

**Appendix E:**  
**Traffic Impact Study**

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TRAFFIC IMPACT STUDY  
HENRY MAYO NEWHALL HOSPITAL  
AMENDED SPECIFIC PLAN  
City of Santa Clarita, California  
May 3, 2019

*Prepared for:*  
**Henry Mayo Newhall Hospital**  
23845 McBean Parkway  
Valencia, CA 91355

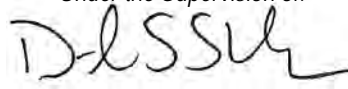
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*Prepared by:*

  
Jason A. Shender  
Transportation Planner II

*Under the Supervision of:*

  
David S. Shender, P.E.  
Principal

**Linscott, Law &  
Greenspan, Engineers**  
20931 Burbank Boulevard  
Suite C  
Woodland Hills, CA 91367  
818.835.8648 T  
818.835.8649 F  
[www.llgengineers.com](http://www.llgengineers.com)

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#### APPENDIX

- A. Manual Traffic Count Data
- B. HCM and Levels of Service Explanation  
Synchro 10 HCM Data Worksheets – AM and PM Peak Hours
- C. Approved Master Plan Development Agreement

TRAFFIC IMPACT STUDY  
**HENRY MAYO NEWHALL HOSPITAL AMENDED SPECIFIC PLAN**  
City of Santa Clarita, California  
May 3, 2019

## 1.0 INTRODUCTION / BACKGROUND

This traffic analysis has been conducted to identify and evaluate the potential traffic impacts generated by the proposed Henry Mayo Newhall Hospital (the “Hospital”) Amended Specific Plan (the “Project”) in the City of Santa Clarita, California. The Project applicant proposes to construct 200,000 square feet of building floor area: a new Diagnostic and Treatment Building (84,300 square feet), Inpatient Building 2 (115,700 square feet) and additional parking spaces through the expansion of Parking Structure No. 4. Approximately 92 beds currently provided at the existing Hospital would be shifted to the Project. The Project does not propose to modify the maximum number of beds at the Hospital (368 beds) currently permitted under the Specific Plan and Master Plan. The uses within the existing Hospital that are proposed to be relocated to the Project currently occupy approximately 138,000 square feet of building floor area. The Hospital proposes to reoccupy this existing floor area with administrative office uses, procedure rooms, imaging and MRI space, Physical/Occupational/Speech Therapy space, and storage space. The Hospital is generally located on the west side of McBean Parkway, at the intersection with Orchard Village Road. Specifically, the Hospital is located at 23845 McBean Parkway. The Hospital site location and general vicinity are shown in *Figure 1-1*.

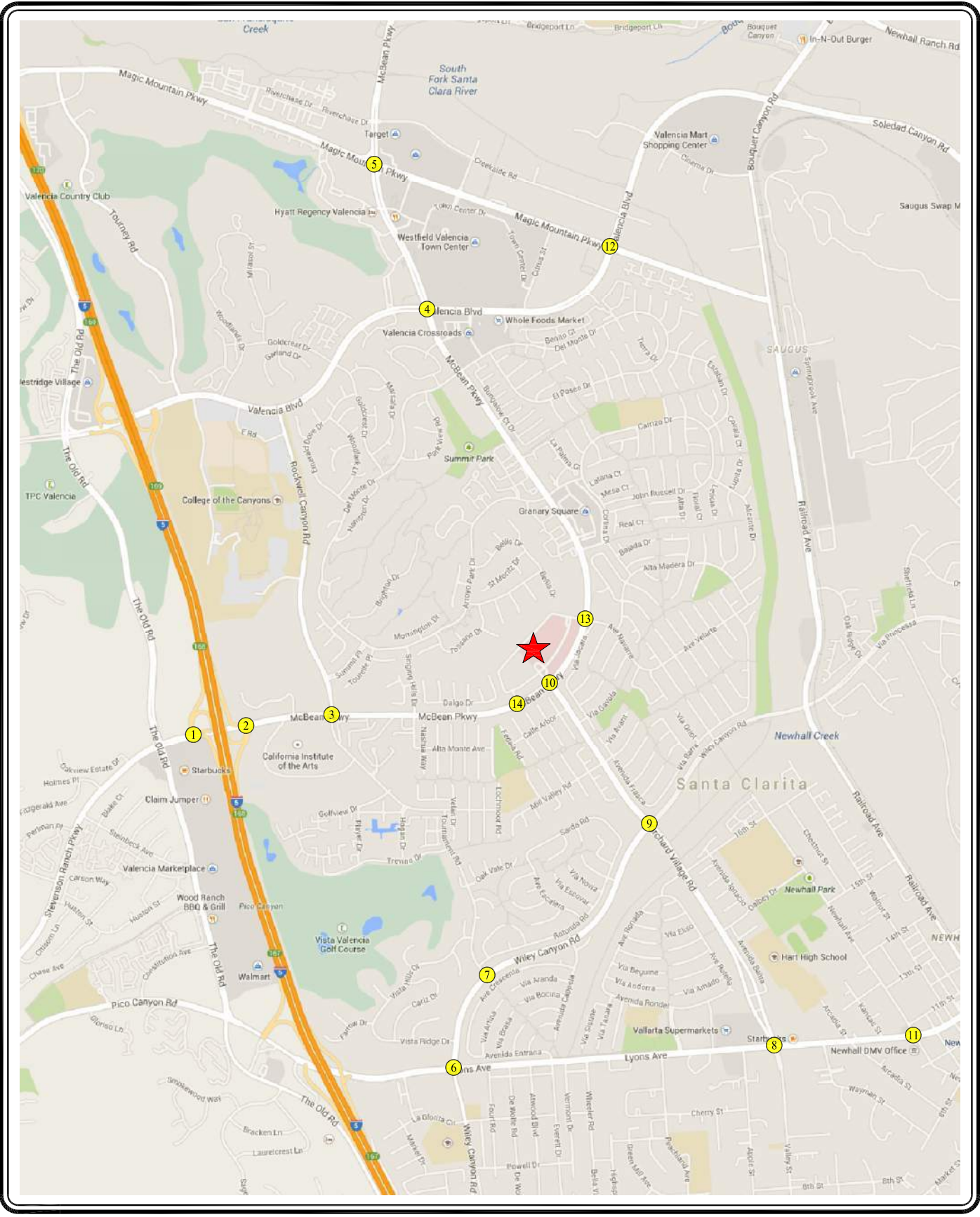
The traffic analysis follows City of Santa Clarita traffic study guidelines and is consistent with traffic impact assessment guidelines set forth in the Los Angeles County Congestion Management Program<sup>1</sup>. This traffic analysis evaluates potential Project-related impacts at 14 key intersections in the vicinity of the Project site. The study intersections were determined in consultation with City of Santa Clarita staff. The *Highway Capacity Manual 2010* (HCM) method was used to determine average control delays and corresponding Levels of Service (LOS) at all 14 study intersections and implemented using the Synchro 10 software. A review was also conducted of Los Angeles County Metropolitan Transportation Authority freeway and intersection monitoring stations to determine if a Congestion Management Program (CMP) transportation impact assessment analysis is required for the proposed Project.

This study (i) presents existing traffic volumes, (ii) includes existing traffic volumes with the forecast net new traffic volumes from the proposed Project, (iii) recommends mitigation measures, where necessary, (iv) forecasts future traffic volumes with the proposed Project, (v) determines future forecast with Project-related impacts, and (vi) recommends mitigation measures, where necessary.

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<sup>1</sup> *2010 Congestion Management Program*, Los Angeles County Metropolitan Transportation Authority, 2010.

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- MAP SOURCE: GOOGLE MAPS
- ★ PROJECT SITE
- Ⓧ STUDY INTERSECTION

# FIGURE 1-1 VICINITY MAP

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HENRY MAYO AMENDED SPECIFIC PLAN



## 1.1 Study Area

Upon coordination with City of Santa Clarita staff, 14 study intersections have been identified for evaluation during the weekday morning and afternoon peak hours. The 14 study intersections provide local access to the study area and define the extent of the boundaries for this traffic impact analysis. Further discussion of the existing street system and study area is provided in Section 4.0.

The general location of the Project in relation to the study locations and surrounding street system is presented in *Figure 1-1*. The traffic analysis study area is generally comprised of those locations which have the greatest potential to experience significant traffic impacts due to the proposed Project as defined by the Lead Agency. In the traffic engineering practice, the study area generally includes those intersections that are:

- a. Immediately adjacent or in close proximity to the Project site;
- b. In the vicinity of the Project site that are documented to have current or projected future adverse operational issues; and
- c. In the vicinity of the Project site that are forecast to experience a relatively greater percentage of Project-related vehicular turning movements (e.g., at freeway ramp intersections).

The locations selected for analysis were based on the above criteria, the forecast Project peak hour vehicle trip generation, City of Santa Clarita staff, the anticipated distribution of Project vehicular trips, and existing intersection/corridor operations.

## 2.0 PROJECT DESCRIPTION

### 2.1 Site Location

The site of the proposed Project is located at 23845 McBean Parkway in the City of Santa Clarita, California. The Project site location and general vicinity are shown in *Figure 1-1*.

### 2.2 Existing Project Site

The Project site is currently occupied by the existing Hospital campus.

### 2.3 Proposed Project Description

The Project applicant proposes to construct 200,000 square feet of building floor area: a new Diagnostic and Treatment Building (84,300 square feet) and an Inpatient Building 2 (115,700 square feet). Approximately 92 beds currently provided at the existing Hospital would be shifted to the Project. The Project does not propose to modify the maximum number of beds at the Hospital (368 beds) currently permitted at the existing Hospital. The uses within the existing Hospital that are proposed to be relocated to the Project currently occupy approximately 138,000 square feet of building floor area. The Hospital proposes to reoccupy this existing floor area with administrative office uses, procedure rooms, imaging and MRI space, Physical/Occupational/Speech Therapy space, and storage space. Construction and occupancy of the proposed Project is anticipated to be completed by the year 2022. The site plan for the proposed Project is illustrated in *Figure 2-1*.

Vehicular access will continue to be provided via McBean Parkway, Orchard Village Road and Avenida Navarre. Further discussion of the Project site access and circulation schemes is provided in Section 3.0.



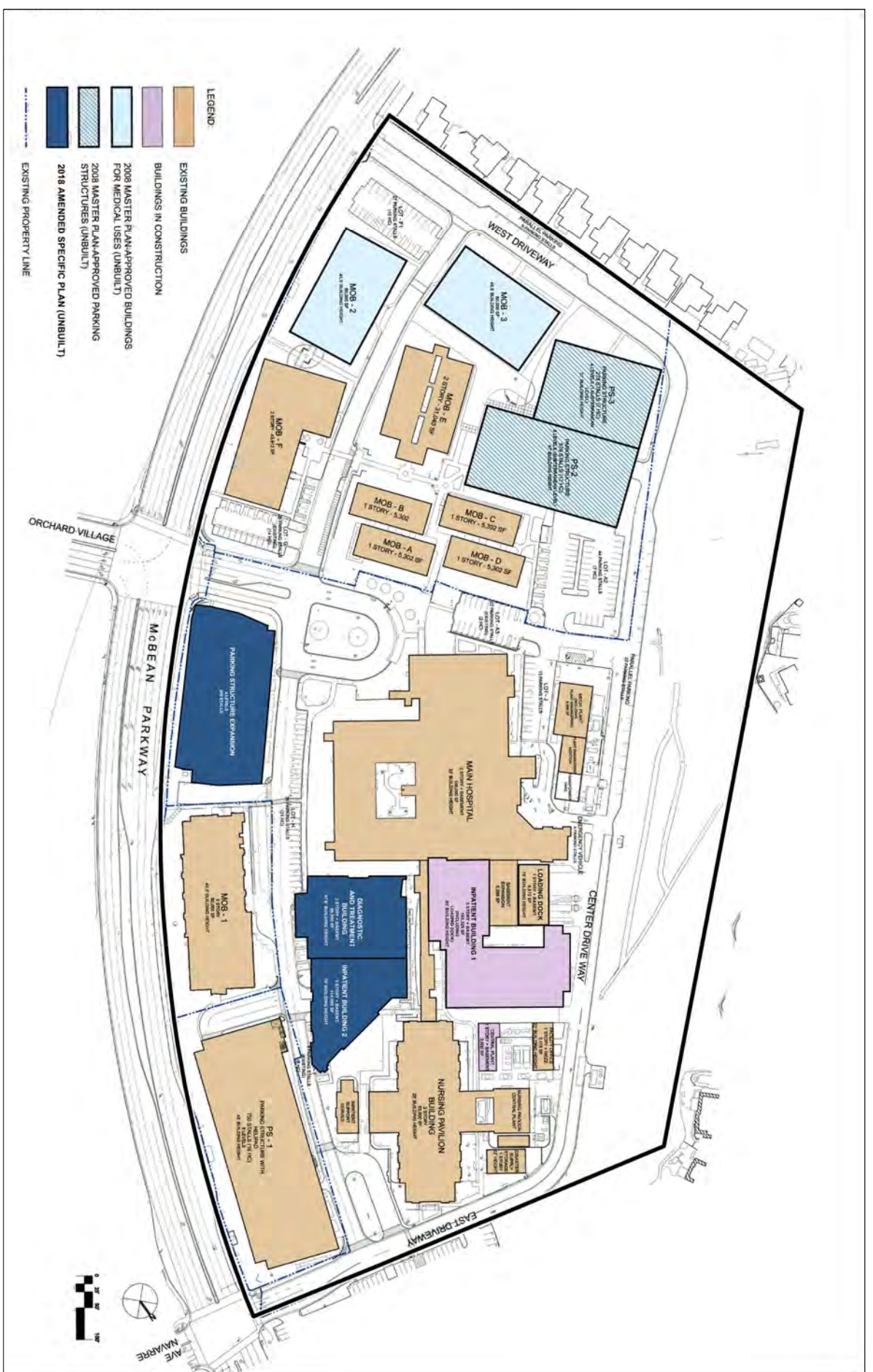
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SOURCE: SHP PROJECT DEVELOPEMENT

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HENRY MAYO AMENDED SPECIFIC PLAN

FIGURE 2-1  
PROJECT SITE PLAN



## 3.0 SITE ACCESS AND CIRCULATION

The proposed site access scheme for the Project is displayed in *Figure 2-1*. A description of the proposed site access and circulation scheme is provided in the following subsections.

### 3.1 Existing Vehicular Project Site Access

Vehicular access to the existing Hospital campus is provided via three driveways along the west side of McBean Parkway.

### 3.2 Vehicular Project Site Access

Vehicular access to the Project site will continue to be provided via the three existing driveways along the west side of the McBean Parkway. The main driveway is located at the signalized intersection of Orchard Village Road and McBean Parkway. An additional signalized driveway is located at the intersection of Avenida Navarre and McBean Parkway. The two signalized site driveways are proposed to accommodate full vehicular access (i.e., left-turn and right-turn ingress and egress turning movements). Additionally, a stop-controlled driveway is located along McBean Parkway at the western edge of the Hospital campus. The stop-controlled driveway is proposed to accommodate left-turn and right-turn vehicular ingress access, but right-turn only egress access (i.e., left-turn egress turning movements are prohibited).

## 4.0 EXISTING STREET SYSTEM

### 4.1 Regional Highway System

Primary regional access is provided by the I-5 (Golden State) Freeway. A brief description of the freeway is provided in the following paragraph.

*I-5 (Golden State) Freeway* is a north-south freeway that spans the entirety of California. In the Project vicinity, four mixed-flow freeway lanes are provided in each direction on the I-5 Freeway. Northbound and southbound on and off-ramps are provided at Magic Mountain Parkway, Valencia Boulevard, McBean Parkway, and Lyons Avenue on the I-5 Freeway in the Project vicinity.

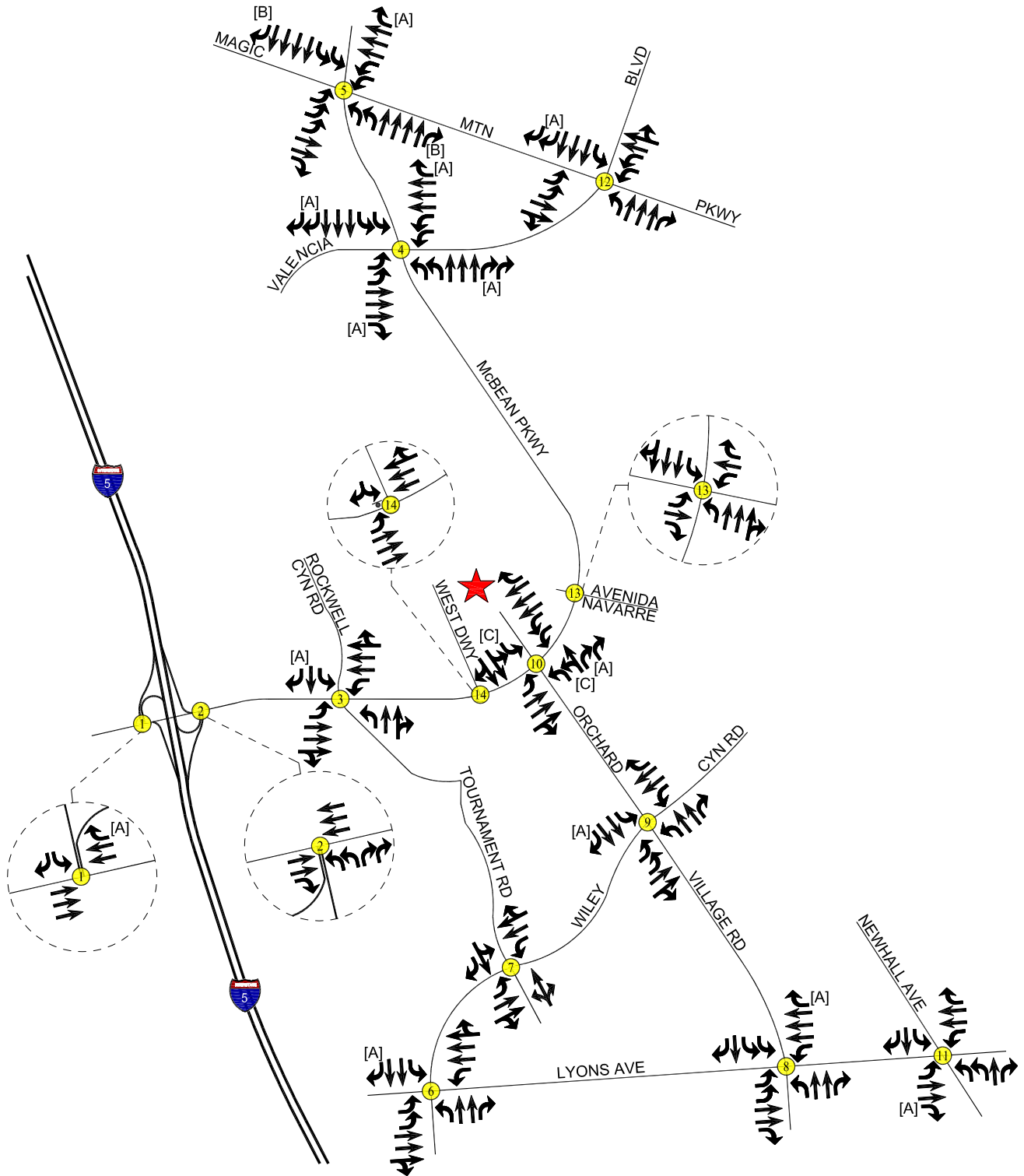
### 4.2 Local Street System

Immediate access to the Project site is provided via McBean Parkway, Orchard Village Road, and Avenida Navarre. The following study intersections were selected in consultation with City of Santa Clarita staff for analysis of potential impacts due to the proposed Project:




1. I-5 Southbound Ramps / McBean Parkway
2. I-5 Northbound Ramps / McBean Parkway
3. Rockwell Canyon Road-Tournament Road / McBean Parkway
4. McBean Parkway / Valencia Boulevard
5. McBean Parkway / Magic Mountain Parkway
6. Wiley Canyon Road / Lyons Avenue
7. Tournament Road / Wiley Canyon Road
8. Orchard Village Road / Lyons Avenue
9. Orchard Village Road / Wiley Canyon Road
10. Orchard Village Road / McBean Parkway
11. Newhall Avenue / Lyons Avenue
12. Valencia Boulevard / Magic Mountain Parkway
13. Avenida Navarre / McBean Parkway
14. West Driveway / McBean Parkway (Stop-Controlled Intersection)

Thirteen of the 14 study intersections selected for analysis are presently controlled by a traffic signal. The existing lane configurations at the study intersections are displayed in *Figure 4-1*.

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**NOT TO SCALE**

-  PROJECT SITE
-  STUDY INTERSECTION
-  STOP SIGN
- [A] RIGHT-TURN OVERLAP
- [B] FREE-FLOW RIGHT-TURN
- [C] SPLIT-PHASE

**FIGURE 4-1**  
**EXISTING LANE CONFIGURATIONS**

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HENRY MAYO AMENDED SPECIFIC PLAN

### 4.3 Roadway Descriptions

A brief description of the important roadways in the Project vicinity is provided in the following paragraphs.

*Rockwell Canyon Road* is a north-south oriented roadway located west of the Project site. Within the Project vicinity, Rockwell Canyon Road is designated as a Secondary Highway in the City of Santa Clarita General Plan. One through travel lane is provided in each direction on Rockwell Canyon Road to the College of the Canyons campus, where it expands to two travel lanes in each direction. Separate exclusive left-turn lanes are provided on Rockwell Canyon Road at the McBean Parkway intersection. A separate exclusive right-turn lane is provided in the southbound direction on Rockwell Canyon Road at the McBean Parkway intersection. South of McBean Parkway, Rockwell Canyon Road becomes Tournament Road. Rockwell Canyon Road is posted for a speed limit of 45 miles per hour.

*Tournament Road* is a north-south oriented roadway located west of the Project site. Within the Project vicinity, Tournament Road is designated as a Limited Secondary Highway in the City of Santa Clarita General Plan. One through travel lane is generally provided on Tournament Road in each direction. However, two through travel lanes are provided in the northbound direction on Tournament Road for 1,500 feet, approaching the McBean Parkway intersection. A separate exclusive left-turn lane is provided on Tournament Road at the McBean Parkway intersection. Separate exclusive right-turn lanes are provided in the northbound direction on Tournament Road at the McBean Parkway intersection, and in the southbound direction at the Wiley Canyon Road intersection. North of McBean Parkway, Tournament Road becomes Rockwell Canyon Road. Tournament Road is posted for a speed limit of 35-40 miles per hour.

*Orchard Village Road* is a north-south oriented roadway that provides direct access to the Project site from the south. Orchard Village Road is designated as a Major Highway in the City of Santa Clarita General Plan. Two through travel lanes are provided in each direction on Orchard Village Road. Separate exclusive left-turn and right-turn lanes are provided on Orchard Village Road at major intersections. South of Lyons Avenue, Orchard Village Road becomes Valley Street. Orchard Village Road is posted for a speed limit of 45 miles per hour.

*Newhall Avenue* is a north-south oriented roadway located southeast of the Project site. Newhall Avenue is designated as a Secondary Highway in the City of Santa Clarita General Plan. One through travel lane is provided in each direction on Newhall Avenue. Separate exclusive left-turn and right-turn lanes are provided on Newhall Avenue at the Lyons Avenue intersection. North of Lyons Avenue, Newhall Avenue is posted for a 25 miles per hour speed limit. South of Lyons Avenue, Newhall Avenue is posted for a speed limit of 35 miles per hour.

*Avenida Navarre* is a north-south oriented roadway that provides direct access to the Project site from the south. Avenida Navarre is designated as a Local Street in the City of Santa Clarita General Plan. One through travel lane is provided in each direction on Avenida Navarre. Separate exclusive left-turn and right-turn lanes are provided in each direction on Avenida

Navarre at the McBean Parkway intersection. Avenida Navarre is posted for a speed limit of 35 miles per hour.

*McBean Parkway* is an east-west oriented roadway that borders the Project site to the south. East of Avenida Navarre, McBean Parkway curves to become a north-south oriented roadway. Within the Project vicinity, McBean Parkway is designated as a Major Highway in the City of Santa Clarita General Plan. South of Town Center Drive, three through travel lanes are provided on McBean Parkway. North of Town Center Drive, four through travel lanes are provided in each direction on McBean Parkway. Separate exclusive left-turn lanes are provided on McBean Parkway at major intersections, and separate exclusive right-turn lanes are provided at the Valencia Boulevard and Magic Mountain Parkway intersections. North of Magic Mountain Parkway, McBean Parkway is posted for a 50 miles per hour speed limit. South of Magic Mountain Parkway, McBean Parkway is posted for a speed limit of 45 miles per hour.

*Valencia Boulevard* is an east-west oriented roadway located north of the Project site. East of Citrus Street, Valencia Boulevard curves to become a north-south oriented roadway. Valencia Boulevard is designated as a Major Highway in the City of Santa Clarita General Plan. A minimum of three through travel lanes are generally provided in each direction on Valencia Boulevard. West of McBean Parkway, four through travel lanes are provided in the westbound direction on Valencia Boulevard. Separate exclusive left turn lanes are provided in both directions on Valencia Boulevard at major intersections. Separate exclusive right-turn lanes are provided in both directions on Valencia Boulevard at the McBean Parkway intersection, and in the southbound direction at the Magic Mountain Parkway intersection. West of McBean Parkway, Valencia Boulevard is posted for a 50 miles per hour speed limit. East of McBean Parkway, Valencia Boulevard is posted for a speed limit of 45 miles per hour.

*Magic Mountain Parkway* is an east-west oriented roadway located north of the Project site. Magic Mountain Parkway is designated as a Major Highway in the City of Santa Clarita General Plan. Two to four through travel lanes are provided in each direction on Magic Mountain Parkway. Separate exclusive left-turn lanes are provided on Magic Mountain Parkway at major intersections. Separate exclusive right-turn lanes are provided in both directions on Magic Mountain Parkway at the McBean Parkway intersection. West of McBean Parkway, Magic Mountain Parkway is posted for a 50 miles per hour speed limit. East of McBean Parkway, Magic Mountain Parkway is posted for a speed limit of 45 miles per hour.

*Lyons Avenue* is an east-west oriented roadway located south of the Project site. Lyons Avenue is designated as a Major Highway in the City of Santa Clarita General Plan. West of Peachland Avenue, three through travel lanes are provided in each direction on Lyons Avenue. East of Peachland Avenue, two through travel lanes are provided in each direction on Lyons Avenue. Separate exclusive left-turn lanes are provided on Lyons Avenue at major intersections. Separate exclusive right-turn lanes are provided on Lyons Avenue in both directions at the Orchard Village Road intersection, and in the westbound direction at the Newhall Avenue intersection. Lyons Avenue is posted for a speed limit of 40 miles per hour.



*Wiley Canyon Road* is an east-west oriented roadway located south of the Project site. South of Tournament Road, Wiley Canyon Road curves to become a north-south oriented roadway. Wiley Canyon Road is designated as a Major Highway in the City of Santa Clarita General Plan between Via Princessa and Lyons Avenue. Two through travel lanes are provided in each direction on Wiley Canyon Road within the Project vicinity. Separate exclusive left-turn lanes are provided on Wiley Canyon Road at major intersections. Separate exclusive right-turn lanes are provided on Wiley Canyon Road in the westbound direction at the Orchard Village Road intersection, and in both the northbound and southbound directions at the Lyons Avenue intersection. Wiley Canyon Road is posted for a speed limit of 45 miles per hour.

#### 4.4 Public Transit Services

Public transit services within the Project study area are currently provided by the City of Santa Clarita Transit. A summary of the existing transit service, including the transit route, destinations, and peak hour headways is presented in *Table 4-1*. The existing public transit routes in the Project study area are shown in *Figure 4-2*.

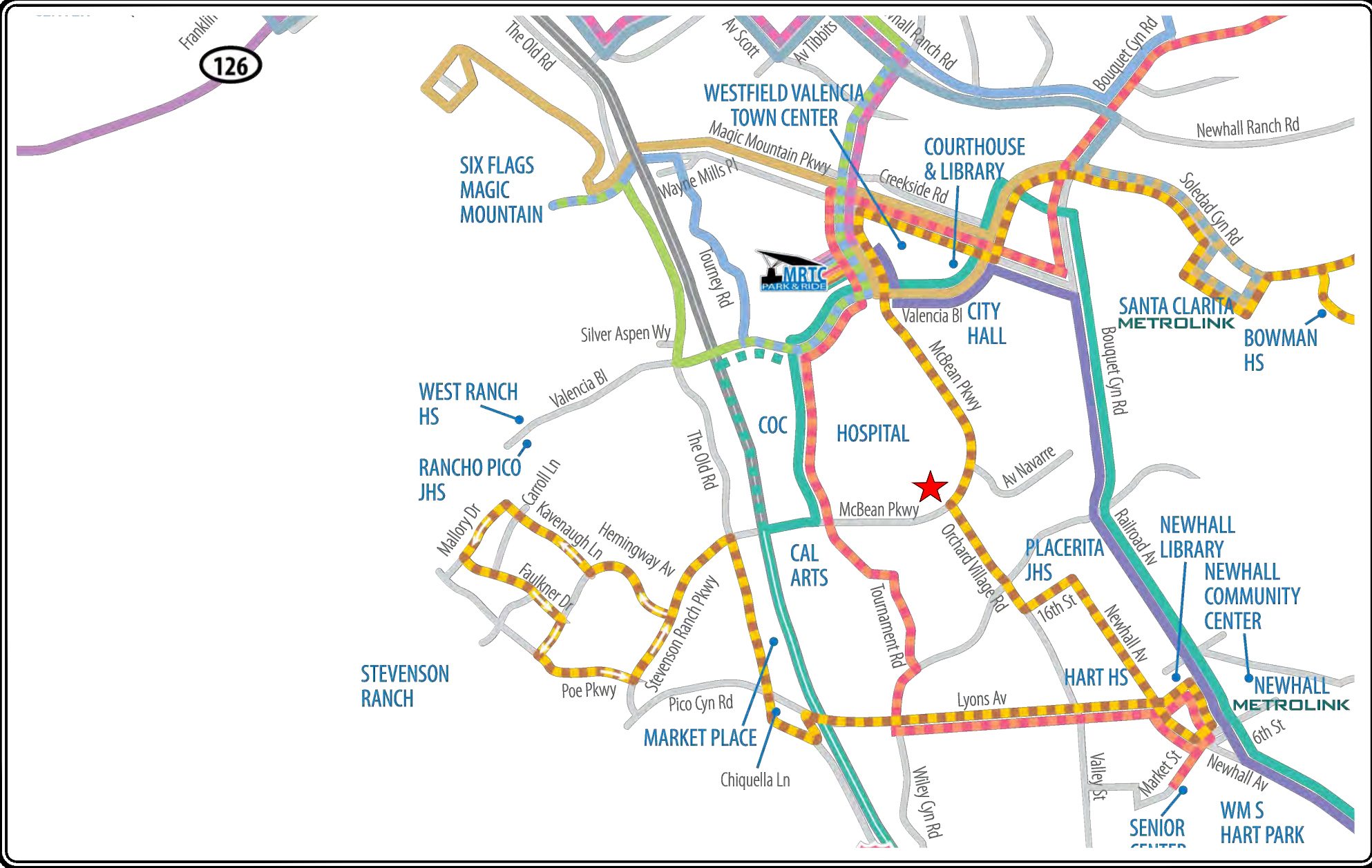
Table 4-1  
EXISTING TRANSIT ROUTES [1]

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES & TRAINS DURING PEAK HOUR		
			DIR	AM	PM
Route 1	McBean Transit Center to Castaic (via The Old Road)	McBean Parkway	NB SB	5 5	5 5
Route 2	McBean Transit Center to Val Verde (via The Old Road)	McBean Parkway	NB SB	4 3	3 4
Route 3	Six Flags to Seco Canyon (via Newhall Ranch Road & Seco Canyon Road)	Valencia Boulevard, McBean Parkway	NB SB	2 2	2 2
Route 4/14	Newhall Metrolink to Bouquet Canyon (via Bouquet Canyon Road)	Lyons Avenue, Magic Mountain Parkway, Rockwell Canyon Road	NB SB	4 4	4 5
Route 5/6	Newhall Metrolink to Vasquez Canyon/Shadow Pines (via Soledad Canyon Road)	Lyons Avenue, Orchard Village Road, McBean Parkway, Magic Mountain Parkway	EB WB	6 8	7 7
Route 7	Six Flags to Seco Canyon (via McBean Parkway & Copper Hill Road)	Valencia Boulevard, McBean Parkway	NB SB	2 1	1 2
Route 757	McBean Transit Center to North Hollywood Station (via Bouquet Canyon Road & I-5 Freeway)	Valencia Boulevard, McBean Parkway Rockwell Canyon Road	NB SB	0 4	0 4

Table 4-1 (Continued)  
EXISTING TRANSIT ROUTES [1]

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES & TRAINS DURING PEAK HOUR		
			DIR	AM	PM
Route 791	Warner Center to Santa Clarita (via Newhall Ranch Road, McBean Parkway & I-5 Freeway)	Valencia Boulevard, McBean Parkway	NB SB	4 0	0 1
Route 792	Santa Clarita to Century City (via Newhall Ranch Road, Valencia Boulevard & I-5 Freeway)	Valencia Boulevard, McBean Parkway	NB SB	3 0	0 2
Route 794	Santa Clarita to Burbank Metrolink Station to Union Station (via Newhall Ranch Road, Valencia Boulevard & I-5 Freeway)	Valencia Boulevard, McBean Parkway	NB SB	3 0	0 2
Route 796	Santa Clarita Metrolink Station to Warner Center (via Soledad Canyon Road, McBean Parkway & I-5 Freeway)	Valencia Boulevard, McBean Parkway Orchard Village Road	NB SB	0 1	3 0
Route 797	Santa Clarita Metrolink Station to Century City (via Soledad Canyon Road, McBean Parkway & I-5 Freeway)	Valencia Boulevard, McBean Parkway Orchard Village Road	NB SB	0 1	2 0
Route 799	Santa Clarita Metrolink Station to Union Station (via Soledad Canyon Road, McBean Parkway & I-5 Freeway)	Valencia Boulevard, McBean Parkway Orchard Village Road	NB SB	0 1	5 0
<b>Total</b>				<b>28</b>	<b>29</b>

[1] Sources: City of Santa Clarita Transit website, 2018.



MAP SOURCE: CITY OF SANTA CLARITA TRANSIT  
 ★ PROJECT SITE

**FIGURE 4-2**  
**EXISTING PUBLIC TRANSIT ROUTES**

## 5.0 TRAFFIC COUNTS

Manual traffic counts of vehicular turning movements were conducted at each of the 14 study intersections in April 2017 during the weekday morning and afternoon commuter period to determine the peak hour traffic volume. The manual traffic counts at the study intersections were conducted from 7:00 AM to 9:00 AM to determine the AM peak commuter hour and from 4:00 to 6:00 PM to determine the PM peak commuter hour. Traffic volumes at the study intersections show the typical peak periods between 7:00 and 9:00 AM generally associated with the peak morning commuter hours and 4:00 and 6:00 PM generally associated with the afternoon commuter hours.

The weekday AM and PM peak period manual counts of vehicle movements at the study intersections are summarized in *Table 5-1*. The existing traffic volumes at the study intersections during the AM and PM peak hours are shown in *Figures 5-1 and 5-2*, respectively. Summary data worksheets of the manual traffic counts at the study intersections are contained in *Appendix A*.

Table 5-1  
EXISTING TRAFFIC VOLUMES [1]

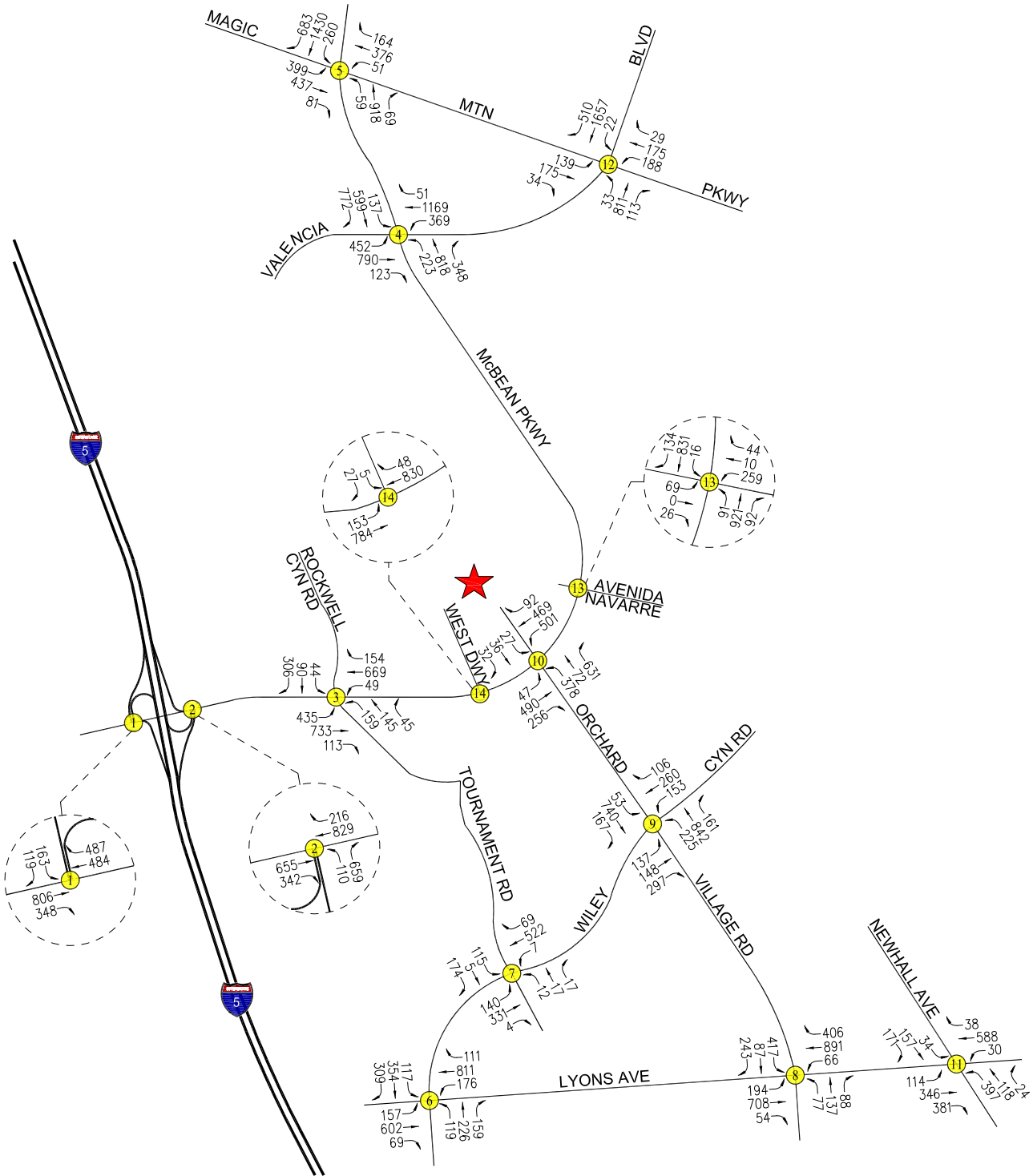
NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR		PM PEAK HOUR	
				BEGAN	VOLUME	BEGAN	VOLUME
1	I-5 Southbound Ramps / McBean Parkway	04/11/2017	NB	7:30	0	5:00	0
			SB		282		314
			EB		1,154		1,100
			WB		971		1,441
2	I-5 Northbound Ramps / McBean Parkway	04/11/2017	NB	7:30	769	4:45	769
			SB		0		0
			EB		997		1,045
			WB		1,072		1,386
3	Tournament Road-Rockwell Canyon Road / McBean Parkway	04/11/2017	NB	7:30	349	4:45	441
			SB		440		764
			EB		1,281		1,526
			WB		872		953
4	McBean Parkway / Valencia Boulevard	04/11/2017	NB	7:30	1,389	4:45	1,704
			SB		1,508		1,968
			EB		1,365		1,964
			WB		1,589		1,714
5	McBean Parkway / Magic Mountain Parkway	04/11/2017	NB	7:30	1,046	4:45	1,913
			SB		2,373		2,255
			EB		917		1,784
			WB		591		1,142
6	Wiley Canyon Road / Lyons Avenue	04/11/2017	NB	7:30	504	4:15	764
			SB		780		633
			EB		828		1,352
			WB		1,098		994
7	Tournament Road / Wiley Canyon Road	04/11/2017	NB	7:30	46	4:45	37
			SB		294		303
			EB		475		809
			WB		598		480
8	Orchard Village Road / Lyons Avenue	04/11/2017	NB	7:15	302	4:15	352
			SB		747		679
			EB		956		1,349
			WB		1,363		1,374
9	Orchard Village Road / Wiley Canyon Road	04/11/2017	NB	7:15	1,228	4:45	1,001
			SB		960		1,175
			EB		582		699
			WB		519		365
10	Orchard Village Road / McBean Parkway	04/11/2017	NB	7:30	1,081	4:45	979
			SB		95		255
			EB		793		1,178
			WB		1,062		1,406
11	Newhall Avenue / Lyons Avenue	04/11/2017	NB	7:30	539	4:15	600
			SB		362		281
			EB		841		1,298
			WB		656		718
12	Valencia Boulevard / Magic Mountain Parkway	04/11/2017	NB	7:30	957	4:30	1,901
			SB		2,189		1,786
			EB		348		1,196
			WB		610		696

Table 5-1 (Continued)  
EXISTING TRAFFIC VOLUMES [1]

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR		PM PEAK HOUR	
				BEGAN	VOLUME	BEGAN	VOLUME
13	Avenida Navarre / McBean Parkway	04/11/2017	NB	7:15	313	4:45	178
			SB		95		234
			EB		1,104		1,523
			WB		981		1,363
14	West Driveway / McBean Parkway	04/11/2017	NB	7:30	0	4:45	0
			SB		32		87
			EB		937		1,199
			WB		878		965

[1] Counts conducted by National Data & Surveying Services.

