s	5.5	6.2	7.7	5.6	3.5	23.9	4.4	7.1				
Green Ext Time (p_c), s	0.2	2.3	0.4	0.4	0.0	3.4	0.1	1.3				

Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Queues

16: Sonoma Blvd (SR-29) & SR-37 Ramps





















Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	480	1016	636	40	1701	235
v/c Ratio	0.44	0.84	0.31	0.04	0.82	0.15
Control Delay	31.8	25.8	11.9	3.5	22.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	25.8	11.9	3.5	22.3	0.2
Queue Length 50th (ft)	133	206	106	0	453	0
Queue Length 95th (ft)	224	376	179	16	716	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1636	1576	2769	1247	2769	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.64	0.23	0.03	0.61	0.15

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project AM (Alt C)

07/03/2024

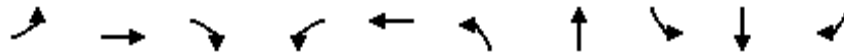
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	442	0	935	0	585	37	0	1565	216
Future Volume (veh/h)	0	0	0	442	0	935	0	585	37	0	1565	216
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				480	0	1016	0	636	40	0	1701	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1282	0	1035	0	1957	873	0	1957	
Arrive On Green				0.37	0.00	0.37	0.00	0.56	0.56	0.00	0.56	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				480	0	1016	0	636	40	0	1701	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				12.9	0.0	46.1	0.0	12.4	1.5	0.0	52.7	0.0
Cycle Q Clear(g_c), s				12.9	0.0	46.1	0.0	12.4	1.5	0.0	52.7	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1282	0	1035	0	1957	873	0	1957	
V/C Ratio(X)				0.37	0.00	0.98	0.00	0.32	0.05	0.00	0.87	
Avail Cap(c_a), veh/h				1282	0	1035	0	2318	1034	0	2318	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				28.9	0.0	39.3	0.0	15.3	12.9	0.0	24.3	0.0
Incr Delay (d2), s/veh				0.2	0.0	23.5	0.0	0.1	0.0	0.0	3.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.3	0.0	18.4	0.0	4.8	0.5	0.0	21.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.1	0.0	62.8	0.0	15.4	12.9	0.0	27.6	0.0
LnGrp LOS				C	A	E	A	B	B	A	C	
Approach Vol, veh/h					1496			676			1701	
Approach Delay, s/veh					52.0			15.3			27.6	
Approach LOS					D			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		75.0				75.0		52.0				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		83.5				83.5		47.5				
Max Q Clear Time (g_c+I1), s		14.4				54.7		48.1				
Green Ext Time (p_c), s		4.8				15.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				34.9								
HCM 6th LOS				C								
Notes												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

Queues

Cumulative +Project PM (Alt C)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	173	745	1093	173	838	1321	308	37	44	151
v/c Ratio	0.82	0.89	0.70	0.86	0.72	0.91	0.36	0.29	0.32	0.37
Control Delay	77.7	54.7	2.6	84.2	42.4	40.8	5.5	54.1	54.2	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.7	54.7	2.6	84.2	42.4	40.8	5.5	54.1	54.2	16.8
Queue Length 50th (ft)	120	268	0	121	199	446	18	25	30	32
Queue Length 95th (ft)	#248	#395	0	#255	256	#622	76	59	66	87
Internal Link Dist (ft)		1084			414		644		771	
Turn Bay Length (ft)	230			215		425		100		
Base Capacity (vph)	210	834	1568	201	1168	1445	870	294	322	413
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.89	0.70	0.86	0.72	0.91	0.35	0.13	0.14	0.37

Intersection Summary

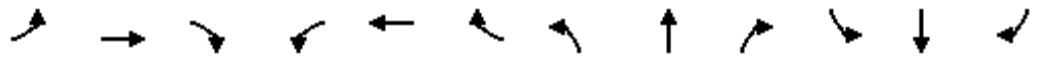
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project PM (Alt C)

1: Admiral Callaghan Ln/Project Access & Auto Mall / Columbus Parkway

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘↗	↗		↘	↑	↗
Traffic Volume (veh/h)	173	745	1093	173	801	37	1321	43	265	37	44	151
Future Volume (veh/h)	173	745	1093	173	801	37	1321	43	265	37	44	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		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	173	745	0	173	801	37	1321	43	0	37	44	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	201	797		193	1101	51	1373	854		79	193	342
Arrive On Green	0.11	0.23	0.00	0.11	0.22	0.22	0.40	0.46	0.00	0.04	0.10	0.10
Sat Flow, veh/h	1767	3526	1572	1767	4963	229	3428	1856	0	1767	1856	1572
Grp Volume(v), veh/h	173	745	0	173	544	294	1321	43	0	37	44	151
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1689	1814	1714	1856	0	1767	1856	1572
Q Serve(g_s), s	10.8	23.3	0.0	10.9	16.8	16.9	42.3	1.4	0.0	2.3	2.4	9.3
Cycle Q Clear(g_c), s	10.8	23.3	0.0	10.9	16.8	16.9	42.3	1.4	0.0	2.3	2.4	9.3
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	797		193	749	402	1373	854		79	193	342
V/C Ratio(X)	0.86	0.94		0.90	0.73	0.73	0.96	0.05		0.47	0.23	0.44
Avail Cap(c_a), veh/h	203	799		193	749	402	1387	854		283	308	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	42.7	0.0	49.5	40.6	40.6	32.9	16.8	0.0	52.5	46.2	38.1
Incr Delay (d2), s/veh	29.4	18.0	0.0	37.2	3.6	6.6	15.9	0.0	0.0	4.3	0.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	11.8	0.0	6.7	7.2	8.1	20.1	0.6	0.0	1.1	1.2	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.4	60.7	0.0	86.7	44.2	47.2	48.8	16.8	0.0	56.8	46.8	39.0
LnGrp LOS	E	E		F	D	D	D	B		E	D	D
Approach Vol, veh/h		918			1011			1364			232	
Approach Delay, s/veh		64.1			52.3			47.8			43.3	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	56.3	16.8	29.9	49.5	16.2	17.3	29.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.0	46.2	12.3	25.5	45.5	18.7	12.9	24.9				
Max Q Clear Time (g_c+I1), s	4.3	3.4	12.9	25.3	44.3	11.3	12.8	18.9				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.1	0.8	0.4	0.0	2.6				