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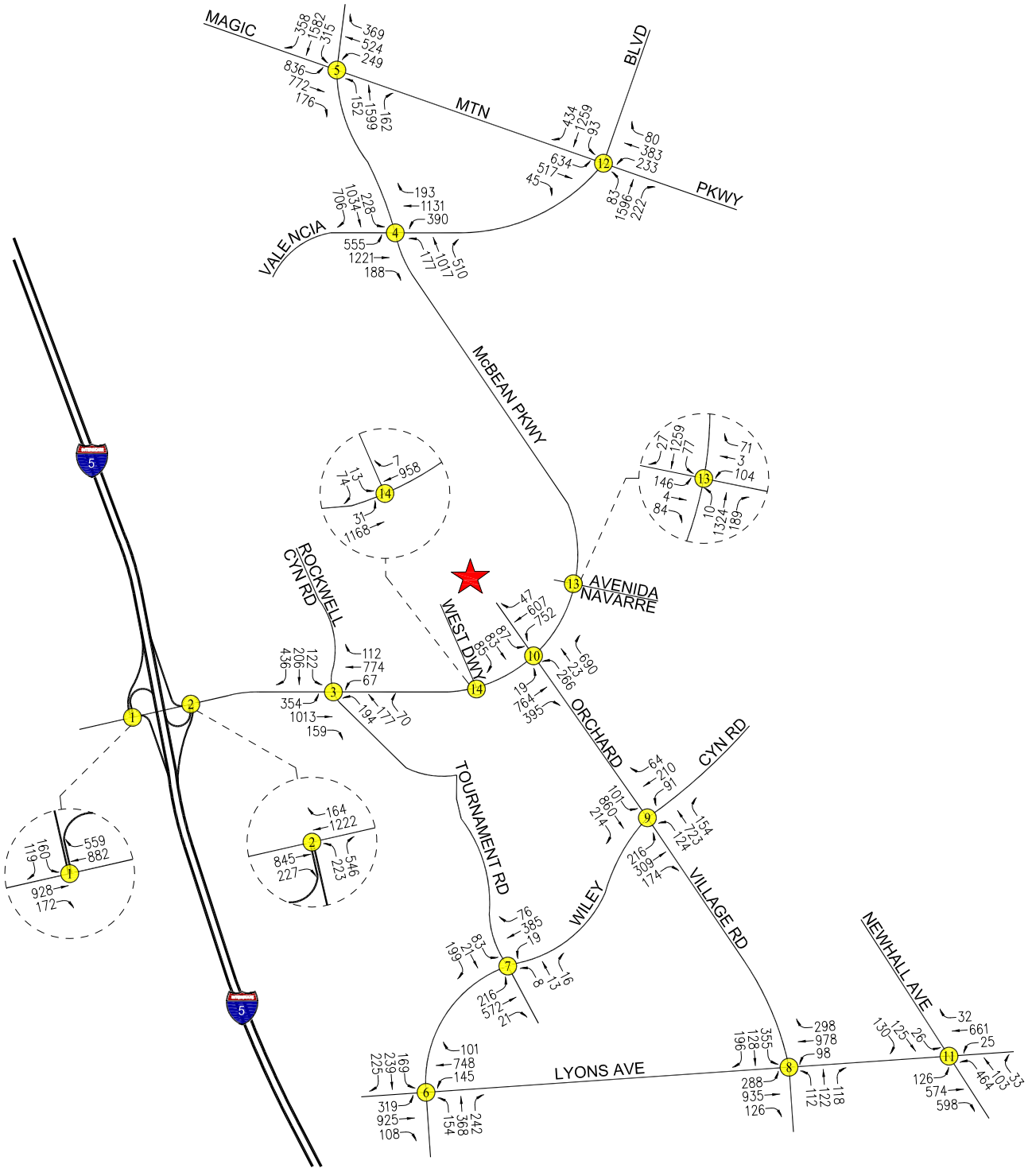
- ★ PROJECT SITE
- Ⓧ STUDY INTERSECTION

**FIGURE 5-1**  
**EXISTING TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers



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- ★ PROJECT SITE
- Ⓧ STUDY INTERSECTION

**FIGURE 5-2**  
**EXISTING TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

## 6.0 AMBIENT TRAFFIC GROWTH FACTOR

The forecast of future pre-Project conditions was prepared in accordance to procedures outlined in Section 15130 of the CEQA Guidelines. Specifically, the CEQA Guidelines provide two options for developing the future traffic volume forecast:

“(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the [lead] agency, or

(B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.”

Accordingly, the traffic analysis utilizes option “B” outlined in CEQA Guidelines for purposes of developing the future pre-Project traffic volume forecast.

### 6.1 Ambient Traffic Growth Factor

For purposes of forecasting future pre-Project traffic volumes at the study intersections, existing traffic volumes were increased at an annual rate of 2.0 percent (2.0%) per year to the year 2022 (i.e., the anticipated year of Project build-out). Additionally, the Santa Clarita Valley Consolidated Traffic Model (SCVCTM) was utilized for forecasting traffic volumes for the year 2035. The ambient growth factor was based on general traffic growth factors provided in the *2010 Congestion Management Program for Los Angeles County* (the “CMP manual”) and determined in consultation with City of Santa Clarita. It is noted that based on review of the general traffic growth factors provided in the CMP manual for the Project study area (i.e., RSA 8, Santa Clarita) it is anticipated that the existing traffic volumes are expected to increase at an annual rate of 1.4% per year between the years 2015 and 2025. Thus, application of an annual growth factor of the 2.0% annual growth rate provides a conservative, worst case forecast of future traffic volumes in the area as it substantially exceeds the annual traffic growth rate published in the CMP manual. Further, it is noted that the CMP manual’s traffic growth rate is intended to anticipate future traffic generated by development projects in the Project vicinity. Thus, the inclusion in this traffic analysis of an ambient growth traffic factor which exceeds the CMP traffic model growth rate results in a conservative estimate of future traffic volumes at the study intersections.

## 7.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the proposed Project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic volumes on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the Project development tabulation.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound Project traffic volumes. These origins and destinations are typically based on demographics and existing/anticipated travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the impact of the proposed Project is isolated by comparing operational (i.e., Levels of Service) conditions at the selected key intersections using existing and expected future traffic volumes without and with forecast Project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the Project's impacts identified.

### 7.1 Project Traffic Generation

Traffic volumes expected to be generated by the proposed Project during the weekday AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the ITE *Trip Generation Manual*<sup>2</sup>.

As previously noted, the Project consists of the construction of 200,000 square feet of additional building floor area for a new Diagnostic and Treatment Building (84,300 square feet) and an Inpatient Building 2 (115,700 square feet). The new buildings will accommodate uses (e.g., hospital beds) that are currently provided within the existing Hospital. Accordingly, the existing uses to be accommodated at the Project will not generate new vehicle trips to the site. However, the building floor area within the existing Hospital (approximately 138,000 square feet) will be re-occupied with administrative office uses, procedure rooms, imaging and MRI space, Physical/Occupational/Speech Therapy space, and storage space currently not provided at the Hospital. Accordingly, in consultation with City staff, the trip generation forecast for the Project is based on the potential new vehicle trips that may be generated through re-occupancy of the building floor area within the existing Hospital by the administrative office space, procedure rooms, imaging and MRI space, Physical/Occupational/Speech Therapy space, and storage space.

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<sup>2</sup> Institute of Transportation Engineers *Trip Generation Manual*, 10<sup>th</sup> Edition, Washington, D.C., 2017.

The following trip generation rates were used to forecast the traffic volumes expected to be generated as a result of the Project:

- Administrative Space: ITE Land Use Code 710 (General Office Building) trip generation average rates were used to forecast the traffic volumes expected to be generated by the Administrative Space component of the proposed Project.
- Hospital: ITE Land Use Code 610 (Hospital) trip generation average rates were used to forecast the traffic volumes expected to be generated by the Hospital component of the proposed Project.
- Medical Office: ITE Land Use Code 720 (Medical-Dental Office Building) trip generation average rates were used to forecast the traffic volumes expected to be generated by the Medical Office component of the proposed Project.

As presented in *Table 7-1*, the proposed Project is expected to generate 157 net new vehicle trips (126 inbound trips and 31 outbound trips) during the AM peak hour. During the PM peak hour, the proposed Project is expected to generate 165 net new vehicle trips (38 inbound trips and 127 outbound trips). Over a 24-hour period, the proposed Project is forecast to generate a net increase of 1,570 daily trip ends (approximately 785 inbound trips and 785 outbound trips) during a typical weekday.

## 7.2 Project Traffic Distribution and Assignment

Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- The site's proximity to major traffic corridors (i.e., McBean Parkway, Orchard Village Road, Valencia Boulevard, I-5 Freeway, etc.);
- Expected localized traffic flow patterns based on adjacent roadway channelization and presence of traffic signals;
- Existing intersection traffic volumes;
- Ingress/egress availability at the Project site assuming the site access and circulation scheme described in Section 3.0;
- Nearby population and employment centers as well as adjacent residential neighborhoods; and
- Input from City of Santa Clarita staff.

Table 7-1  
PROJECT TRIP GENERATION [1]

09-Jan-19

LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]		PM PEAK HOUR VOLUMES [2]	
			IN	OUT	IN	OUT
<i>Proposed Project</i>						
Administrative Space [3]	80,000 GSF	779	80	13	15	92
Hospital [4]	51,000 GSF	547	31	14	16	49
Medical Office [5]	7,000 GSF	244	15	4	7	24
<b>NET INCREASE</b>		<b>1,570</b>	<b>126</b>	<b>31</b>	<b>38</b>	<b>165</b>

[1] Source: ITE "Trip Generation Manual," 10th Edition, 2017.

[2] Trips are one-way traffic movements, entering or leaving.

[3] ITE Land Use Code 710 (General Office Building) trip generation average rates.

- Daily Trip Rate: 9.74 trips/1,000 SF of floor area; 50% inbound and 50% outbound

- AM Peak Hour Trip Rate: 1.16 trips/1,000 SF of floor area; 86% inbound/14% outbound

- PM Peak Hour Trip Rate: 1.15 trips/1,000 SF of floor area; 16% inbound/84% outbound

[4] ITE Land Use Code 610 (Hospital) trip generation average rates.

- Daily Trip Rate: 10.72 trips/1,000 SF of floor area; 50% inbound and 50% outbound

- AM Peak Hour Trip Rate: 0.89 trips/1,000 SF of floor area; 68% inbound/32% outbound

- PM Peak Hour Trip Rate: 0.97 trips/1,000 SF of floor area; 32% inbound/68% outbound

[5] ITE Land Use Code 720 (Medical-Dental Office Building) trip generation average rates.

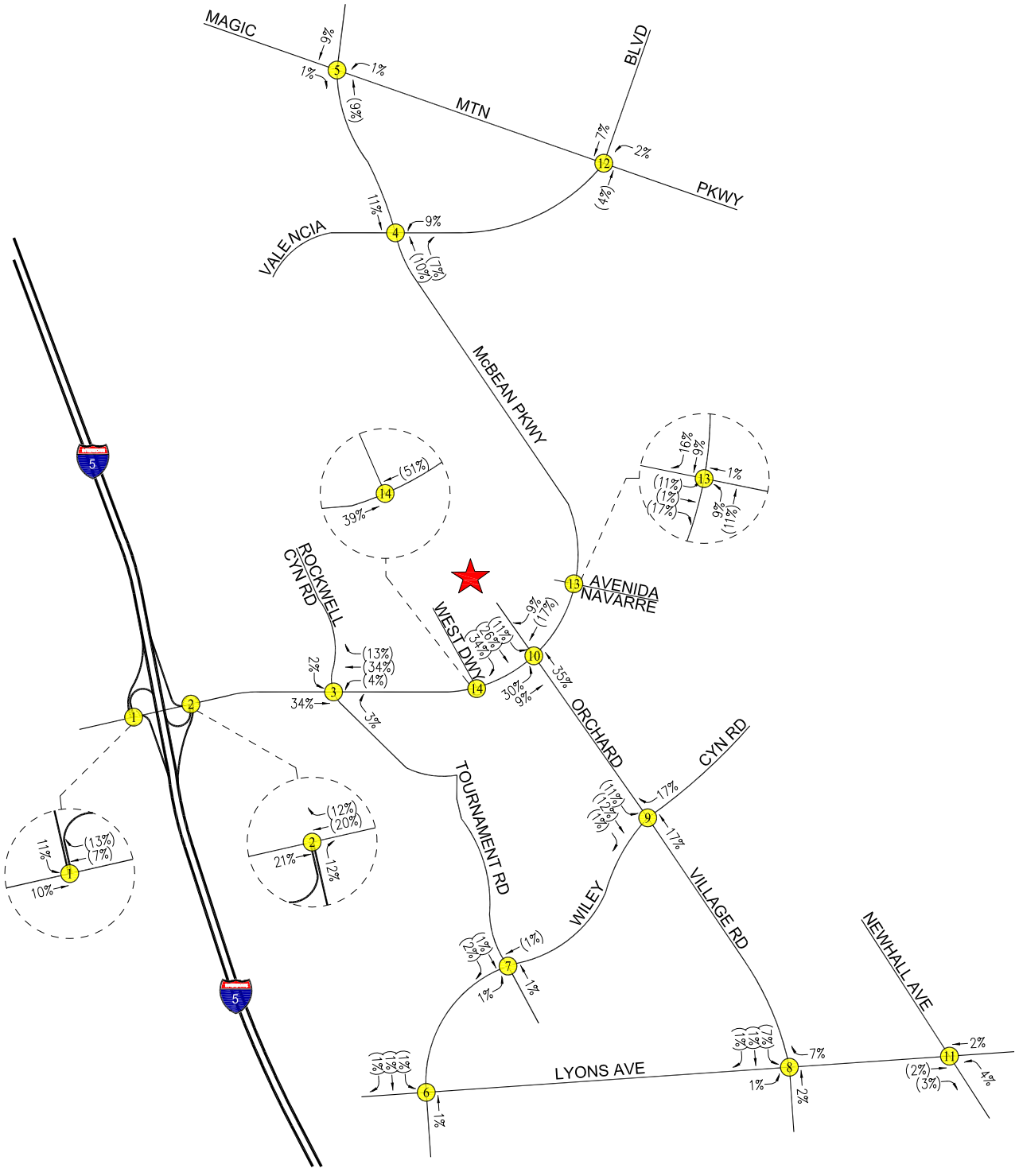
- Daily Trip Rate: 34.80 trips/1,000 SF of floor area; 50% inbound and 50% outbound

- AM Peak Hour Trip Rate: 2.78 trips/1,000 SF of floor area; 78% inbound/22% outbound



- PM Peak Hour Trip Rate: 3.46 trips/1,000 SF of floor area; 28% inbound/72% outbound

The general, directional traffic distribution patterns for the proposed Project during the AM and PM peak hours are presented in *Figures 7-1* and *7-2*, respectively. The forecast net new weekday AM and PM peak hour Project traffic volumes at the study intersections associated with the proposed Project are presented in *Figures 7-3* and *7-4*, respectively. The traffic volume assignments presented in *Figures 7-3* and *7-4* reflect the traffic distribution characteristics shown in *Figures 7-1* and *7-2*, and the Project traffic generation forecast presented in *Table 7-1*.

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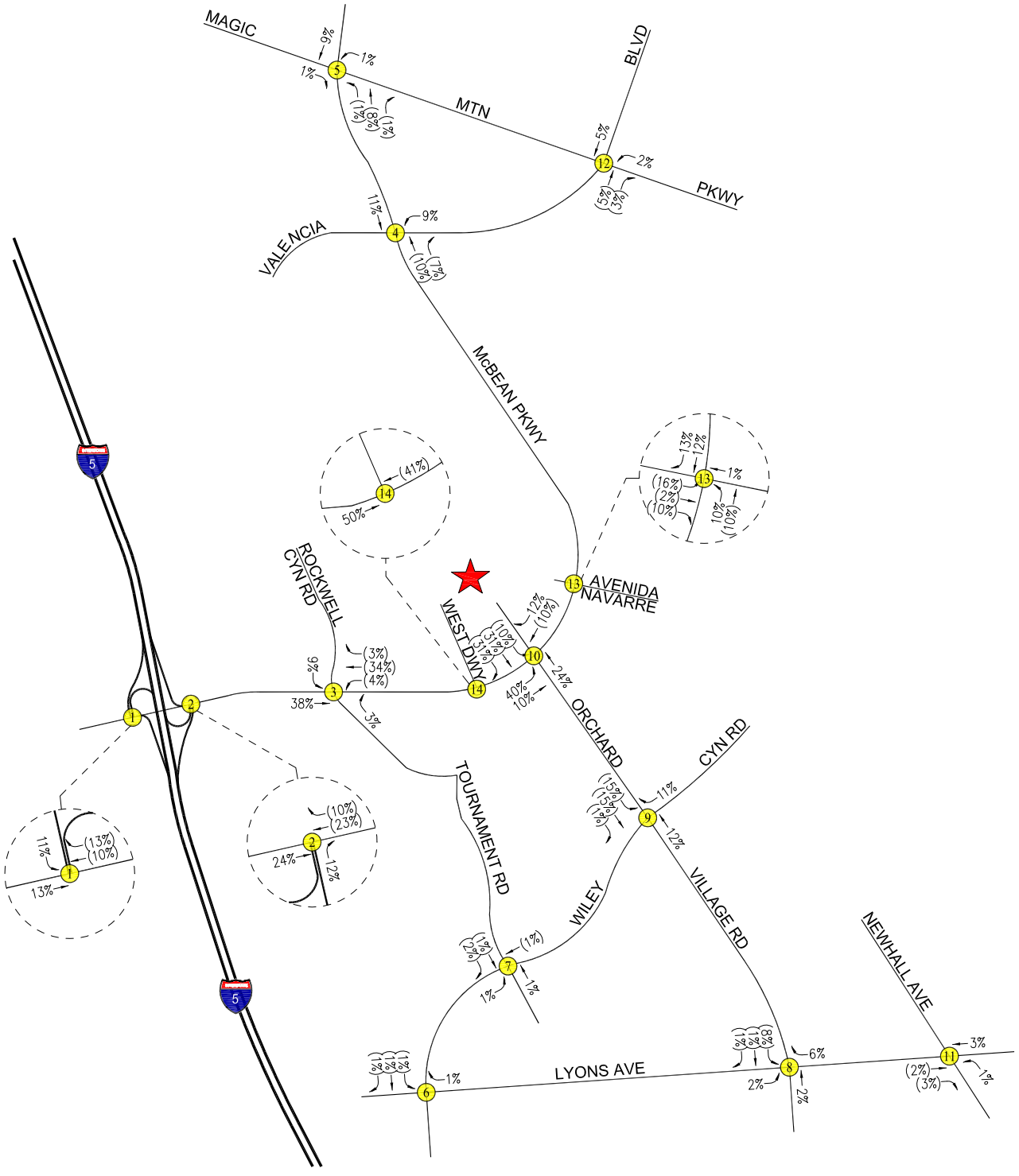
-  PROJECT SITE
-  STUDY INTERSECTION
- ## = INBOUND PERCENTAGES
- (##) = OUTBOUND PERCENTAGES

# FIGURE 7-1 PROJECT TRIP DISTRIBUTION



WEEKDAY AM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

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-  PROJECT SITE
-  STUDY INTERSECTION
- ## = INBOUND PERCENTAGES
- (##) = OUTBOUND PERCENTAGES

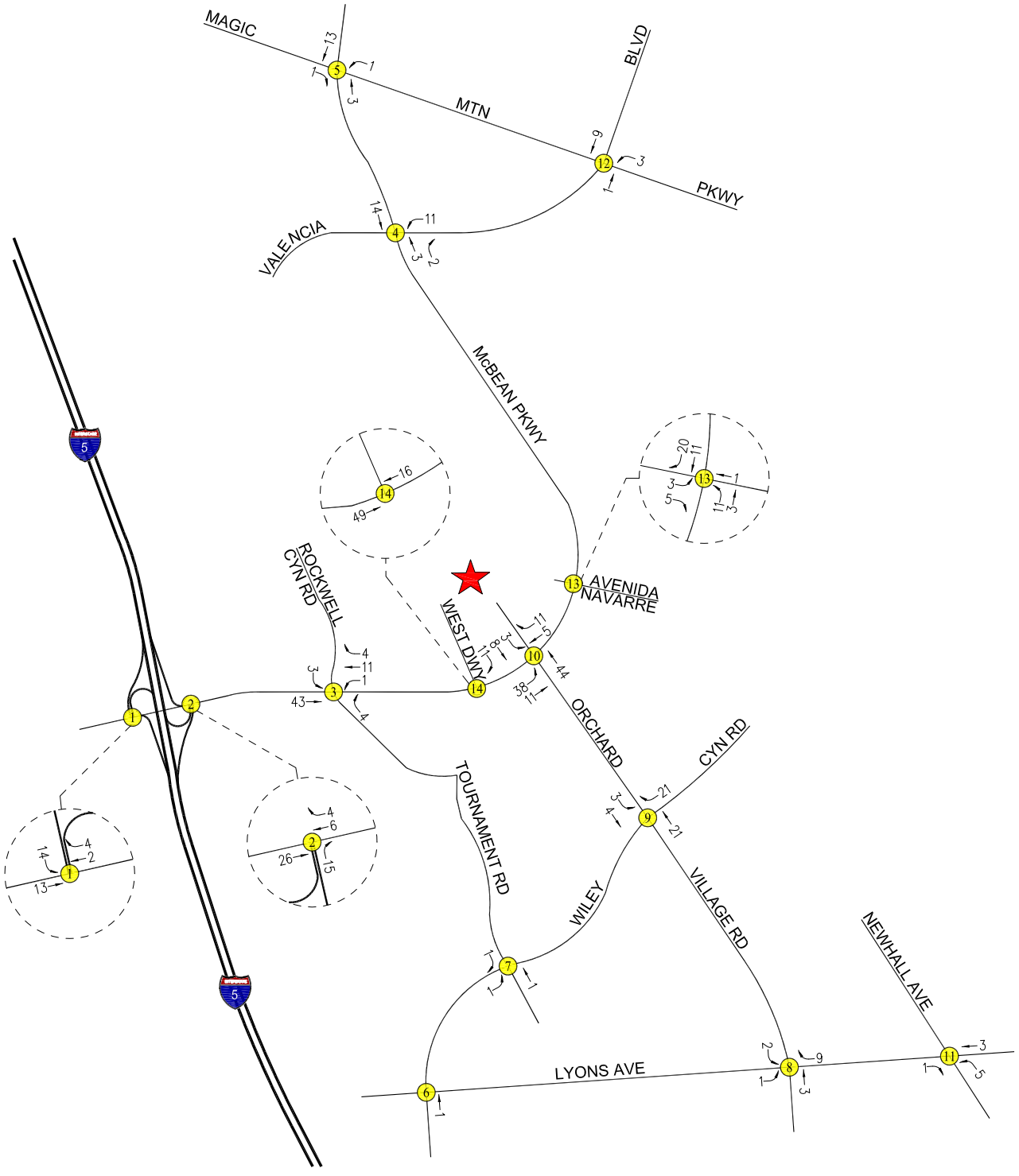
## FIGURE 7-2 PROJECT TRIP DISTRIBUTION

WEEKDAY PM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers



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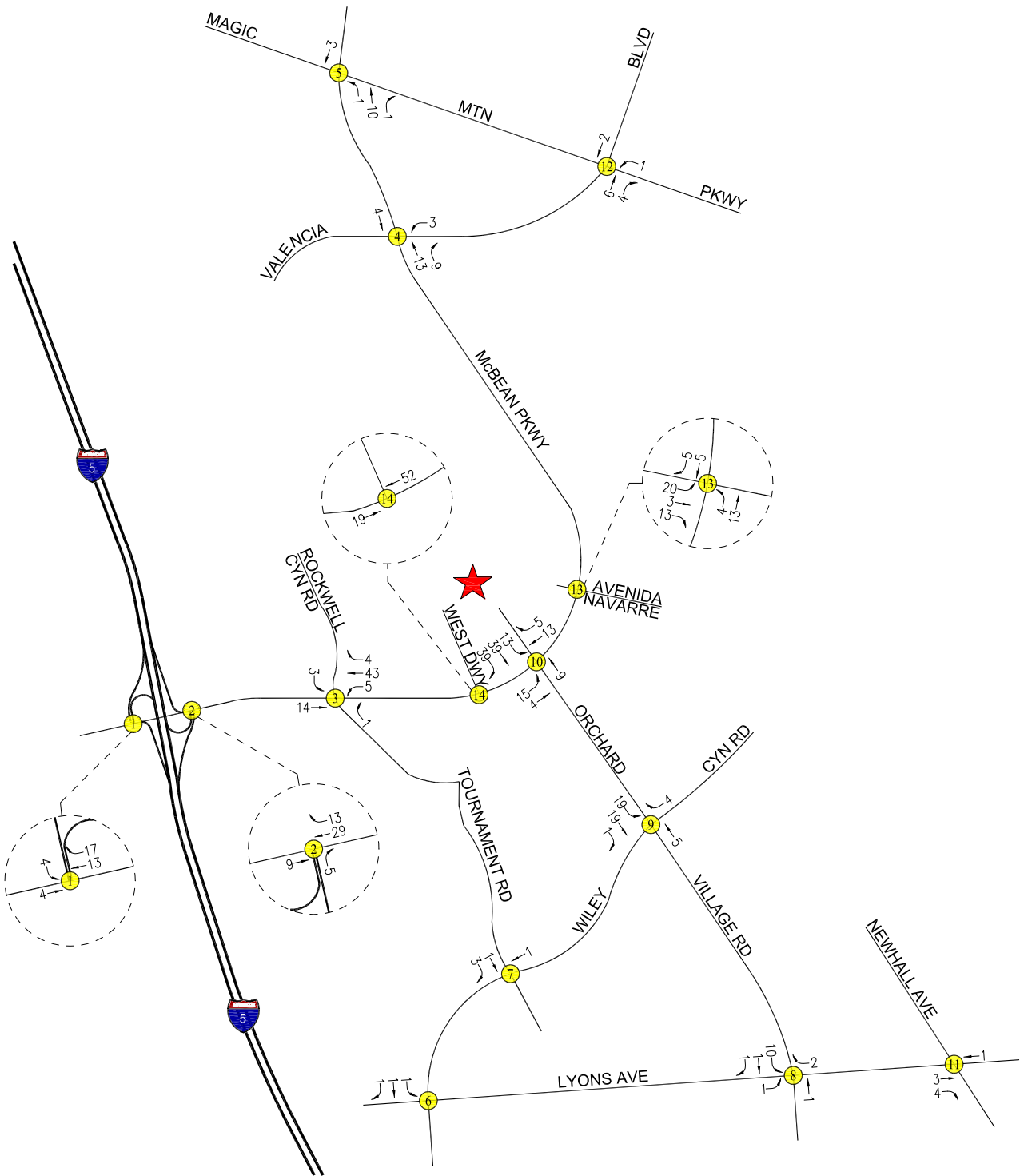
  
**NOT TO SCALE**

★ PROJECT SITE  
 ● STUDY INTERSECTION

**FIGURE 7-3**  
**PROJECT TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

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★ PROJECT SITE  
 (X) STUDY INTERSECTION

**FIGURE 7-4**  
**PROJECT TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

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## 8.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

Thirteen of the the 14 study intersections were evaluated using the HCM 2010 method of analysis for signalized intersections and implemented using the Synchro 10 software based on the City of Santa Clarita traffic study guidelines. Specifically, The HCM 2010 methodology for signalized intersections estimates the average control delay for each of the subject movements and determines the LOS for each constrained movement. The overall intersection average control delay is subsequently assigned a Level of Service (LOS) value to describe intersection operations.

One study intersection is controlled by a stop sign, and therefore was evaluated using the *Highway Capacity Manual 2010* (HCM 2010) methodology outlined in *Chapter 20 of the HCM 6* for two-way stop-controlled (TWSC) study intersections and implemented using the Synchro 10 software. The HCM 2010 methodology estimates the average control delay for each of the subject movements and determines the LOS for each constrained movement.

The Levels of Service under both the HCM 2010 methodology for both signalized and TWSC study intersections vary from LOS A (free flow) to LOS F (congested condition). A description of the HCM method and corresponding Level of Service is provided in ***Appendix B***.

### 8.1 Impact Criteria and Thresholds

The relative impact of the added Project traffic volumes to be generated by the proposed Project during the AM and PM peak hours was evaluated based on analysis of future operating conditions at the study intersections, with the proposed Project. The previously discussed capacity analysis procedures were utilized to evaluate the future delay relationships and service level characteristics at each study intersection.

#### 8.1.1 City of Santa Clarita Impact Criteria

The significance of the potential impacts of Project generated traffic at the 14 study intersections were identified using the traffic impact criteria set forth by the City of Santa Clarita. According to City staff, a transportation impact on an intersection shall be deemed significant in accordance with the following criteria:

- If the Project-related increase in delay results worsens an intersection from LOS D or better to LOS E or F.
- If the Project-related increase in delay causes the following increase in delay at an intersection that operated (with the Project) at LOS D or better to LOS E or F.
  - LOS D with the Project: More than 4-second increase in delay.
  - LOS E or F with the Project: More than 2-second increase in delay.

## 8.2 Traffic Impact Analysis Scenarios

Traffic impacts at the study intersections were analyzed for the following conditions as required by the City of Santa Clarita:

- (a) Existing (2017) conditions;
- (b) Existing (2017) conditions with completion and occupancy of the Project;
- (c) Condition (b) with implementation of Project traffic mitigation measures, if necessary;
- (d) Opening Year (2022) conditions due to ambient traffic growth;
- (e) Condition (d) with completion and occupancy of the Project;
- (f) Condition (e) with implementation of Project traffic mitigation measures, where necessary;
- (g) Future (2035) conditions based on volumes derived by the SCVCTM;
- (h) Condition (g) with completion and occupancy of the Project; and
- (i) Condition (h) with implementation of Project traffic mitigation measures, where necessary.

The traffic volumes for each new condition were added to the volumes in the prior condition to determine the change in capacity utilization at the study intersections.

## 9.0 CITY OF SANTA CLARITA TRAFFIC ANALYSIS

The traffic impact analysis prepared for the 14 study intersections using HCM methodology and application of the City of Santa Clarita significant traffic impact criteria is summarized in **Table 9-1**. The Synchro 10 data worksheets for the 14 analyzed intersections are contained in *Appendix B*.

### 9.1 Existing Conditions

#### 9.1.1 Existing Conditions

As indicated in column [1] of *Table 9-1*, 12 of the the 14 study intersections are presently operating at LOS D or better during the weekday AM and PM peak hours under existing conditions. The following intersections are presently operating at LOS E or worse during the peak hours shown below under existing conditions:

- Int. No. 4: McBean Parkway / Valencia Boulevard PM Peak Hour: Delay = 66.0 sec., LOS E
- Int. No. 10: Orchard Village Road / McBean Parkway AM Peak Hour: Delay = 55.9 sec., LOS E  
PM Peak Hour: Delay = 58.1 sec., LOS E

The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 5-1* and *5-2*, respectively.

#### 9.1.2 Existing With Project Conditions

As shown in column [2] of *Table 9-1*, application of the City’s threshold criteria to the “Existing With Project” scenario indicates that the proposed Project is not expected to create significant impacts at any of the 14 study intersections. Incremental, but not significant, impacts are noted at the study intersections due to the Project. As no significant impacts are expected due to the proposed Project, no traffic mitigation measures are required or recommended for the 14 study intersections under “Existing With Project” conditions. The existing with Project traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in **Figures 9-1** and **9-2**, respectively.

### 9.2 Opening Year (2022) Conditions

#### 9.2.1 Opening Year Baseline Conditions

The opening year baseline conditions were forecast by applying the 2.0% annual ambient growth factor to the existing traffic counts through to the year 2022 (i.e., the anticipated year of the Project build-out). The delay value at the study intersections are incrementally increased with the addition of traffic generated by ambient growth. As indicated in *Table 9-1*, incremental changes in control delays are noted at the all of the study intersections due to ambient growth.

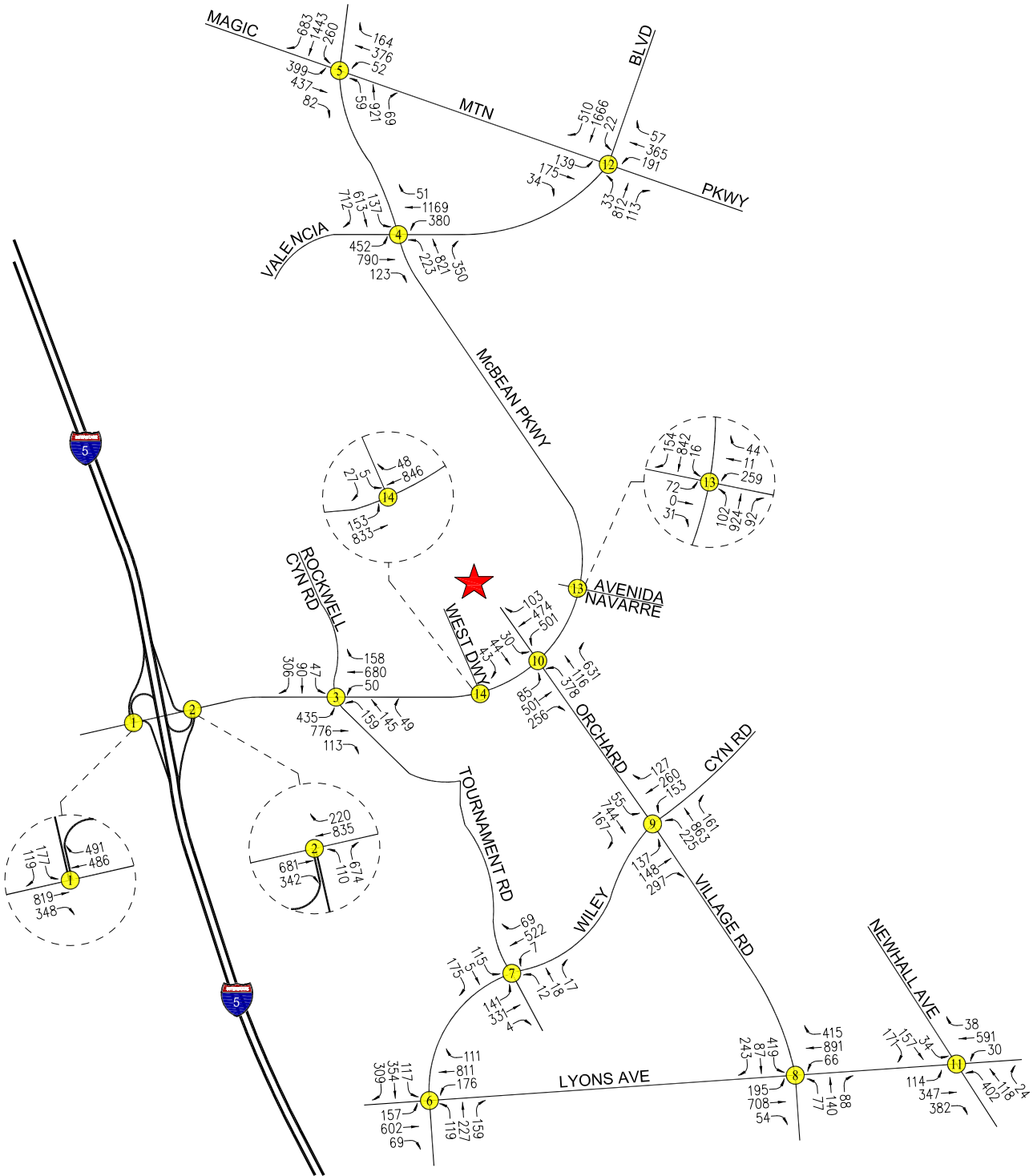
As presented in column [3] of *Table 9-1*, 11 of the 14 study intersections are expected to operate at LOS D or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic under the opening year baseline conditions. The following intersections are

TABLE 9-1  
CITY OF SANTA CLARITA INTERSECTION IMPACT ANALYSIS [A]

NO.	INTERSECTION	[1] YEAR 2017 EXISTING		[2] CHANGE YEAR 2017 EXISTING PROJECT		[3] YEAR 2022 OPENING YEAR		[4] CHANGE YEAR 2022 OPENING YEAR PROJECT		[5] YEAR 2025 FUTURE		[6] YEAR 2025 FUTURE PLUS PROPOSED PROJECT		[7] CHANGE YEAR 2025 FUTURE PLUS PROPOSED PROJECT		[8] CHANGE YEAR 2025 FUTURE PLUS PROPOSED PROJECT		[9] CHANGE YEAR 2025 FUTURE PLUS PROPOSED PROJECT		
		PEAK HOUR	DELAY [B]	LOS [C]	DELAY [B]	LOS [C]	DELAY [B]	LOS [C]	DELAY [B]	LOS [C]	DELAY [B]	LOS [C]	DELAY [B]	LOS [C]	DELAY [B]	LOS [C]	DELAY [B]	LOS [C]	DELAY [B]	LOS [C]
1	I-5 Southbound Ramps / McBean Parkway	AM PM	7.2 7.4	A A	7.3 7.4	A A	7.4 7.7	A A	7.6 7.8	A A	34.9 47.4	C D	37.0 48.4	D D	2.1 1.0	NO NO	37.0 48.4	D D	2.1 1.0	N/A N/A
2	I-5 Northbound Ramps / McBean Parkway	AM PM	13.3 11.4	B B	13.5 11.4	B B	14.2 12.2	B B	14.4 12.3	B B	11.9 12.7	B B	12.3 13.1	B B	0.4 0.4	NO NO	12.3 13.1	B B	0.4 0.4	N/A N/A
3	Rockwell Canyon Road/Tournament Road / McBean Parkway	AM PM	37.2 40.9	D D	37.1 41.2	D D	38.5 43.6	D D	38.4 44.1	D D	41.2 100.7	D F	41.3 102.7	D F	0.1 2.0	NO NO	41.3 102.7	C C	0.1 2.0	N/A N/A
4	McBean Parkway / Valencia Boulevard	AM PM	51.2 66.0	D E	51.2 66.1	D E	55.6 70.2	E E	55.6 70.3	E E	52.4 196.0	D F	52.8 196.1	D F	0.4 0.1	NO NO	52.8 196.1	D F	0.4 0.1	N/A N/A
5	McBean Parkway / Magie Mountain Parkway	AM PM	39.5 41.3	D D	39.5 41.2	D D	40.8 46.0	D D	40.8 46.0	D D	69.9 116.0	E F	70.3 116.5	E F	0.4 0.5	NO NO	70.3 116.5	E F	0.4 0.5	N/A N/A
6	Wiley Canyon Road / Lyons Avenue	AM PM	41.8 41.5	D D	41.8 41.5	D D	42.6 43.8	D D	42.6 43.9	D D	54.4 71.9	D E	54.4 72.0	D E	0.0 0.1	NO NO	54.4 72.0	D E	0.0 0.1	N/A N/A
7	Tournament Road / Wiley Canyon Road	AM PM	27.2 27.7	C C	27.4 27.8	C C	28.6 29.0	C C	28.8 29.0	C C	19.3 29.0	B C	19.4 29.1	B C	0.1 0.1	NO NO	19.4 29.1	B C	0.1 0.1	N/A N/A
8	Orchard Village Road / Lyons Avenue	AM PM	32.6 39.0	C D	32.6 39.1	C D	33.6 40.5	C D	33.6 40.6	C D	30.1 92.7	C F	30.1 94.4	C F	0.0 1.7	NO NO	30.1 94.4	C F	0.0 1.7	N/A N/A
9	Orchard Village Road / Wiley Canyon Road	AM PM	41.8 36.2	D D	41.8 36.7	D D	44.8 37.4	D D	44.8 38.4	D D	159.1 183.5	F F	163.3 190.6	F F	4.2 7.1	YES YES	129.5 172.2	F F	-29.6 -11.3	YES YES
10	Orchard Village Road / McBean Parkway	AM PM	55.9 58.1	E E	54.9 54.8	D D	57.2 51.3	E D	54.4 49.8	D D	67.1 253.6	E F	86.0 263.3	F F	18.9 9.7	YES YES	48.5 206.5	D F	-18.6 -47.1	YES YES
11	Newhall Avenue / Lyons Avenue	AM PM	31.8 27.4	C C	32.0 27.3	C C	33.0 28.8	C C	33.1 28.7	C C	33.1 94.3	C F	33.7 94.2	C F	0.6 -0.1	NO NO	33.7 94.2	C F	0.6 -0.1	N/A N/A
12	Valencia Boulevard / Magie Mountain Parkway	AM PM	35.8 53.5	D D	35.8 53.5	D D	36.9 68.5	D E	36.9 68.9	D E	122.9 215.2	F F	122.9 215.9	F F	0.0 0.7	NO NO	122.9 215.9	F F	0.0 0.7	N/A N/A
13	Avenida Nivare / McBean Parkway	AM PM	32.9 29.5	C C	32.8 29.9	C C	32.9 29.2	C C	32.8 29.7	C C	30.7 29.7	C C	30.7 30.3	C C	0.0 0.6	NO NO	30.7 30.3	C C	0.0 0.6	N/A N/A
14	West Driveway / McBean Parkway (Unsignalized)	AM PM	17.3 18.4	C C	17.7 19.2	C C	20.6 21.0	C C	21.1 22.3	C C	20.4 28.8	C D	20.6 30.2	C D	0.2 1.4	NO NO	20.6 30.2	C D	0.2 1.4	N/A N/A

[A] Intersection analysis results per SYNCHRO 10.  
 [B] Control delay reported in seconds per vehicle.  
 [C] Signalized Intersection Levels of Service were based on the following criteria:  
 Control Delay (s/veh) LOS  
 <= 10 A  
 > 10-20 B  
 > 20-35 C  
 > 35-55 D  
 > 55-80 E  
 > 80 F  
 [D] According to the City of Santa Clarita, a transportation impact on an intersection shall be deemed significant in accordance with the following criteria:  
 1. When an intersection maintained by the City of Santa Clarita from LOS D or better to LOS E or F  
 2. Cause the LOS D or better to LOS E or F  
 3. Cause the LOS D or better to LOS E or F and increase in delay  
 - LOS E or F with the project; more than 2-second increase in delay  
 - LOS E or F with the project; more than 2-second increase in delay  
 Unsignalized Intersection Levels of Service were based on the following criteria:  
 Control Delay (s/veh) LOS  
 <= 10 A  
 > 10-15 B  
 > 15-25 C  
 > 25-35 D  
 > 35-50 E  
 > 50 F

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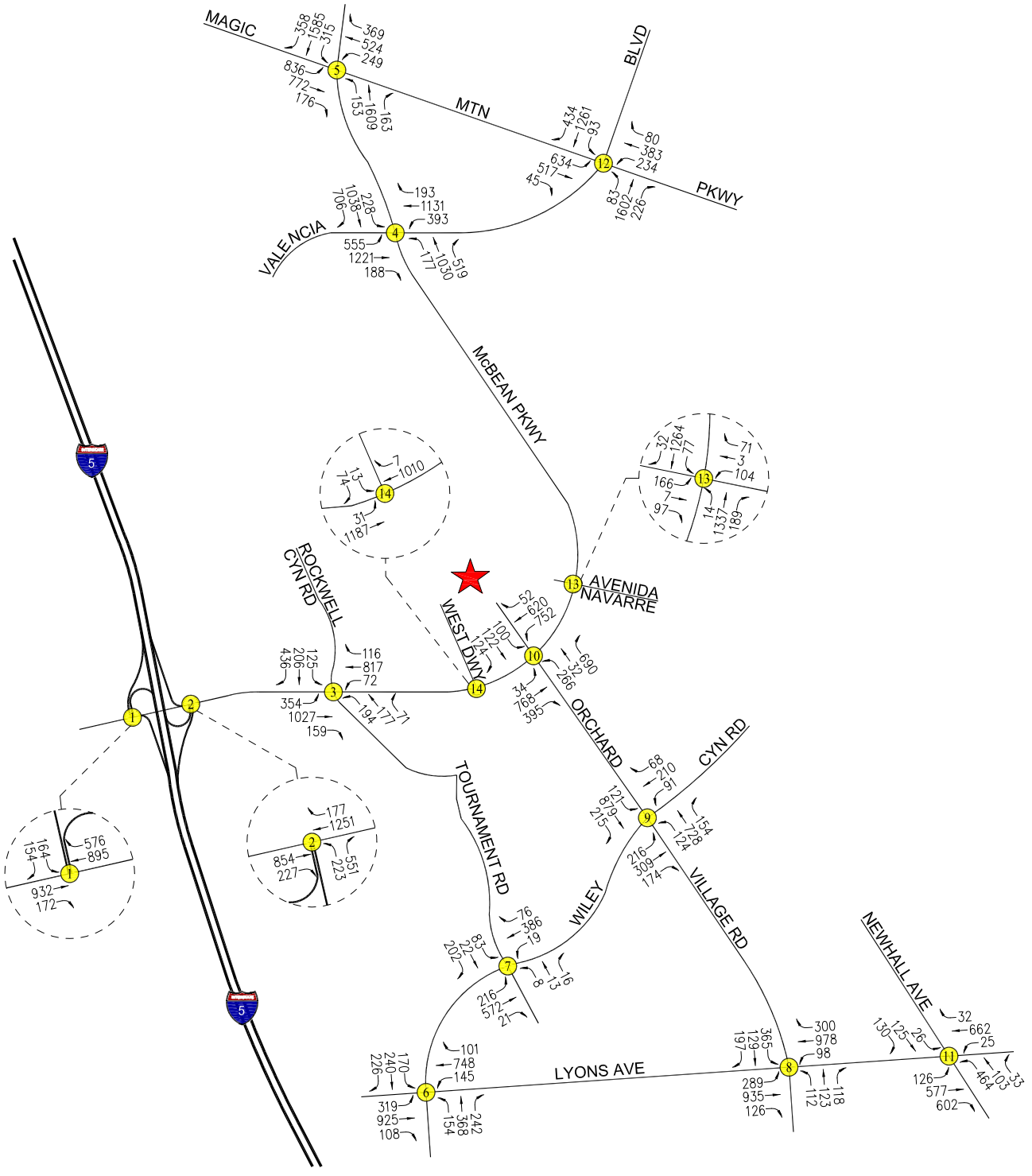
- ★ PROJECT SITE
- ⊗ STUDY INTERSECTION

# FIGURE 9-1 EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR  
HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

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**NOT TO SCALE**

★ PROJECT SITE  
 (X) STUDY INTERSECTION

**FIGURE 9-2**  
**EXISTING WITH PROJECT**  
**TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

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expected to operate at LOS E or worse during the peak hours shown below under opening year baseline conditions:

- Int. No. 4: McBean Parkway / Valencia Boulevard  
AM Peak Hour: Delay = 55.6 sec., LOS E  
PM Peak Hour: Delay = 70.2 sec., LOS E
- Int. No. 10: Orchard Village Road / McBean Parkway  
AM Peak Hour: Delay = 57.2 sec., LOS E  
PM Peak Hour: Delay = 51.3 sec., LOS E
- Int. No. 12: Valencia Boulevard / Magic Mountain Parkway  
PM Peak Hour: Delay = 68.5 sec., LOS E

The opening year baseline (existing and ambient growth) traffic volumes at the study intersections during the AM and PM peak hours are illustrated in **Figures 9-3** and **9-4**, respectively.

### 9.2.2 Opening Year With Project Conditions

The opening year with Project conditions were forecast based on the addition of traffic generated by the Project plus the forecast pre-Project volumes derived through application of the traffic growth factor. As shown in column [4] of *Table 9-1*, application of the City’s threshold criteria to the “Opening Year With Project” scenario indicates that the proposed Project is not expected to create a significant impact at any of the 14 study intersections. Incremental, but not significant, impacts are noted at the study intersections due to the Project. As no significant impacts are expected due to the proposed Project, no traffic mitigation measures are required or recommended for the 14 study intersections under “Opening Year With Project” conditions.

The opening year with Project (existing, ambient growth, and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in **Figures 9-5** and **9-6**, respectively.

## 9.3 Future (2035) Conditions

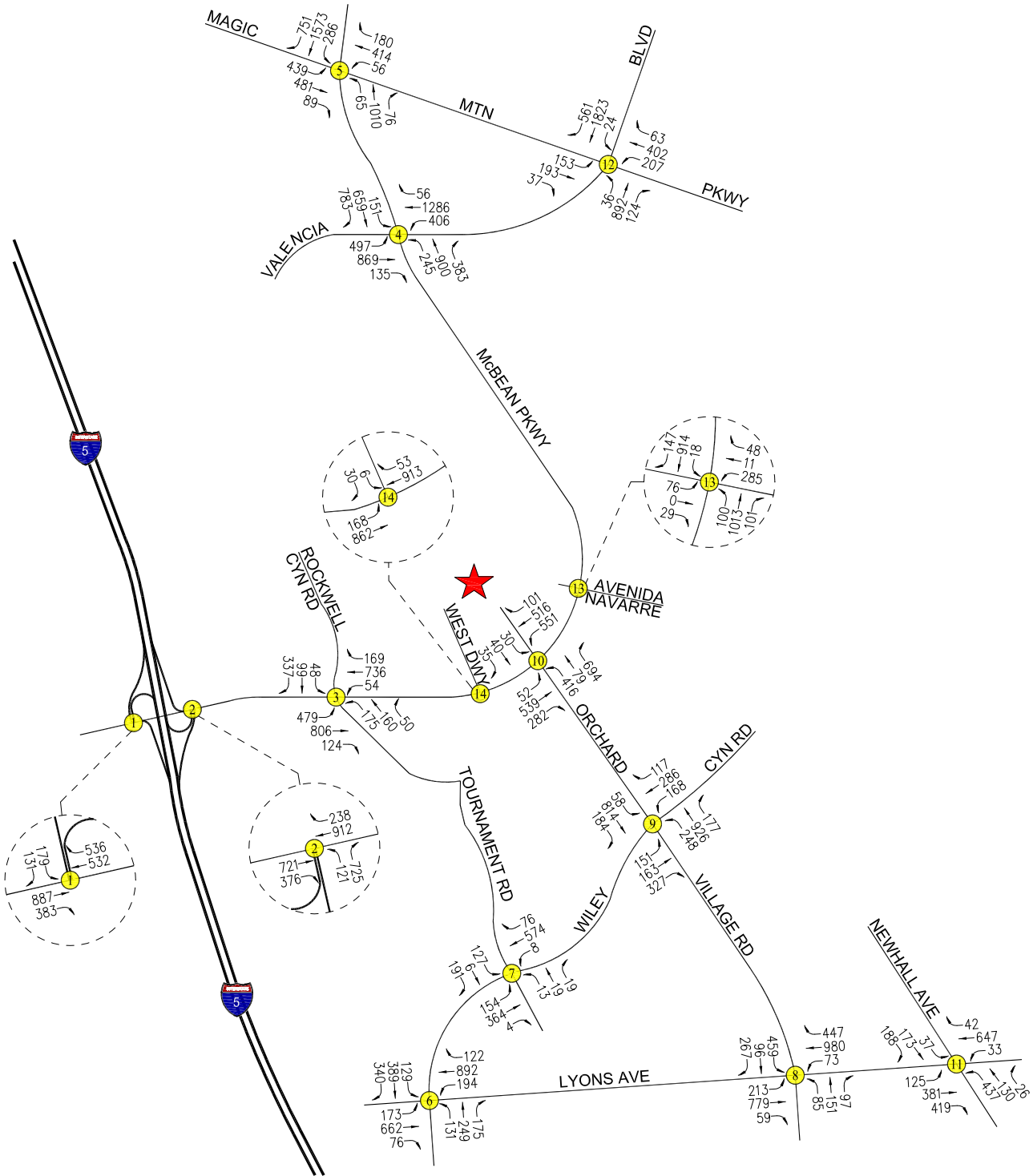
### 9.3.1 Future Baseline Conditions

The forecast traffic volumes at the study intersections for the future baseline conditions were provided by the City of Santa Clarita using the SCVCTM. Future traffic volumes associated with build-out of the approved Henry Mayo Specific Plan at the Hospital driveways were obtained from the traffic study prepared for the original Master Plan<sup>3</sup>. As presented in column [5] of *Table 9-1*, five of the 14 study intersections are expected to operate at LOS D or better during the weekday AM and PM peak hours under the future baseline conditions based on the SCVCTM. The following intersections are expected to operate at LOS E or worse during the peak hours shown below under future year baseline conditions:

---

<sup>3</sup> *Henry Mayo Newhall Memorial Hospital Master Plan – Traffic Impact Analysis*, Austin-Foust Associates, Inc., May 2008

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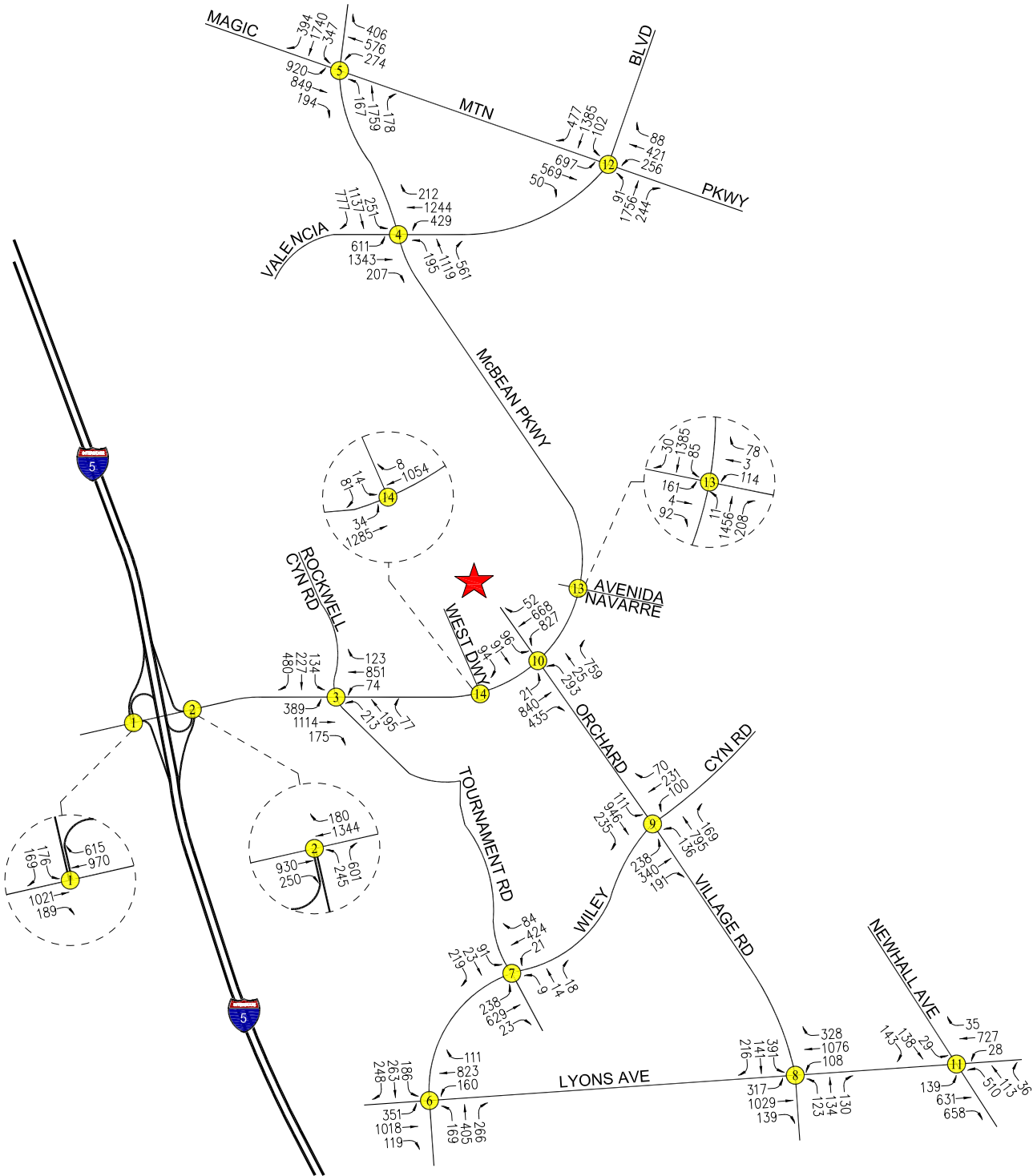
- ★ PROJECT SITE
- Ⓧ STUDY INTERSECTION

# FIGURE 9-3 OPENING YEAR BASELINE TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR  
HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

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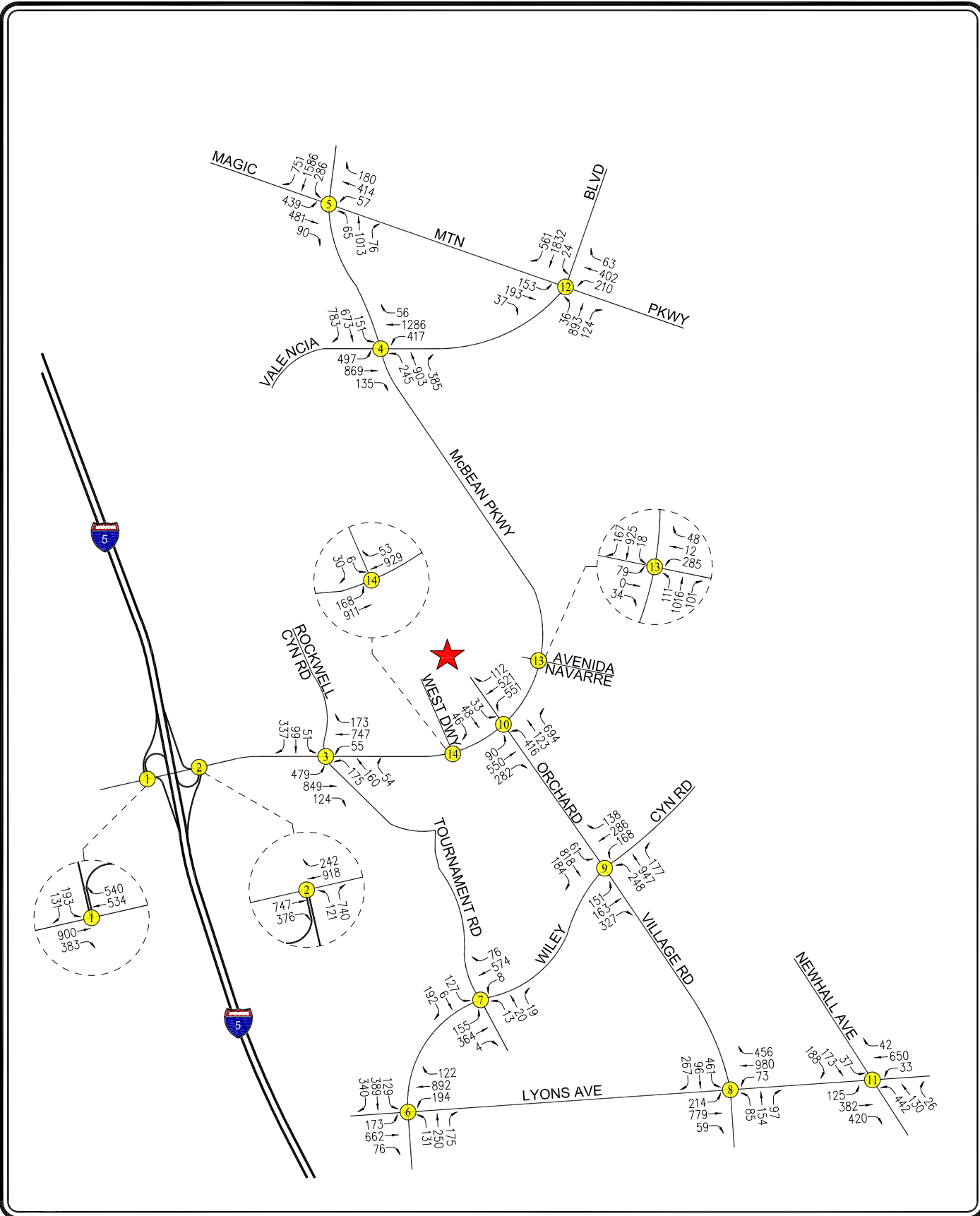
  
NOT TO SCALE

★ PROJECT SITE  
 (X) STUDY INTERSECTION

**FIGURE 9-4**  
**OPENING YEAR BASELINE**  
**TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

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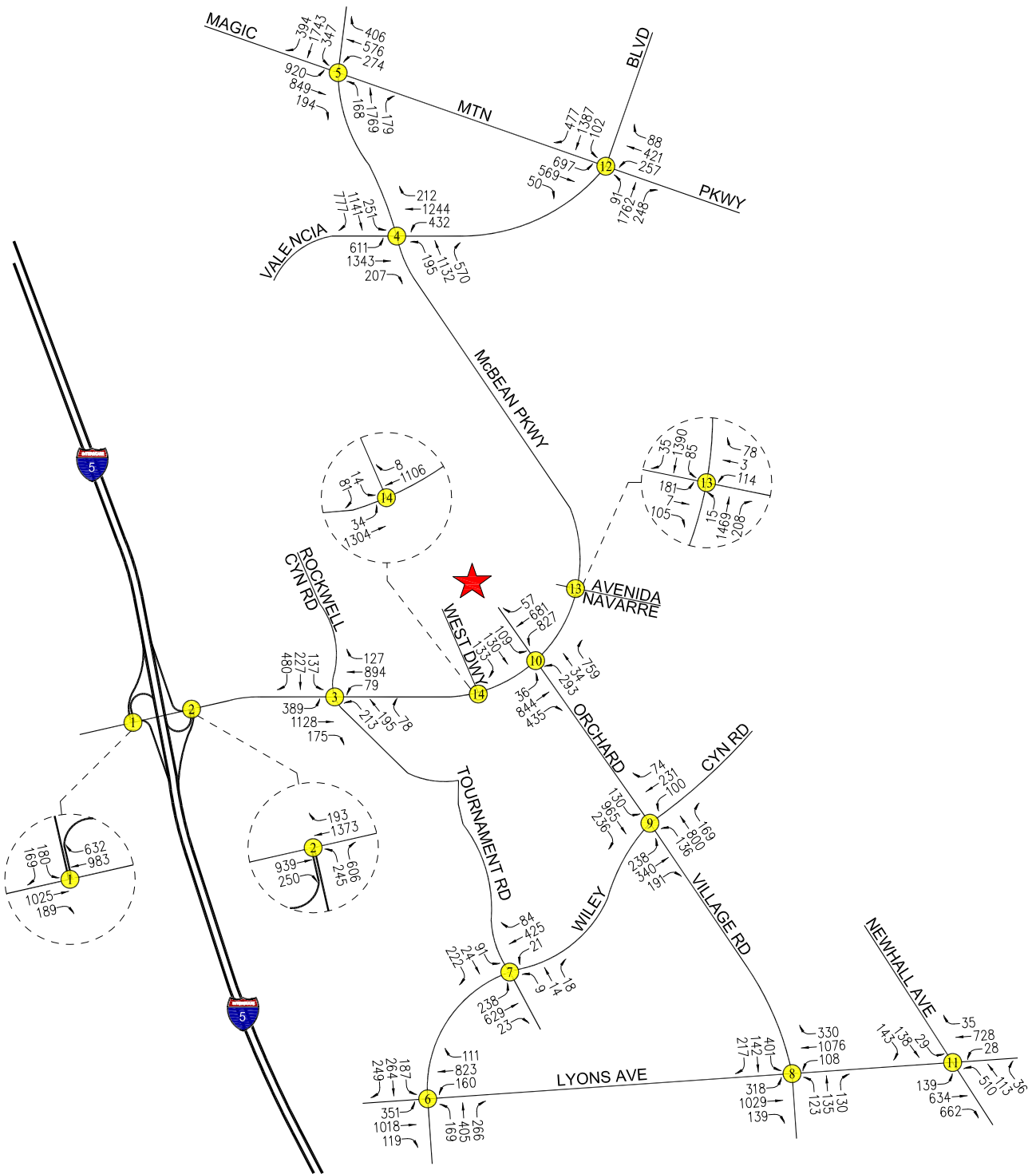
- ★ PROJECT SITE
- Ⓧ STUDY INTERSECTION

# FIGURE 9-5 OPENING YEAR WITH PROJECT TRAFFIC VOLUMES



WEEKDAY AM PEAK HOUR  
HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

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**NOT TO SCALE**

-  PROJECT SITE
-  STUDY INTERSECTION

**FIGURE 9-6**  
**OPENING YEAR WITH PROJECT**  
**TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

- Int. No. 3: Rockwell Canyon Road – Tournament Road / McBean Parkway PM Peak Hour: Delay = 100.7 sec., LOS F
- Int. No. 4: McBean Parkway / Valencia Boulevard PM Peak Hour: Delay = 196.0 sec., LOS F
- Int. No. 5: McBean Parkway / Magic Mountain Parkway AM Peak Hour: Delay = 69.9 sec., LOS E  
PM Peak Hour: Delay = 116.0 sec., LOS F
- Int. No. 6: Wiley Canyon Road / Lyons Avenue AM Peak Hour: Delay = 71.9 sec., LOS E
- Int. No.8: Wiley Canyon Road / Lyons Avenue AM Peak Hour: Delay = 92.7 sec., LOS F
- Int. No. 9: Orchard Village Road / Wiley Canyon Road AM Peak Hour: Delay = 159.1 sec., LOS F  
PM Peak Hour: Delay = 183.5 sec., LOS F
- Int. No. 10: Orchard Village Road / McBean Parkway AM Peak Hour: Delay = 67.1 sec., LOS E  
PM Peak Hour: Delay = 253.6 sec., LOS F
- Int. No. 11: Newhall Avenue / Lyons Avenue PM Peak Hour: Delay = 94.2 sec., LOS F
- Int. No. 12: Valencia Boulevard / Magic Mountain Parkway AM Peak Hour: Delay = 122.9 sec., LOS F  
PM Peak Hour: Delay = 215.2 sec., LOS F

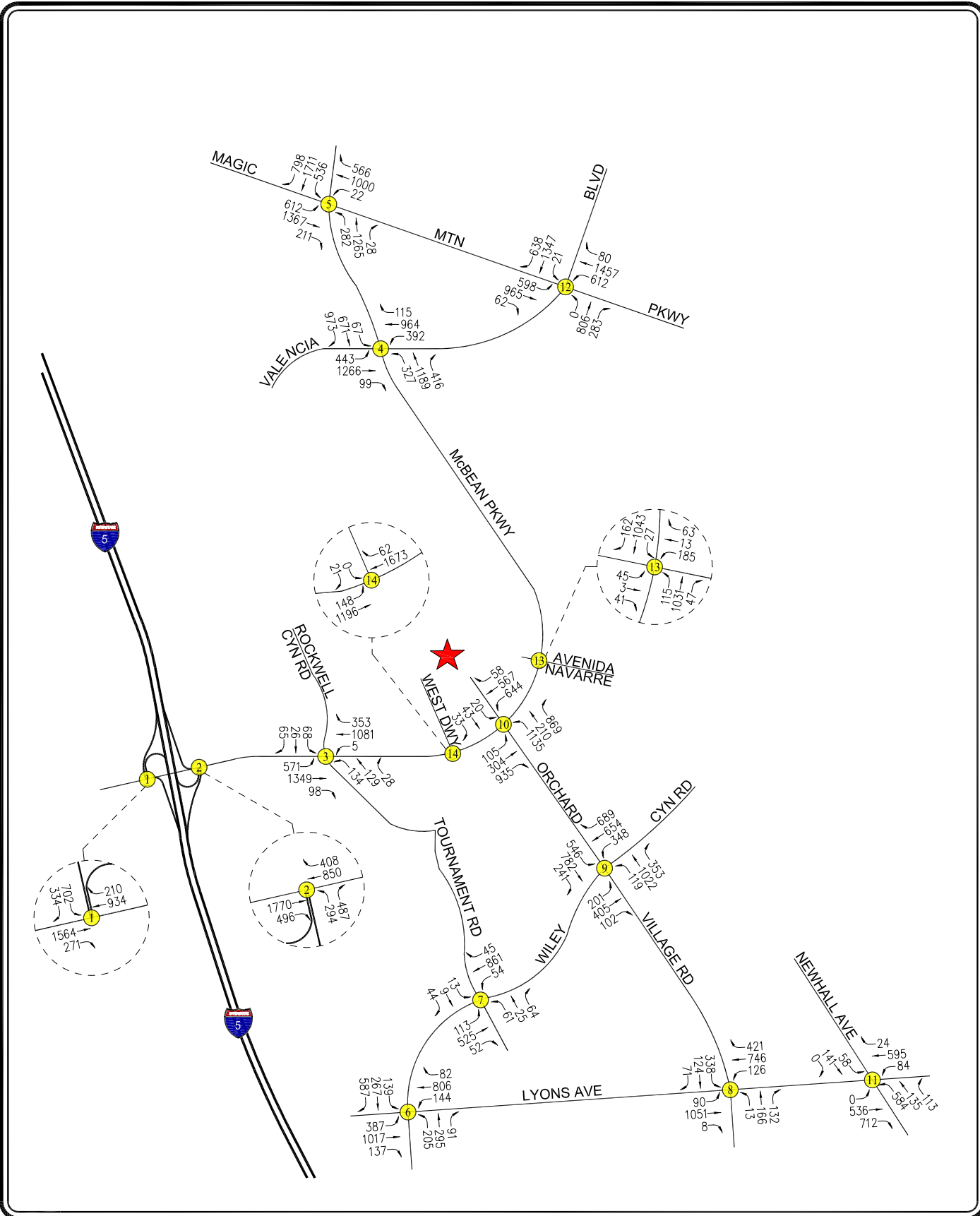
The future baseline (SCVCTM) traffic volumes at the study intersections during the AM and PM peak hours are illustrated in **Figures 9–7** and **9–8**, respectively.

### 9.3.2 Future With Project Conditions

The future with Project conditions were forecast based on the addition of traffic generated by the Project plus the forecast pre-Project volumes derived through the SCVCTM. As shown in column [6] of *Table 9–1*, application of the City’s threshold criteria to the “Future With Project” scenario indicates that the proposed Project is expected to create a significant impact at two of the 14 study intersections. As indicated in *Table 9–1*, a significant transportation impact is expected at the following intersections during the peak hours shown below under future with Project conditions:

- Int. No. 9: Orchard Village Road / Wiley Canyon Road AM Peak Hour delay increases 4.2 sec.  
PM Peak Hour delay increases 7.1 sec.
- Int. No. 10: Orchard Village Road / McBean Parkway AM Peak Hour increases 18.9 sec.  
PM Peak Hour delay increases 9.7 sec.

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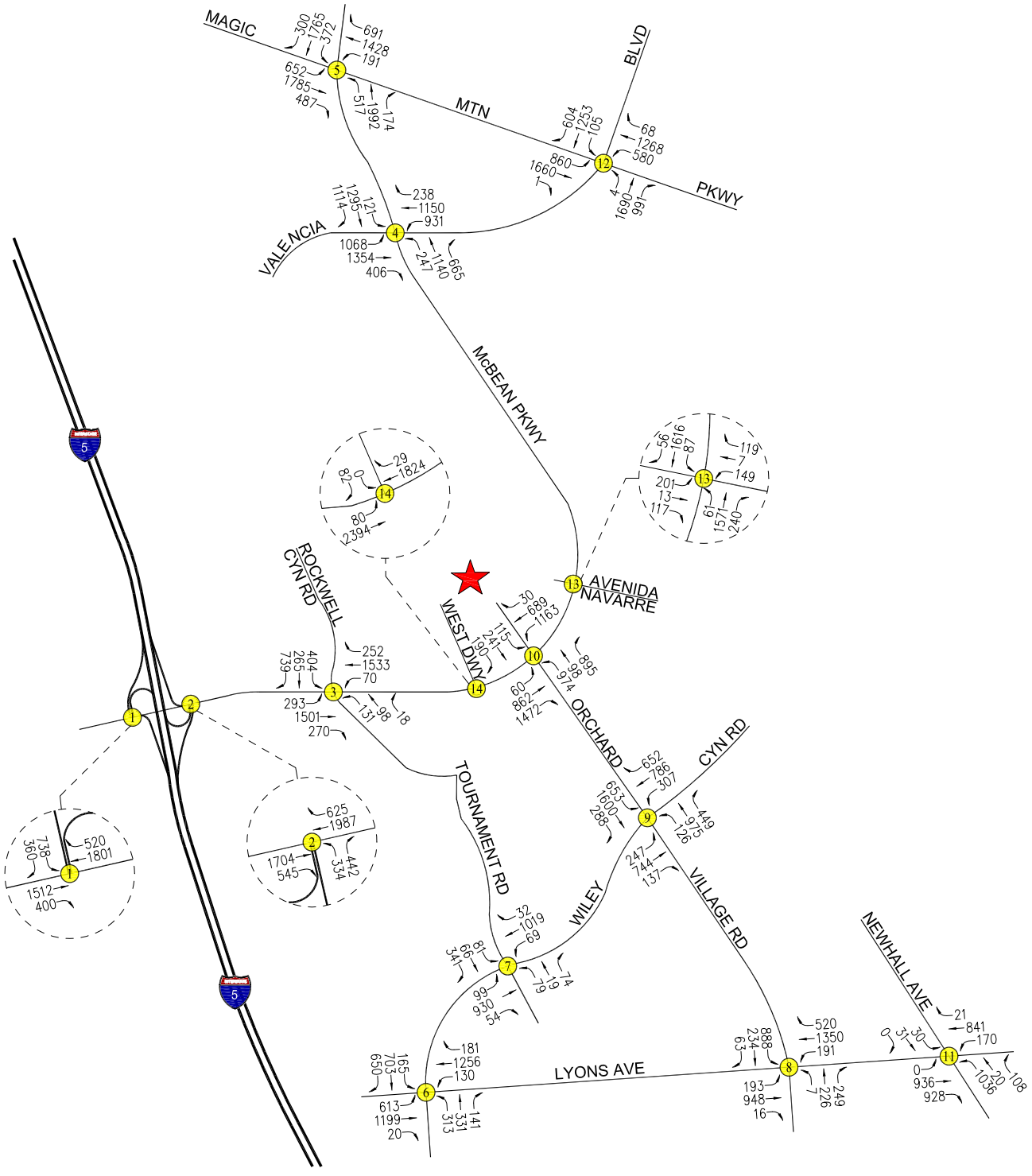


- ★ PROJECT SITE
- ⊗ STUDY INTERSECTION



**FIGURE 9-7**  
**FUTURE BASELINE**  
**TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

c:\0329\dwg\9-8.dwg 01/25/2019 11:42:50 jshender lig exhibits color.ctb



  
**NOT TO SCALE**

-  PROJECT SITE
-  STUDY INTERSECTION

# FIGURE 9-8 FUTURE BASELINE TRAFFIC VOLUMES

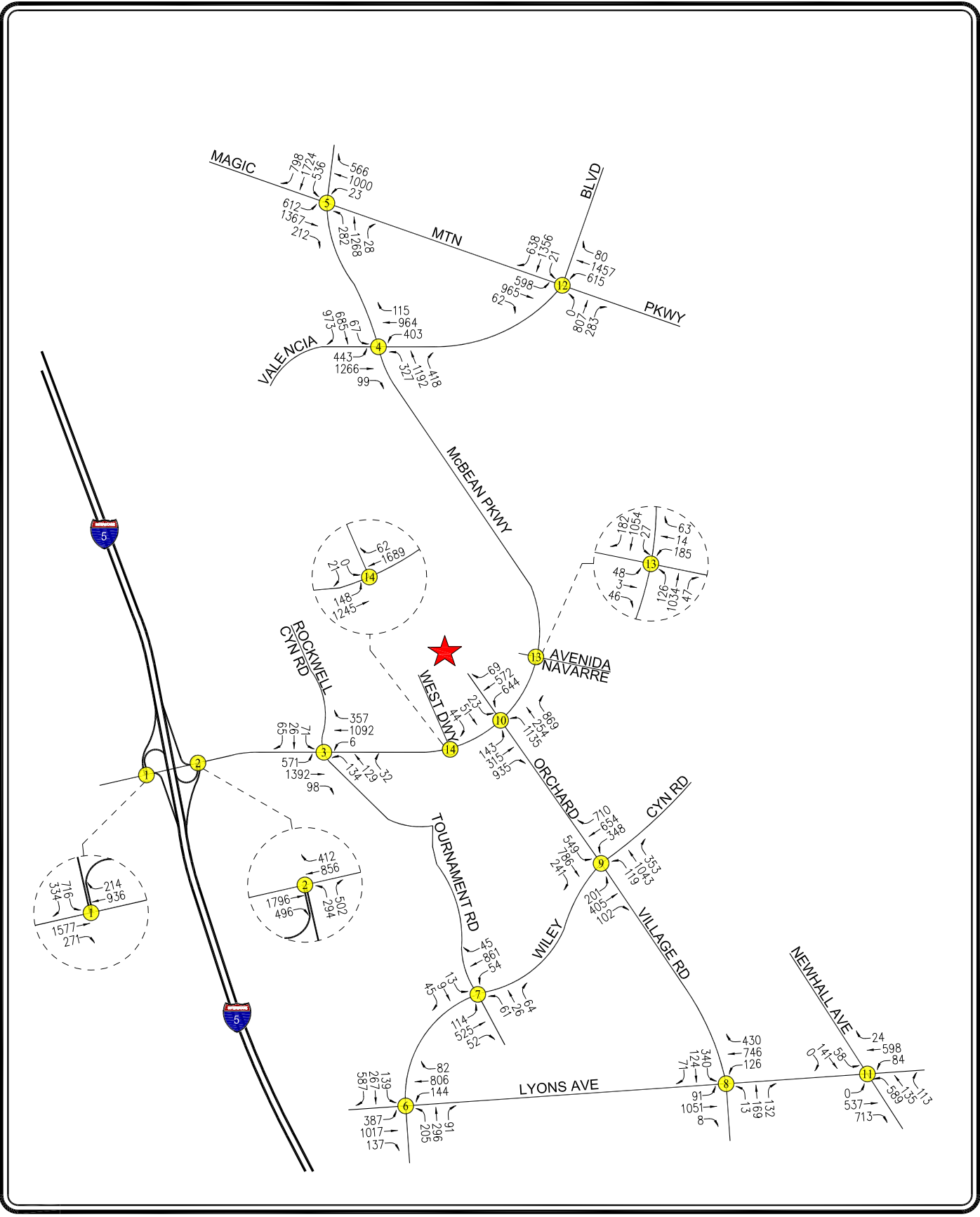
WEEKDAY PM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers



Incremental, but not significant impacts are noted at the other ten study intersections due to the Project. The future with Project (SCVCTM with Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 9-9* and *9-10*, respectively.