Intersection Summary

HCM 6th Ctrl Delay	53.1
HCM 6th LOS	D

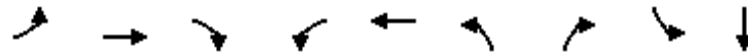
Notes

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

Queues
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project PM (Alt C)

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	70	880	295	39	847	202	34	2	5
v/c Ratio	0.23	0.51	0.32	0.15	0.55	0.30	0.06	0.01	0.01
Control Delay	26.7	11.3	2.9	28.0	14.0	23.6	0.2	30.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	11.3	2.9	28.0	14.0	23.6	0.2	30.5	0.0
Queue Length 50th (ft)	18	51	0	10	99	26	0	1	0
Queue Length 95th (ft)	72	230	42	48	233	81	0	8	0
Internal Link Dist (ft)		720			1015				453
Turn Bay Length (ft)	225		275	200		225		75	
Base Capacity (vph)	582	3243	1473	381	3140	1286	1168	260	858
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.27	0.20	0.10	0.27	0.16	0.03	0.01	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
2: N Ascot Parkway & Columbus Parkway

Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	64	810	271	36	779	0	186	0	31	2	0	5
Future Volume (veh/h)	64	810	271	36	779	0	186	0	31	2	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	880	0	39	847	0	202	0	34	2	0	5
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	115	1437		76	1359	0	353	269	228	5	0	70
Arrive On Green	0.06	0.41	0.00	0.04	0.39	0.00	0.10	0.00	0.14	0.00	0.00	0.04
Sat Flow, veh/h	1767	3526	1572	1767	3618	0	3428	1856	1572	1767	0	1572
Grp Volume(v), veh/h	70	880	0	39	847	0	202	0	34	2	0	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	0	1714	1856	1572	1767	0	1572
Q Serve(g_s), s	1.7	8.8	0.0	1.0	8.7	0.0	2.5	0.0	0.8	0.1	0.0	0.1
Cycle Q Clear(g_c), s	1.7	8.8	0.0	1.0	8.7	0.0	2.5	0.0	0.8	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	1437		76	1359	0	353	269	228	5	0	70
V/C Ratio(X)	0.61	0.61		0.51	0.62	0.00	0.57	0.00	0.15	0.41	0.00	0.07
Avail Cap(c_a), veh/h	572	4371		375	3977	0	1264	1264	1071	257	0	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.4	10.5	0.0	21.0	11.1	0.0	19.1	0.0	16.7	22.3	0.0	20.5
Incr Delay (d2), s/veh	5.2	0.4	0.0	5.3	0.5	0.0	1.5	0.0	0.3	47.7	0.0	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	0.8	2.5	0.0	0.5	2.5	0.0	1.0	0.0	0.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	10.9	0.0	26.3	11.6	0.0	20.6	0.0	17.0	70.0	0.0	20.9
LnGrp LOS	C	B		C	B	A	C	A	B	E	A	C
Approach Vol, veh/h		950			886			236				7
Approach Delay, s/veh		12.0			12.2			20.1				34.9
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	11.0	6.4	22.7	9.1	6.5	7.4	21.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	30.5	9.5	55.5	16.5	20.5	14.5	50.5				
Max Q Clear Time (g_c+I1), s	2.1	2.8	3.0	10.8	4.5	2.1	3.7	10.7				
Green Ext Time (p_c), s	0.0	0.1	0.0	7.0	0.5	0.0	0.1	6.6				

Intersection Summary

HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

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

Queues
3: Redwood Street & Columbus Parkway

Cumulative +Project PM (Alt C)

07/03/2024



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	611	271	50	677	154	27
v/c Ratio	0.32	0.28	0.12	0.30	0.18	0.06
Control Delay	8.9	2.7	17.6	4.6	15.9	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	2.7	17.6	4.6	15.9	9.0
Queue Length 50th (ft)	28	0	7	32	10	0
Queue Length 95th (ft)	107	35	39	59	43	17
Internal Link Dist (ft)	1748			2821	1766	
Turn Bay Length (ft)		175	250		225	
Base Capacity (vph)	3493	1564	1286	3505	2638	1222
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.04	0.19	0.06	0.02

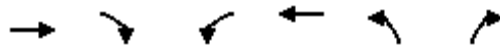
Intersection Summary

HCM 6th Signalized Intersection Summary

3: Redwood Street & Columbus Parkway

Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	562	249	46	623	142	25
Future Volume (veh/h)	562	249	46	623	142	25
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	611	271	50	677	154	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1237	552	253	2197	406	186
Arrive On Green	0.35	0.35	0.14	0.62	0.12	0.12
Sat Flow, veh/h	3618	1572	1767	3618	3428	1572
Grp Volume(v), veh/h	611	271	50	677	154	27
Grp Sat Flow(s),veh/h/ln	1763	1572	1767	1763	1714	1572
Q Serve(g_s), s	4.7	4.7	0.9	3.1	1.4	0.5
Cycle Q Clear(g_c), s	4.7	4.7	0.9	3.1	1.4	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1237	552	253	2197	406	186
V/C Ratio(X)	0.49	0.49	0.20	0.31	0.38	0.14
Avail Cap(c_a), veh/h	5410	2413	1293	8444	2704	1240
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	8.9	8.9	13.2	3.1	14.2	13.8
Incr Delay (d2), s/veh	0.3	0.7	0.4	0.1	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.1	0.3	0.2	0.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	9.6	13.5	3.1	14.8	14.1
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	882			727	181	
Approach Delay, s/veh	9.3			3.9	14.7	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		8.6	9.5	16.7		26.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		27.5	25.5	53.5		83.5
Max Q Clear Time (g_c+I1), s		3.4	2.9	6.7		5.1
Green Ext Time (p_c), s		0.6	0.1	5.5		5.0
Intersection Summary						
HCM 6th Ctrl Delay			7.6			
HCM 6th LOS			A			

Queues
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project PM (Alt C)

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	1378	203	1027	40	17	185	133	91
v/c Ratio	0.44	0.82	0.68	0.50	0.04	0.07	0.41	0.74	0.24
Control Delay	55.4	27.5	53.4	14.5	2.2	35.6	10.0	63.7	13.5
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	27.7	53.4	14.5	2.2	35.6	10.0	63.7	13.5
Queue Length 50th (ft)	47	375	127	200	0	9	7	83	9
Queue Length 95th (ft)	106	588	231	321	11	30	66	163	52
Internal Link Dist (ft)		555		468			178		221
Turn Bay Length (ft)	125		225					100	
Base Capacity (vph)	231	2114	410	2458	1116	414	627	292	570
Starvation Cap Reductn	0	139	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.70	0.50	0.42	0.04	0.04	0.30	0.46	0.16