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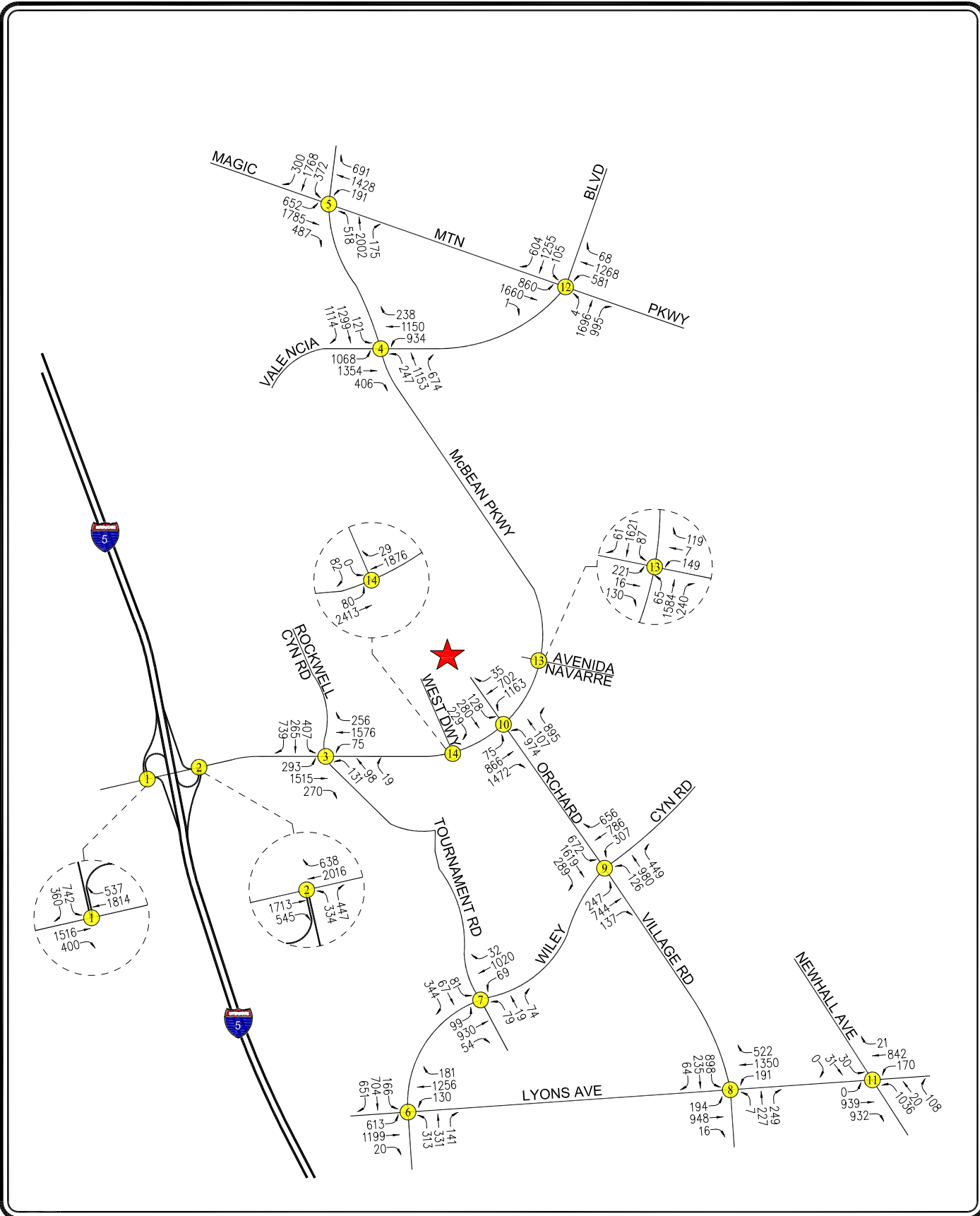


- ★ PROJECT SITE
- Ⓧ STUDY INTERSECTION

**FIGURE 9-9**  
**FUTURE WITH PROJECT**  
**TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

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- ★ PROJECT SITE
- Ⓧ STUDY INTERSECTION

# FIGURE 9-10 FUTURE WITH PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR  
HENRY MAYO AMENDED SPECIFIC PLAN

LINSCOTT, LAW & GREENSPAN, engineers

## 10.0 MITIGATION MEASURES

The following traffic mitigation measures were developed to mitigate the potentially significant Project-related transportation impacts identified in Section 9.0 above in the future (2035) condition to less than significant levels. The mitigation measures consists of recommended physical improvements and changes to the existing traffic signal phasing intended to improve the overall operation at the affected intersections. It should be noted that the Development Agreement associated with the approved Master Plan required the construction of various traffic mitigation measures to mitigate impacts associated with the implementation of the Master Plan. Several of these mitigation measures have already been constructed in accordance with the Development Agreement and Master Plan. Exhibit F to the Development Agreement associated with the approved Master Plan is contained in *Appendix C*. The mitigation measures listed below would be in addition and/or supersede the traffic improvements provided in *Appendix C*.

### 10.1 Orchard Village Road / Wiley Canyon Road

The recommended mitigation consists of modifying the existing traffic signal phasing to include a right-turn overlap phase to the westbound approach of Wiley Canyon Road. The right-turn phase proposed for Wiley Canyon Road would overlap with the existing left-turn phase provided for the southbound Orchard Village Road approach. No physical improvements to the existing lane configurations are recommended.

### 10.2 Orchard Village Road / McBean Parkway

The recommended mitigation consists of reconfiguring the southbound Orchard Village Road approach to the McBean Parkway intersection. The reconfiguring of the southbound Orchard Village Road approach would be consistent with the lane configuration in the City approved design plans for this intersection.

### 10.3 Effectiveness of Mitigation Measures

As shown in column [7] of *Table 9-1*, the recommended mitigation measure is anticipated to reduce the forecast Project impacts to less than significant levels when compared to future 2035 pre-Project conditions at the two impacted intersections during all time periods:

- |  |  |
|--|--|
| • Int. No. 9: Orchard Village Road / Wiley Canyon Road | AM Peak Hour delay decreases 29.6 sec.<br>PM Peak Hour delay decreases 11.3 sec. |
| • Int. No. 10: Orchard Village Road / McBean Parkway   | AM Peak Hour delay decreases 18.6 sec.<br>PM Peak Hour delay decreases 47.1 sec. |

## 11.0 CONGESTION MANAGEMENT PROGRAM TRAFFIC IMPACT ASSESSMENT

The Congestion Management Program (CMP) is a state-mandated program that was enacted by the California State Legislature with the passage of Proposition 111 in 1990. The program is intended to address the impact of local growth on the regional transportation system.

As required by the 2010 Congestion Management Program for Los Angeles County, a Traffic Impact Assessment (TIA) has been prepared to determine the potential impacts on designated monitoring locations on the CMP highway system. The analysis has been prepared in accordance with procedures outlined in the *2010 Congestion Management Program for Los Angeles County*, County of Los Angeles Metropolitan Transportation Authority, 2010.

According to Section D.9.1 (Appendix D, page D-6) of the 2010 CMP manual, the criteria for determining a significant transportation impact is listed below:

“A significant transportation impact occurs when the proposed Project increases traffic demand on a CMP facility by 2% of capacity ( $V/C \geq 0.02$ ), causing or worsening LOS F ( $V/C > 1.00$ ).”

The CMP impact criteria apply for analysis of both intersection and freeway monitoring locations.

### 11.1 Intersections

The following CMP intersection monitoring locations in the Project vicinity have been identified:

- | <u>CMP Station</u> | <u>Intersection</u>  |
|--------------------|--|
| No. 133            | Valencia Boulevard / Magic Mountain Parkway<br>(Study Int. No. 12) |
| No. 134            | Railroad Avenue / Lyons Avenue                                     |

The CMP TIA guidelines require that intersection monitoring locations must be examined if the proposed Project will add 50 or more trips during either the AM or PM weekday peak hours. As shown in *Figure 7-3* and *Figure 7-4*, the proposed Project would not add 50 or more trips during the AM or PM peak hours at any of the CMP monitoring locations. Therefore, no further review of potential impacts to intersection monitoring locations that are part of the CMP highway system is required.

## 11.2 Freeways

The following CMP freeway monitoring locations have been identified in the Project vicinity:

- | <u>CMP Station</u> | <u>Location</u>                                |
|--------------------|--|
| No. 1009           | I-5 Freeway north of SR-126 (Henry Mayo Drive) |

The CMP TIA guidelines require that freeway monitoring locations must be examined if the proposed Project will add 150 or more trips (in either direction) during either the AM or PM weekday peak periods. The proposed Project will not add 150 or more trips (in either direction) during either the AM or PM weekday peak hours to CMP freeway monitoring locations which is the threshold for preparing a traffic impact assessment, as stated in the CMP manual. Therefore, no further review of potential impacts to freeway monitoring locations that are part of the CMP highway system is required.

## 11.3 Transit Impact Review

As required by the *2010 Congestion Management Program for Los Angeles County*, a review has been made of the potential impacts of the Project on transit service. As discussed in Subsection 4.4 herein, existing transit service is provided in the vicinity of the proposed Project.

The Project trip generation, as shown in *Table 7-1*, was adjusted by values set forth in the CMP (i.e., person trips equal 1.4 times vehicle trips, and transit trips equal 3.5 percent of the total person trips) to estimate transit trip generation. Pursuant to the CMP guidelines, the proposed Project is forecast to generate demand for 8 transit trip during the AM peak hour and 8 transit trip during the PM peak hour. Over a 24-hour period, the proposed Project is forecast to generate demand for 77 daily transit trips. Therefore, the calculations are as follows:

- AM Peak Hour =  $157 \times 1.4 \times 0.035 = 8$  Transit Trips
- PM Peak Hour =  $165 \times 1.4 \times 0.035 = 8$  Transit Trips
- Daily Trips =  $1,570 \times 1.4 \times 0.035 = 77$  Transit Trips

As shown in *Table 4-1*, 13 bus transit lines are provided near the Project site. The current service provides 28 buses during the AM peak hour and 29 buses during the PM peak hour. It is noted that the traffic analysis as evaluated herein related to potential impacts to the study intersections is highly conservative as it does not assume any reductions in Project-related vehicle trips (e.g., as forecast in *Table 7-1*) due to trips that may otherwise be made via public transit. As such, it is anticipated that the existing transit service in the Project area will adequately accommodate the increase of Project-generated transit trips given the low number of Project-generated transit trips. No Project impacts on existing or future transit services in the Project area are expected to occur as a result of the proposed Project.

## 12.0 CONCLUSIONS

This traffic impact analysis has been prepared to evaluate the potential impacts to the local street system due to the administrative space to be constructed as part of the proposed Henry Mayo Amended Specific Plan. Fourteen intersections were identified and analyzed in order to determine changes in operations following construction and occupancy of the proposed Project. The following provides a summary of the potential transportation impacts of the Project at the study intersections:

- The Project would result in less than significant traffic impacts at the 14 study intersections under the existing plus Project and opening year (2022) plus Project conditions.
- For the future year (2035) plus Project condition, the combined change in the delay due to traffic from the Project and background traffic growth exceeds the City's thresholds of significance at two of the 14 study intersections: Orchard Village Road / Wiley Canyon Road and Orchard Village Road / McBean Parkway. Potential mitigation measures for the affected intersections have been identified herein. The mitigation measures listed below would be in addition and/or supersede the traffic improvements provided in Exhibit F to the Development Agreement associated with the approved Master Plan as contained in *Appendix C*. Incremental but not significant impacts are noted at the remaining study intersections.

**APPENDIX A**  
**MANUAL TRAFFIC COUNT DATA**



# ITM Peak Hour Summary

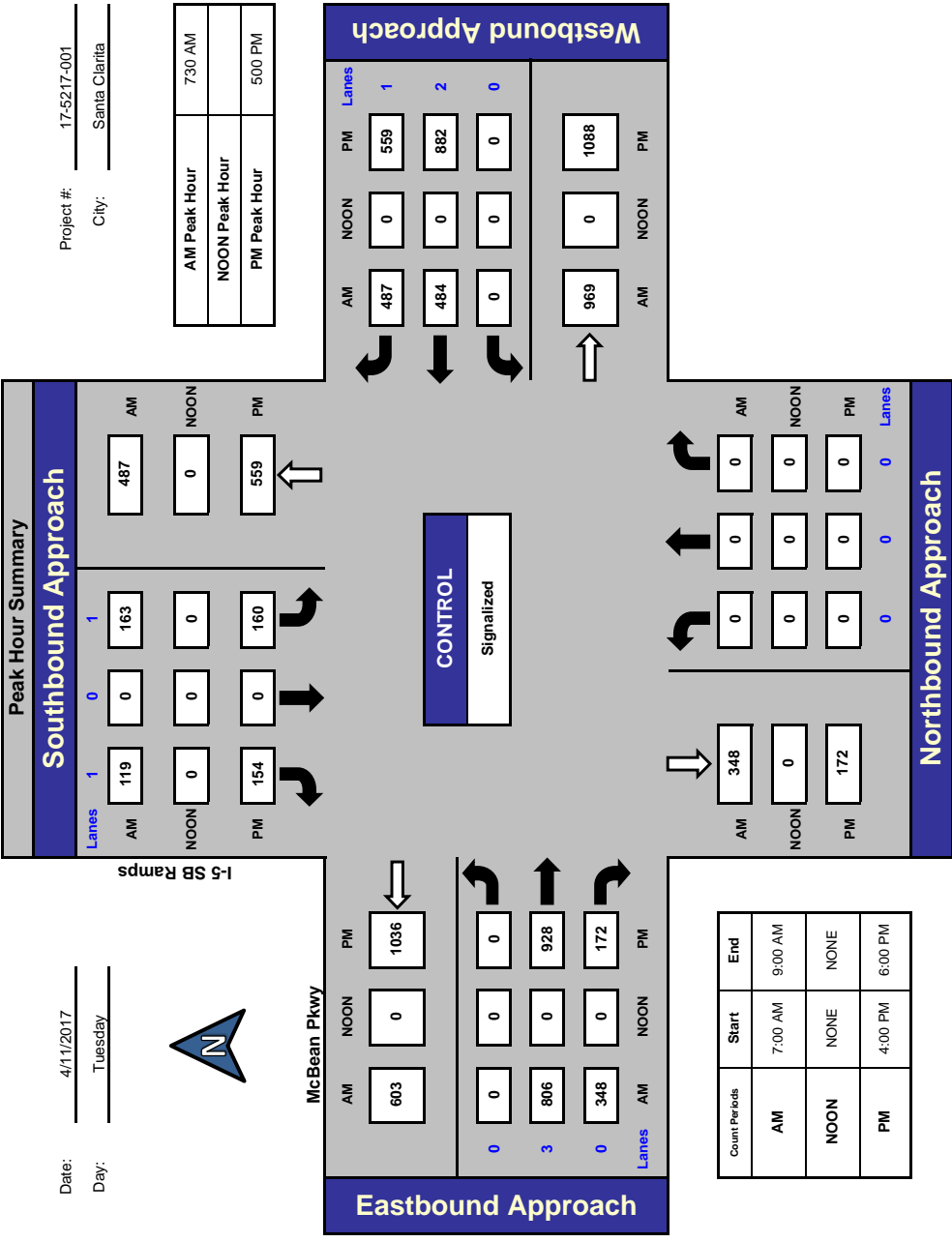
Prepared by:



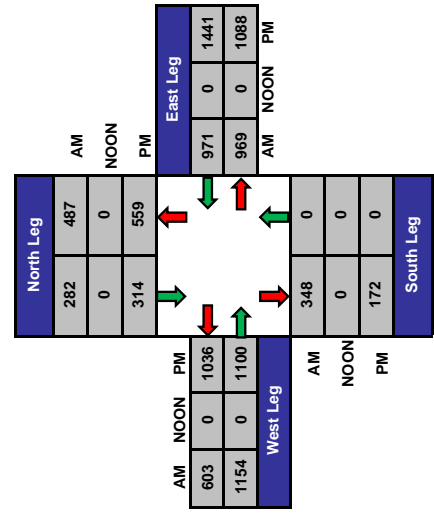
## I-5 SB Ramps and McBean Pkwy., Santa Clarita

Date: 4/11/2017  
Day: Tuesday

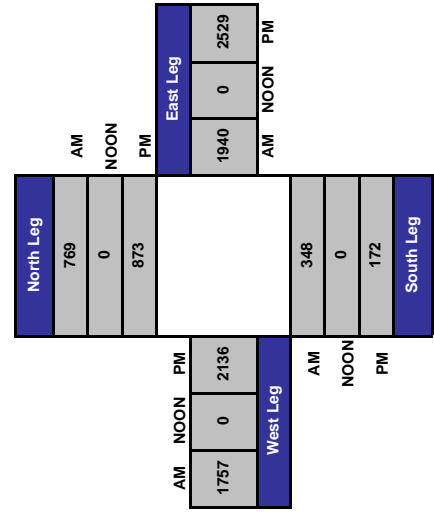
Project #: 17-5217-001  
City: Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-001

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM														
NS/EW Streets:	I-5 SB Ramps			I-5 SB Ramps			McBean Pkwy			McBean Pkwy				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
7:00 AM	0	0	0	15	0	24	0	73	79	0	61	124	376	
7:15 AM	0	0	0	41	0	16	0	102	86	0	92	153	490	
7:30 AM	0	0	0	46	0	34	0	204	80	0	107	109	580	
7:45 AM	0	0	0	46	0	31	0	248	69	0	144	125	663	
8:00 AM	0	0	0	32	0	23	0	201	107	0	128	138	629	
8:15 AM	0	0	0	39	0	31	0	153	92	0	105	115	535	
8:30 AM	0	0	0	41	0	24	0	132	96	0	106	104	503	
8:45 AM	0	0	0	32	0	24	0	137	70	0	125	112	500	
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	58.52%	0.00%	41.48%	0.00%	64.80%	35.20%	0.00%	46.97%	53.03%	4276	
<b>PEAK HR START TIME :</b>	7:30 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	0	0	163	0	119	0	806	348	0	484	487	2407	
<b>PEAK HR FACTOR :</b>	0.000			0.881			0.910			0.902			0.908	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-001

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL	
	I-5 SB Ramps			I-5 SB Ramps			McBean Pkwy			McBean Pkwy				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
4:00 PM	0	0	0	27	0	24	0	256	57	0	176	117	657	
4:15 PM	0	0	0	30	0	27	0	203	26	0	199	93	578	
4:30 PM	0	0	0	40	0	41	0	230	39	0	198	125	673	
4:45 PM	0	0	0	31	0	25	0	234	37	0	200	154	681	
5:00 PM	0	0	0	37	0	32	0	252	48	0	242	177	788	
5:15 PM	0	0	0	34	0	37	0	201	41	0	196	120	629	
5:30 PM	0	0	0	34	0	31	0	259	43	0	225	145	737	
5:45 PM	0	0	0	55	0	54	0	216	40	0	219	117	701	
<b>TOTAL VOLUMES :</b>	0	0	0	288	0	271	0	1851	331	0	1655	1048	5444	
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	51.52%	0.00%	48.48%	0.00%	84.83%	15.17%	0.00%	61.23%	38.77%		
<b>PEAK HR START TIME :</b>	5:00 PM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	0	0	160	0	154	0	928	172	0	882	559	2855	
<b>PEAK HR FACTOR :</b>	0.000			0.720			0.911			0.860			0.906	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



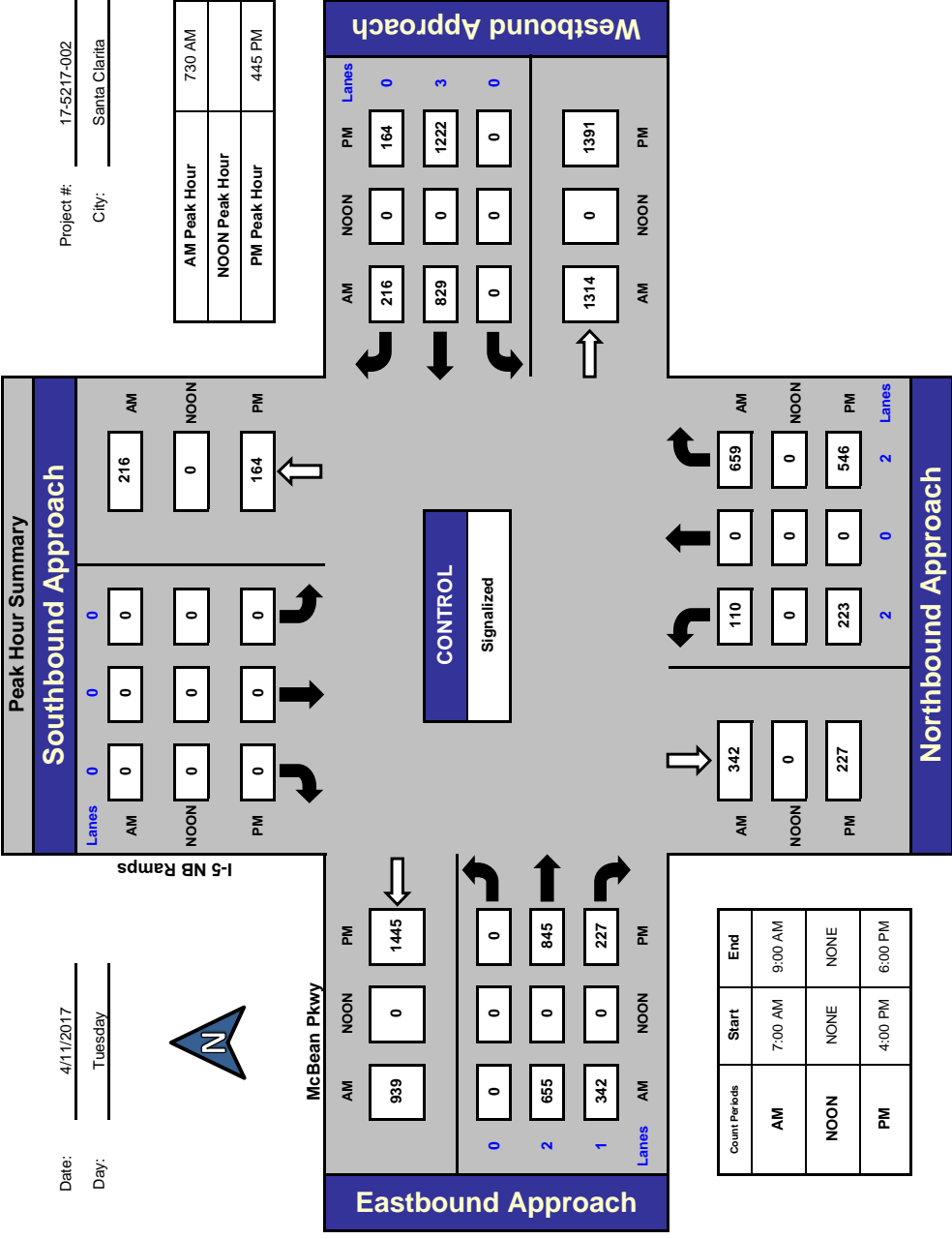
## I-5 NB Ramps and McBean Pkwy, Santa Clarita

Date: 4/11/2017  
Day: Tuesday

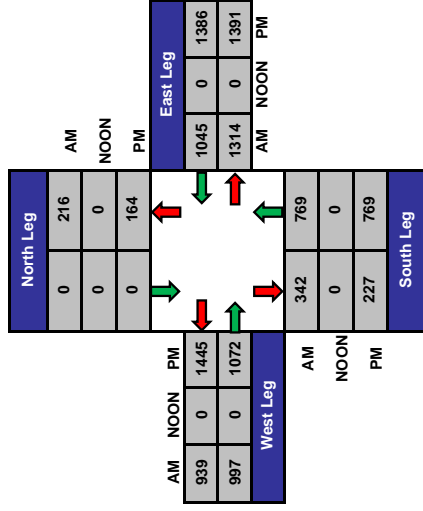
Project #: 17-5217-002  
City: Santa Clarita



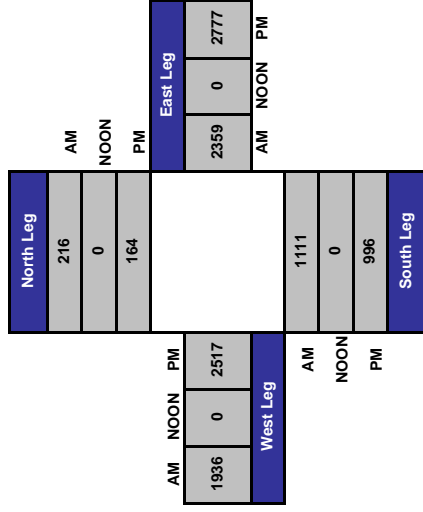
I-5 NB Ramps



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-002

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM

NS/EW Streets:	I-5 NB Ramps			I-5 NB Ramps			McBean Pkwy			McBean Pkwy			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		
7:00 AM	18	0	63	0	0	0	0	74	34	0	182	31	402	
7:15 AM	18	0	144	0	0	0	0	92	29	0	207	51	541	
7:30 AM	30	0	155	0	0	0	0	173	61	0	195	62	676	
7:45 AM	26	0	199	0	0	0	0	188	117	0	246	69	845	
8:00 AM	33	0	162	0	0	0	0	142	108	0	226	50	721	
8:15 AM	21	0	143	0	0	0	0	152	56	0	162	35	569	
8:30 AM	41	0	143	0	0	0	0	122	35	0	201	30	572	
8:45 AM	34	0	178	0	0	0	0	139	40	0	224	26	641	
<b>TOTAL VOLUMES :</b>	221	0	1187	0	0	0	0	1082	480	0	1643	354	4967	
<b>APPROACH %'s :</b>	15.70%	0.00%	84.30%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	69.27%	30.73%	0.00%	82.27%	17.73%		
<b>PEAK HR START TIME :</b>	7:30 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	110	0	659	0	0	0	0	655	342	0	829	216	2811	
<b>PEAK HR FACTOR :</b>	0.854			0.000			0.817			0.829			0.832	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-002

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL
	I-5 NB Ramps			I-5 NB Ramps			McBean Pkwy			McBean Pkwy			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	41	0	116	0	0	0	0	211	52	0	249	31	700
4:15 PM	58	0	140	0	0	0	0	224	39	0	242	43	746
4:30 PM	47	0	130	0	0	0	0	208	44	0	290	36	755
4:45 PM	60	0	149	0	0	0	0	186	58	0	304	43	800
5:00 PM	48	0	125	0	0	0	0	210	62	0	348	48	841
5:15 PM	51	0	137	0	0	0	0	205	66	0	278	45	782
5:30 PM	64	0	135	0	0	0	0	244	41	0	292	28	804
5:45 PM	58	0	151	0	0	0	0	219	52	0	256	23	759
<b>TOTAL VOLUMES :</b>	427	0	1083	0	0	0	0	1707	414	0	2259	297	6187
<b>APPROACH %'s :</b>	28.28%	0.00%	71.72%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	80.48%	19.52%	0.00%	88.38%	11.62%	
<b>PEAK HR START TIME :</b>	4:45 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	223	0	546	0	0	0	0	845	227	0	1222	164	3227
<b>PEAK HR FACTOR :</b>	0.920			0.000			0.940			0.875			0.959

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized

# ITM Peak Hour Summary

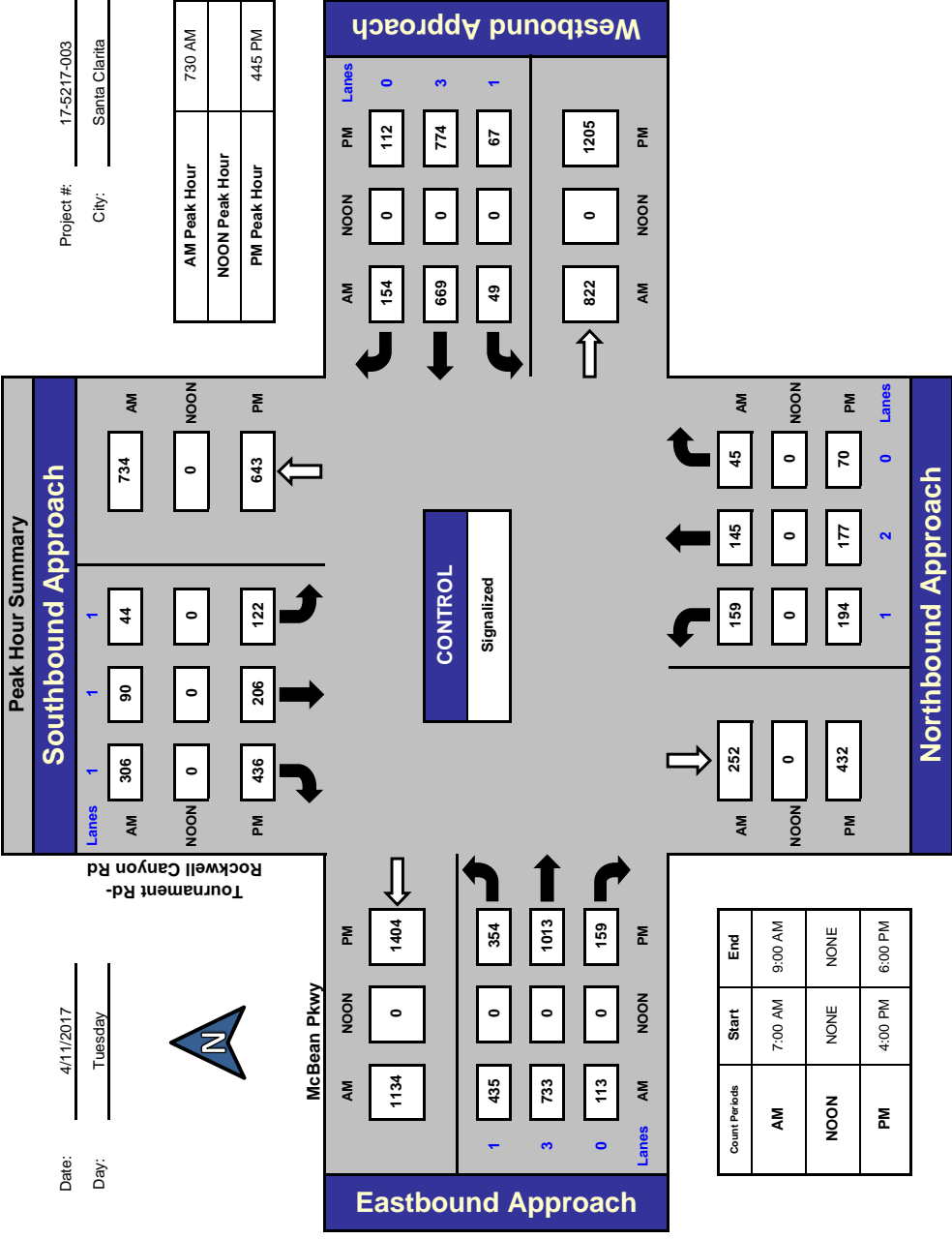
Prepared by:



## Tournament Rd-Rockwell Canyon Rd and McBean Pkwy., Santa Clarita

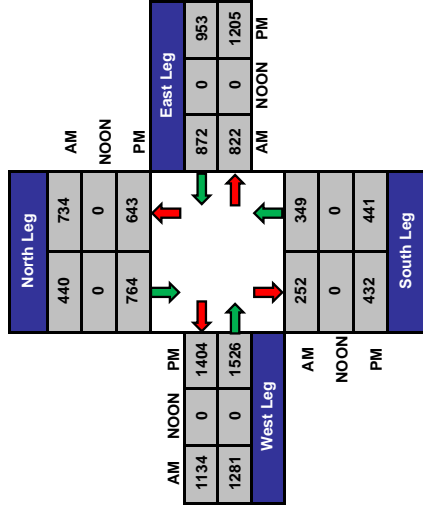
Date: 4/11/2017  
Day: Tuesday

Project #: 17-5217-003  
City: Santa Clarita

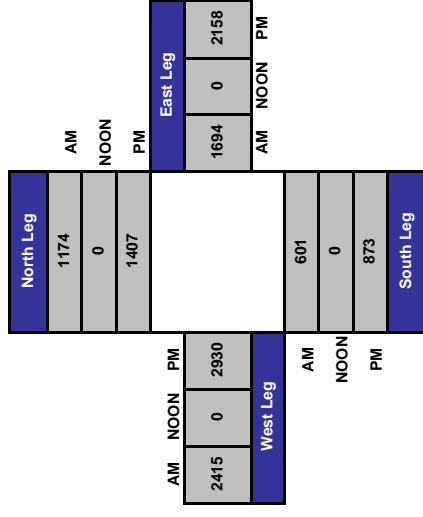


AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	445 PM

### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-003

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM														
NS/EW Streets:	Tournament Rd-Rockwell Canyon Rd			Tournament Rd-Rockwell Canyon Rd			McBean Pkwy			McBean Pkwy			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		
7:00 AM	31	14	8	2	5	49	30	99	10	6	133	6	393	
7:15 AM	33	22	12	6	16	70	87	138	19	8	140	27	578	
7:30 AM	34	40	17	13	33	73	124	179	37	11	147	49	757	
7:45 AM	47	58	13	11	16	81	142	216	35	15	200	43	877	
8:00 AM	32	28	5	9	22	79	89	179	17	14	188	34	696	
8:15 AM	46	19	10	11	19	73	80	159	24	9	134	28	612	
8:30 AM	29	24	15	12	22	63	52	140	24	8	120	22	531	
8:45 AM	28	29	9	7	27	79	73	149	20	13	151	31	616	
<b>TOTAL VOLUMES :</b>	280	234	89	71	160	567	677	1259	186	84	1213	240	5060	
<b>APPROACH %'s :</b>	46.43%	38.81%	14.76%	8.90%	20.05%	71.05%	31.90%	59.33%	8.77%	5.47%	78.92%	15.61%		
<b>PEAK HR START TIME :</b>	7:30 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	159	145	45	44	90	306	435	733	113	49	669	154	2942	
<b>PEAK HR FACTOR :</b>	0.739			0.924			0.815			0.845			0.839	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-003

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL
	Tournament Rd-Rockwell Canyon Rd			Tournament Rd-Rockwell Canyon Rd			McBean Pkwy			McBean Pkwy			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	36	36	24	27	45	82	80	261	44	11	180	21	847
4:15 PM	47	45	23	23	40	77	91	241	44	17	163	34	845
4:30 PM	75	45	23	27	37	68	79	240	40	14	205	27	880
4:45 PM	42	47	19	35	54	134	101	236	41	17	169	33	928
5:00 PM	74	52	14	37	56	123	87	263	48	16	204	26	1000
5:15 PM	30	38	14	30	61	76	88	244	31	24	195	27	858
5:30 PM	48	40	23	20	35	103	78	270	39	10	206	26	898
5:45 PM	59	26	23	33	40	76	66	263	50	16	180	30	862
<b>TOTAL VOLUMES :</b>	411	329	163	232	368	739	670	2018	337	125	1502	224	7118
<b>APPROACH %'s :</b>	45.51%	36.43%	18.05%	17.33%	27.48%	55.19%	22.15%	66.71%	11.14%	6.75%	81.15%	12.10%	
<b>PEAK HR START TIME :</b>	4:45 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	194	177	70	122	206	436	354	1013	159	67	774	112	3684
<b>PEAK HR FACTOR :</b>	0.788			0.857			0.959			0.968			0.921

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



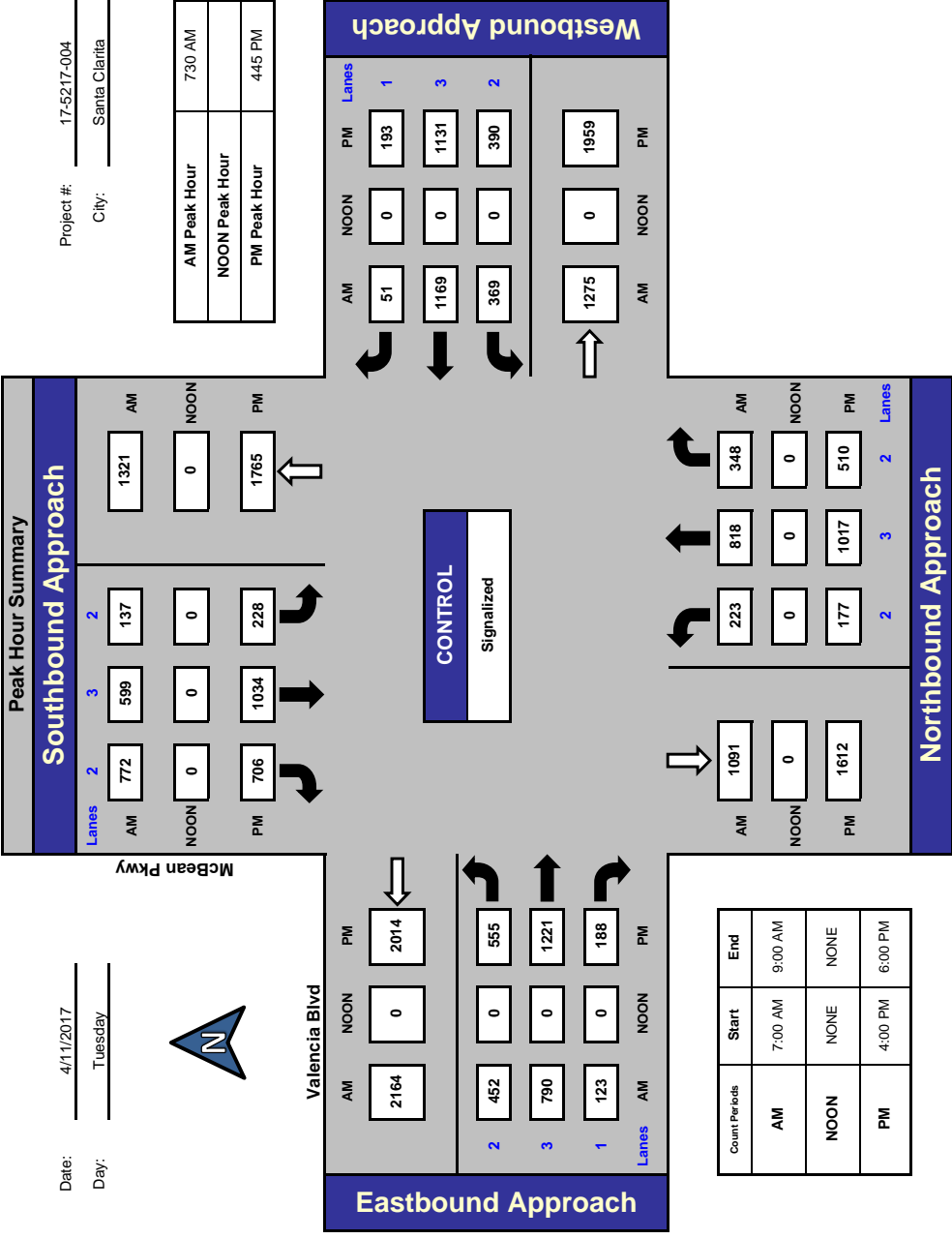
## McBean Pkwy and Valencia Blvd., Santa Clarita

Date: 4/11/2017  
Day: Tuesday

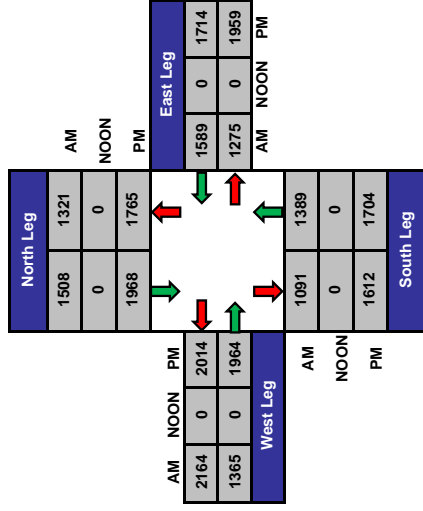
Project #: 17-5217-004  
City: Santa Clarita



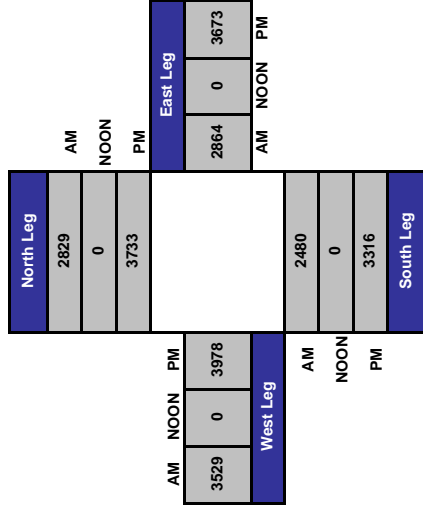
McBean Pkwy



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-004

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM														
NS/EW Streets:	McBean Pkwy			McBean Pkwy			Valencia Blvd			Valencia Blvd				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
7:00 AM	49	130	38	12	95	126	61	91	11	48	221	6	888	
7:15 AM	66	139	61	29	97	160	78	137	19	71	377	8	1242	
7:30 AM	49	207	80	26	163	180	97	199	30	91	365	12	1499	
7:45 AM	70	236	99	37	149	210	136	234	41	76	307	8	1603	
8:00 AM	56	223	91	33	141	220	121	180	19	102	264	19	1469	
8:15 AM	48	152	78	41	146	162	98	177	33	100	233	12	1280	
8:30 AM	35	148	70	32	128	141	114	168	19	97	250	26	1228	
8:45 AM	46	167	102	23	165	141	122	205	25	84	226	19	1325	
<b>TOTAL VOLUMES :</b>	419	1402	619	233	1084	1340	827	1391	197	669	2243	110	10534	
<b>APPROACH %'s :</b>	17.17%	57.46%	25.37%	8.77%	40.80%	50.43%	34.24%	57.60%	8.16%	22.14%	74.22%	3.64%		
<b>PEAK HR START TIME :</b>	7:30 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	223	818	348	137	599	772	452	790	123	369	1169	51	5851	
<b>PEAK HR FACTOR :</b>	0.857			0.952			0.830			0.849			0.913	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	2	0
0	0	1	0
0	0	0	0
0	1	0	0
0	2	1	0
0	0	0	0
0	3	4	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-004

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL	
	McBean Pkwy			McBean Pkwy			Valencia Blvd			Valencia Blvd				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
4:00 PM	38	265	129	42	218	140	120	268	33	98	213	52	1616	
4:15 PM	42	252	129	62	248	160	129	252	34	95	215	40	1658	
4:30 PM	35	257	122	48	270	191	114	300	39	91	279	39	1785	
4:45 PM	51	247	143	55	258	181	127	325	42	96	317	44	1886	
5:00 PM	43	253	140	55	253	168	157	364	64	101	296	47	1941	
5:15 PM	33	235	109	60	264	171	134	282	38	87	277	43	1733	
5:30 PM	50	282	118	58	259	186	137	250	44	106	241	59	1790	
5:45 PM	49	270	123	49	234	194	121	305	42	86	217	46	1736	
<b>TOTAL VOLUMES :</b>	341	2061	1013	429	2004	1391	1039	2346	336	760	2055	370	14145	
<b>APPROACH %'s :</b>	9.99%	60.35%	29.66%	11.22%	52.41%	36.38%	27.92%	63.05%	9.03%	23.86%	64.52%	11.62%		
<b>PEAK HR START TIME :</b>	4:45 PM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	177	1017	510	228	1034	706	555	1221	188	390	1131	193	7350	
<b>PEAK HR FACTOR :</b>	0.947			0.978			0.839			0.938			0.947	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
1	0	1	0
0	0	1	0
0	0	0	0
0	1	0	0
0	0	0	0
1	0	1	0

NB	SB	EB	WB
2	1	3	0

CONTROL : Signalized

# ITM Peak Hour Summary

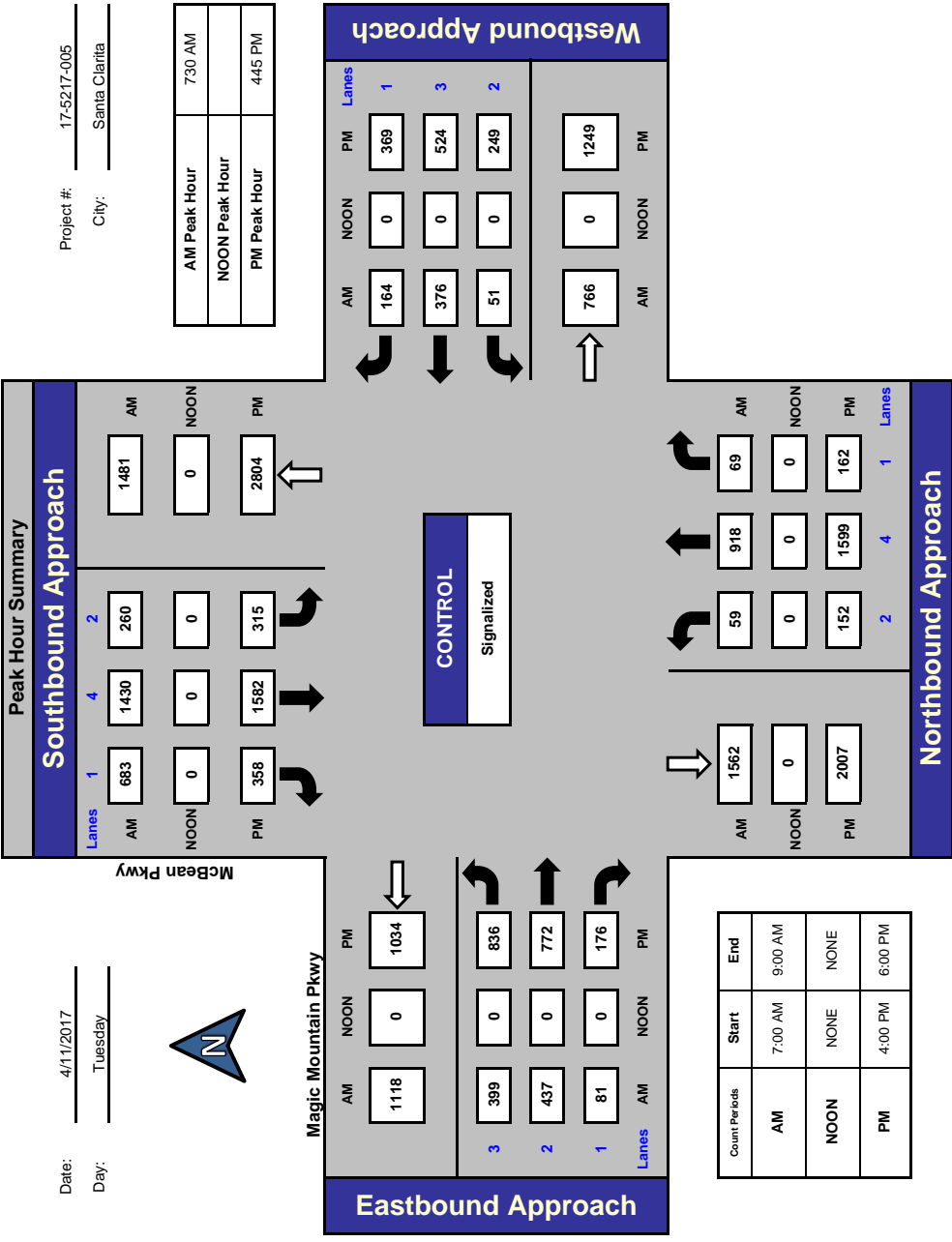
Prepared by:



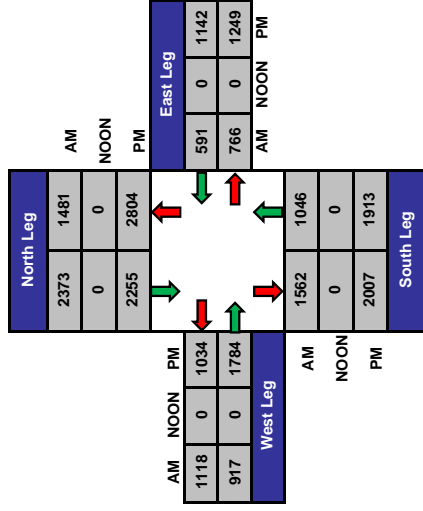
## McBean Pkwy and Magic Mountain Pkwy, Santa Clarita

Date: 4/11/2017  
Day: Tuesday

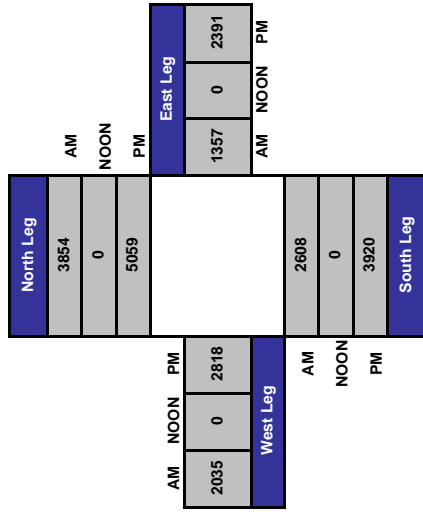
Project #: 17-5217-005  
City: Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-005

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM

NS/EW Streets:	McBean Pkwy			McBean Pkwy			Magic Mountain Pkwy			Magic Mountain Pkwy			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		
7:00 AM	10	135	6	30	206	133	52	44	13	10	70	20	729	
7:15 AM	8	196	11	40	305	137	81	54	14	11	103	30	990	
7:30 AM	12	220	11	55	367	148	90	87	17	12	108	30	1157	
7:45 AM	20	272	19	80	401	171	127	124	19	9	91	56	1389	
8:00 AM	20	255	26	68	360	211	85	108	24	14	91	30	1292	
8:15 AM	7	171	13	57	302	153	97	118	21	16	86	48	1089	
8:30 AM	9	200	25	41	264	153	92	105	16	33	95	36	1069	
8:45 AM	15	234	23	43	270	146	83	67	21	28	84	50	1064	
<b>TOTAL VOLUMES :</b>	101	1683	134	414	2475	1252	707	707	145	133	728	300	8779	
<b>APPROACH %'s :</b>	5.27%	87.75%	6.99%	10.00%	59.77%	30.23%	45.35%	45.35%	9.30%	11.46%	62.70%	25.84%		
<b>PEAK HR START TIME :</b>	7:30 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	59	918	69	260	1430	683	399	437	81	51	376	164	4927	
<b>PEAK HR FACTOR :</b>	0.841			0.910			0.849			0.947			0.887	

UTURNS			
NB	SB	EB	WB
1	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	1
0	0	0	1
1	0	0	3

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-005

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

PM

NS/EW Streets:	McBean Pkwy			McBean Pkwy			Magic Mountain Pkwy			Magic Mountain Pkwy			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	29	367	41	73	363	92	212	158	36	49	110	77	1607
4:15 PM	30	336	43	68	354	89	213	138	38	63	93	91	1556
4:30 PM	40	321	44	71	363	86	200	173	39	72	130	105	1644
4:45 PM	27	383	35	78	394	79	221	220	50	68	128	72	1755
5:00 PM	34	405	50	76	406	96	198	202	40	77	145	85	1814
5:15 PM	47	406	45	91	372	76	208	166	50	51	135	112	1759
5:30 PM	44	405	32	70	410	107	209	184	36	53	116	100	1766
5:45 PM	34	406	46	74	315	76	201	157	37	68	129	103	1646
<b>TOTAL VOLUMES :</b>	285	3029	336	601	2977	701	1662	1398	326	501	986	745	13547
<b>APPROACH %'s :</b>	7.81%	82.99%	9.21%	14.05%	69.57%	16.38%	49.08%	41.29%	9.63%	22.45%	44.18%	33.38%	
<b>PEAK HR START TIME :</b>	4:45 PM												
<b>PEAK HR VOL :</b>	152	1599	162	315	1582	358	836	772	176	249	524	369	7094
<b>PEAK HR FACTOR :</b>	0.960			0.960			0.908			0.930			0.978

UTURNS			
NB	SB	EB	WB
0	0	0	4
0	0	0	3
0	0	0	1
0	0	1	0
0	0	0	1
0	0	0	3
0	0	0	0
0	0	0	4
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
0	0	1	16

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



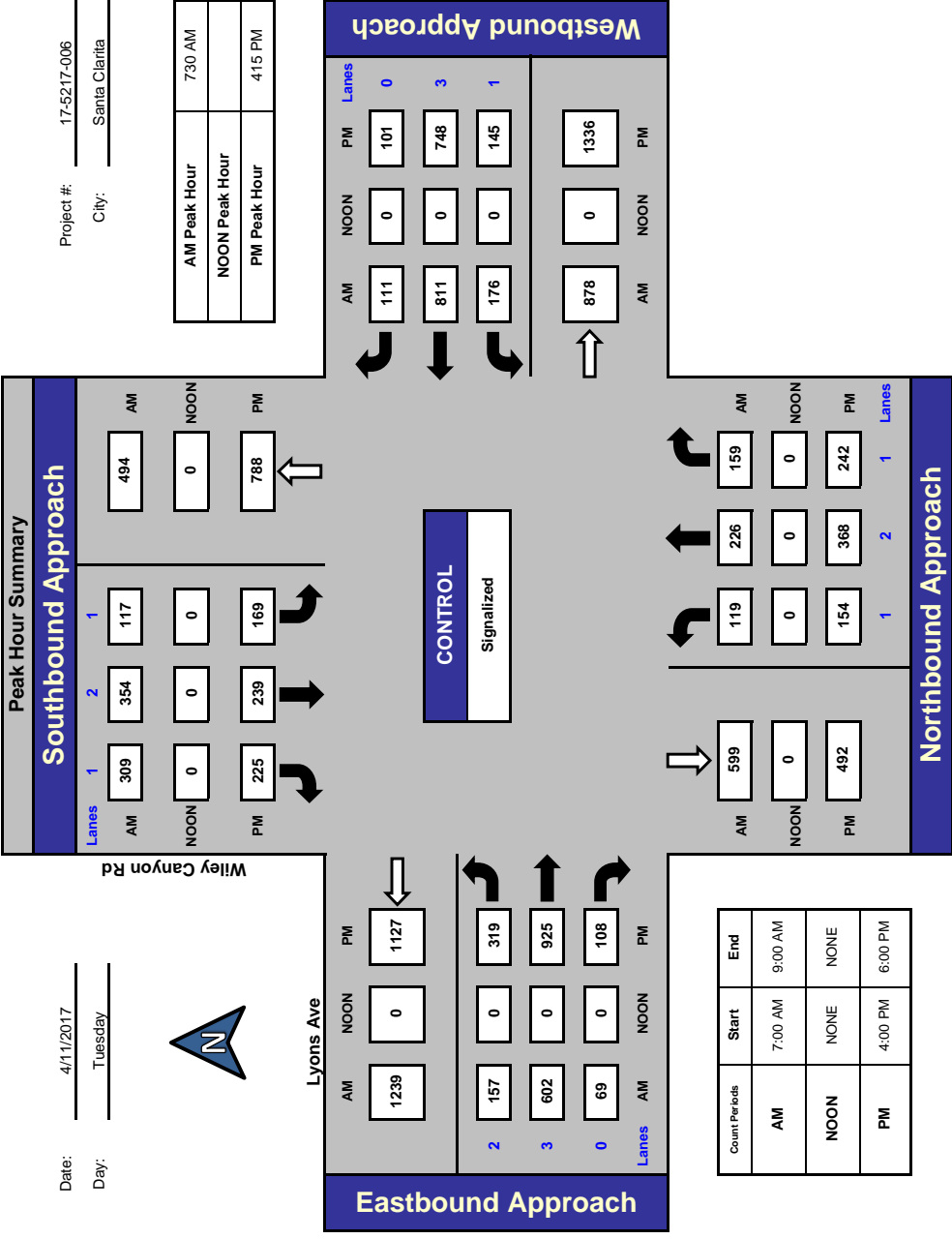
Date: 4/11/2017

Day: Tuesday

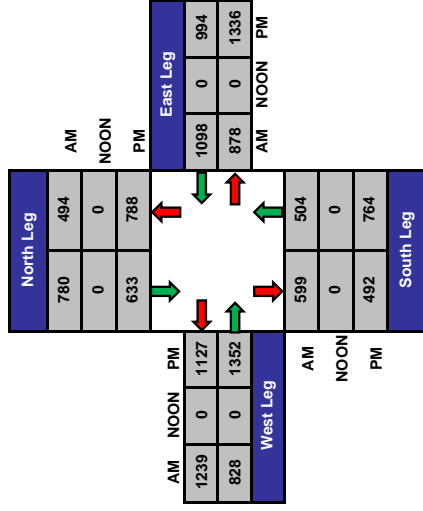
Project #: 17-5217-006

City: Santa Clarita

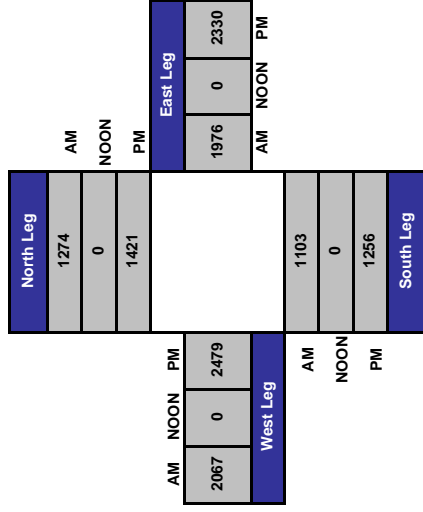
## Wiley Canyon Rd and Lyons Ave., Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg





# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-006

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM														
NS/EW Streets:	Wiley Canyon Rd			Wiley Canyon Rd			Lyons Ave			Lyons Ave				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
7:00 AM	11	29	19	12	63	75	15	76	11	31	123	9	474	
7:15 AM	13	33	31	33	65	55	29	115	4	24	154	18	574	
7:30 AM	44	62	46	32	93	77	38	176	19	40	191	23	841	
7:45 AM	26	78	52	33	113	87	33	159	19	47	269	45	961	
8:00 AM	23	51	34	23	88	74	52	132	20	54	202	29	782	
8:15 AM	26	35	27	29	60	71	34	135	11	35	149	14	626	
8:30 AM	16	45	30	27	44	65	40	113	13	27	134	14	568	
8:45 AM	26	36	34	23	59	81	29	145	7	33	150	21	644	
<b>TOTAL VOLUMES :</b>	185	369	273	212	585	585	270	1051	104	291	1372	173	5470	
<b>APPROACH %'s :</b>	22.37%	44.62%	33.01%	15.34%	42.33%	42.33%	18.95%	73.75%	7.30%	15.85%	74.73%	9.42%		
<b>PEAK HR START TIME :</b>	7:30 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	119	226	159	117	354	309	157	602	69	176	811	111	3210	
<b>PEAK HR FACTOR :</b>	0.808			0.837			0.888			0.760			0.835	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	5	0	0
0	4	0	0
0	5	0	0
0	2	0	0
0	3	0	1
0	3	0	0
0	6	0	1
<b>TOTAL</b>	<b>28</b>	<b>0</b>	<b>2</b>

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-006

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL
	Wiley Canyon Rd			Wiley Canyon Rd			Lyons Ave			Lyons Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 2	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
4:00 PM	47	64	50	32	71	44	59	208	17	28	182	23	825
4:15 PM	28	89	53	38	62	64	76	222	22	35	177	23	889
4:30 PM	44	85	63	45	57	46	76	212	30	53	163	29	903
4:45 PM	37	108	62	33	58	58	84	241	28	32	208	20	969
5:00 PM	45	86	64	53	62	57	83	250	28	25	200	29	982
5:15 PM	34	81	45	30	57	54	76	202	25	37	181	25	847
5:30 PM	39	92	52	36	68	60	90	205	26	40	185	28	921
5:45 PM	40	84	53	46	56	58	81	210	20	38	187	24	897
<b>TOTAL VOLUMES :</b>	314	689	442	313	491	441	625	1750	196	288	1483	201	7233
<b>APPROACH %'s :</b>	21.73%	47.68%	30.59%	25.14%	39.44%	35.42%	24.31%	68.07%	7.62%	14.60%	75.20%	10.19%	
<b>PEAK HR START TIME :</b>	4:15 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	154	368	242	169	239	225	319	925	108	145	748	101	3743
<b>PEAK HR FACTOR :</b>	0.923			0.920			0.936			0.956			0.953

UTURNS			
NB	SB	EB	WB
0	4	1	1
0	5	0	0
0	5	0	0
0	3	0	0
0	9	0	0
0	2	0	1
0	2	0	1
0	4	0	0

NB	SB	EB	WB
0	34	1	3

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



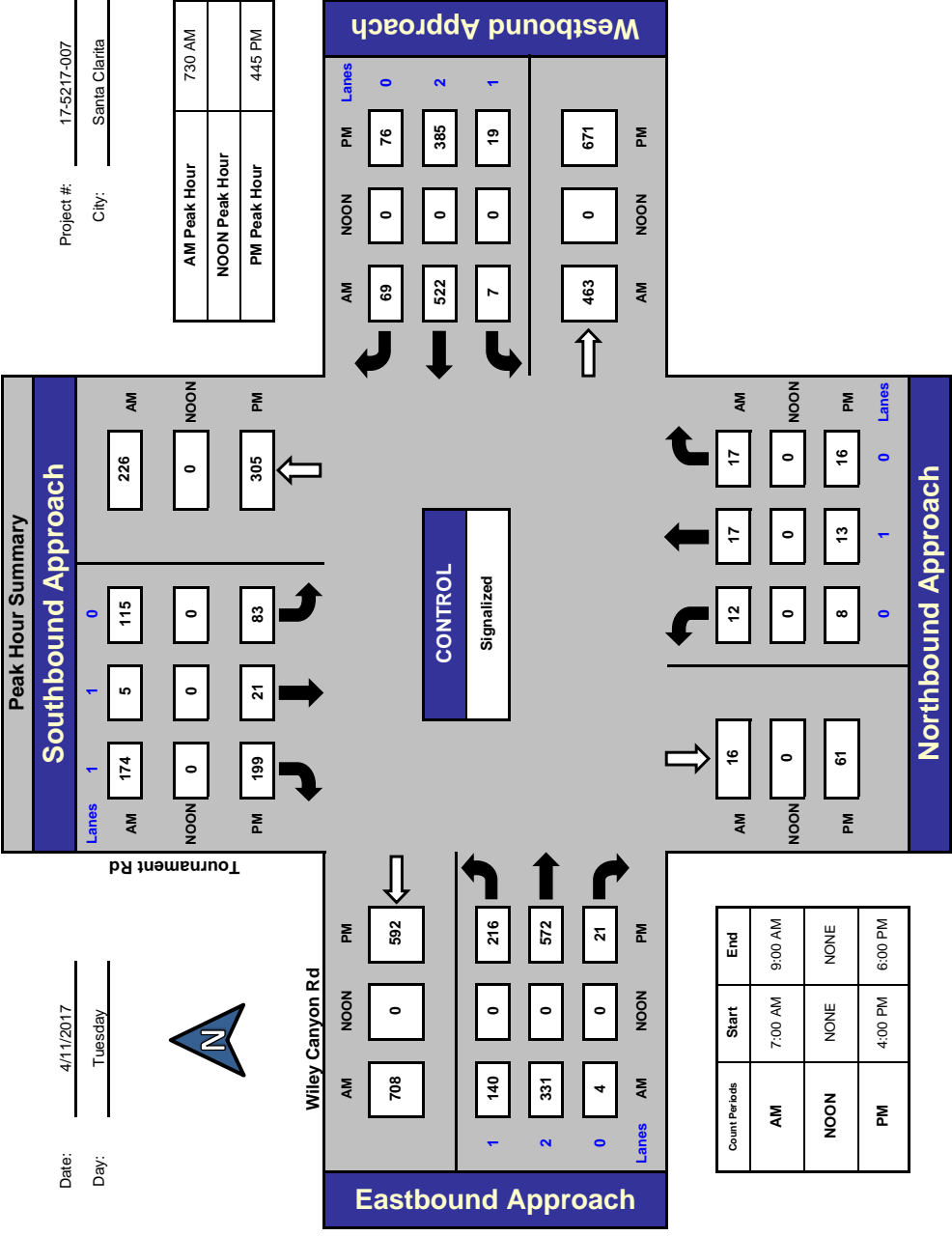
## Tournament Rd and Wiley Canyon Rd., Santa Clarita

Date: 4/11/2017

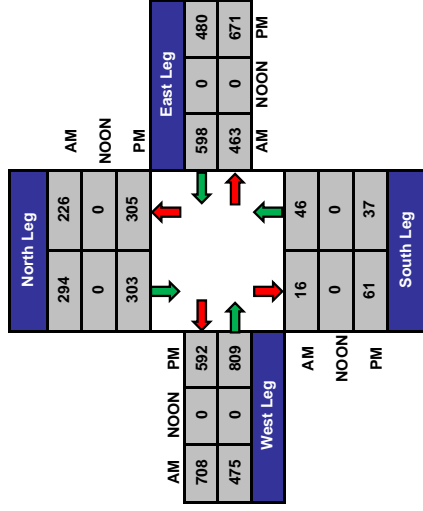
Day: Tuesday

Project #: 17-5217-007

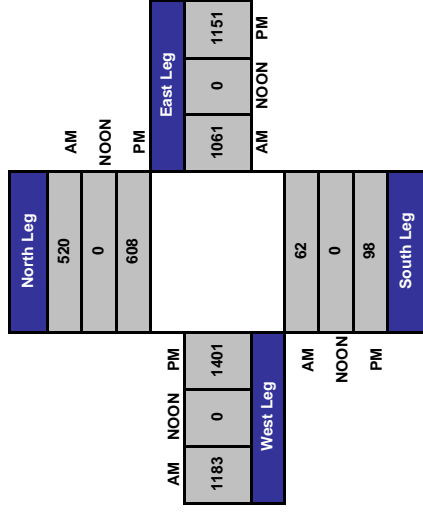
City: Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-007

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM

NS/EW Streets:	Tournament Rd		Tournament Rd			Wiley Canyon Rd			Wiley Canyon Rd			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	1	1	2	0	1	2	0	
7:00 AM	4	0	4	4	0	22	12	35	0	4	106	7	198
7:15 AM	2	0	2	18	0	30	27	54	0	1	117	13	264
7:30 AM	3	6	9	43	2	44	37	78	1	4	121	13	361
7:45 AM	4	6	6	46	1	56	51	97	2	0	152	14	435
8:00 AM	2	3	0	12	1	38	30	95	0	2	139	23	345
8:15 AM	3	2	2	14	1	36	22	61	1	1	110	19	272
8:30 AM	3	1	4	13	2	40	23	73	2	3	77	6	247
8:45 AM	3	4	3	7	3	38	27	52	3	4	112	17	273
<b>TOTAL VOLUMES :</b>	24	22	30	157	10	304	229	545	9	19	934	112	2395
<b>APPROACH %'s :</b>	31.58%	28.95%	39.47%	33.33%	2.12%	64.54%	29.25%	69.60%	1.15%	1.78%	87.70%	10.52%	
<b>PEAK HR START TIME :</b>	7:30 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	12	17	17	115	5	174	140	331	4	7	522	69	1413
<b>PEAK HR FACTOR :</b>	0.639			0.714			0.792			0.901			0.812

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	1

NB	SB	EB	WB
0	0	1	1

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-007

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL
	Tournament Rd			Tournament Rd			Wiley Canyon Rd			Wiley Canyon Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	1	1	2	0	1	2	0	
4:00 PM	3	3	2	21	1	47	41	95	2	4	85	19	323
4:15 PM	0	4	1	16	4	52	50	122	6	5	92	11	363
4:30 PM	1	2	5	24	5	47	51	120	5	3	88	17	368
4:45 PM	4	6	1	26	3	47	48	155	5	5	93	20	413
5:00 PM	1	2	1	17	6	65	58	122	7	4	92	16	391
5:15 PM	3	4	5	19	9	45	54	135	2	6	93	21	396
5:30 PM	0	1	9	21	3	42	56	160	7	4	107	19	429
5:45 PM	2	5	2	19	2	51	54	123	5	3	92	13	371
<b>TOTAL VOLUMES :</b>	14	27	26	163	33	396	412	1032	39	34	742	136	3054
<b>APPROACH %'s :</b>	20.90%	40.30%	38.81%	27.53%	5.57%	66.89%	27.78%	69.59%	2.63%	3.73%	81.36%	14.91%	
<b>PEAK HR START TIME :</b>	4:45 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	8	13	16	83	21	199	216	572	21	19	385	76	1629
<b>PEAK HR FACTOR :</b>	0.771			0.861			0.907			0.923			0.949

UTURNS			
NB	SB	EB	WB
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0

NB	SB	EB	WB
0	0	1	1

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



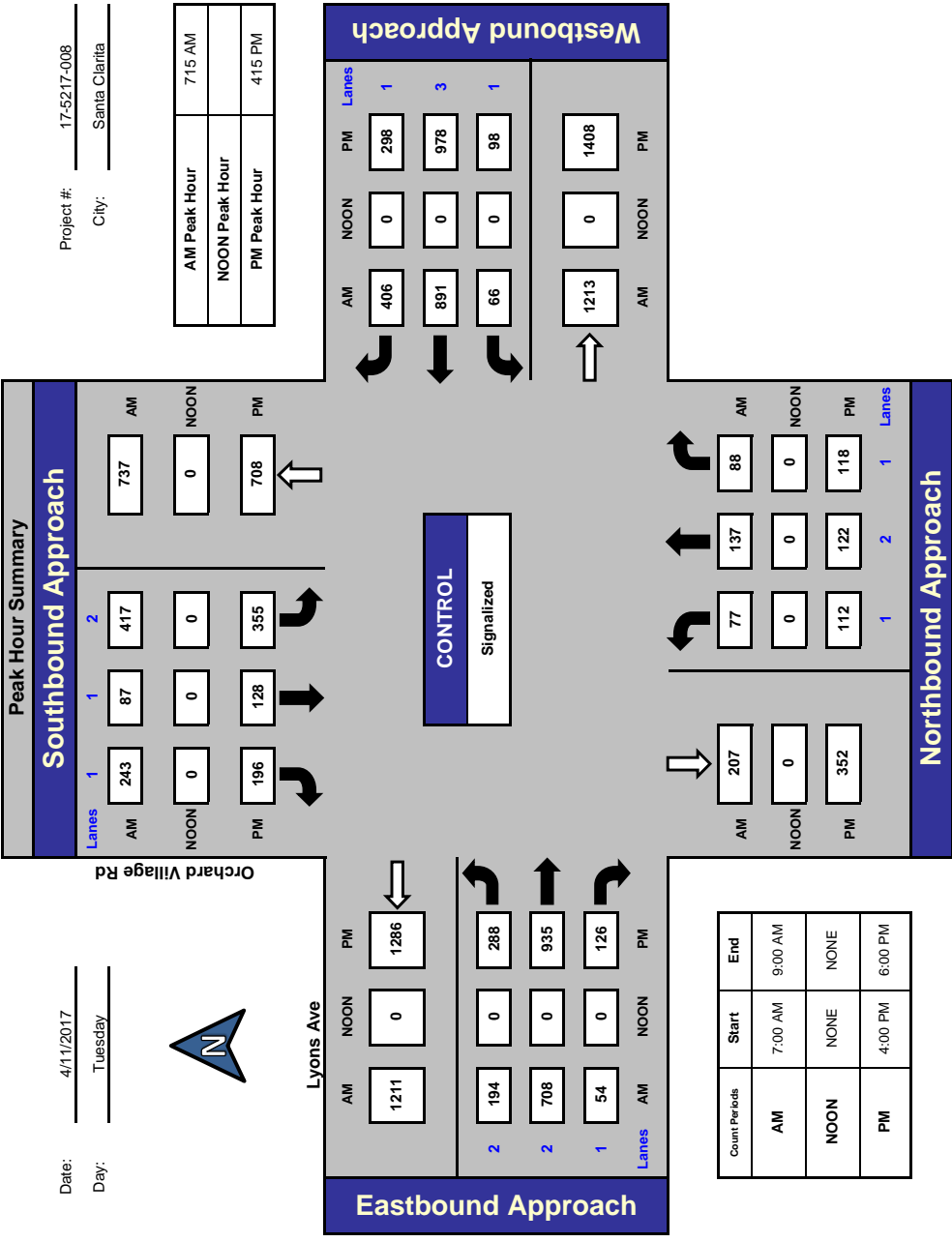
Date: 4/11/2017

Day: Tuesday

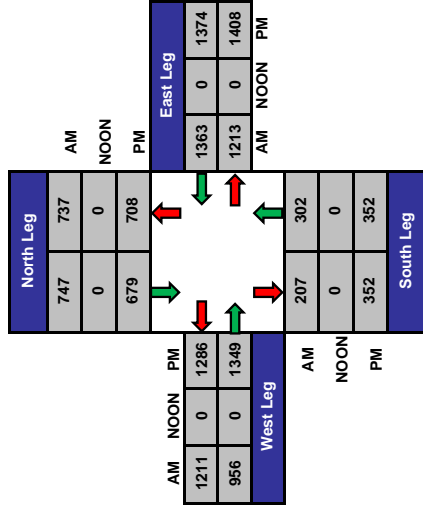
Project #: 17-5217-008

City: Santa Clarita

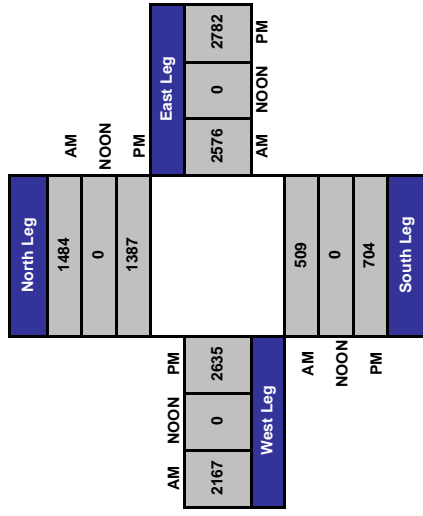
## Orchard Village Rd and Lyons Ave., Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-008

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM														
NS/EW Streets:	Orchard Village Rd			Orchard Village Rd			Lyons Ave			Lyons Ave				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
	1	2	1	2	1	1	2	2	1	1	3	1		
7:00 AM	20	12	10	42	6	28	24	85	6	8	139	49	429	
7:15 AM	17	28	14	58	11	37	38	138	8	10	181	48	588	
7:30 AM	16	45	21	137	19	49	62	187	11	14	242	108	911	
7:45 AM	26	40	40	146	37	75	59	228	22	17	257	170	1117	
8:00 AM	18	24	13	76	20	82	35	155	13	25	211	80	752	
8:15 AM	21	21	22	48	21	36	25	127	7	19	164	45	556	
8:30 AM	18	20	12	59	18	30	38	122	7	18	163	48	553	
8:45 AM	18	17	16	79	28	43	36	122	15	10	179	72	635	
<b>TOTAL VOLUMES :</b>	154	207	148	645	160	380	317	1164	89	121	1536	620	5541	
<b>APPROACH %'s :</b>	30.26%	40.67%	29.08%	54.43%	13.50%	32.07%	20.19%	74.14%	5.67%	5.31%	67.46%	27.23%		
<b>PEAK HR START TIME :</b>	7:15 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	77	137	88	417	87	243	194	708	54	66	891	406	3368	
<b>PEAK HR FACTOR :</b>	0.712			0.724			0.773			0.767			0.754	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	1
0	0	1	0
0	0	0	1
0	0	0	4
0	0	1	1
0	0	1	3
0	0	0	1
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
0	0	3	11

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-008

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

PM														
NS/EW Streets:	Orchard Village Rd			Orchard Village Rd			Lyons Ave			Lyons Ave				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 1	NT 2	NR 1	SL 2	ST 1	SR 1	EL 2	ET 2	ER 1	WL 1	WT 3	WR 1	TOTAL	
4:00 PM	33	15	18	92	41	41	57	199	31	26	222	87	862	
4:15 PM	31	23	17	91	36	45	51	225	32	29	224	65	869	
4:30 PM	24	34	29	83	31	45	72	232	28	25	230	70	903	
4:45 PM	33	33	42	82	21	54	80	239	34	18	265	70	971	
5:00 PM	24	32	30	99	40	52	85	239	32	26	259	93	1011	
5:15 PM	21	39	22	87	34	60	81	203	30	23	200	67	867	
5:30 PM	24	31	29	111	35	54	80	229	35	27	172	65	892	
5:45 PM	27	36	24	94	40	46	61	241	31	31	233	81	945	
<b>TOTAL VOLUMES :</b>	217	243	211	739	278	397	567	1807	253	205	1805	598	7320	
<b>APPROACH %'s :</b>	32.34%	36.21%	31.45%	52.26%	19.66%	28.08%	21.58%	68.79%	9.63%	7.86%	69.21%	22.93%		
<b>PEAK HR START TIME :</b>	4:15 PM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	112	122	118	355	128	196	288	935	126	98	978	298	3754	
<b>PEAK HR FACTOR :</b>	0.815			0.889			0.947			0.909			0.928	

UTURNS			
NB	SB	EB	WB
2	0	1	4
0	0	1	3
2	0	0	0
2	1	1	1
0	0	4	3
2	0	0	2
0	1	0	0
1	0	2	4
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
9	2	9	17

CONTROL : Signalized



# ITM Peak Hour Summary

Prepared by:



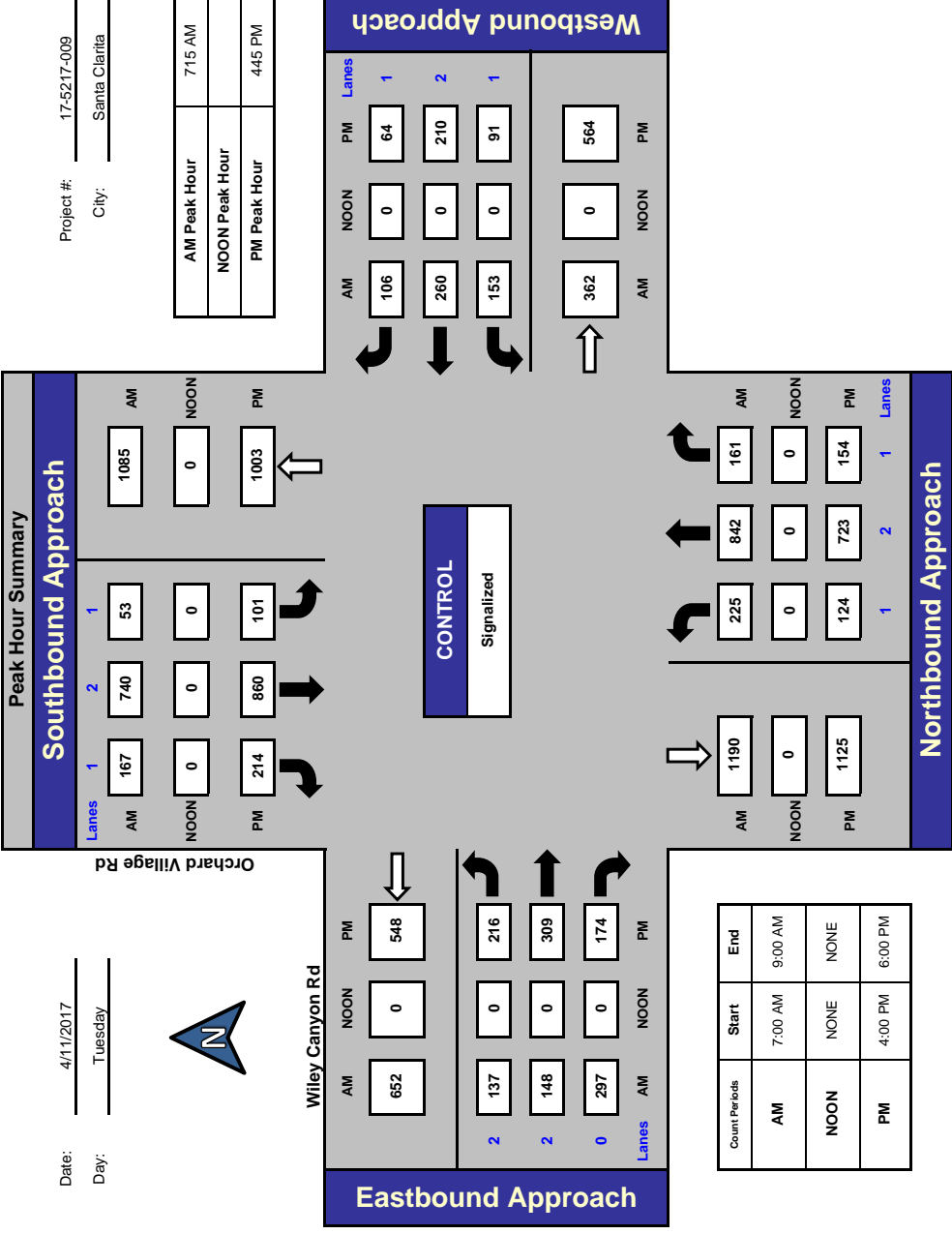
## Orchard Village Rd and Wiley Canyon Rd, Santa Clarita

Date: 4/11/2017

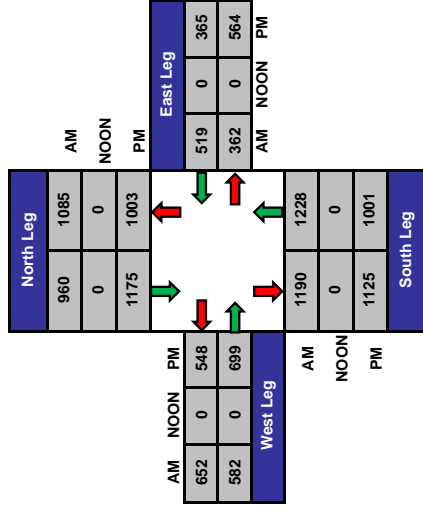
Day: Tuesday

Project #: 17-5217-009

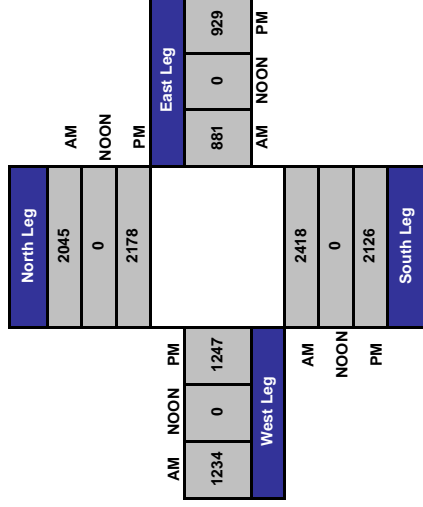
City: Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-009