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Admiral Callaghan Ln & Auto Club Way

Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	
Traffic Volume (veh/h)	69	1231	37	187	945	37	16	12	158	122	15	69
Future Volume (veh/h)	69	1231	37	187	945	37	16	12	158	122	15	69
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	1338	40	203	1027	40	17	13	172	133	16	75
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	97	1654	49	243	1960	874	330	27	352	244	68	317
Arrive On Green	0.05	0.47	0.47	0.14	0.56	0.56	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1767	3495	104	1767	3526	1572	1295	112	1478	1189	284	1332
Grp Volume(v), veh/h	75	674	704	203	1027	40	17	0	185	133	0	91
Grp Sat Flow(s),veh/h/ln	1767	1763	1837	1767	1763	1572	1295	0	1590	1189	0	1616
Q Serve(g_s), s	3.7	29.2	29.3	10.0	16.3	1.0	1.0	0.0	9.0	9.7	0.0	4.1
Cycle Q Clear(g_c), s	3.7	29.2	29.3	10.0	16.3	1.0	5.0	0.0	9.0	18.7	0.0	4.1
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	97	834	869	243	1960	874	330	0	379	244	0	385
V/C Ratio(X)	0.77	0.81	0.81	0.83	0.52	0.05	0.05	0.00	0.49	0.54	0.00	0.24
Avail Cap(c_a), veh/h	239	1094	1140	425	2559	1142	449	0	525	354	0	533
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	0.00	1.00
Uniform Delay (d), s/veh	41.7	20.1	20.1	37.6	12.4	9.0	29.5	0.0	29.4	37.4	0.0	27.5
Incr Delay (d2), s/veh	12.2	3.5	3.4	7.3	0.2	0.0	0.1	0.0	1.0	1.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	11.9	12.4	4.7	6.0	0.3	0.3	0.0	3.5	2.9	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	23.6	23.5	44.9	12.7	9.1	29.6	0.0	30.3	39.3	0.0	27.8
LnGrp LOS	D	C	C	D	B	A	C	A	C	D	A	C
Approach Vol, veh/h		1453			1270			202			224	
Approach Delay, s/veh		25.1			17.7			30.3			34.6	
Approach LOS		C			B			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.8	16.8	46.8		25.8	9.4	54.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		29.5	21.5	55.5		29.5	12.1	64.9				
Max Q Clear Time (g_c+I1), s		11.0	12.0	31.3		20.7	5.7	18.3				
Green Ext Time (p_c), s		1.1	0.4	11.0		0.6	0.1	9.9				

Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Queues

5: Plaza Drive/The Home Depot & Admiral Callaghan Ln



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	1071	278	733	92	48	259	109	58	60
v/c Ratio	0.45	0.81	0.75	0.40	0.47	0.28	0.68	0.51	0.23	0.18
Control Delay	54.9	33.4	51.5	15.4	52.0	48.3	15.6	51.6	45.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	33.4	51.5	15.4	52.0	48.3	15.6	51.6	45.6	1.2
Queue Length 50th (ft)	45	300	167	134	56	29	0	67	35	0
Queue Length 95th (ft)	102	#495	#320	234	117	69	76	134	79	0
Internal Link Dist (ft)		901		555		630			460	
Turn Bay Length (ft)	250		250		200			100		100
Base Capacity (vph)	202	1524	458	2002	341	375	525	341	375	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.70	0.61	0.37	0.27	0.13	0.49	0.32	0.15	0.14

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 5: Plaza Drive/The Home Depot & Admiral Callaghan Ln

Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↑	↗	↗	↗	↗
Traffic Volume (veh/h)	67	912	74	256	540	134	85	44	238	100	53	55
Future Volume (veh/h)	67	912	74	256	540	134	85	44	238	100	53	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	73	991	80	278	587	146	92	48	259	109	58	60
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	1186	96	318	1359	337	130	343	290	148	361	306
Arrive On Green	0.05	0.36	0.36	0.18	0.49	0.49	0.07	0.18	0.18	0.08	0.19	0.19
Sat Flow, veh/h	1767	3304	267	1767	2799	694	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	73	529	542	278	369	364	92	48	259	109	58	60
Grp Sat Flow(s),veh/h/ln	1767	1763	1808	1767	1763	1731	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.8	25.6	25.6	14.3	12.7	12.8	4.7	2.0	15.0	5.6	2.4	3.0
Cycle Q Clear(g_c), s	3.8	25.6	25.6	14.3	12.7	12.8	4.7	2.0	15.0	5.6	2.4	3.0
Prop In Lane	1.00		0.15	1.00		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	633	649	318	856	840	130	343	290	148	361	306
V/C Ratio(X)	0.77	0.84	0.84	0.87	0.43	0.43	0.71	0.14	0.89	0.74	0.16	0.20
Avail Cap(c_a), veh/h	203	769	789	460	1026	1007	343	376	319	343	376	319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	27.4	27.4	37.2	15.6	15.6	42.2	31.8	37.1	41.7	31.2	31.5
Incr Delay (d2), s/veh	12.6	6.8	6.6	12.2	0.3	0.4	6.8	0.2	24.1	7.0	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	11.5	11.8	7.1	5.0	4.9	2.3	0.9	7.6	2.7	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	34.1	34.0	49.5	16.0	16.0	49.0	32.0	61.2	48.8	31.5	31.8
LnGrp LOS	E	C	C	D	B	B	D	C	E	D	C	C
Approach Vol, veh/h		1144			1011			399			227	
Approach Delay, s/veh		35.5			25.2			54.9			39.9	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	21.7	21.3	38.0	11.4	22.6	9.5	49.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.1	18.9	24.3	40.7	18.1	18.9	10.7	54.3				
Max Q Clear Time (g_c+I1), s	7.6	17.0	16.3	27.6	6.7	5.0	5.8	14.8				
Green Ext Time (p_c), s	0.2	0.2	0.5	5.8	0.1	0.3	0.1	5.4				

Intersection Summary

HCM 6th Ctrl Delay	34.9
HCM 6th LOS	C

Queues
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project PM (Alt C)