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM

NS/EW Streets: Orchard Village Rd      Orchard Village Rd      Wiley Canyon Rd      Wiley Canyon Rd

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 2	ET 2	ER 0	WL 1	WT 2	WR 1	
7:00 AM	27	100	18	2	89	30	13	20	18	12	50	17	396
7:15 AM	31	109	24	4	139	27	25	34	36	25	72	18	544
7:30 AM	40	224	44	13	232	27	26	32	106	56	77	34	911
7:45 AM	63	271	48	17	231	59	44	44	127	50	61	33	1048
8:00 AM	91	238	45	19	138	54	42	38	28	22	50	21	786
8:15 AM	24	129	23	8	105	35	25	29	28	17	52	14	489
8:30 AM	18	114	11	7	99	36	30	40	22	21	47	21	466
8:45 AM	29	122	15	8	157	39	33	36	30	14	70	15	568
<b>TOTAL VOLUMES :</b>	323	1307	228	78	1190	307	238	273	395	217	479	173	5208
<b>APPROACH %'s :</b>	17.38%	70.34%	12.27%	4.95%	75.56%	19.49%	26.27%	30.13%	43.60%	24.97%	55.12%	19.91%	
<b>PEAK HR START TIME :</b>	7:15 AM												
<b>PEAK HR VOL :</b>	225	842	161	53	740	167	137	148	297	153	260	106	3289
<b>PEAK HR FACTOR :</b>	0.804			0.782			0.677			0.777			0.785

UTURNS			
NB	SB	EB	WB
3	0	0	0
1	0	0	0
0	2	0	0
1	1	0	0
2	0	0	0
0	0	0	0
1	0	0	0
1	2	0	0
NB	SB	EB	WB
9	5	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-009

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL	
	Orchard Village Rd			Orchard Village Rd			Wiley Canyon Rd			Wiley Canyon Rd				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 2	ET 2	ER 0	WL 1	WT 2	WR 1		
4:00 PM	26	155	43	22	186	46	33	73	29	20	43	20	696	
4:15 PM	19	167	32	18	173	60	49	51	28	22	52	18	689	
4:30 PM	32	175	38	21	201	47	56	63	34	18	48	21	754	
4:45 PM	33	175	37	32	244	47	46	87	61	27	51	15	855	
5:00 PM	27	185	53	17	217	49	45	65	36	23	48	15	780	
5:15 PM	34	172	36	27	192	58	52	75	36	15	57	18	772	
5:30 PM	30	191	28	25	207	60	73	82	41	26	54	16	833	
5:45 PM	29	164	37	18	202	42	34	73	41	27	50	16	733	
<b>TOTAL VOLUMES :</b>	230	1384	304	180	1622	409	388	569	306	178	403	139	6112	
<b>APPROACH %'s :</b>	11.99%	72.16%	15.85%	8.14%	73.36%	18.50%	30.72%	45.05%	24.23%	24.72%	55.97%	19.31%		
<b>PEAK HR START TIME :</b>	4:45 PM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	124	723	154	101	860	214	216	309	174	91	210	64	3240	
<b>PEAK HR FACTOR :</b>	0.944			0.909			0.892			0.951			0.947	

UTURNS			
NB	SB	EB	WB
0	0	0	0
2	0	0	0
1	1	0	0
0	0	0	1
2	1	0	1
0	0	0	0
0	2	0	0
0	0	0	0
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
5	4	0	2

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



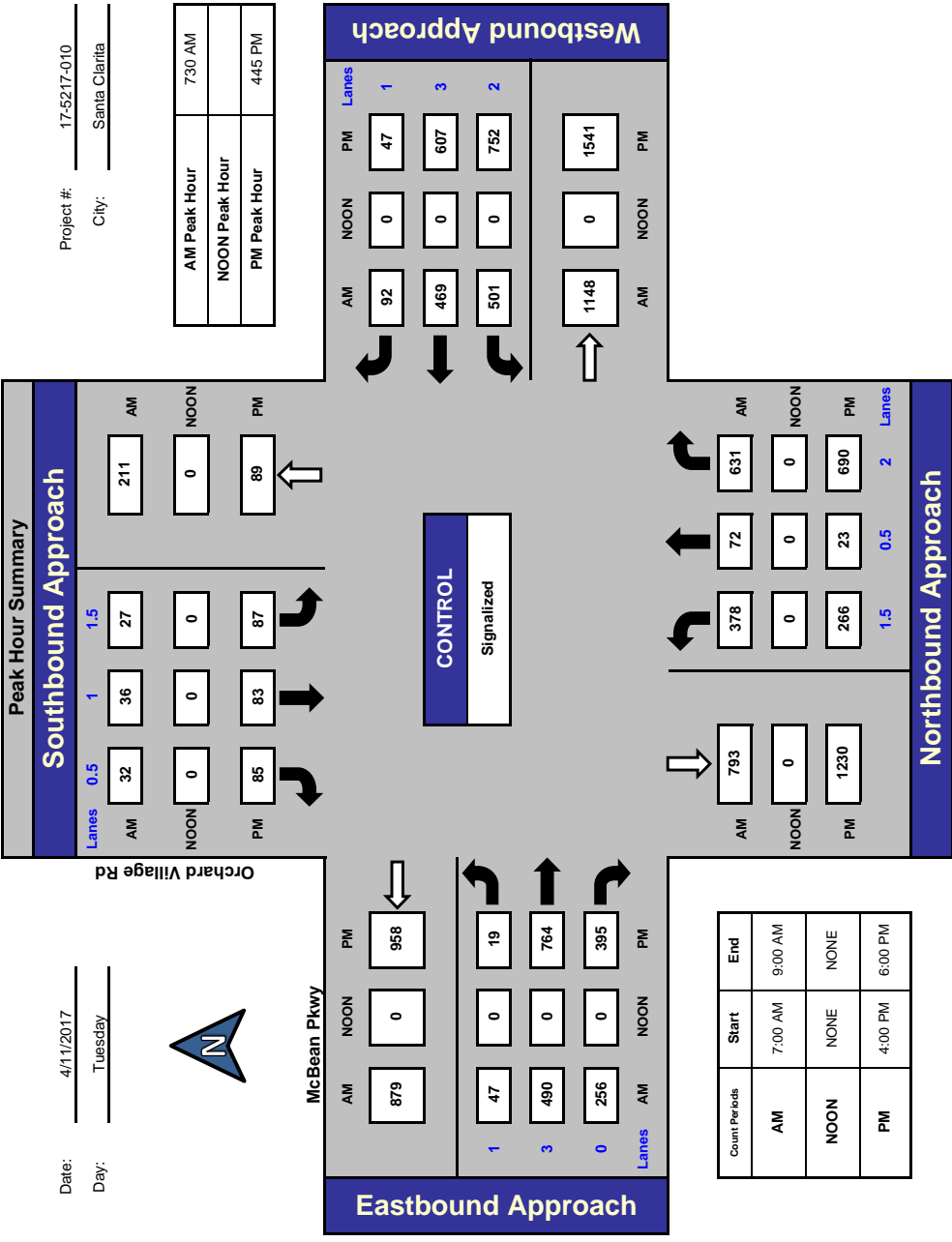
## Orchard Village Rd and McBean Pkwy, Santa Clarita

Date: 4/11/2017

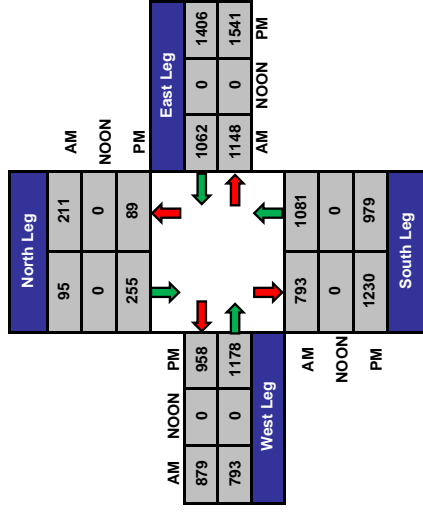
Day: Tuesday

Project #: 17-5217-010

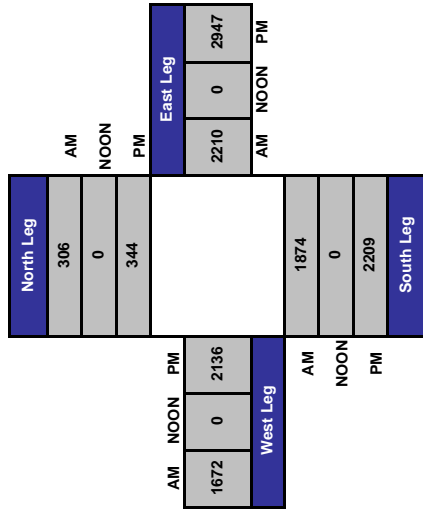
City: Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-010

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM

NS/EW Streets:	Orchard Village Rd			Orchard Village Rd			McBean Pkwy			McBean Pkwy			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		
	1.5	0.5	2	1.5	1	0.5	1	3	0	2	3	1		
7:00 AM	34	9	76	5	8	4	4	66	33	67	94	14	414	
7:15 AM	58	5	92	5	5	12	11	73	50	129	122	10	572	
7:30 AM	103	13	177	7	10	10	13	103	77	168	89	28	798	
7:45 AM	108	22	192	6	8	8	11	145	73	148	134	20	875	
8:00 AM	106	19	174	4	8	8	8	126	59	111	142	19	784	
8:15 AM	61	18	88	10	10	6	15	116	47	74	104	25	574	
8:30 AM	50	11	105	7	7	6	9	107	49	83	110	16	560	
8:45 AM	66	12	109	12	10	4	10	91	58	120	116	17	625	
<b>TOTAL VOLUMES :</b>	586	109	1013	56	66	58	81	827	446	900	911	149	5202	
<b>APPROACH %'s :</b>	34.31%	6.38%	59.31%	31.11%	36.67%	32.22%	5.98%	61.08%	32.94%	45.92%	46.48%	7.60%		
<b>PEAK HR START TIME :</b>	730 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	378	72	631	27	36	32	47	490	256	501	469	92	3031	
<b>PEAK HR FACTOR :</b>	0.839			0.880			0.866			0.879			0.866	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-010

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

PM															
NS/EW Streets:	Orchard Village Rd			Orchard Village Rd			McBean Pkwy			McBean Pkwy					
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND					
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
	1.5	0.5	2	1.5	1	0.5	1	3	0	2	3	1			
4:00 PM	73	6	170	17	22	20	7	188	84	136	126	15	864		
4:15 PM	62	2	163	28	12	14	9	191	76	159	132	14	862		
4:30 PM	49	1	158	23	20	26	11	184	81	177	168	12	910		
4:45 PM	59	8	152	23	18	18	4	209	113	176	151	8	939		
5:00 PM	71	6	155	23	27	29	10	158	88	216	158	8	949		
5:15 PM	51	3	160	22	18	15	1	195	98	188	150	15	916		
5:30 PM	85	6	223	19	20	23	4	202	96	172	148	16	1014		
5:45 PM	62	4	153	13	9	10	3	207	80	162	132	12	847		
<b>TOTAL VOLUMES :</b>	512	36	1334	168	146	155	49	1534	716	1386	1165	100	7301		
<b>APPROACH %'s :</b>	27.21%	1.91%	70.88%	35.82%	31.13%	33.05%	2.13%	66.72%	31.14%	52.28%	43.95%	3.77%			
<b>PEAK HR START TIME :</b>	4:45 PM														<b>TOTAL</b>
<b>PEAK HR VOL :</b>	266	23	690	87	83	85	19	764	395	752	607	47	3818		
<b>PEAK HR FACTOR :</b>	0.779			0.807			0.903			0.920			0.941		

UTURNS			
NB	SB	EB	WB
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
1	0	0	0

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



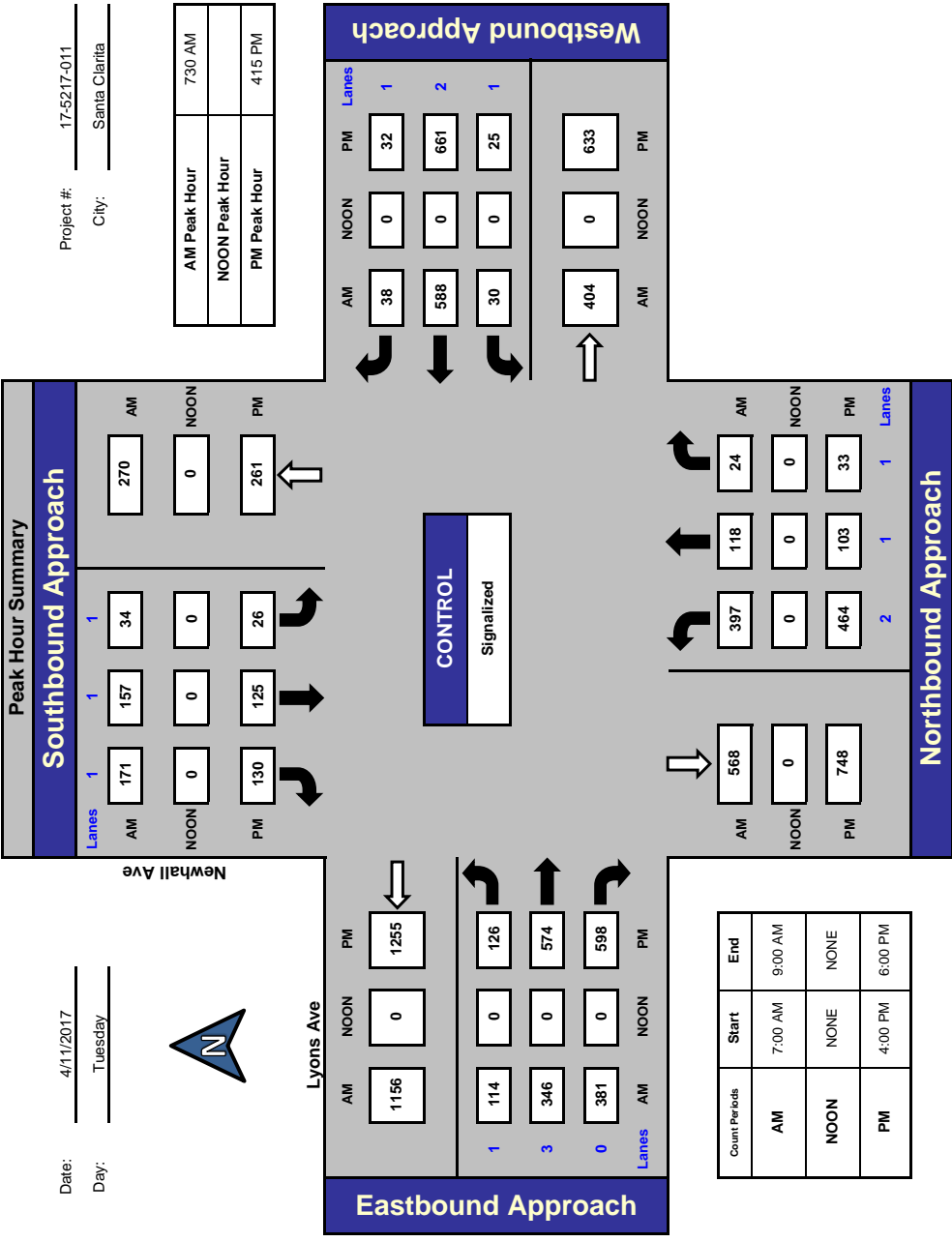
Date: 4/11/2017

Day: Tuesday

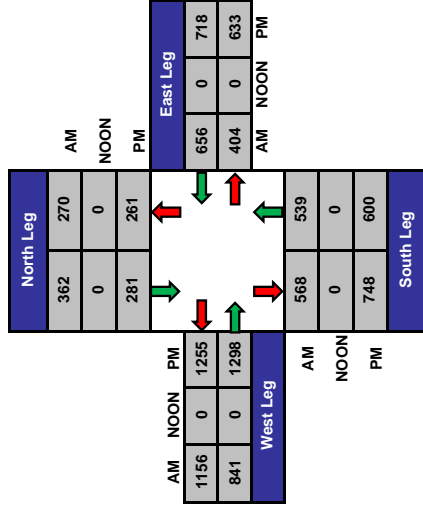
Project #: 17-5217-011

City: Santa Clarita

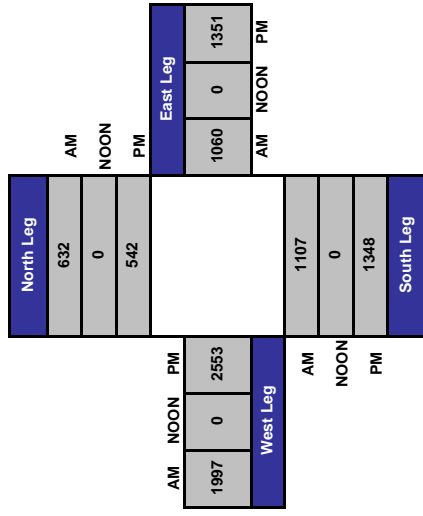
## Newhall Ave and Lyons Ave., Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-011

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM														
NS/EW Streets:	Newhall Ave			Newhall Ave			Lyons Ave			Lyons Ave				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
7:00 AM	45	17	2	1	26	33	13	55	54	2	93	2	343	
7:15 AM	71	34	4	2	37	21	22	52	54	6	121	5	429	
7:30 AM	128	44	3	7	39	49	49	69	83	6	190	11	678	
7:45 AM	85	45	3	15	47	61	36	100	135	11	159	11	708	
8:00 AM	91	17	8	11	56	40	19	84	90	10	128	9	563	
8:15 AM	93	12	10	1	15	21	10	93	73	3	111	7	449	
8:30 AM	76	12	8	1	22	15	10	75	82	12	110	1	424	
8:45 AM	116	13	6	3	14	16	14	79	89	11	116	4	481	
<b>TOTAL VOLUMES :</b>	705	194	44	41	256	256	173	607	660	61	1028	50	4075	
<b>APPROACH %'s :</b>	74.76%	20.57%	4.67%	7.41%	46.29%	46.29%	12.01%	42.15%	45.83%	5.36%	90.25%	4.39%		
<b>PEAK HR START TIME :</b>	7:30 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	397	118	24	34	157	171	114	346	381	30	588	38	2398	
<b>PEAK HR FACTOR :</b>	0.770			0.736			0.776			0.792			0.847	

UTURNS			
NB	SB	EB	WB
0	0	2	0
0	0	0	0
0	0	4	1
0	0	1	0
0	0	1	0
0	0	4	0
0	0	0	0
0	0	3	0
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
0	0	15	1

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-011

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL
	Newhall Ave			Newhall Ave			Lyons Ave			Lyons Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	109	19	9	7	22	31	15	160	131	9	139	5	656
4:15 PM	114	22	12	3	31	31	29	134	153	12	159	10	710
4:30 PM	105	24	6	6	34	23	24	131	139	7	140	5	644
4:45 PM	123	19	10	11	27	38	29	142	139	3	182	9	732
5:00 PM	122	38	5	6	33	38	44	167	167	3	180	8	811
5:15 PM	115	23	8	5	25	23	38	141	141	5	131	6	661
5:30 PM	103	17	5	5	22	27	22	168	165	9	129	5	677
5:45 PM	93	32	5	3	22	29	29	167	145	3	168	7	703
<b>TOTAL VOLUMES :</b>	884	194	60	46	216	240	230	1210	1180	51	1228	55	5594
<b>APPROACH %'s :</b>	77.68%	17.05%	5.27%	9.16%	43.03%	47.81%	8.78%	46.18%	45.04%	3.82%	92.05%	4.12%	
<b>PEAK HR START TIME :</b>	4:15 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	464	103	33	26	125	130	126	574	598	25	661	32	2897
<b>PEAK HR FACTOR :</b>	0.909			0.912			0.858			0.925			0.893

UTURNS			
NB	SB	EB	WB
0	0	5	2
0	0	13	1
0	0	7	1
0	0	6	0
0	0	10	1
0	0	7	0
0	0	5	1
0	0	4	0
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
0	0	57	6

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



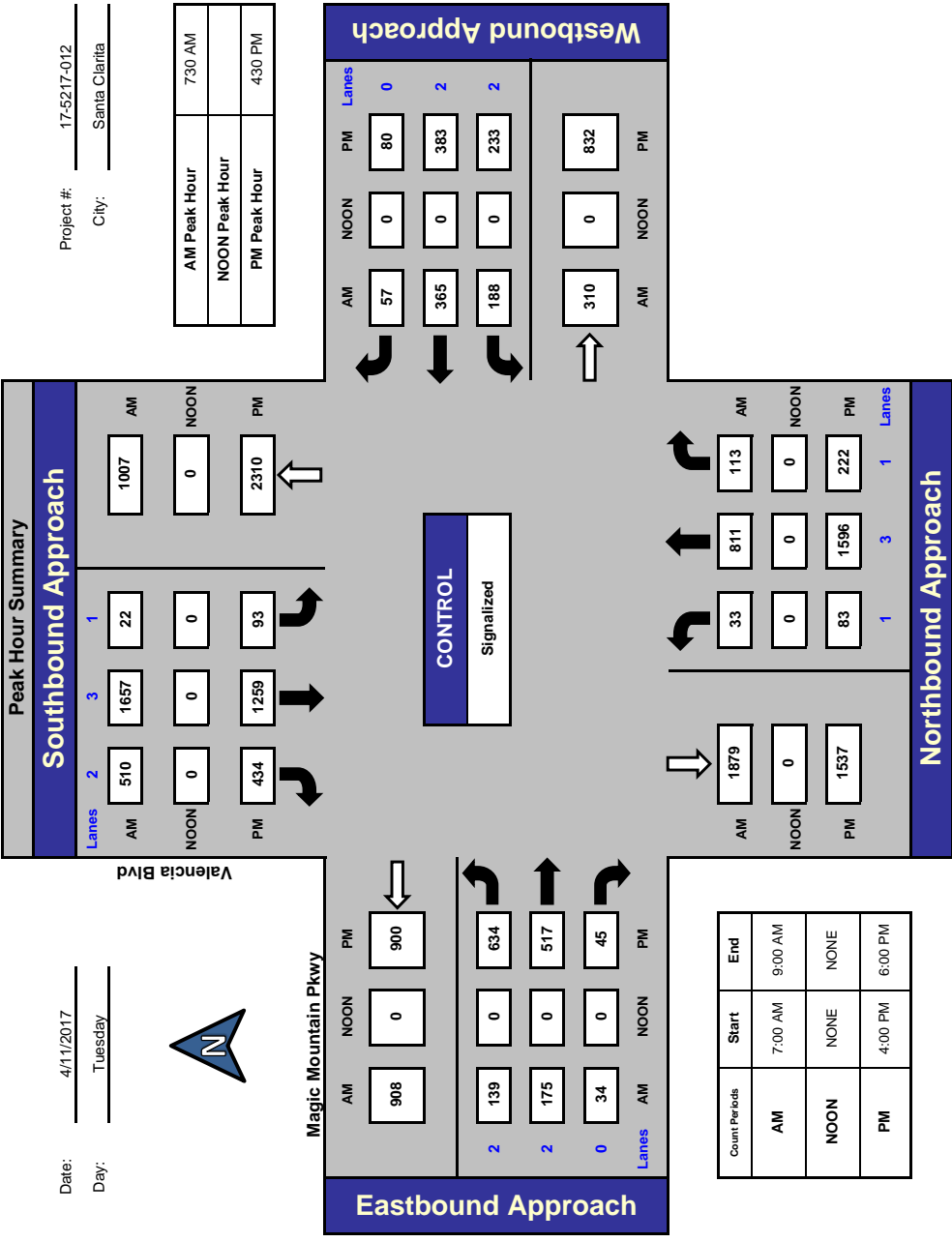
## Valencia Blvd and Magic Mountain Pkwy, Santa Clarita

Date: 4/11/2017

Day: Tuesday

Project #: 17-5217-012

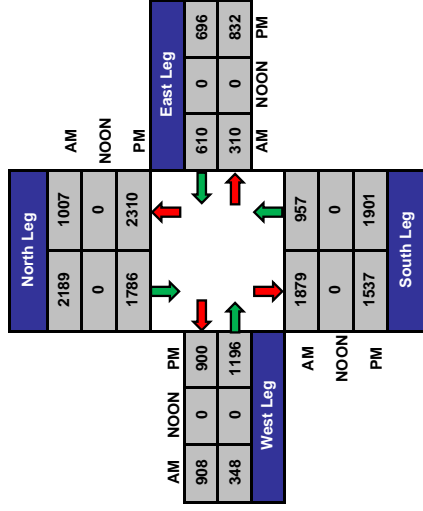
City: Santa Clarita



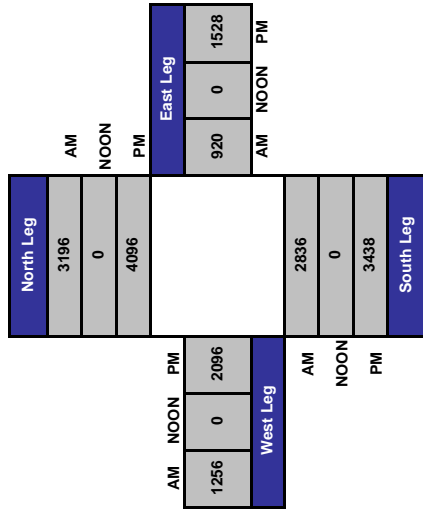
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	430 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-012

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM

NS/EW Streets:	Valencia Blvd		Valencia Blvd			Magic Mountain Pkwy			Magic Mountain Pkwy			TOTAL		
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		
7:00 AM	5	118	15	2	297	79	26	22	1	12	37	1	615	
7:15 AM	3	144	20	4	443	126	20	28	1	33	71	7	900	
7:30 AM	6	174	33	4	432	125	38	42	4	49	89	6	1002	
7:45 AM	12	240	30	8	411	139	39	61	11	54	101	21	1127	
8:00 AM	4	203	30	5	429	125	31	35	9	40	83	11	1005	
8:15 AM	11	194	20	5	385	121	31	37	10	45	92	19	970	
8:30 AM	7	175	31	8	349	109	39	55	13	49	78	11	924	
8:45 AM	10	183	28	11	325	110	39	50	3	46	85	14	904	
<b>TOTAL VOLUMES :</b>	58	1431	207	47	3071	934	263	330	52	328	636	90	7447	
<b>APPROACH %'s :</b>	3.42%	84.38%	12.21%	1.16%	75.79%	23.05%	40.78%	51.16%	8.06%	31.12%	60.34%	8.54%		
<b>PEAK HR START TIME :</b>	7:30 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	33	811	113	22	1657	510	139	175	34	188	365	57	4104	
<b>PEAK HR FACTOR :</b>	0.848			0.975			0.784			0.866			0.910	

UTURNS			
NB	SB	EB	WB
2	0	0	0
0	1	0	0
0	0	0	2
6	0	0	3
3	0	0	0
4	0	0	1
3	0	0	1
4	1	0	0
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
22	2	0	7

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-012

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

PM

NS/EW Streets:	Valencia Blvd			Valencia Blvd			Magic Mountain Pkwy			Magic Mountain Pkwy			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	1	1	3	2	2	2	0	2	2	0	
4:00 PM	14	403	54	11	265	89	145	121	10	61	85	23	1281
4:15 PM	22	383	45	9	304	83	122	96	12	59	83	29	1247
4:30 PM	23	380	48	15	306	111	135	107	18	57	88	28	1316
4:45 PM	20	414	56	24	335	116	149	129	13	61	88	24	1429
5:00 PM	23	413	59	23	283	81	192	139	4	52	90	13	1372
5:15 PM	17	389	59	31	335	126	158	142	10	63	117	15	1462
5:30 PM	17	380	69	27	294	100	126	114	6	59	86	17	1295
5:45 PM	9	390	42	20	295	113	132	88	11	69	73	22	1264
<b>TOTAL VOLUMES :</b>	145	3152	432	160	2417	819	1159	936	84	481	710	171	10666
<b>APPROACH %'s :</b>	3.89%	84.53%	11.58%	4.71%	71.17%	24.12%	53.19%	42.96%	3.85%	35.32%	52.13%	12.56%	
<b>PEAK HR START TIME :</b>	4:30 PM												
<b>PEAK HR VOL :</b>	83	1596	222	93	1259	434	634	517	45	233	383	80	5579
<b>PEAK HR FACTOR :</b>	0.960			0.908			0.893			0.892			0.954

UTURNS			
NB	SB	EB	WB
5	0	0	1
6	0	0	4
7	2	0	1
5	1	0	7
10	0	0	0
6	1	0	1
1	0	0	2
1	0	0	8
NB	SB	EB	WB
41	4	0	24

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



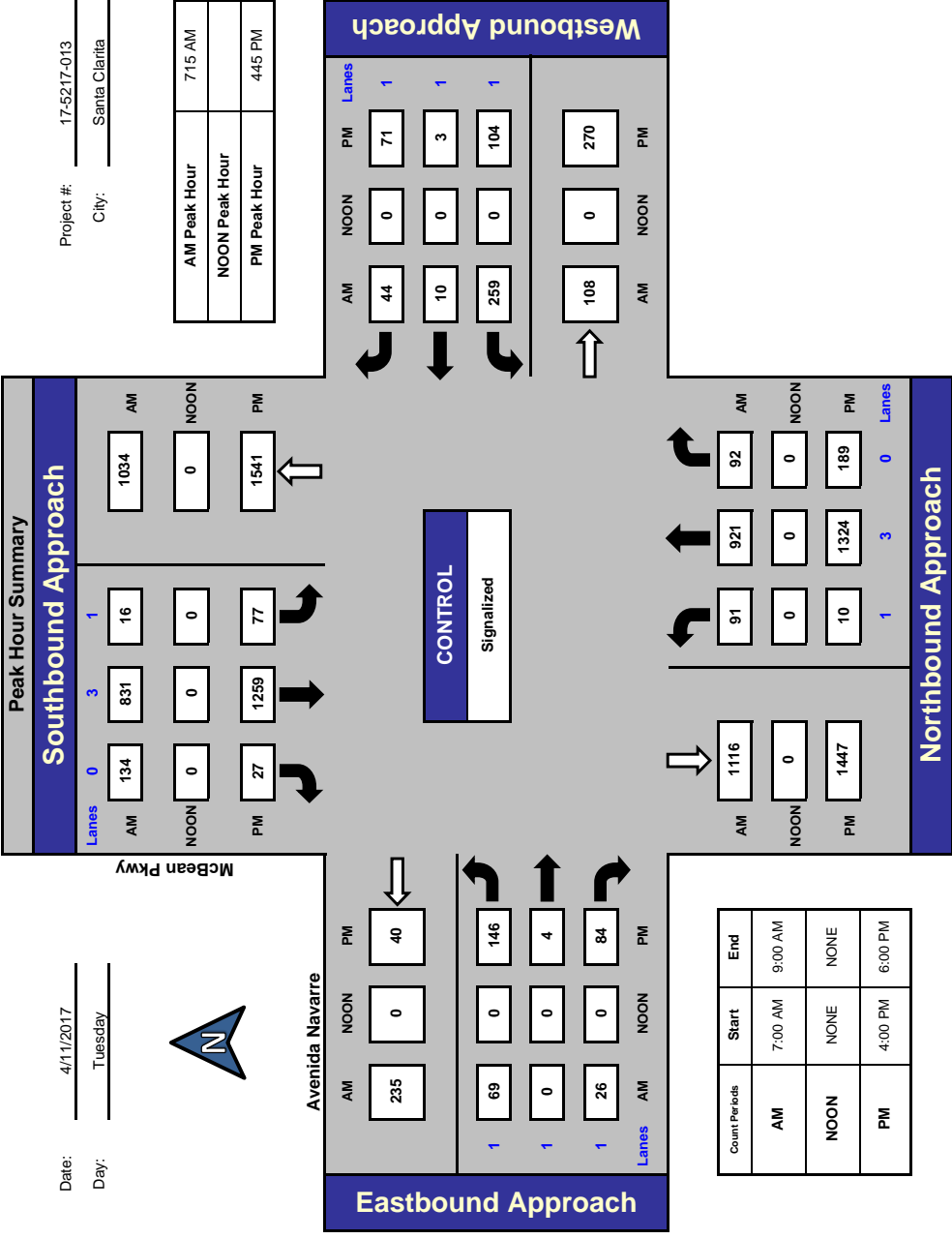
Date: 4/11/2017

Day: Tuesday

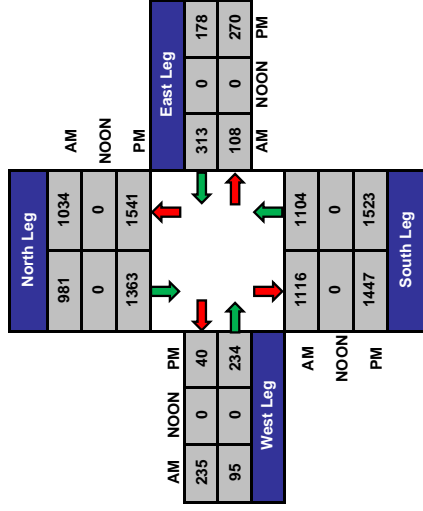
Project #: 17-5217-013

City: Santa Clarita

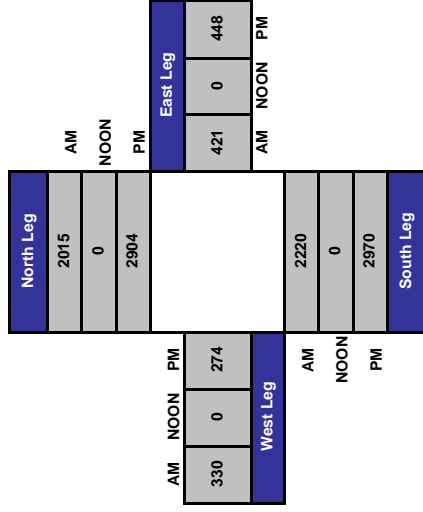
## McBean Pkwy and Avenida Navarre, Santa Clarita



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-013

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM														
NS/EW Streets:	McBean Pkwy			McBean Pkwy			Avenida Navarre			Avenida Navarre				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
7:00 AM	9	117	11	4	141	16	7	0	1	32	2	13	353	
7:15 AM	19	143	10	2	182	25	14	0	3	65	0	13	476	
7:30 AM	17	235	18	3	201	29	27	0	11	79	1	12	633	
7:45 AM	39	277	35	5	245	41	11	0	3	71	5	14	746	
8:00 AM	16	266	29	6	203	39	17	0	9	44	4	5	638	
8:15 AM	25	182	12	7	152	31	14	0	8	28	2	10	471	
8:30 AM	23	183	10	10	169	29	11	1	7	26	0	13	482	
8:45 AM	8	183	14	9	210	45	15	0	10	37	1	18	550	
<b>TOTAL VOLUMES :</b>	156	1586	139	46	1503	255	116	1	52	382	15	98	4349	
<b>APPROACH %'s :</b>	8.29%	84.32%	7.39%	2.55%	83.31%	14.14%	68.64%	0.59%	30.77%	77.17%	3.03%	19.80%		
<b>PEAK HR START TIME :</b>	7:15 AM													<b>TOTAL</b>
<b>PEAK HR VOL :</b>	91	921	92	16	831	134	69	0	26	259	10	44	2493	
<b>PEAK HR FACTOR :</b>	0.786			0.843			0.625			0.851			0.835	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
1	0	0	0
2	0	0	0
0	0	0	0
1	1	0	0

NB	SB	EB	WB
5	1	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-013

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

NS/EW Streets:	PM												TOTAL
	McBean Pkwy			McBean Pkwy			Avenida Navarre			Avenida Navarre			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	5	315	54	17	247	14	49	1	17	23	0	15	757
4:15 PM	4	336	36	17	262	11	27	0	13	24	1	25	756
4:30 PM	3	316	37	12	284	9	43	5	23	30	0	19	781
4:45 PM	2	337	48	17	310	4	40	1	9	24	0	18	810
5:00 PM	4	293	37	13	329	9	41	2	30	30	2	16	806
5:15 PM	0	324	46	21	323	4	31	0	24	20	1	16	810
5:30 PM	4	370	58	26	297	10	34	1	21	30	0	21	872
5:45 PM	2	336	51	20	269	9	24	1	2	24	0	23	761
<b>TOTAL VOLUMES :</b>	24	2627	367	143	2321	70	289	11	139	205	4	153	6353
<b>APPROACH %'s :</b>	0.80%	87.04%	12.16%	5.64%	91.59%	2.76%	65.83%	2.51%	31.66%	56.63%	1.10%	42.27%	
<b>PEAK HR START TIME :</b>	445 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	10	1324	189	77	1259	27	146	4	84	104	3	71	3298
<b>PEAK HR FACTOR :</b>	0.881												0.946
	0.871												0.801
	0.873												0.873

UTURNS			
NB	SB	EB	WB
0	1	0	0
0	1	0	0
1	2	0	0
1	1	0	0
0	0	0	0
0	0	0	0
0	1	0	0
1	1	0	0

NB	SB	EB	WB
3	7	0	0

CONTROL : Signalized

# ITM Peak Hour Summary

Prepared by:



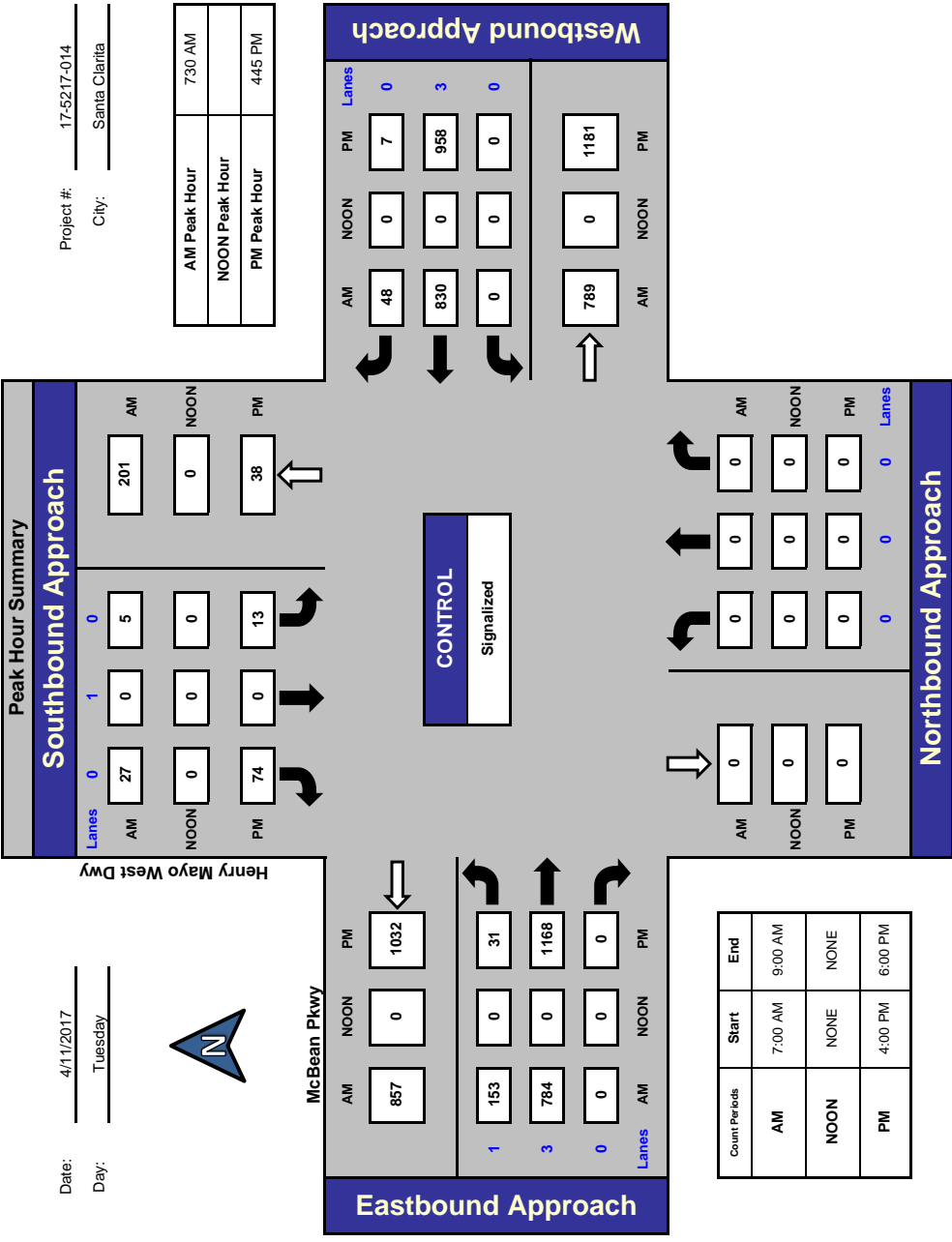
## Henry Mayo West Dwy and McBean Pkwy, Santa Clarita

Date: 4/11/2017

Day: Tuesday

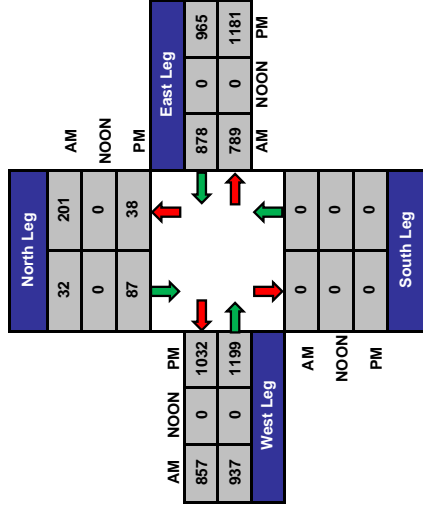
Project #: 17-5217-014

City: Santa Clarita

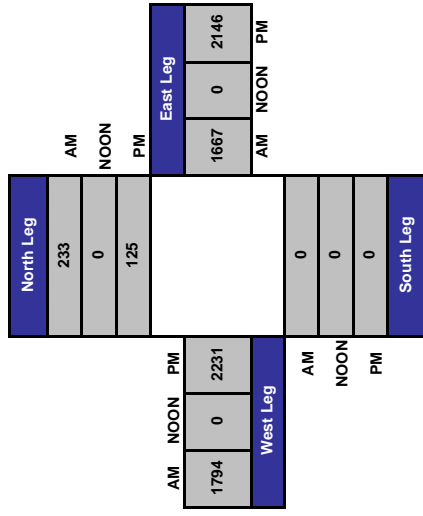


AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	445 PM

### Total Ins & Outs



### Total Volume Per Leg





# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-014

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

AM

NS/EW Streets: Henry Mayo West Dwy    Henry Mayo West Dwy    McBean Pkwy    McBean Pkwy

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	1	0	5	18	101	0	0	129	6	260
7:15 AM	0	0	0	0	0	3	26	135	0	0	179	7	350
7:30 AM	0	0	0	1	0	7	29	206	0	0	190	7	440
7:45 AM	0	0	0	0	0	11	45	220	0	0	242	14	532
8:00 AM	0	0	0	2	0	3	42	189	0	0	243	13	492
8:15 AM	0	0	0	2	0	6	37	169	0	0	155	14	383
8:30 AM	0	0	0	2	0	9	23	157	0	0	159	14	364
8:45 AM	0	0	0	1	0	7	17	159	0	0	179	6	369
<b>TOTAL VOLUMES :</b>	0	0	0	9	0	51	237	1336	0	0	1476	81	3190
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	15.00%	0.00%	85.00%	15.07%	84.93%	0.00%	0.00%	94.80%	5.20%	
<b>PEAK HR START TIME :</b>	7:30 AM												
<b>PEAK HR VOL :</b>	0	0	0	5	0	27	153	784	0	0	830	48	1847
<b>PEAK HR FACTOR :</b>	0.000			0.727			0.884			0.857			0.868

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
0	0	1	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-5217-014

Day: Tuesday

City: Santa Clarita

Date: 4/11/2017

PM

NS/EW Streets:	Henry Mayo West Dwy		Henry Mayo West Dwy			McBean Pkwy			McBean Pkwy			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	21	12	281	0	0	208	6	528
4:15 PM	0	0	0	2	0	12	9	283	0	0	203	5	514
4:30 PM	0	0	0	5	0	17	9	264	0	0	240	3	538
4:45 PM	0	0	0	5	0	15	8	317	0	0	225	1	571
5:00 PM	0	0	0	1	0	29	10	279	0	0	265	0	584
5:15 PM	0	0	0	5	0	16	7	279	0	0	213	5	525
5:30 PM	0	0	0	2	0	14	6	293	0	0	255	1	571
5:45 PM	0	0	0	2	0	8	5	298	0	0	204	2	519
<b>TOTAL VOLUMES :</b>	0	0	0	22	0	132	66	2294	0	0	1813	23	4350
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	14.29%	0.00%	85.71%	2.80%	97.20%	0.00%	0.00%	98.75%	1.25%	
<b>PEAK HR START TIME :</b>	4:45 PM												
<b>PEAK HR VOL :</b>	0	0	0	13	0	74	31	1168	0	0	958	7	2251
<b>PEAK HR FACTOR :</b>	0.000			0.725			0.922			0.910			0.964

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized

## APPENDIX B

### HCM AND LEVELS OF SERVICE EXPLANATION SYNCHRO 10 HCM DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS

## LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

In the *Highway Capacity Manual (HCM)*, published by the Transportation Research Board, 2000, level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of Service criteria for traffic signals are stated in terms of the average control delay per vehicle. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the  $v/c$  ratio for the lane group in question.