07/03/2024



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	613	32	1593	93	775
v/c Ratio	0.79	0.09	0.82	0.55	0.33
Control Delay	47.9	12.8	22.5	63.1	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	12.8	22.5	63.1	7.2
Queue Length 50th (ft)	226	0	472	68	106
Queue Length 95th (ft)	298	29	594	127	140
Internal Link Dist (ft)	1811		1987		1742
Turn Bay Length (ft)	250			350	
Base Capacity (vph)	951	421	2300	204	2773
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.08	0.69	0.46	0.28

Intersection Summary

HCM 6th Signalized Intersection Summary
6: Admiral Callaghan Ln & Turner Parkway

Cumulative +Project PM (Alt C)

07/03/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	560	33	1044	421	86	713
Future Volume (veh/h)	560	33	1044	421	86	713
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	609	36	1135	458	93	775
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	735	327	1424	559	119	2443
Arrive On Green	0.21	0.21	0.58	0.58	0.07	0.69
Sat Flow, veh/h	3534	1572	2566	971	1767	3618
Grp Volume(v), veh/h	609	36	800	793	93	775
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1681	1767	1763
Q Serve(g_s), s	15.0	1.7	32.0	34.4	4.7	7.9
Cycle Q Clear(g_c), s	15.0	1.7	32.0	34.4	4.7	7.9
Prop In Lane	1.00	1.00		0.58	1.00	
Lane Grp Cap(c), veh/h	735	327	1015	968	119	2443
V/C Ratio(X)	0.83	0.11	0.79	0.82	0.78	0.32
Avail Cap(c_a), veh/h	1071	476	1311	1250	224	3243
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	34.4	29.1	14.9	15.5	41.7	5.5
Incr Delay (d2), s/veh	3.7	0.1	2.5	3.5	10.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.6	12.1	12.6	2.4	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.1	29.3	17.4	18.9	52.1	5.6
LnGrp LOS	D	C	B	B	D	A
Approach Vol, veh/h	645		1593			868
Approach Delay, s/veh	37.6		18.2			10.5
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.6	56.8			67.4	23.4
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	11.5	67.5			83.5	27.5
Max Q Clear Time (g_c+I1), s	6.7	36.4			9.9	17.0
Green Ext Time (p_c), s	0.1	15.9			6.7	1.9

Intersection Summary

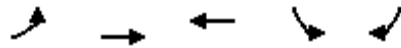
HCM 6th Ctrl Delay			20.1			
HCM 6th LOS			C			

Notes

User approved volume balancing among the lanes for turning movement.

Queues

7: Turner Parkway & Plaza Drive



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	151	250	529	385	175
v/c Ratio	0.36	0.14	0.52	0.42	0.34
Control Delay	19.9	5.4	9.5	16.0	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	5.4	9.5	16.0	5.7
Queue Length 50th (ft)	33	13	26	40	0
Queue Length 95th (ft)	92	32	74	90	43
Internal Link Dist (ft)		820	653	438	
Turn Bay Length (ft)	225			150	
Base Capacity (vph)	1251	3505	2766	2786	1216
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.07	0.19	0.14	0.14

Intersection Summary

HCM 6th Signalized Intersection Summary
7: Turner Parkway & Plaza Drive

Cumulative +Project PM (Alt C)
07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↗	↑↑	↑↑		↖↖	↖	
Traffic Volume (veh/h)	139	230	212	275	288	227	
Future Volume (veh/h)	139	230	212	275	288	227	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	151	250	230	299	369	187	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	205	1933	551	492	752	335	
Arrive On Green	0.12	0.55	0.31	0.31	0.21	0.21	
Sat Flow, veh/h	1767	3618	1856	1572	3534	1572	
Grp Volume(v), veh/h	151	250	230	299	369	187	
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1572	1767	1572	
Q Serve(g_s), s	3.1	1.3	3.9	6.1	3.5	4.0	
Cycle Q Clear(g_c), s	3.1	1.3	3.9	6.1	3.5	4.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	205	1933	551	492	752	335	
V/C Ratio(X)	0.74	0.13	0.42	0.61	0.49	0.56	
Avail Cap(c_a), veh/h	1431	6878	1801	1607	3518	1565	
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	16.1	4.1	10.2	11.0	13.0	13.2	
Incr Delay (d2), s/veh	5.1	0.0	0.5	1.2	0.5	1.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.3	0.3	1.2	1.8	1.2	3.6	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.1	4.2	10.7	12.2	13.5	14.7	
LnGrp LOS	C	A	B	B	B	B	
Approach Vol, veh/h		401	529		556		
Approach Delay, s/veh		10.6	11.6		13.9		
Approach LOS		B	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				25.2	12.5	8.9	16.3
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				73.5	37.5	30.5	38.5
Max Q Clear Time (g_c+I1), s				3.3	6.0	5.1	8.1
Green Ext Time (p_c), s				1.8	2.0	0.4	3.7

Intersection Summary

HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

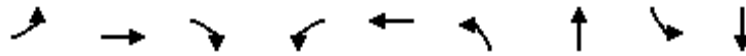
Notes

User approved volume balancing among the lanes for turning movement.

Queues

8: Ascot Parkway & Turner Parkway/Turner St

07/03/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	76	13	438	7	22	408	161	27	303
v/c Ratio	0.29	0.04	0.66	0.04	0.10	0.68	0.08	0.13	0.45
Control Delay	31.5	24.4	8.7	35.7	24.9	24.9	9.5	35.0	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	24.4	8.7	35.7	24.9	24.9	9.5	35.0	21.5
Queue Length 50th (ft)	19	3	0	2	3	93	6	7	29
Queue Length 95th (ft)	85	22	84	18	29	296	44	42	105
Internal Link Dist (ft)		865			140		449		1007
Turn Bay Length (ft)	225			50		400		125	
Base Capacity (vph)	418	1075	1096	184	777	1404	3115	217	1407
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.01	0.40	0.04	0.03	0.29	0.05	0.12	0.22

Intersection Summary

HCM 6th Signalized Intersection Summary
 8: Ascot Parkway & Turner Parkway/Turner St

Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	12	403	6	11	9	375	144	4	25	180	98
Future Volume (veh/h)	70	12	403	6	11	9	375	144	4	25	180	98
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	13	438	7	12	10	408	157	4	27	196	107
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	100	583	494	16	250	208	475	1323	34	52	308	161
Arrive On Green	0.06	0.31	0.31	0.01	0.27	0.27	0.27	0.38	0.38	0.03	0.14	0.14
Sat Flow, veh/h	1767	1856	1572	1767	936	780	1767	3513	89	1767	2238	1170
Grp Volume(v), veh/h	76	13	438	7	0	22	408	79	82	27	153	150
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1715	1767	1763	1839	1767	1763	1645
Q Serve(g_s), s	2.8	0.3	17.6	0.3	0.0	0.6	14.6	1.9	1.9	1.0	5.4	5.8
Cycle Q Clear(g_c), s	2.8	0.3	17.6	0.3	0.0	0.6	14.6	1.9	1.9	1.0	5.4	5.8
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.05	1.00		0.71
Lane Grp Cap(c), veh/h	100	583	494	16	0	458	475	664	693	52	243	226
V/C Ratio(X)	0.76	0.02	0.89	0.43	0.00	0.05	0.86	0.12	0.12	0.52	0.63	0.66
Avail Cap(c_a), veh/h	332	850	720	146	0	605	1181	1575	1643	172	569	531
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	15.8	21.7	32.8	0.0	18.1	23.2	13.5	13.5	31.8	27.1	27.3
Incr Delay (d2), s/veh	11.1	0.0	9.2	17.3	0.0	0.0	4.7	0.1	0.1	7.7	2.7	3.3
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	1.5	0.1	7.2	0.2	0.0	0.2	6.1	0.7	0.7	0.5	2.3	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	15.8	30.9	50.2	0.0	18.2	27.8	13.6	13.6	39.6	29.8	30.6
LnGrp LOS	D	B	C	D	A	B	C	B	B	D	C	C
Approach Vol, veh/h		527			29			569			330	
Approach Delay, s/veh		32.2			25.9			23.8			30.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	29.6	5.1	25.4	22.4	13.7	8.3	22.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	59.5	5.5	30.5	44.5	21.5	12.5	23.5				
Max Q Clear Time (g_c+I1), s	3.0	3.9	2.3	19.6	16.6	7.8	4.8	2.6				
Green Ext Time (p_c), s	0.0	0.9	0.0	1.3	1.3	1.4	0.1	0.1				

Intersection Summary

HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Queues
9: Ascot Parkway & Redwood Street

Cumulative +Project PM (Alt C)

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	129	454	48	219	291	419	40	517
v/c Ratio	0.48	0.45	0.27	0.45	0.67	0.28	0.25	0.65
Control Delay	39.6	16.4	41.9	32.7	35.9	15.0	43.2	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	16.4	41.9	32.7	35.9	15.0	43.2	25.8
Queue Length 50th (ft)	55	51	21	43	120	66	17	83
Queue Length 95th (ft)	138	122	69	102	259	120	62	179
Internal Link Dist (ft)		902		357		1037		1981
Turn Bay Length (ft)	150		150		150		300	
Base Capacity (vph)	451	1412	231	939	865	2640	182	1384
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.32	0.21	0.23	0.34	0.16	0.22	0.37

Intersection Summary

HCM 6th Signalized Intersection Summary
 9: Ascot Parkway & Redwood Street

Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	119	201	217	44	157	44	268	320	65	37	283	192
Future Volume (veh/h)	119	201	217	44	157	44	268	320	65	37	283	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	129	218	0	48	171	0	291	348	0	40	308	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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	171	562		89	398		377	1189		78	592	
Arrive On Green	0.10	0.16	0.00	0.05	0.11	0.00	0.21	0.34	0.00	0.04	0.17	0.00
Sat Flow, veh/h	1767	3618	0	1767	3618	0	1767	3618	0	1767	3618	0
Grp Volume(v), veh/h	129	218	0	48	171	0	291	348	0	40	308	0
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	0	1767	1763	0	1767	1763	0
Q Serve(g_s), s	3.1	2.4	0.0	1.2	2.0	0.0	6.8	3.2	0.0	1.0	3.5	0.0
Cycle Q Clear(g_c), s	3.1	2.4	0.0	1.2	2.0	0.0	6.8	3.2	0.0	1.0	3.5	0.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	171	562		89	398		377	1189		78	592	
V/C Ratio(X)	0.75	0.39		0.54	0.43		0.77	0.29		0.52	0.52	
Avail Cap(c_a), veh/h	743	2282		381	1561		1425	4524		301	2282	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.4	16.6	0.0	20.4	18.2	0.0	16.3	10.7	0.0	20.6	16.7	0.0
Incr Delay (d2), s/veh	6.6	0.4	0.0	5.0	0.7	0.0	3.4	0.1	0.0	5.2	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.9	0.0	0.5	0.7	0.0	2.6	1.0	0.0	0.5	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	17.0	0.0	25.4	18.9	0.0	19.7	10.9	0.0	25.8	17.4	0.0
LnGrp LOS	C	B		C	B		B	B		C	B	
Approach Vol, veh/h		347			219			639			348	
Approach Delay, s/veh		20.3			20.3			14.9			18.4	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	19.4	6.7	11.5	13.9	11.9	8.8	9.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	56.5	9.5	28.5	35.5	28.5	18.5	19.5				
Max Q Clear Time (g_c+I1), s	3.0	5.2	3.2	4.4	8.8	5.5	5.1	4.0				
Green Ext Time (p_c), s	0.0	2.4	0.0	1.3	0.8	1.9	0.2	0.8				

Intersection Summary

HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

Notes

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

Queues
10: Oakwood Avenue & Redwood Street

Cumulative +Project PM (Alt C)

07/03/2024



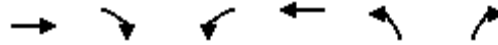
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	540	229	435	211	237
v/c Ratio	0.57	0.53	0.21	0.51	0.43
Control Delay	19.6	25.7	5.7	26.0	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	25.7	5.7	26.0	6.4
Queue Length 50th (ft)	70	66	29	61	0
Queue Length 95th (ft)	152	161	63	152	52
Internal Link Dist (ft)	580		902	443	
Turn Bay Length (ft)		125			
Base Capacity (vph)	2205	1145	3467	1145	1107
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.20	0.13	0.18	0.21

Intersection Summary

HCM 6th Signalized Intersection Summary
 10: Oakwood Avenue & Redwood Street

Cumulative +Project PM (Alt C)

07/03/2024

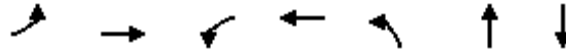


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	346	151	211	400	194	218
Future Volume (veh/h)	346	151	211	400	194	218
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	376	164	229	435	211	237
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	651	280	308	1961	392	349
Arrive On Green	0.27	0.27	0.17	0.56	0.22	0.22
Sat Flow, veh/h	2493	1032	1767	3618	1767	1572
Grp Volume(v), veh/h	275	265	229	435	211	237
Grp Sat Flow(s),veh/h/ln	1763	1670	1767	1763	1767	1572
Q Serve(g_s), s	5.5	5.6	5.0	2.5	4.3	5.6
Cycle Q Clear(g_c), s	5.5	5.6	5.0	2.5	4.3	5.6
Prop In Lane		0.62	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	478	453	308	1961	392	349
V/C Ratio(X)	0.57	0.59	0.74	0.22	0.54	0.68
Avail Cap(c_a), veh/h	1543	1461	1546	6561	1546	1376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	12.8	15.9	4.6	13.9	14.5
Incr Delay (d2), s/veh	1.1	1.2	3.6	0.1	1.1	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.8	1.9	0.5	1.5	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.9	14.0	19.5	4.6	15.1	16.8
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	540			664	448	
Approach Delay, s/veh	13.9			9.7	16.0	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.5	11.6	15.5		27.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		35.5	35.5	35.5		75.5
Max Q Clear Time (g_c+I1), s		7.6	7.0	7.6		4.5
Green Ext Time (p_c), s		1.5	0.7	3.4		3.1
Intersection Summary						
HCM 6th Ctrl Delay			12.8			
HCM 6th LOS			B			

Queues
11: Admiral Callaghan Ln & Redwood Street

Cumulative +Project PM (Alt C)

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	1045	71	648	296	121	8
v/c Ratio	0.18	0.73	0.33	0.36	0.68	0.19	0.01
Control Delay	46.8	22.7	44.6	13.8	35.2	0.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	22.7	44.6	13.8	35.2	0.6	0.0
Queue Length 50th (ft)	13	206	32	77	126	0	0
Queue Length 95th (ft)	51	383	97	201	277	0	0
Internal Link Dist (ft)		424		851		1161	269
Turn Bay Length (ft)	125		125		75		
Base Capacity (vph)	171	2269	303	2518	877	1074	1093
Starvation Cap Reductn	0	91	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.48	0.23	0.26	0.34	0.11	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
 11: Admiral Callaghan Ln & Redwood Street

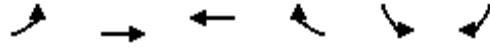
Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↷		↶	↶↷		↶	↷		↶	↷	
Traffic Volume (veh/h)	26	682	280	65	595	1	272	0	111	0	0	7
Future Volume (veh/h)	26	682	280	65	595	1	272	0	111	0	0	7
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	741	304	71	647	1	296	0	121	0	0	8
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	56	1051	431	106	1659	3	497	0	421	129	0	421
Arrive On Green	0.03	0.43	0.43	0.06	0.46	0.46	0.27	0.00	0.27	0.00	0.00	0.27
Sat Flow, veh/h	1767	2438	1000	1767	3612	6	1396	0	1572	1260	0	1572
Grp Volume(v), veh/h	28	536	509	71	316	332	296	0	121	0	0	8
Grp Sat Flow(s),veh/h/ln	1767	1763	1676	1767	1763	1855	1396	0	1572	1260	0	1572
Q Serve(g_s), s	0.9	13.9	13.9	2.2	6.6	6.6	11.1	0.0	3.4	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.9	13.9	13.9	2.2	6.6	6.6	11.3	0.0	3.4	0.0	0.0	0.2
Prop In Lane	1.00		0.60	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	760	722	106	810	852	497	0	421	129	0	421
V/C Ratio(X)	0.50	0.70	0.71	0.67	0.39	0.39	0.60	0.00	0.29	0.00	0.00	0.02
Avail Cap(c_a), veh/h	205	1561	1484	364	1719	1808	1260	0	1280	818	0	1280
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	0.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	13.0	13.0	25.7	10.0	10.0	19.2	0.0	16.2	0.0	0.0	15.1
Incr Delay (d2), s/veh	6.8	1.2	1.3	7.2	0.3	0.3	1.1	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.6	4.4	1.1	2.1	2.2	3.4	0.0	1.2	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	14.2	14.3	33.0	10.3	10.2	20.4	0.0	16.6	0.0	0.0	15.1
LnGrp LOS	C	B	B	C	B	B	C	A	B	A	A	B
Approach Vol, veh/h		1073			719			417				8
Approach Delay, s/veh		14.7			12.5			19.3				15.1
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.5	7.8	28.6		19.5	6.3	30.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		45.5	11.5	49.5		45.5	6.5	54.5				
Max Q Clear Time (g_c+I1), s		13.3	4.2	15.9		2.2	2.9	8.6				
Green Ext Time (p_c), s		1.7	0.1	8.2		0.0	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									

Queues
12: Redwood Street & Admiral Callaghan Ln



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1531	1022	927	349	398	1501
v/c Ratio	1.03	0.40	1.03	0.59	0.61	0.81
Control Delay	65.0	6.6	81.2	14.7	48.9	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	45.6
Total Delay	65.0	6.6	81.2	14.7	48.9	64.5
Queue Length 50th (ft)	~654	137	~403	54	146	436
Queue Length 95th (ft)	#791	169	#534	153	199	556
Internal Link Dist (ft)		852	424		317	
Turn Bay Length (ft)	275			200	100	300
Base Capacity (vph)	1487	2567	902	596	654	1846
Starvation Cap Reductn	0	0	0	0	0	475
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.40	1.03	0.59	0.61	1.09

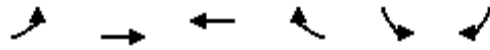
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 12: Redwood Street & Admiral Callaghan Ln

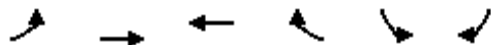
Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖↖	↑↑	↗↗	↑	↙↙	↘↘	
Traffic Volume (veh/h)	1378	920	834	314	358	1351	
Future Volume (veh/h)	1378	920	834	314	358	1351	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	1531	1022	927	349	398	1501	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	3	3	3	3	3	3	
Cap, veh/h	1500	2582	908	405	660	1744	
Arrive On Green	0.44	0.73	0.26	0.26	0.19	0.19	
Sat Flow, veh/h	3428	3618	3618	1572	3428	2768	
Grp Volume(v), veh/h	1531	1022	927	349	398	1501	
Grp Sat Flow(s),veh/h/ln	1714	1763	1763	1572	1714	1384	
Q Serve(g_s), s	52.5	13.1	30.9	25.4	12.7	23.1	
Cycle Q Clear(g_c), s	52.5	13.1	30.9	25.4	12.7	23.1	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	1500	2582	908	405	660	1744	
V/C Ratio(X)	1.02	0.40	1.02	0.86	0.60	0.86	
Avail Cap(c_a), veh/h	1500	2582	908	405	660	1744	
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	33.7	6.0	44.5	42.5	44.3	17.9	
Incr Delay (d2), s/veh	28.6	0.1	35.3	17.1	4.1	5.8	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	26.8	4.2	17.7	22.2	5.8	35.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	62.4	6.1	79.9	59.6	48.3	23.8	
LnGrp LOS	F	A	F	E	D	C	
Approach Vol, veh/h		2553	1276		1899		
Approach Delay, s/veh		39.9	74.3		28.9		
Approach LOS		D	E		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				92.4	27.6	57.0	35.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				87.9	23.1	52.5	30.9
Max Q Clear Time (g_c+I1), s				15.1	25.1	54.5	32.9
Green Ext Time (p_c), s				9.4	0.0	0.0	0.0
Intersection Summary							
HCM 6th Ctrl Delay			43.9				
HCM 6th LOS			D				

Queues
13: Redwood Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	112	1992	2016	262	829	133
v/c Ratio	0.99	0.72	1.18	0.34	0.63	0.20
Control Delay	152.5	27.0	123.8	25.4	39.5	14.7
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	152.5	27.0	123.8	25.4	39.5	14.7
Queue Length 50th (ft)	57	515	~1241	155	335	37
Queue Length 95th (ft)	#125	571	#1374	225	406	85
Internal Link Dist (ft)		693	852		265	
Turn Bay Length (ft)	150			150	125	125
Base Capacity (vph)	113	2769	1705	763	1326	656
Starvation Cap Reductn	0	0	29	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.72	1.20	0.34	0.63	0.20

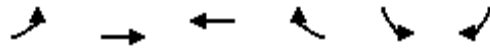
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
13: Redwood Street

Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	1793	1814	236	746	120
Future Volume (veh/h)	101	1793	1814	236	746	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	112	1992	2016	262	829	133
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	114	2786	1716	765	1337	613
Arrive On Green	0.03	0.55	0.49	0.49	0.39	0.39
Sat Flow, veh/h	3428	5233	3618	1572	3428	1572
Grp Volume(v), veh/h	112	1992	2016	262	829	133
Grp Sat Flow(s),veh/h/ln	1714	1689	1763	1572	1714	1572
Q Serve(g_s), s	4.9	43.7	73.0	15.4	29.2	8.5
Cycle Q Clear(g_c), s	4.9	43.7	73.0	15.4	29.2	8.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	2786	1716	765	1337	613
V/C Ratio(X)	0.98	0.71	1.17	0.34	0.62	0.22
Avail Cap(c_a), veh/h	114	2786	1716	765	1337	613
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	72.5	25.0	38.5	23.7	36.8	30.5
Incr Delay (d2), s/veh	79.0	0.9	85.3	0.3	2.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	17.3	50.8	5.8	12.7	9.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	151.4	25.9	123.8	24.0	39.0	31.3
LnGrp LOS	F	C	F	C	D	C
Approach Vol, veh/h		2104	2278		962	
Approach Delay, s/veh		32.6	112.3		37.9	
Approach LOS		C	F		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		87.0		63.0	9.5	77.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		82.5		58.5	5.0	73.0
Max Q Clear Time (g_c+I1), s		45.7		31.2	6.9	75.0
Green Ext Time (p_c), s		21.8		3.9	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			67.5			
HCM 6th LOS			E			

Queues

14: Lake Herman Road & Columbus Parkway









Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	117	341	486	39	88	522
v/c Ratio	0.28	0.54	0.43	0.07	0.23	0.30
Control Delay	17.3	6.2	13.2	5.7	17.9	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	6.2	13.2	5.7	17.9	5.5
Queue Length 50th (ft)	23	0	50	0	18	26
Queue Length 95th (ft)	69	54	99	16	57	53
Internal Link Dist (ft)	1876		3616			1513
Turn Bay Length (ft)				300	300	
Base Capacity (vph)	1655	1500	3121	1400	1217	3505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.23	0.16	0.03	0.07	0.15

Intersection Summary

HCM 6th Signalized Intersection Summary
 14: Lake Herman Road & Columbus Parkway

Cumulative +Project PM (Alt C)

07/03/2024

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↘	↑↑	↙	↘	↑↑
Traffic Volume (veh/h)	108	314	447	36	81	480
Future Volume (veh/h)	108	314	447	36	81	480
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	117	341	486	39	88	522
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	503	447	893	398	220	1730
Arrive On Green	0.28	0.28	0.25	0.25	0.12	0.49
Sat Flow, veh/h	1767	1572	3618	1572	1767	3618
Grp Volume(v), veh/h	117	341	486	39	88	522
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1572	1767	1763
Q Serve(g_s), s	2.0	7.9	4.8	0.8	1.8	3.5
Cycle Q Clear(g_c), s	2.0	7.9	4.8	0.8	1.8	3.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	503	447	893	398	220	1730
V/C Ratio(X)	0.23	0.76	0.54	0.10	0.40	0.30
Avail Cap(c_a), veh/h	1920	1709	3391	1512	1082	5945
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	11.0	13.1	12.9	11.4	16.1	6.1
Incr Delay (d2), s/veh	0.2	2.7	0.5	0.1	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.3	1.5	0.2	0.7	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.2	15.8	13.5	11.5	17.3	6.2
LnGrp LOS	B	B	B	B	B	A
Approach Vol, veh/h	458		525			610
Approach Delay, s/veh	14.6		13.3			7.8
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.5	14.6			24.1	15.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	24.5	38.5			67.5	43.5
Max Q Clear Time (g_c+I1), s	3.8	6.8			5.5	9.9
Green Ext Time (p_c), s	0.2	3.4			3.7	1.5
Intersection Summary						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			

Queues

Cumulative +Project PM (Alt C)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	102	234	127	135	191	90	1093	198	152	508
v/c Ratio	0.55	0.76	0.64	0.36	0.40	0.52	0.82	0.73	0.17	0.50
Control Delay	60.6	60.1	64.3	44.6	9.1	60.3	34.4	61.5	18.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.6	60.1	64.3	44.6	9.1	60.3	34.4	61.5	18.8	3.6
Queue Length 50th (ft)	73	161	91	89	0	65	366	141	66	0
Queue Length 95th (ft)	135	#283	#173	159	64	122	463	#243	111	59
Internal Link Dist (ft)		851		199			1179		604	
Turn Bay Length (ft)	125		100		100	125		125		125
Base Capacity (vph)	236	369	233	389	481	222	1644	336	1002	1083
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.63	0.55	0.35	0.40	0.41	0.66	0.59	0.15	0.47

Intersection Summary

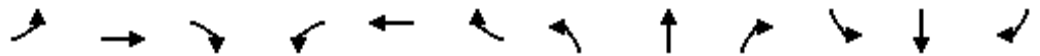
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

Cumulative +Project PM (Alt C)

15: Columbus Pkwy & I-780 NB Offramp & Rose Dr & I-780 SB Ramps/Rose Dr

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	179	36	117	124	176	83	826	179	182	140	467
Future Volume (veh/h)	94	179	36	117	124	176	83	826	179	182	140	467
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	102	195	39	127	135	191	90	898	195	198	152	508
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	131	239	48	161	326	276	116	1142	248	240	866	734
Arrive On Green	0.07	0.16	0.16	0.09	0.18	0.18	0.07	0.40	0.40	0.14	0.47	0.47
Sat Flow, veh/h	1767	1501	300	1767	1856	1572	1767	2881	625	1767	1856	1572
Grp Volume(v), veh/h	102	0	234	127	135	191	90	549	544	198	152	508
Grp Sat Flow(s),veh/h/ln	1767	0	1801	1767	1856	1572	1767	1763	1743	1767	1856	1572
Q Serve(g_s), s	4.7	0.0	10.4	5.8	5.4	9.4	4.1	22.6	22.6	9.0	3.9	21.1
Cycle Q Clear(g_c), s	4.7	0.0	10.4	5.8	5.4	9.4	4.1	22.6	22.6	9.0	3.9	21.1
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	131	0	287	161	326	276	116	699	691	240	866	734
V/C Ratio(X)	0.78	0.00	0.82	0.79	0.41	0.69	0.77	0.79	0.79	0.82	0.18	0.69
Avail Cap(c_a), veh/h	293	0	446	288	455	386	276	1033	1022	417	1236	1047
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	0.0	33.6	36.8	30.3	32.0	38.0	21.9	21.9	34.8	12.8	17.4
Incr Delay (d2), s/veh	9.4	0.0	6.6	8.3	0.8	3.1	10.3	2.4	2.5	7.0	0.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	4.9	2.8	2.4	3.7	2.1	9.2	9.2	4.3	1.6	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	40.2	45.2	31.2	35.1	48.4	24.3	24.4	41.8	12.9	18.6
LnGrp LOS	D	A	D	D	C	D	D	C	C	D	B	B
Approach Vol, veh/h		336			453			1183			858	
Approach Delay, s/veh		42.3			36.7			26.2			22.9	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	37.3	12.0	17.7	10.0	43.1	10.7	19.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	48.5	13.5	20.5	12.9	55.1	13.7	20.3				
Max Q Clear Time (g_c+I1), s	11.0	24.6	7.8	12.4	6.1	23.1	6.7	11.4				
Green Ext Time (p_c), s	0.3	8.2	0.1	0.8	0.1	3.0	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Queues

16: Sonoma Blvd (SR-29) & SR-37 Ramps



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	400	1026	1087	98	1536	304
v/c Ratio	0.30	0.88	0.59	0.11	0.84	0.19
Control Delay	26.0	39.3	21.5	3.3	29.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	39.3	21.5	3.3	29.5	0.3
Queue Length 50th (ft)	111	382	307	0	534	0
Queue Length 95th (ft)	166	544	410	28	698	0
Internal Link Dist (ft)			1261		1568	
Turn Bay Length (ft)		650				
Base Capacity (vph)	1709	1450	2324	1072	2324	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.71	0.47	0.09	0.66	0.19

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Sonoma Blvd (SR-29) & SR-37 Ramps

Cumulative +Project PM (Alt C)

07/03/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔		↔↔		↑↑	↔		↑↑	↔
Traffic Volume (veh/h)	0	0	0	368	0	944	0	1000	90	0	1413	280
Future Volume (veh/h)	0	0	0	368	0	944	0	1000	90	0	1413	280
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1856	0	1856	0	1856	1856	0	1856	1856
Adj Flow Rate, veh/h				400	0	1026	0	1087	98	0	1536	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				1408	0	1137	0	1805	805	0	1805	
Arrive On Green				0.41	0.00	0.41	0.00	0.51	0.51	0.00	0.51	0.00
Sat Flow, veh/h				3428	0	2768	0	3618	1572	0	3618	1572
Grp Volume(v), veh/h				400	0	1026	0	1087	98	0	1536	0
Grp Sat Flow(s),veh/h/ln				1714	0	1384	0	1763	1572	0	1763	1572
Q Serve(g_s), s				9.1	0.0	40.4	0.0	25.3	3.8	0.0	43.9	0.0
Cycle Q Clear(g_c), s				9.1	0.0	40.4	0.0	25.3	3.8	0.0	43.9	0.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				1408	0	1137	0	1805	805	0	1805	
V/C Ratio(X)				0.28	0.00	0.90	0.00	0.60	0.12	0.00	0.85	
Avail Cap(c_a), veh/h				1663	0	1342	0	2255	1006	0	2255	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				22.9	0.0	32.1	0.0	20.1	14.8	0.0	24.6	0.0
Incr Delay (d2), s/veh				0.1	0.0	7.8	0.0	0.3	0.1	0.0	2.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.6	0.0	14.1	0.0	9.9	1.3	0.0	17.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.0	0.0	40.0	0.0	20.4	14.9	0.0	27.3	0.0
LnGrp LOS				C	A	D	A	C	B	A	C	
Approach Vol, veh/h					1426			1185			1536	
Approach Delay, s/veh					35.2			19.9			27.3	
Approach LOS					D			B			C	
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		64.1				64.1		52.3				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		74.5				74.5		56.5				
Max Q Clear Time (g_c+I1), s		27.3				45.9		42.4				
Green Ext Time (p_c), s		10.0				13.7		5.4				

Intersection Summary

HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

Notes

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