Level of Service Criteria for Signalized Intersections	
Level of Service	Control Delay (Sec/Veh)
A	$\leq 10$
B	$> 10$ and $\leq 20$
C	$> 20$ and $\leq 35$
D	$> 35$ and $\leq 55$
E	$> 55$ and $\leq 80$
F	$> 80$

Level of Service (LOS) values are used to describe intersection operations with service levels varying from LOS A (free flow) to LOS F (jammed condition). The following descriptions summarize *HCM* criteria for each level of service:

**LOS A** describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay values.

**LOS B** describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

**LOS C** describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.













**LOS D** describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high  $v/c$  ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

**LOS E** describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high  $v/c$  ratios. Individual cycle failures are frequent occurrences.

**LOS F** describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the lane groups. It may also occur at high  $v/c$  ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.













HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps

04/12/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖		↗
Traffic Volume (veh/h)	0	806	348	0	484	487	0	0	0	163	0	119
Future Volume (veh/h)	0	806	348	0	484	487	0	0	0	163	0	119
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	806	348	0	484	487				163	0	119
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2363	1057	0	2363	1295				267	0	239
Arrive On Green	0.00	0.67	0.67	0.00	0.67	0.67				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	806	348	0	484	487				163	0	119
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	6.5	6.2	0.0	3.5	5.3				5.7	0.0	4.6
Cycle Q Clear(g_c), s	0.0	6.5	6.2	0.0	3.5	5.3				5.7	0.0	4.6
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2363	1057	0	2363	1295				267	0	239
V/C Ratio(X)	0.00	0.34	0.33	0.00	0.20	0.38				0.61	0.00	0.50
Avail Cap(c_a), veh/h	0	2363	1057	0	2363	1295				597	0	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.7	4.7	0.0	4.2	1.6				26.2	0.0	25.7
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.0	0.2	0.8				2.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	2.9	0.0	1.7	4.5				2.9	0.0	2.1
LnGrp Delay(d),s/veh	0.0	5.1	5.5	0.0	4.4	2.4				28.5	0.0	27.4
LnGrp LOS		A	A		A	A				C		C
Approach Vol, veh/h		1154			971						282	
Approach Delay, s/veh		5.2			3.4						28.0	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.3		15.7		50.3						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		31.8		22.2		31.8						
Max Q Clear Time (g_c+I1), s		8.5		7.7		7.3						
Green Ext Time (p_c), s		9.6		0.7		7.4						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.2									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps


















04/12/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Volume (veh/h)	0	928	172	0	882	559	0	0	0	160	0	154
Future Volume (veh/h)	0	928	172	0	882	559	0	0	0	160	0	154
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	928	172	0	882	559				160	0	154
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2361	1056	0	2361	1295				268	0	239
Arrive On Green	0.00	0.67	0.67	0.00	0.67	0.67				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	928	172	0	882	559				160	0	154
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	7.8	2.7	0.0	7.3	6.5				5.6	0.0	6.0
Cycle Q Clear(g_c), s	0.0	7.8	2.7	0.0	7.3	6.5				5.6	0.0	6.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2361	1056	0	2361	1295				268	0	239
V/C Ratio(X)	0.00	0.39	0.16	0.00	0.37	0.43				0.60	0.00	0.64
Avail Cap(c_a), veh/h	0	2361	1056	0	2361	1295				597	0	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.0	4.1	0.0	4.9	1.7				26.1	0.0	26.3
Incr Delay (d2), s/veh	0.0	0.5	0.3	0.0	0.5	1.1				2.1	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	3.9	1.2	0.0	3.6	5.5				2.9	0.0	2.8
LnGrp Delay(d),s/veh	0.0	5.4	4.4	0.0	5.3	2.7				28.3	0.0	29.2
LnGrp LOS		A	A		A	A				C		C
Approach Vol, veh/h		1100			1441						314	
Approach Delay, s/veh		5.3			4.3						28.7	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.2		15.8		50.2						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		31.8		22.2		31.8						
Max Q Clear Time (g_c+I1), s		9.8		8.0		9.3						
Green Ext Time (p_c), s		9.5		0.8		11.8						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.4									
HCM 2010 LOS			A									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy













04/10/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	655	342	0	829	216	110	0	659	0	0	0
Future Volume (veh/h)	0	655	342	0	829	216	110	0	659	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	655	342	0	829	216	110	0	659			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2088	934	0	2376	615	941	0	762			
Arrive On Green	0.00	0.59	0.59	0.00	0.59	0.59	0.27	0.00	0.27			
Sat Flow, veh/h	0	3632	1583	0	4194	1042	3442	0	2787			
Grp Volume(v), veh/h	0	655	342	0	697	348	110	0	659			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1679	1721	0	1393			
Q Serve(g_s), s	0.0	6.1	7.5	0.0	7.0	7.1	1.6	0.0	14.9			
Cycle Q Clear(g_c), s	0.0	6.1	7.5	0.0	7.0	7.1	1.6	0.0	14.9			
Prop In Lane	0.00		1.00	0.00		0.62	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2088	934	0	2001	991	941	0	762			
V/C Ratio(X)	0.00	0.31	0.37	0.00	0.35	0.35	0.12	0.00	0.86			
Avail Cap(c_a), veh/h	0	2088	934	0	2001	991	1111	0	899			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	6.8	7.1	0.0	7.0	7.0	18.0	0.0	22.8			
Incr Delay (d2), s/veh	0.0	0.4	1.1	0.0	0.5	1.0	0.0	0.0	7.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.1	3.5	0.0	3.3	3.5	0.8	0.0	6.5			
LnGrp Delay(d),s/veh	0.0	7.2	8.2	0.0	7.5	8.0	18.0	0.0	30.2			
LnGrp LOS		A	A		A	A	B		C			
Approach Vol, veh/h		997			1045			769				
Approach Delay, s/veh		7.5			7.6			28.5				
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		44.2				44.2		21.8				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		35.7				35.7		21.3				
Max Q Clear Time (g_c+I1), s		9.5				9.1		16.9				
Green Ext Time (p_c), s		13.9				15.8		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.3									
HCM 2010 LOS			B									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy

04/12/2019






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	845	227	0	1222	164	223	0	546	0	0	0
Future Volume (veh/h)	0	845	227	0	1222	164	223	0	546	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	845	227	0	1222	164	223	0	546			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2209	988	0	2831	380	824	0	668			
Arrive On Green	0.00	0.62	0.62	0.00	0.62	0.62	0.24	0.00	0.24			
Sat Flow, veh/h	0	3632	1583	0	4704	609	3442	0	2787			
Grp Volume(v), veh/h	0	845	227	0	913	473	223	0	546			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1755	1721	0	1393			
Q Serve(g_s), s	0.0	7.8	4.2	0.0	9.1	9.1	3.5	0.0	12.2			
Cycle Q Clear(g_c), s	0.0	7.8	4.2	0.0	9.1	9.1	3.5	0.0	12.2			
Prop In Lane	0.00		1.00	0.00		0.35	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2209	988	0	2116	1095	824	0	668			
V/C Ratio(X)	0.00	0.38	0.23	0.00	0.43	0.43	0.27	0.00	0.82			
Avail Cap(c_a), veh/h	0	2209	988	0	2116	1095	1111	0	899			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	6.1	5.4	0.0	6.4	6.4	20.4	0.0	23.7			
Incr Delay (d2), s/veh	0.0	0.5	0.5	0.0	0.6	1.2	0.1	0.0	3.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.9	1.9	0.0	4.4	4.7	1.7	0.0	5.1			
LnGrp Delay(d),s/veh	0.0	6.6	6.0	0.0	7.0	7.6	20.5	0.0	27.7			
LnGrp LOS		A	A		A	A	C		C			
Approach Vol, veh/h		1072			1386			769				
Approach Delay, s/veh		6.5			7.2			25.6				
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		46.5				46.5		19.5				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		35.7				35.7		21.3				
Max Q Clear Time (g_c+I1), s		9.8				11.1		14.2				
Green Ext Time (p_c), s		15.4				18.8		1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				11.4								
HCM 2010 LOS				B								



# HCM 2010 Signalized Intersection Summary

## 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	435	733	113	49	669	154	159	145	45	44	90	306
Future Volume (veh/h)	435	733	113	49	669	154	159	145	45	44	90	306
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	435	733	113	49	669	154	159	145	45	44	90	306
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	735	2585	395	123	962	218	184	323	97	118	141	776
Arrive On Green	0.41	0.58	0.58	0.07	0.23	0.23	0.10	0.12	0.12	0.07	0.08	0.08
Sat Flow, veh/h	1774	4452	680	1774	4146	941	1774	2684	806	1774	1863	1583
Grp Volume(v), veh/h	435	557	289	49	545	278	159	94	96	44	90	306
Grp Sat Flow(s),veh/h/ln	1774	1695	1743	1774	1695	1697	1774	1770	1721	1774	1863	1583
Q Serve(g_s), s	25.1	10.9	11.0	3.5	19.4	19.8	11.6	6.5	6.9	3.1	6.2	0.0
Cycle Q Clear(g_c), s	25.1	10.9	11.0	3.5	19.4	19.8	11.6	6.5	6.9	3.1	6.2	0.0
Prop In Lane	1.00		0.39	1.00		0.55	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	735	1968	1012	123	787	394	184	213	207	118	141	776
V/C Ratio(X)	0.59	0.28	0.29	0.40	0.69	0.70	0.86	0.44	0.46	0.37	0.64	0.39
Avail Cap(c_a), veh/h	735	1968	1012	148	1246	623	242	442	430	242	466	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	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	13.9	13.9	58.8	46.4	46.5	58.2	53.9	54.1	58.9	59.2	21.3
Incr Delay (d2), s/veh	0.9	0.4	0.7	0.8	5.0	10.1	14.6	1.1	1.3	0.7	4.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	5.2	5.5	1.7	9.6	10.4	6.4	3.2	3.4	1.6	3.4	7.1
LnGrp Delay(d),s/veh	30.9	14.3	14.6	59.5	51.4	56.7	72.9	55.1	55.4	59.7	64.0	21.6
LnGrp LOS	C	B	B	E	D	E	E	E	E	E	E	C
Approach Vol, veh/h		1281			872			349			440	
Approach Delay, s/veh		20.0			53.5			63.3			34.1	
Approach LOS		B			D			E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.2	82.1	19.7	16.0	60.2	36.1	13.8	21.9				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	5.5	13.0	13.6	8.2	27.1	21.8	5.1	8.9				
Green Ext Time (p_c), s	0.0	10.0	0.1	1.4	0.0	8.8	0.0	1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			37.2									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

























05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	354	1013	159	67	774	112	194	177	70	122	206	436
Future Volume (veh/h)	354	1013	159	67	774	112	194	177	70	122	206	436
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	354	1013	159	67	774	112	194	177	70	122	206	436
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	564	2173	340	135	1099	158	218	473	180	146	261	725
Arrive On Green	0.32	0.49	0.49	0.08	0.24	0.24	0.12	0.19	0.19	0.08	0.14	0.14
Sat Flow, veh/h	1774	4435	695	1774	4493	646	1774	2507	956	1774	1863	1583
Grp Volume(v), veh/h	354	774	398	67	583	303	194	123	124	122	206	436
Grp Sat Flow(s),veh/h/ln	1774	1695	1740	1774	1695	1749	1774	1770	1694	1774	1863	1583
Q Serve(g_s), s	22.5	19.9	20.0	4.8	20.7	20.9	14.2	8.0	8.5	8.9	14.1	0.0
Cycle Q Clear(g_c), s	22.5	19.9	20.0	4.8	20.7	20.9	14.2	8.0	8.5	8.9	14.1	0.0
Prop In Lane	1.00		0.40	1.00		0.37	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	564	1661	853	135	829	428	218	334	319	146	261	725
V/C Ratio(X)	0.63	0.47	0.47	0.50	0.70	0.71	0.89	0.37	0.39	0.83	0.79	0.60
Avail Cap(c_a), veh/h	564	1661	853	148	1246	643	242	442	423	242	466	899
HCM Platoon Ratio	1.00	1.00	1.00	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	0.65	0.65	0.65	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	22.3	22.3	58.5	45.5	45.6	57.0	46.7	46.9	59.7	54.8	26.8
Incr Delay (d2), s/veh	1.7	0.9	1.8	1.0	4.9	9.6	19.5	0.4	0.5	5.1	5.2	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	11.3	9.6	10.1	2.4	10.3	11.2	8.1	4.0	4.0	4.6	7.6	11.9
LnGrp Delay(d),s/veh	40.1	23.2	24.1	59.6	50.4	55.1	76.4	47.1	47.4	64.7	60.1	27.6
LnGrp LOS	D	C	C	E	D	E	E	D	D	E	E	C
Approach Vol, veh/h		1526			953			441			764	
Approach Delay, s/veh		27.3			52.6			60.1			42.3	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.1	70.2	22.2	24.5	47.4	37.8	15.9	30.9				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	6.8	22.0	16.2	16.1	24.5	22.9	10.9	10.5				
Green Ext Time (p_c), s	0.0	13.1	0.1	2.4	0.0	9.4	0.1	1.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			40.9									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
4: McBean Pkwy & Valencia Blvd

04/10/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	452	790	123	369	1169	51	223	818	348	137	599	772
Future Volume (veh/h)	452	790	123	369	1169	51	223	818	348	137	599	772
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	452	790	123	369	1169	51	223	818	348	137	599	772
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1120	540	706	1623	696	417	1444	1363	414	1440	1106
Arrive On Green	0.11	0.22	0.22	0.21	0.32	0.32	0.12	0.28	0.28	0.04	0.09	0.09
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	452	790	123	369	1169	51	223	818	348	137	599	772
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	18.9	3.6	12.6	26.8	2.5	8.0	18.1	3.0	5.1	14.7	30.7
Cycle Q Clear(g_c), s	15.0	18.9	3.6	12.6	26.8	2.5	8.0	18.1	3.0	5.1	14.7	30.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1120	540	706	1623	696	417	1444	1363	414	1440	1106
V/C Ratio(X)	1.16	0.71	0.23	0.52	0.72	0.07	0.53	0.57	0.26	0.33	0.42	0.70
Avail Cap(c_a), veh/h	391	1560	678	706	1623	696	417	1502	1395	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	0.96	0.96	0.96	0.89	0.89	0.89
Uniform Delay (d), s/veh	58.5	47.5	12.0	46.7	39.7	21.4	54.5	40.3	7.2	58.2	49.5	42.1
Incr Delay (d2), s/veh	95.2	3.7	1.0	0.5	2.1	0.2	0.7	0.7	0.2	0.2	0.3	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	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	9.2	1.9	6.0	12.9	1.1	3.9	8.6	1.9	2.5	6.9	12.2
LnGrp Delay(d),s/veh	153.7	51.3	13.0	47.2	41.9	21.6	55.2	41.0	7.4	58.4	49.8	44.1
LnGrp LOS	F	D	B	D	D	C	E	D	A	E	D	D
Approach Vol, veh/h		1365			1589			1389			1508	
Approach Delay, s/veh		81.7			42.5			34.9			47.7	
Approach LOS		F			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	48.1	20.9	43.0	33.1	35.1	21.0	42.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	6.0	* 6	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	* 41	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	28.8	7.1	20.1	14.6	20.9	10.0	32.7				
Green Ext Time (p_c), s	0.0	7.9	0.1	10.0	0.1	8.1	0.2	4.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			51.2									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 4: McBean Pkwy & Valencia Blvd

























05/01/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	555	1221	188	390	1131	193	177	1017	510	228	1034	706
Future Volume (veh/h)	555	1221	188	390	1131	193	177	1017	510	228	1034	706
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	555	1221	188	390	1131	193	177	1017	510	228	1034	706
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	1621	696	391	1659	709	417	1442	1107	417	1443	1086
Arrive On Green	0.11	0.32	0.32	0.11	0.33	0.33	0.12	0.28	0.28	0.04	0.09	0.09
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	555	1221	188	390	1131	193	177	1017	510	228	1034	706
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	14.0	28.4	10.0	15.0	25.4	10.1	6.3	23.6	17.8	8.6	26.1	28.2
Cycle Q Clear(g_c), s	14.0	28.4	10.0	15.0	25.4	10.1	6.3	23.6	17.8	8.6	26.1	28.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	365	1621	696	391	1659	709	417	1442	1107	417	1443	1086
V/C Ratio(X)	1.52	0.75	0.27	1.00	0.68	0.27	0.42	0.71	0.46	0.55	0.72	0.65
Avail Cap(c_a), veh/h	365	1621	696	391	1659	709	417	1502	1140	417	1502	1119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	0.88	0.88	0.88	0.64	0.64	0.64
Uniform Delay (d), s/veh	59.0	40.3	23.5	58.5	38.5	22.9	53.8	42.3	29.4	59.8	54.7	42.0
Incr Delay (d2), s/veh	247.8	3.3	1.0	34.2	1.4	0.6	0.2	1.5	0.5	0.5	1.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.2	13.8	4.5	9.0	12.1	4.5	3.0	11.2	6.9	4.1	12.4	11.1
LnGrp Delay(d),s/veh	306.8	43.6	24.5	92.6	39.9	23.5	54.0	43.9	29.8	60.4	55.9	43.0
LnGrp LOS	F	D	C	F	D	C	D	D	C	E	E	D
Approach Vol, veh/h		1964			1714			1704			1968	
Approach Delay, s/veh		116.2			50.0			40.7			51.8	
Approach LOS		F			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	49.1	21.0	42.9	20.0	48.1	21.0	43.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	5.0	6.0	5.0	5.5				
Max Green Setting (Gmax), s	14.0	41.5	16.0	39.0	15.0	40.5	16.0	39.0				
Max Q Clear Time (g_c+I1), s	16.0	27.4	10.6	25.6	17.0	30.4	8.3	30.2				
Green Ext Time (p_c), s	0.0	9.4	0.2	9.7	0.0	7.4	0.2	7.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			66.0									
HCM 2010 LOS			E									

# HCM 2010 Signalized Intersection Summary

## 5: Magic Mtn Pkwy & McBean Pkwy

04/12/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	437	81	51	376	164	59	918	69	260	1430	683
Future Volume (veh/h)	399	437	81	51	376	164	59	918	69	260	1430	683
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	399	437	81	51	376	164	59	918	0	260	1430	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	617	597	267	287	616	384	369	2948	728	417	3037	750
Arrive On Green	0.12	0.17	0.17	0.08	0.12	0.12	0.04	0.15	0.00	0.12	0.47	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	399	437	81	51	376	164	59	918	0	260	1430	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	10.0	15.5	5.9	1.8	9.3	7.7	2.2	16.8	0.0	9.5	19.9	0.0
Cycle Q Clear(g_c), s	10.0	15.5	5.9	1.8	9.3	7.7	2.2	16.8	0.0	9.5	19.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	617	597	267	287	616	384	369	2948	728	417	3037	750
V/C Ratio(X)	0.65	0.73	0.30	0.18	0.61	0.43	0.16	0.31	0.00	0.62	0.47	0.00
Avail Cap(c_a), veh/h	910	1153	516	391	1310	600	417	2948	728	417	3037	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	0.67	0.67	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.1	52.0	48.1	56.3	55.1	20.9	57.9	37.4	0.0	55.1	23.5	0.0
Incr Delay (d2), s/veh	0.4	3.0	1.1	0.1	1.5	1.2	0.0	0.2	0.0	2.2	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	4.6	7.8	2.7	0.9	4.4	3.6	1.1	7.5	0.0	4.6	8.9	0.0
LnGrp Delay(d),s/veh	55.5	55.0	49.1	56.4	56.6	22.1	57.9	37.6	0.0	57.3	24.0	0.0
LnGrp LOS	E	D	D	E	E	C	E	D		E	C	
Approach Vol, veh/h		917			591			977			1690	
Approach Delay, s/veh		54.7			47.0			38.8			29.2	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	28.3	19.2	68.6	22.3	22.0	21.0	66.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	3.8	17.5	4.2	21.9	12.0	11.3	11.5	18.8				
Green Ext Time (p_c), s	0.0	4.8	0.0	10.2	0.6	4.7	0.2	8.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			39.5									
HCM 2010 LOS			D									
<b>Notes</b>												



























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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
5: Magic Mtn Pkwy & McBean Pkwy

04/12/2019

































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	836	772	176	249	524	369	152	1599	162	315	1582	358
Future Volume (veh/h)	836	772	176	249	524	369	152	1599	162	315	1582	358
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	836	772	176	249	524	369	152	1599	0	315	1582	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	902	966	432	339	934	483	416	2182	539	417	2185	540
Arrive On Green	0.18	0.27	0.27	0.10	0.18	0.18	0.24	0.68	0.00	0.12	0.34	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	836	772	176	249	524	369	152	1599	0	315	1582	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	21.7	26.8	12.0	9.3	12.4	15.5	4.9	21.0	0.0	11.7	28.5	0.0
Cycle Q Clear(g_c), s	21.7	26.8	12.0	9.3	12.4	15.5	4.9	21.0	0.0	11.7	28.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	902	966	432	339	934	483	416	2182	539	417	2185	540
V/C Ratio(X)	0.93	0.80	0.41	0.73	0.56	0.76	0.37	0.73	0.00	0.76	0.72	0.00
Avail Cap(c_a), veh/h	910	1153	516	391	1310	600	417	2182	539	417	2185	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	0.53	0.53	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.2	44.6	39.2	57.8	49.0	17.2	45.9	17.2	0.0	56.1	38.1	0.0
Incr Delay (d2), s/veh	14.9	4.1	1.1	4.1	0.8	5.1	0.1	1.2	0.0	6.9	2.1	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	11.2	13.6	5.4	4.6	5.9	7.4	2.3	9.3	0.0	6.0	13.0	0.0
LnGrp Delay(d),s/veh	68.1	48.7	40.3	61.9	49.8	22.3	46.0	18.4	0.0	63.0	40.2	0.0
LnGrp LOS	E	D	D	E	D	C	D	B		E	D	
Approach Vol, veh/h		1784			1142			1751			1897	
Approach Delay, s/veh		57.0			43.6			20.8			44.0	
Approach LOS		E			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	42.0	20.9	51.0	29.8	30.2	21.0	51.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	11.3	28.8	6.9	30.5	23.7	17.5	13.7	23.0				
Green Ext Time (p_c), s	0.2	6.9	0.2	4.7	0.1	6.8	0.2	10.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.3									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/11/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	157	602	69	176	811	111	119	226	159	117	354	309
Future Volume (veh/h)	157	602	69	176	811	111	119	226	159	117	354	309
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	157	602	69	176	811	111	119	226	159	117	354	309
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	863	98	617	2025	275	159	742	332	159	742	475
Arrive On Green	0.09	0.19	0.19	0.35	0.45	0.45	0.09	0.21	0.21	0.09	0.21	0.21
Sat Flow, veh/h	3442	4635	526	1774	4528	616	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	157	439	232	176	606	316	119	226	159	117	354	309
Grp Sat Flow(s),veh/h/ln	1721	1695	1770	1774	1695	1754	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	16.0	16.2	9.5	15.9	16.0	8.6	7.1	5.2	8.5	11.6	22.4
Cycle Q Clear(g_c), s	5.7	16.0	16.2	9.5	15.9	16.0	8.6	7.1	5.2	8.5	11.6	22.4
Prop In Lane	1.00		0.30	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	631	330	617	1516	784	159	742	332	159	742	475
V/C Ratio(X)	0.50	0.69	0.70	0.29	0.40	0.40	0.75	0.30	0.48	0.74	0.48	0.65
Avail Cap(c_a), veh/h	600	989	516	617	1516	784	215	885	396	215	885	539
HCM Platoon Ratio	1.00	1.00	1.00	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	0.93	0.93	0.93	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	57.2	50.2	50.3	31.2	24.6	24.6	58.6	44.0	9.3	58.6	45.8	40.2
Incr Delay (d2), s/veh	0.5	6.2	12.0	0.1	0.7	1.4	5.7	0.4	1.8	4.7	0.8	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	8.0	9.0	4.7	7.6	8.0	4.5	3.5	4.7	4.4	5.7	10.2
LnGrp Delay(d),s/veh	57.7	56.4	62.3	31.3	25.3	26.0	64.3	44.4	11.1	63.2	46.6	43.2
LnGrp LOS	E	E	E	C	C	C	E	D	B	E	D	D
Approach Vol, veh/h		828			1098			504			780	
Approach Delay, s/veh		58.3			26.5			38.6			47.8	
Approach LOS		E			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	64.5	16.8	33.7	51.4	30.1	16.8	33.7				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	38.5	16.0	33.0	23.0	* 39	16.0	33.0				
Max Q Clear Time (g_c+I1), s	7.7	18.0	10.5	9.1	11.5	18.2	10.6	24.4				
Green Ext Time (p_c), s	0.2	9.0	0.1	3.1	0.2	6.4	0.1	3.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.8									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.  
User approved changes to right turn type.




















HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/11/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	319	925	108	145	748	101	154	368	242	169	239	225
Future Volume (veh/h)	319	925	108	145	748	101	154	368	242	169	239	225
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	319	925	108	145	748	101	154	368	242	169	239	225
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	376	2042	238	170	1945	261	179	671	300	194	701	487
Arrive On Green	0.11	0.44	0.44	0.10	0.43	0.43	0.10	0.19	0.19	0.11	0.20	0.20
Sat Flow, veh/h	3442	4620	538	1774	4538	608	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	319	678	355	145	557	292	154	368	242	169	239	225
Grp Sat Flow(s),veh/h/ln	1721	1695	1768	1774	1695	1755	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	12.0	18.4	18.5	10.6	14.8	15.0	11.3	12.4	19.3	12.4	7.7	15.1
Cycle Q Clear(g_c), s	12.0	18.4	18.5	10.6	14.8	15.0	11.3	12.4	19.3	12.4	7.7	15.1
Prop In Lane	1.00		0.30	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	376	1498	781	170	1453	753	179	671	300	194	701	487
V/C Ratio(X)	0.85	0.45	0.45	0.85	0.38	0.39	0.86	0.55	0.81	0.87	0.34	0.46
Avail Cap(c_a), veh/h	600	1498	781	309	1453	753	269	885	396	269	885	569
HCM Platoon Ratio	1.00	1.00	1.00	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	0.91	0.91	0.91	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	57.7	25.7	25.7	58.7	25.8	25.8	58.4	48.4	51.2	57.9	45.5	36.9
Incr Delay (d2), s/veh	3.5	1.0	1.9	4.1	0.7	1.4	11.2	1.2	11.3	15.1	0.5	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	5.9	8.8	9.4	5.4	7.1	7.6	6.1	6.2	9.4	6.9	3.8	6.7
LnGrp Delay(d),s/veh	61.3	26.7	27.6	62.9	26.5	27.2	69.6	49.6	62.4	72.9	46.0	38.0
LnGrp LOS	E	C	C	E	C	C	E	D	E	E	D	D
Approach Vol, veh/h		1352			994			764			633	
Approach Delay, s/veh		35.1			32.0			57.7			50.4	
Approach LOS		D			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.4	62.1	19.4	31.0	17.7	63.8	18.3	32.2				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.0	5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	34.5	20.0	33.0	23.0	34.5	20.0	33.0				
Max Q Clear Time (g_c+I1), s	14.0	17.0	14.4	21.3	12.6	20.5	13.3	17.1				
Green Ext Time (p_c), s	0.4	7.6	0.1	3.7	0.1	7.9	0.1	3.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.5									
HCM 2010 LOS			D									




















HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd

04/11/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	12	17	17	115	5	174	140	331	4	7	522	69
Future Volume (veh/h)	12	17	17	115	5	174	140	331	4	7	522	69
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	17	17	115	5	174	140	331	4	7	522	69
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	60	40	190	7	370	166	2255	27	27	1735	229
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.09	0.63	0.63	0.02	0.55	0.55
Sat Flow, veh/h	39	255	172	585	31	1583	1774	3581	43	1774	3145	414
Grp Volume(v), veh/h	46	0	0	120	0	174	140	163	172	7	293	298
Grp Sat Flow(s),veh/h/ln	466	0	0	616	0	1583	1774	1770	1855	1774	1770	1790
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	12.5	10.3	5.0	5.0	0.5	11.7	11.8
Cycle Q Clear(g_c), s	28.6	0.0	0.0	27.9	0.0	12.5	10.3	5.0	5.0	0.5	11.7	11.8
Prop In Lane	0.26		0.37	0.96		1.00	1.00		0.02	1.00		0.23
Lane Grp Cap(c), veh/h	143	0	0	197	0	370	166	1114	1168	27	976	987
V/C Ratio(X)	0.32	0.00	0.00	0.61	0.00	0.47	0.85	0.15	0.15	0.26	0.30	0.30
Avail Cap(c_a), veh/h	285	0	0	325	0	516	376	1114	1168	202	976	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.89	0.00	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Uniform Delay (d), s/veh	41.7	0.0	0.0	49.3	0.0	43.5	58.9	10.0	10.0	64.2	15.9	15.9
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.7	0.0	0.8	4.0	0.2	0.2	1.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	4.4	0.0	5.6	5.2	2.5	2.6	0.3	5.9	6.0
LnGrp Delay(d),s/veh	43.0	0.0	0.0	52.0	0.0	44.4	62.9	10.2	10.2	65.7	16.6	16.6
LnGrp LOS	D			D		D	E	B	B	E	B	B
Approach Vol, veh/h		46			294			475			598	
Approach Delay, s/veh		43.0			47.5			25.8			17.1	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	89.1		35.9	17.3	78.8		35.9				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	2.5	7.0		29.9	12.3	13.8		30.6				
Green Ext Time (p_c), s	0.0	3.3		1.0	0.1	6.1		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				27.2								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd

























04/17/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	13	16	83	21	199	216	572	21	19	385	76
Future Volume (veh/h)	8	13	16	83	21	199	216	572	21	19	385	76
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	13	16	83	21	199	216	572	21	19	385	76
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	40	62	53	148	32	263	242	2362	87	61	1701	333
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.14	0.68	0.68	0.03	0.58	0.58
Sat Flow, veh/h	44	373	317	595	193	1583	1774	3482	128	1774	2953	578
Grp Volume(v), veh/h	37	0	0	104	0	199	216	290	303	19	229	232
Grp Sat Flow(s),veh/h/ln	734	0	0	788	0	1583	1774	1770	1840	1774	1770	1761
Q Serve(g_s), s	0.3	0.0	0.0	0.2	0.0	15.8	15.8	8.3	8.4	1.4	8.3	8.5
Cycle Q Clear(g_c), s	19.4	0.0	0.0	19.3	0.0	15.8	15.8	8.3	8.4	1.4	8.3	8.5
Prop In Lane	0.22		0.43	0.80		1.00	1.00		0.07	1.00		0.33
Lane Grp Cap(c), veh/h	155	0	0	180	0	263	242	1200	1248	61	1020	1015
V/C Ratio(X)	0.24	0.00	0.00	0.58	0.00	0.76	0.89	0.24	0.24	0.31	0.22	0.23
Avail Cap(c_a), veh/h	401	0	0	412	0	516	376	1200	1248	202	1020	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	0.00	0.00	0.70	0.00	0.70	0.67	0.67	0.67	0.94	0.94	0.94
Uniform Delay (d), s/veh	47.5	0.0	0.0	53.6	0.0	52.5	56.1	8.2	8.2	62.2	13.6	13.7
Incr Delay (d2), s/veh	0.8	0.0	0.0	2.0	0.0	3.1	7.7	0.3	0.3	1.0	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	1.2	0.0	0.0	3.8	0.0	7.1	8.3	4.1	4.3	0.7	4.2	4.3
LnGrp Delay(d),s/veh	48.3	0.0	0.0	55.7	0.0	55.6	63.8	8.5	8.5	63.2	14.1	14.1
LnGrp LOS	D			E		E	E	A	A	E	B	B
Approach Vol, veh/h		37			303			809			480	
Approach Delay, s/veh		48.3			55.6			23.3			16.1	
Approach LOS		D			E			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	95.3		27.2	23.0	81.8		27.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	3.4	10.4		21.3	17.8	10.5		21.4				
Green Ext Time (p_c), s	0.0	6.5		1.2	0.2	4.6		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				27.7								
HCM 2010 LOS				C								



HCM 2010 Signalized Intersection Summary  
 8: Valley St/Orchard Village Rd & Lyons Ave

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	708	54	66	891	406	77	137	88	417	87	243
Future Volume (veh/h)	194	708	54	66	891	406	77	137	88	417	87	243
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	194	708	54	66	891	406	77	137	88	417	87	243
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1725	772	135	2442	1068	188	295	132	668	326	277
Arrive On Green	0.08	0.49	0.49	0.08	0.48	0.48	0.11	0.08	0.08	0.19	0.18	0.18
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	194	708	54	66	891	406	77	137	88	417	87	243
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	7.2	16.9	2.4	4.7	14.6	5.5	5.4	4.9	5.9	14.7	5.3	19.7
Cycle Q Clear(g_c), s	7.2	16.9	2.4	4.7	14.6	5.5	5.4	4.9	5.9	14.7	5.3	19.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	1725	772	135	2442	1068	188	295	132	668	326	277
V/C Ratio(X)	0.68	0.41	0.07	0.49	0.36	0.38	0.41	0.46	0.67	0.62	0.27	0.88
Avail Cap(c_a), veh/h	417	1725	772	175	2442	1068	282	1032	462	668	557	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	0.84	0.84	0.84	1.00	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	58.8	21.7	17.9	58.5	21.6	2.7	55.1	57.7	40.5	48.8	47.1	53.0
Incr Delay (d2), s/veh	1.0	0.7	0.2	0.9	0.4	0.9	1.4	1.1	5.7	1.2	0.4	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	8.4	1.1	2.3	6.9	3.1	2.7	2.4	3.1	7.1	2.8	9.3
LnGrp Delay(d),s/veh	59.7	22.3	18.1	59.4	22.0	3.6	56.6	58.8	46.2	49.9	47.5	62.3
LnGrp LOS	E	C	B	E	C	A	E	E	D	D	D	E
Approach Vol, veh/h		956			1363			302			747	
Approach Delay, s/veh		29.7			18.3			54.6			53.7	
Approach LOS		C			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	68.4	31.1	16.5	15.0	69.4	19.0	28.6				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	9.2	16.6	16.7	7.9	6.7	18.9	7.4	21.7				
Green Ext Time (p_c), s	0.2	10.9	0.4	1.1	0.0	7.2	0.1	1.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.6									
HCM 2010 LOS			C									
<b>Notes</b>												































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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 8: Valley St/Orchard Village Rd & Lyons Ave

05/01/2019
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  			 		 		
Traffic Volume (veh/h)	288	935	126	98	978	298	112	122	118	355	128	196
Future Volume (veh/h)	288	935	126	98	978	298	112	122	118	355	128	196
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	288	935	126	98	978	298	112	122	118	355	128	196
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	340	1807	808	144	2506	1042	188	298	133	568	274	233
Arrive On Green	0.10	0.51	0.51	0.03	0.16	0.16	0.11	0.08	0.08	0.17	0.15	0.15
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	288	935	126	98	978	298	112	122	118	355	128	196
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	10.9	23.2	5.6	7.2	22.7	6.0	8.0	4.3	8.0	12.7	8.3	15.9
Cycle Q Clear(g_c), s	10.9	23.2	5.6	7.2	22.7	6.0	8.0	4.3	8.0	12.7	8.3	15.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	340	1807	808	144	2506	1042	188	298	133	568	274	233
V/C Ratio(X)	0.85	0.52	0.16	0.68	0.39	0.29	0.60	0.41	0.88	0.62	0.47	0.84
Avail Cap(c_a), veh/h	417	1807	808	175	2506	1042	282	1032	462	574	557	474
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.81	0.81	0.81	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	58.5	21.5	17.2	62.5	37.5	5.2	56.3	57.3	40.7	51.3	51.6	54.8
Incr Delay (d2), s/veh	9.4	0.9	0.3	4.1	0.4	0.6	3.0	0.9	16.8	1.3	1.2	8.0
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	5.6	11.5	2.5	3.7	10.8	3.9	4.0	2.2	4.5	6.1	4.4	7.5
LnGrp Delay(d),s/veh	67.8	22.4	17.5	66.6	37.9	5.8	59.3	58.2	57.5	52.6	52.8	62.8
LnGrp LOS	E	C	B	E	D	A	E	E	E	D	D	E
Approach Vol, veh/h		1349			1374			352			679	
Approach Delay, s/veh		31.6			33.0			58.3			55.6	
Approach LOS		C			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	70.0	27.3	16.6	15.7	72.4	19.0	24.9				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	12.9	24.7	14.7	10.0	9.2	25.2	10.0	17.9				
Green Ext Time (p_c), s	0.2	7.1	0.4	1.1	0.0	7.6	0.2	1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			39.0									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
























HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/15/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	225	842	161	53	740	167	137	148	297	153	260	106
Future Volume (veh/h)	225	842	161	53	740	167	137	148	297	153	260	106
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	225	842	161	53	740	167	137	148	297	153	260	106
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	1583	708	127	1337	741	311	379	339	178	794	355
Arrive On Green	0.14	0.45	0.45	0.07	0.38	0.38	0.09	0.21	0.21	0.10	0.22	0.22
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1770	1583	1774	3539	1583
Grp Volume(v), veh/h	225	842	161	53	740	167	137	148	297	153	260	106
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	16.5	22.8	8.3	3.8	21.7	8.3	5.0	9.5	23.9	11.2	8.1	7.3
Cycle Q Clear(g_c), s	16.5	22.8	8.3	3.8	21.7	8.3	5.0	9.5	23.9	11.2	8.1	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	1583	708	127	1337	741	311	379	339	178	794	355
V/C Ratio(X)	0.90	0.53	0.23	0.42	0.55	0.23	0.44	0.39	0.88	0.86	0.33	0.30
Avail Cap(c_a), veh/h	296	1583	708	228	1337	741	521	456	408	269	912	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)	0.91	0.91	0.91	0.66	0.66	0.66	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	26.5	22.5	58.7	32.3	20.9	56.9	44.5	50.1	58.4	42.8	42.5
Incr Delay (d2), s/veh	22.3	1.2	0.7	0.5	1.1	0.5	0.4	1.1	18.4	10.9	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	11.4	3.8	1.9	10.8	3.7	2.4	4.8	12.2	6.0	4.0	3.3
LnGrp Delay(d),s/veh	78.1	27.6	23.1	59.2	33.4	21.3	57.2	45.6	68.5	69.3	43.3	43.3
LnGrp LOS	E	C	C	E	C	C	E	D	E	E	D	D
Approach Vol, veh/h		1228			960			582			519	
Approach Delay, s/veh		36.3			32.7			60.0			51.0	
Approach LOS		D			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.4	65.0	18.3	34.3	23.6	55.9	16.9	35.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	39.0	20.0	34.0	22.0	34.0	20.0	34.0				
Max Q Clear Time (g_c+I1), s	5.8	24.8	13.2	25.9	18.5	23.7	7.0	10.1				
Green Ext Time (p_c), s	0.0	7.5	0.1	2.3	0.1	5.4	0.2	3.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.8									
HCM 2010 LOS			D									
























HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd/Orchard Villaged Rd & Wiley Cyn Rd

04/11/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	124	723	154	101	860	214	216	309	174	91	210	64
Future Volume (veh/h)	124	723	154	101	860	214	216	309	174	91	210	64
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	124	723	154	101	860	214	216	309	174	91	210	64
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	1716	768	144	1707	908	313	396	218	156	624	279
Arrive On Green	0.08	0.48	0.48	0.08	0.48	0.48	0.09	0.18	0.18	0.09	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2205	1213	1774	3539	1583
Grp Volume(v), veh/h	124	723	154	101	860	214	216	246	237	91	210	64
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1649	1774	1770	1583
Q Serve(g_s), s	9.1	17.5	7.3	7.3	21.9	8.8	8.0	17.5	18.1	6.5	6.9	4.6
Cycle Q Clear(g_c), s	9.1	17.5	7.3	7.3	21.9	8.8	8.0	17.5	18.1	6.5	6.9	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	149	1716	768	144	1707	908	313	317	296	156	624	279
V/C Ratio(X)	0.83	0.42	0.20	0.70	0.50	0.24	0.69	0.78	0.80	0.59	0.34	0.23
Avail Cap(c_a), veh/h	296	1716	768	228	1707	908	391	456	425	202	912	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)	0.88	0.88	0.88	0.09	0.09	0.09	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	22.0	19.4	59.1	23.4	13.9	58.2	51.6	51.9	57.9	47.6	46.7
Incr Delay (d2), s/veh	4.0	0.7	0.5	0.2	0.1	0.1	2.2	7.6	9.6	1.3	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	4.6	8.7	3.3	3.6	10.8	3.8	3.9	9.2	9.1	3.2	3.4	2.1
LnGrp Delay(d),s/veh	63.6	22.7	19.9	59.3	23.5	14.0	60.4	59.2	61.4	59.2	48.2	47.4
LnGrp LOS	E	C	B	E	C	B	E	E	E	E	D	D
Approach Vol, veh/h		1001			1175			699			365	
Approach Delay, s/veh		27.3			24.8			60.3			50.8	
Approach LOS		C			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	70.0	16.6	29.7	16.1	69.7	17.0	29.3				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	44.0	15.0	34.0	22.0	39.0	15.0	34.0				
Max Q Clear Time (g_c+I1), s	9.3	19.5	8.5	20.1	11.1	23.9	10.0	8.9				
Green Ext Time (p_c), s	0.1	8.8	0.0	3.5	0.1	8.2	0.2	2.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			36.2									
HCM 2010 LOS			D									

HCM Signalized Intersection Capacity Analysis  
 10: Orchard Village Rd & McBean Pkwy

04/15/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	490	256	501	469	92	378	72	631	27	36	32
Future Volume (vph)	47	490	256	501	469	92	378	72	631	27	36	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4824		3433	5085	1583	1681	1711	2787	1610	3154	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4824		3433	5085	1583	1681	1711	2787	1610	3154	
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)	47	490	256	501	469	92	378	72	631	27	36	32
RTOR Reduction (vph)	0	65	0	0	0	48	0	0	371	0	30	0
Lane Group Flow (vph)	47	681	0	501	469	44	223	227	260	24	41	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	8.3	45.0		26.8	63.5	63.5	27.6	27.6	54.4	9.6	9.6	
Effective Green, g (s)	8.3	45.0		26.8	63.5	63.5	27.6	27.6	54.4	9.6	9.6	
Actuated g/C Ratio	0.06	0.34		0.20	0.48	0.48	0.21	0.21	0.41	0.07	0.07	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	111	1644		697	2446	761	351	357	1148	117	229	
v/s Ratio Prot	0.03	c0.14		c0.15	0.09		0.13	c0.13	0.05	c0.01	0.01	
v/s Ratio Perm						0.03			0.05			
v/c Ratio	0.42	0.41		0.72	0.19	0.06	0.64	0.64	0.23	0.21	0.18	
Uniform Delay, d1	59.5	33.4		49.1	19.6	18.3	47.6	47.6	25.2	57.6	57.5	
Progression Factor	1.28	0.61		0.95	0.41	0.40	0.86	0.86	5.98	1.00	1.00	
Incremental Delay, d2	0.9	0.8		3.3	0.2	0.1	3.5	3.4	0.1	0.9	0.4	
Delay (s)	77.3	21.2		49.9	8.1	7.4	44.3	44.2	150.5	58.5	57.9	
Level of Service	E	C		D	A	A	D	D	F	E	E	
Approach Delay (s)		24.6			27.8			106.3			58.0	
Approach LOS		C			C			F			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			55.9				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			132.0				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			62.7%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Villaged Rd & McBean Pkwy

04/11/2019



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘↘	↑↑↑	↗	↘	↗	↗↗	↘	↑↑	
Traffic Volume (vph)	19	764	395	752	607	47	266	23	690	87	83	85
Future Volume (vph)	19	764	395	752	607	47	266	23	690	87	83	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4825		3433	5085	1583	1681	1698	2787	1610	3138	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4825		3433	5085	1583	1681	1698	2787	1610	3138	
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)	19	764	395	752	607	47	266	23	690	87	83	85
RTOR Reduction (vph)	0	72	0	0	0	20	0	0	349	0	76	0
Lane Group Flow (vph)	19	1087	0	752	607	27	144	145	341	78	101	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	4.0	35.6		43.1	74.7	74.7	17.0	17.0	60.1	13.3	13.3	
Effective Green, g (s)	4.0	35.6		43.1	74.7	74.7	17.0	17.0	60.1	13.3	13.3	
Actuated g/C Ratio	0.03	0.27		0.33	0.57	0.57	0.13	0.13	0.46	0.10	0.10	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	53	1301		1120	2877	895	216	218	1268	162	316	
v/s Ratio Prot	0.01	c0.23		c0.22	0.12		c0.09	0.09	0.09	c0.05	0.03	
v/s Ratio Perm						0.02			0.03			
v/c Ratio	0.36	0.84		0.67	0.21	0.03	0.67	0.67	0.27	0.48	0.32	
Uniform Delay, d1	62.7	45.4		38.3	14.1	12.6	54.8	54.8	22.3	56.1	55.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.86	0.86	5.91	1.00	1.00	
Incremental Delay, d2	1.5	6.5		1.6	0.2	0.1	6.9	6.8	0.1	2.2	0.6	
Delay (s)	64.3	51.9		39.9	14.3	12.7	54.1	54.0	132.1	58.3	55.7	
Level of Service	E	D		D	B	B	D	D	F	E	E	
Approach Delay (s)		52.1			28.0			109.0			56.5	
Approach LOS		D			C			F			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			58.1				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			132.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			84.2%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group



























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/10/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	346	381	30	588	38	397	118	24	34	157	171
Future Volume (veh/h)	114	346	381	30	588	38	397	118	24	34	157	171
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	114	346	381	30	588	38	397	118	24	34	157	171
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	1969	1089	81	1857	831	452	319	271	134	215	182
Arrive On Green	0.13	0.93	0.93	0.05	0.52	0.52	0.13	0.17	0.17	0.08	0.12	0.12
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	114	346	381	30	588	38	397	118	24	34	157	171
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	8.3	1.1	0.7	2.2	12.5	1.5	14.9	7.4	1.7	2.4	10.7	11.7
Cycle Q Clear(g_c), s	8.3	1.1	0.7	2.2	12.5	1.5	14.9	7.4	1.7	2.4	10.7	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	1969	1089	81	1857	831	452	319	271	134	215	182
V/C Ratio(X)	0.83	0.18	0.35	0.37	0.32	0.05	0.88	0.37	0.09	0.25	0.73	0.94
Avail Cap(c_a), veh/h	255	1969	1089	215	1857	831	574	607	516	242	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	2.1	0.3	61.2	17.9	15.3	56.3	48.4	46.0	57.5	56.4	39.6
Incr Delay (d2), s/veh	4.2	0.2	0.8	1.1	0.4	0.1	10.4	0.7	0.1	0.4	4.7	19.0
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	4.2	0.5	0.6	1.1	6.2	0.7	7.8	3.9	0.7	1.2	5.8	6.4
LnGrp Delay(d),s/veh	60.8	2.3	1.1	62.2	18.3	15.4	66.7	49.1	46.2	57.9	61.2	58.6
LnGrp LOS	E	A	A	E	B	B	E	D	D	E	E	E
Approach Vol, veh/h		841			656			539			362	
Approach Delay, s/veh		9.7			20.2			61.9			59.7	
Approach LOS		A			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	78.4	22.4	20.2	15.2	74.2	15.0	27.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	16.0	35.0	22.0	39.0	19.0	32.0	18.0	43.0				
Max Q Clear Time (g_c+I1), s	4.2	3.1	16.9	13.7	10.3	14.5	4.4	9.4				
Green Ext Time (p_c), s	0.0	6.8	0.4	1.5	0.1	5.6	0.0	0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			31.8									
HCM 2010 LOS			C									























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/10/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	574	598	25	661	32	464	103	33	26	125	130
Future Volume (veh/h)	126	574	598	25	661	32	464	103	33	26	125	130
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	126	574	598	25	661	32	464	103	33	26	125	130
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	2000	1134	73	1848	827	521	330	281	116	170	144
Arrive On Green	0.14	0.94	0.94	0.04	0.52	0.52	0.15	0.18	0.18	0.07	0.09	0.09
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	126	574	598	25	661	32	464	103	33	26	125	130
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	9.1	1.6	1.4	1.8	14.5	1.3	17.5	6.4	2.3	1.8	8.6	8.8
Cycle Q Clear(g_c), s	9.1	1.6	1.4	1.8	14.5	1.3	17.5	6.4	2.3	1.8	8.6	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	2000	1134	73	1848	827	521	330	281	116	170	144
V/C Ratio(X)	0.85	0.29	0.53	0.34	0.36	0.04	0.89	0.31	0.12	0.22	0.74	0.90
Avail Cap(c_a), veh/h	215	2000	1134	175	1848	827	652	607	516	282	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	1.7	0.2	61.6	18.5	15.4	54.9	47.3	45.6	58.5	58.5	40.4
Incr Delay (d2), s/veh	10.9	0.3	1.4	1.0	0.5	0.1	10.9	0.5	0.2	0.4	6.1	17.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.8	0.9	0.9	7.2	0.6	9.1	3.3	1.0	0.9	4.7	5.0
LnGrp Delay(d),s/veh	66.8	1.9	1.6	62.6	19.1	15.5	65.8	47.8	45.8	58.9	64.6	58.0
LnGrp LOS	E	A	A	E	B	B	E	D	D	E	E	E
Approach Vol, veh/h		1298			718			600			281	
Approach Delay, s/veh		8.1			20.4			61.6			61.0	
Approach LOS		A			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	79.6	25.0	17.0	16.1	73.9	13.6	28.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	35.0	25.0	39.0	16.0	32.0	21.0	43.0				
Max Q Clear Time (g_c+I1), s	3.8	3.6	19.5	10.8	11.1	16.5	3.8	8.4				
Green Ext Time (p_c), s	0.0	12.5	0.5	1.2	0.1	5.9	0.0	0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			27.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd























04/12/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	175	34	188	365	57	33	811	113	22	1657	510
Future Volume (veh/h)	139	175	34	188	365	57	33	811	113	22	1657	510
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	139	175	34	188	365	57	33	811	113	22	1657	510
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	459	87	313	477	74	113	1149	358	629	2665	1712
Arrive On Green	0.09	0.15	0.15	0.09	0.16	0.16	0.06	0.23	0.23	0.35	0.52	0.52
Sat Flow, veh/h	3442	2967	565	3442	3073	476	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	139	103	106	188	209	213	33	811	113	22	1657	510
Grp Sat Flow(s),veh/h/ln	1721	1770	1763	1721	1770	1779	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	5.1	6.9	7.1	6.9	14.9	15.2	2.3	19.4	6.1	1.1	30.4	11.4
Cycle Q Clear(g_c), s	5.1	6.9	7.1	6.9	14.9	15.2	2.3	19.4	6.1	1.1	30.4	11.4
Prop In Lane	1.00		0.32	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	311	274	273	313	274	276	113	1149	358	629	2665	1712
V/C Ratio(X)	0.45	0.38	0.39	0.60	0.76	0.77	0.29	0.71	0.32	0.04	0.62	0.30
Avail Cap(c_a), veh/h	600	456	454	600	456	458	161	1580	492	629	2665	1712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	50.1	50.2	57.7	53.4	53.5	58.9	47.0	25.6	27.9	22.2	12.0
Incr Delay (d2), s/veh	0.3	1.2	1.2	0.7	7.3	7.6	0.5	3.3	2.1	0.0	1.1	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	2.4	3.5	3.6	3.3	7.9	8.0	1.2	9.4	3.4	0.5	14.4	4.5
LnGrp Delay(d),s/veh	57.2	51.3	51.4	58.4	60.7	61.2	59.4	50.3	27.6	27.9	23.3	12.5
LnGrp LOS	E	D	D	E	E	E	E	D	C	C	C	B
Approach Vol, veh/h		348			610			957			2189	
Approach Delay, s/veh		53.7			60.1			48.0			20.8	
Approach LOS		D			E			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.4	75.2	16.9	26.5	52.8	35.8	17.0	26.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	34.0	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	4.3	32.4	7.1	17.2	3.1	21.4	8.9	9.1				
Green Ext Time (p_c), s	0.0	7.9	0.2	3.3	0.0	8.4	0.3	1.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			35.8									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd























04/12/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	634	517	45	233	383	80	83	1596	222	93	1259	434
Future Volume (veh/h)	634	517	45	233	383	80	83	1596	222	93	1259	434
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	634	517	45	233	383	80	83	1596	222	93	1259	434
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	855	74	313	492	102	154	1580	492	292	2016	1590
Arrive On Green	0.17	0.26	0.26	0.09	0.17	0.17	0.09	0.31	0.31	0.16	0.40	0.40
Sat Flow, veh/h	3442	3296	286	3442	2921	604	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	634	277	285	233	231	232	83	1596	222	93	1259	434
Grp Sat Flow(s),veh/h/ln	1721	1770	1812	1721	1770	1756	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	23.0	18.1	18.2	8.7	16.4	16.7	5.9	41.0	11.1	6.1	26.2	3.0
Cycle Q Clear(g_c), s	23.0	18.1	18.2	8.7	16.4	16.7	5.9	41.0	11.1	6.1	26.2	3.0
Prop In Lane	1.00		0.16	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	459	470	313	298	296	154	1580	492	292	2016	1590
V/C Ratio(X)	1.06	0.60	0.61	0.74	0.77	0.79	0.54	1.01	0.45	0.32	0.62	0.27
Avail Cap(c_a), veh/h	600	459	470	600	456	452	161	1580	492	292	2016	1590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	42.9	43.0	58.5	52.5	52.6	57.8	45.5	20.4	48.6	32.0	4.8
Incr Delay (d2), s/veh	48.1	2.2	2.2	1.3	7.3	8.0	1.0	21.7	2.1	0.2	1.5	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	14.9	9.1	9.4	4.2	8.7	8.8	2.9	22.3	5.8	3.0	12.5	2.0
LnGrp Delay(d),s/veh	102.6	45.1	45.2	59.8	59.7	60.6	58.8	67.2	22.5	48.8	33.4	5.2
LnGrp LOS	F	D	D	E	E	E	E	F	C	D	C	A
Approach Vol, veh/h		1196			696			1901			1786	
Approach Delay, s/veh		75.6			60.1			61.6			27.4	
Approach LOS		E			E			E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	58.3	29.0	28.2	27.8	47.0	17.0	40.2				
Change Period (Y+Rc), s	5.0	6.0	6.0	* 6	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	* 34	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	7.9	28.2	25.0	18.7	8.1	43.0	10.7	20.2				
Green Ext Time (p_c), s	0.0	10.1	0.0	3.5	0.0	0.0	0.3	4.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.5									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/12/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	0	26	259	10	44	91	921	92	16	831	134
Future Volume (veh/h)	69	0	26	259	10	44	91	921	92	16	831	134
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	69	0	26	259	10	44	91	921	92	16	831	134
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	381	324	337	381	324	699	3011	300	60	1204	193
Arrive On Green	0.20	0.00	0.20	0.20	0.20	0.20	0.39	0.64	0.64	0.03	0.27	0.27
Sat Flow, veh/h	1345	1863	1583	1379	1863	1583	1774	4702	468	1774	4419	708
Grp Volume(v), veh/h	69	0	26	259	10	44	91	663	350	16	636	329
Grp Sat Flow(s),veh/h/ln	1345	1863	1583	1379	1863	1583	1774	1695	1780	1774	1695	1738
Q Serve(g_s), s	5.7	0.0	1.8	24.3	0.6	3.0	4.3	11.5	11.6	1.2	22.2	22.4
Cycle Q Clear(g_c), s	6.3	0.0	1.8	24.3	0.6	3.0	4.3	11.5	11.6	1.2	22.2	22.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		0.41
Lane Grp Cap(c), veh/h	324	381	324	337	381	324	699	2171	1140	60	924	474
V/C Ratio(X)	0.21	0.00	0.08	0.77	0.03	0.14	0.13	0.31	0.31	0.27	0.69	0.69
Avail Cap(c_a), veh/h	436	536	456	452	536	456	699	2171	1140	269	1490	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.87	0.87
Uniform Delay (d), s/veh	44.5	0.0	42.4	51.4	42.0	42.9	25.5	10.6	10.6	62.2	43.0	43.1
Incr Delay (d2), s/veh	0.3	0.0	0.1	5.6	0.0	0.2	0.0	0.4	0.7	0.8	3.6	7.1
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	2.2	0.0	0.8	9.8	0.3	1.3	2.1	5.5	5.9	0.6	10.9	11.7
LnGrp Delay(d),s/veh	44.8	0.0	42.5	57.0	42.0	43.1	25.6	11.0	11.3	63.0	46.6	50.2
LnGrp LOS	D		D	E	D	D	C	B	B	E	D	D
Approach Vol, veh/h		95			313			1104			981	
Approach Delay, s/veh		44.2			54.6			12.3			48.1	
Approach LOS		D			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	90.5		32.0	58.0	42.0		32.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	3.2	13.6		8.3	6.3	24.4		26.3				
Green Ext Time (p_c), s	0.0	13.4		0.3	0.1	11.6		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.9									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/12/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	4	84	104	3	71	10	1324	189	77	1259	27
Future Volume (veh/h)	146	4	84	104	3	71	10	1324	189	77	1259	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	146	4	84	104	3	71	10	1324	189	77	1259	27
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	243	206	222	243	206	709	3046	435	126	1749	38
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.40	0.68	0.68	0.07	0.34	0.34
Sat Flow, veh/h	1320	1863	1583	1304	1863	1583	1774	4498	642	1774	5124	110
Grp Volume(v), veh/h	146	4	84	104	3	71	10	998	515	77	833	453
Grp Sat Flow(s),veh/h/ln	1320	1863	1583	1304	1863	1583	1774	1695	1749	1774	1695	1843
Q Serve(g_s), s	14.3	0.2	6.4	10.0	0.2	5.4	0.4	17.8	17.8	5.6	28.3	28.3
Cycle Q Clear(g_c), s	14.5	0.2	6.4	10.2	0.2	5.4	0.4	17.8	17.8	5.6	28.3	28.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.06
Lane Grp Cap(c), veh/h	225	243	206	222	243	206	709	2296	1185	126	1158	629
V/C Ratio(X)	0.65	0.02	0.41	0.47	0.01	0.34	0.01	0.43	0.43	0.61	0.72	0.72
Avail Cap(c_a), veh/h	433	536	456	427	536	456	709	2296	1185	269	1490	810
HCM Platoon Ratio	1.00	1.00	1.00	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	0.71	0.71	0.71
Uniform Delay (d), s/veh	56.3	50.0	52.7	54.5	50.0	52.3	23.9	9.7	9.7	59.5	37.9	38.0
Incr Delay (d2), s/veh	3.1	0.0	1.3	1.5	0.0	1.0	0.0	0.6	1.2	1.2	2.8	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.1	2.9	3.7	0.1	2.4	0.2	8.4	8.8	2.8	13.7	15.3
LnGrp Delay(d),s/veh	59.5	50.1	54.0	56.0	50.0	53.3	23.9	10.3	10.9	60.8	40.7	43.0
LnGrp LOS	E	D	D	E	D	D	C	B	B	E	D	D
Approach Vol, veh/h		234			178			1523			1363	
Approach Delay, s/veh		57.3			54.8			10.6			42.6	
Approach LOS		E			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	95.4		22.2	58.7	51.1		22.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	7.6	19.8		16.5	2.4	30.3		12.2				
Green Ext Time (p_c), s	0.0	21.6		0.7	0.0	14.7		0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.5									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/05/2019

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑↑ ↘		↘	
Traffic Vol, veh/h	153	784	830	48	5	27
Future Vol, veh/h	153	784	830	48	5	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	153	784	830	48	5	27

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	878	0	-	0	1474 439
Stage 1	-	-	-	-	854 -
Stage 2	-	-	-	-	620 -
Critical Hdwy	5.34	-	-	-	5.74 7.14
Critical Hdwy Stg 1	-	-	-	-	6.64 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	3.12	-	-	-	3.82 3.92
Pot Cap-1 Maneuver	448	-	-	-	178 484
Stage 1	-	-	-	-	297 -
Stage 2	-	-	-	-	454 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	448	-	-	-	117 484
Mov Cap-2 Maneuver	-	-	-	-	117 -
Stage 1	-	-	-	-	195 -
Stage 2	-	-	-	-	454 -

Approach	EB	WB	SB
HCM Control Delay, s	2.8	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	448	-	-	-	325
HCM Lane V/C Ratio	0.342	-	-	-	0.098
HCM Control Delay (s)	17.1	-	-	-	17.3
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	1.5	-	-	-	0.3

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/12/2019

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑		↘	
Traffic Vol, veh/h	31	1168	958	7	13	74
Future Vol, veh/h	31	1168	958	7	13	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	1168	958	7	13	74













Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	965	0	-	0	1491 483
Stage 1	-	-	-	-	962 -
Stage 2	-	-	-	-	529 -
Critical Hdwy	5.34	-	-	-	5.74 7.14
Critical Hdwy Stg 1	-	-	-	-	6.64 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	3.12	-	-	-	3.82 3.92
Pot Cap-1 Maneuver	407	-	-	-	174 453
Stage 1	-	-	-	-	255 -
Stage 2	-	-	-	-	507 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	407	-	-	-	161 453
Mov Cap-2 Maneuver	-	-	-	-	161 -
Stage 1	-	-	-	-	236 -
Stage 2	-	-	-	-	507 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	407	-	-	-	356
HCM Lane V/C Ratio	0.076	-	-	-	0.244
HCM Control Delay (s)	14.6	-	-	-	18.4
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9













HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps

04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖		↗
Traffic Volume (veh/h)	0	819	348	0	486	491	0	0	0	177	0	119
Future Volume (veh/h)	0	819	348	0	486	491	0	0	0	177	0	119
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	819	348	0	486	491				177	0	119
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2362	1057	0	2362	1295				268	0	239
Arrive On Green	0.00	0.67	0.67	0.00	0.67	0.67				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	819	348	0	486	491				177	0	119
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	6.6	6.2	0.0	3.5	5.4				6.2	0.0	4.6
Cycle Q Clear(g_c), s	0.0	6.6	6.2	0.0	3.5	5.4				6.2	0.0	4.6
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2362	1057	0	2362	1295				268	0	239
V/C Ratio(X)	0.00	0.35	0.33	0.00	0.21	0.38				0.66	0.00	0.50
Avail Cap(c_a), veh/h	0	2362	1057	0	2362	1295				597	0	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.8	4.7	0.0	4.2	1.6				26.4	0.0	25.7
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.0	0.2	0.8				2.8	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	2.9	0.0	1.8	4.5				3.3	0.0	2.1
LnGrp Delay(d),s/veh	0.0	5.2	5.5	0.0	4.4	2.4				29.2	0.0	27.3
LnGrp LOS		A	A		A	A				C		C
Approach Vol, veh/h		1167			977						296	
Approach Delay, s/veh		5.3			3.4						28.5	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.2		15.8		50.2						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		31.8		22.2		31.8						
Max Q Clear Time (g_c+I1), s		8.6		8.2		7.4						
Green Ext Time (p_c), s		9.7		0.8		7.5						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.3									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps













04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Volume (veh/h)	0	932	172	0	895	576	0	0	0	164	0	154
Future Volume (veh/h)	0	932	172	0	895	576	0	0	0	164	0	154
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	932	172	0	895	576				164	0	154
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2361	1056	0	2361	1295				268	0	239
Arrive On Green	0.00	0.67	0.67	0.00	0.67	0.67				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	932	172	0	895	576				164	0	154
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	7.9	2.7	0.0	7.4	6.9				5.7	0.0	6.0
Cycle Q Clear(g_c), s	0.0	7.9	2.7	0.0	7.4	6.9				5.7	0.0	6.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2361	1056	0	2361	1295				268	0	239
V/C Ratio(X)	0.00	0.39	0.16	0.00	0.38	0.44				0.61	0.00	0.64
Avail Cap(c_a), veh/h	0	2361	1056	0	2361	1295				597	0	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.0	4.1	0.0	4.9	1.7				26.2	0.0	26.3
Incr Delay (d2), s/veh	0.0	0.5	0.3	0.0	0.5	1.1				2.3	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	3.9	1.2	0.0	3.8	5.8				2.9	0.0	2.8
LnGrp Delay(d),s/veh	0.0	5.5	4.4	0.0	5.4	2.8				28.5	0.0	29.2
LnGrp LOS		A	A		A	A				C		C
Approach Vol, veh/h		1104			1471						318	
Approach Delay, s/veh		5.3			4.4						28.8	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.2		15.8		50.2						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		31.8		22.2		31.8						
Max Q Clear Time (g_c+I1), s		9.9		8.0		9.4						
Green Ext Time (p_c), s		9.5		0.8		12.0						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.4									
HCM 2010 LOS			A									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy













04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	681	342	0	835	220	110	0	674	0	0	0
Future Volume (veh/h)	0	681	342	0	835	220	110	0	674	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	681	342	0	835	220	110	0	674			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2072	927	0	2351	616	957	0	775			
Arrive On Green	0.00	0.59	0.59	0.00	0.59	0.59	0.28	0.00	0.28			
Sat Flow, veh/h	0	3632	1583	0	4184	1051	3442	0	2787			
Grp Volume(v), veh/h	0	681	342	0	704	351	110	0	674			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1677	1721	0	1393			
Q Serve(g_s), s	0.0	6.5	7.5	0.0	7.2	7.2	1.6	0.0	15.2			
Cycle Q Clear(g_c), s	0.0	6.5	7.5	0.0	7.2	7.2	1.6	0.0	15.2			
Prop In Lane	0.00		1.00	0.00		0.63	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2072	927	0	1985	982	957	0	775			
V/C Ratio(X)	0.00	0.33	0.37	0.00	0.35	0.36	0.11	0.00	0.87			
Avail Cap(c_a), veh/h	0	2072	927	0	1985	982	1111	0	899			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.0	7.2	0.0	7.2	7.2	17.8	0.0	22.7			
Incr Delay (d2), s/veh	0.0	0.4	1.1	0.0	0.5	1.0	0.0	0.0	7.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.2	3.5	0.0	3.5	3.6	0.8	0.0	6.7			
LnGrp Delay(d),s/veh	0.0	7.4	8.4	0.0	7.7	8.2	17.8	0.0	30.6			
LnGrp LOS		A	A		A	A	B		C			
Approach Vol, veh/h		1023			1055			784				
Approach Delay, s/veh		7.8			7.8			28.8				
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		43.9				43.9		22.1				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		35.7				35.7		21.3				
Max Q Clear Time (g_c+I1), s		9.5				9.2		17.2				
Green Ext Time (p_c), s		14.3				15.9		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.5									
HCM 2010 LOS			B									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy






















04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	845	227	0	1251	177	223	0	551	0	0	0
Future Volume (veh/h)	0	845	227	0	1251	177	223	0	551	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	845	227	0	1251	177	223	0	551			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2203	985	0	2803	397	830	0	672			
Arrive On Green	0.00	0.62	0.62	0.00	0.62	0.62	0.24	0.00	0.24			
Sat Flow, veh/h	0	3632	1583	0	4671	637	3442	0	2787			
Grp Volume(v), veh/h	0	845	227	0	942	486	223	0	551			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1750	1721	0	1393			
Q Serve(g_s), s	0.0	7.8	4.2	0.0	9.6	9.6	3.5	0.0	12.3			
Cycle Q Clear(g_c), s	0.0	7.8	4.2	0.0	9.6	9.6	3.5	0.0	12.3			
Prop In Lane	0.00		1.00	0.00		0.36	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2203	985	0	2110	1089	830	0	672			
V/C Ratio(X)	0.00	0.38	0.23	0.00	0.45	0.45	0.27	0.00	0.82			
Avail Cap(c_a), veh/h	0	2203	985	0	2110	1089	1111	0	899			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	6.2	5.5	0.0	6.5	6.5	20.3	0.0	23.7			
Incr Delay (d2), s/veh	0.0	0.5	0.5	0.0	0.7	1.3	0.1	0.0	4.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.9	2.0	0.0	4.6	5.0	1.7	0.0	5.1			
LnGrp Delay(d),s/veh	0.0	6.7	6.0	0.0	7.2	7.8	20.4	0.0	27.7			
LnGrp LOS		A	A		A	A	C		C			
Approach Vol, veh/h		1072			1428			774				
Approach Delay, s/veh		6.6			7.4			25.6				
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		46.4				46.4		19.6				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		35.7				35.7		21.3				
Max Q Clear Time (g_c+I1), s		9.8				11.6		14.3				
Green Ext Time (p_c), s		15.3				18.9		1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				11.4								
HCM 2010 LOS				B								



HCM 2010 Signalized Intersection Summary  
 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	435	776	113	50	680	158	159	145	49	47	90	306
Future Volume (veh/h)	435	776	113	50	680	158	159	145	49	47	90	306
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	435	776	113	50	680	158	159	145	49	47	90	306
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	728	2604	377	124	975	224	184	311	101	121	141	770
Arrive On Green	0.41	0.58	0.58	0.07	0.24	0.24	0.10	0.12	0.12	0.07	0.08	0.08
Sat Flow, veh/h	1774	4489	649	1774	4137	948	1774	2625	856	1774	1863	1583
Grp Volume(v), veh/h	435	585	304	50	556	282	159	96	98	47	90	306
Grp Sat Flow(s),veh/h/ln	1774	1695	1748	1774	1695	1695	1774	1770	1712	1774	1863	1583
Q Serve(g_s), s	25.3	11.6	11.7	3.6	19.8	20.2	11.6	6.7	7.1	3.3	6.2	0.0
Cycle Q Clear(g_c), s	25.3	11.6	11.7	3.6	19.8	20.2	11.6	6.7	7.1	3.3	6.2	0.0
Prop In Lane	1.00		0.37	1.00		0.56	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	728	1967	1014	124	799	400	184	210	203	121	141	770
V/C Ratio(X)	0.60	0.30	0.30	0.40	0.70	0.71	0.86	0.46	0.48	0.39	0.64	0.40
Avail Cap(c_a), veh/h	728	1967	1014	148	1246	623	242	442	428	242	466	1046
HCM Platoon Ratio	1.00	1.00	1.00	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	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	14.1	14.1	58.7	46.1	46.3	58.2	54.2	54.4	58.8	59.2	21.6
Incr Delay (d2), s/veh	0.9	0.4	0.8	0.8	5.0	10.1	14.6	1.2	1.4	0.7	4.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	5.5	5.8	1.8	9.8	10.5	6.4	3.4	3.4	1.7	3.4	7.1
LnGrp Delay(d),s/veh	31.3	14.4	14.8	59.5	51.1	56.3	72.9	55.4	55.8	59.6	64.0	21.9
LnGrp LOS	C	B	B	E	D	E	E	E	E	E	E	C
Approach Vol, veh/h		1324			888			353			443	
Approach Delay, s/veh		20.1			53.2			63.4			34.5	
Approach LOS		C			D			E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.2	82.1	19.7	16.0	59.7	36.6	14.0	21.6				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	5.6	13.7	13.6	8.2	27.3	22.2	5.3	9.1				
Green Ext Time (p_c), s	0.0	10.6	0.1	1.4	0.0	9.0	0.0	1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			37.1									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	354	1027	159	72	817	116	194	177	71	125	206	436
Future Volume (veh/h)	354	1027	159	72	817	116	194	177	71	125	206	436
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	354	1027	159	72	817	116	194	177	71	125	206	436
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	545	2172	336	137	1150	162	218	466	180	149	261	708
Arrive On Green	0.31	0.49	0.49	0.08	0.26	0.26	0.12	0.19	0.19	0.08	0.14	0.14
Sat Flow, veh/h	1774	4445	687	1774	4505	636	1774	2497	965	1774	1863	1583
Grp Volume(v), veh/h	354	783	403	72	614	319	194	124	124	125	206	436
Grp Sat Flow(s),veh/h/ln	1774	1695	1742	1774	1695	1751	1774	1770	1692	1774	1863	1583
Q Serve(g_s), s	22.8	20.3	20.3	5.2	21.7	21.9	14.2	8.1	8.5	9.2	14.1	0.0
Cycle Q Clear(g_c), s	22.8	20.3	20.3	5.2	21.7	21.9	14.2	8.1	8.5	9.2	14.1	0.0
Prop In Lane	1.00		0.39	1.00		0.36	1.00		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	545	1657	851	137	865	447	218	330	316	149	261	708
V/C Ratio(X)	0.65	0.47	0.47	0.52	0.71	0.71	0.89	0.37	0.39	0.84	0.79	0.62
Avail Cap(c_a), veh/h	545	1657	851	148	1246	643	242	442	423	242	466	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	1.00	1.00	1.00	1.00	0.65	0.65	0.65	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	22.4	22.4	58.6	44.7	44.8	57.0	46.9	47.1	59.5	54.8	27.8
Incr Delay (d2), s/veh	2.2	1.0	1.9	1.2	4.9	9.4	19.5	0.5	0.5	6.3	5.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	9.7	10.2	2.6	10.7	11.8	8.1	4.0	4.0	4.7	7.6	12.2
LnGrp Delay(d),s/veh	41.7	23.4	24.3	59.7	49.6	54.2	76.4	47.4	47.6	65.8	60.1	28.7
LnGrp LOS	D	C	C	E	D	D	E	D	D	E	E	C
Approach Vol, veh/h		1540			1005			442			767	
Approach Delay, s/veh		27.9			51.8			60.2			43.2	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.2	70.0	22.2	24.5	46.0	39.2	16.1	30.7				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	7.2	22.3	16.2	16.1	24.8	23.9	11.2	10.5				
Green Ext Time (p_c), s	0.0	13.2	0.1	2.4	0.0	9.8	0.1	1.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.2									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
4: McBean Pkwy & Valencia Blvd

04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	452	790	123	380	1169	51	223	821	350	137	613	772
Future Volume (veh/h)	452	790	123	380	1169	51	223	821	350	137	613	772
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	452	790	123	380	1169	51	223	821	350	137	613	772
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1120	540	705	1622	696	417	1445	1363	414	1441	1106
Arrive On Green	0.11	0.22	0.22	0.20	0.32	0.32	0.12	0.28	0.28	0.04	0.09	0.09
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	452	790	123	380	1169	51	223	821	350	137	613	772
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	18.9	3.6	13.0	26.8	2.5	8.0	18.2	3.0	5.1	15.0	30.7
Cycle Q Clear(g_c), s	15.0	18.9	3.6	13.0	26.8	2.5	8.0	18.2	3.0	5.1	15.0	30.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1120	540	705	1622	696	417	1445	1363	414	1441	1106
V/C Ratio(X)	1.16	0.71	0.23	0.54	0.72	0.07	0.53	0.57	0.26	0.33	0.43	0.70
Avail Cap(c_a), veh/h	391	1560	678	705	1622	696	417	1502	1394	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	0.96	0.96	0.96	0.89	0.89	0.89
Uniform Delay (d), s/veh	58.5	47.5	12.0	46.9	39.7	21.4	54.5	40.3	7.2	58.2	49.7	42.1
Incr Delay (d2), s/veh	95.2	3.7	1.0	0.6	2.1	0.2	0.7	0.7	0.2	0.2	0.3	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	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	9.2	1.9	6.2	12.9	1.1	3.9	8.6	1.9	2.5	7.1	12.2
LnGrp Delay(d),s/veh	153.7	51.3	13.0	47.5	41.9	21.6	55.2	41.0	7.4	58.4	50.0	44.0
LnGrp LOS	F	D	B	D	D	C	E	D	A	E	D	D
Approach Vol, veh/h		1365			1600			1394			1522	
Approach Delay, s/veh		81.7			42.6			34.8			47.7	
Approach LOS		F			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	48.1	20.9	43.0	33.0	35.1	21.0	42.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	6.0	* 6	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	* 41	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	28.8	7.1	20.2	15.0	20.9	10.0	32.7				
Green Ext Time (p_c), s	0.0	7.8	0.1	10.0	0.0	8.1	0.2	4.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			51.2									
HCM 2010 LOS			D									
<b>Notes</b>												

























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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 4: McBean Pkwy & Valencia Blvd

























05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	555	1221	188	393	1131	193	177	1030	519	228	1038	706
Future Volume (veh/h)	555	1221	188	393	1131	193	177	1030	519	228	1038	706
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	555	1221	188	393	1131	193	177	1030	519	228	1038	706
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	1620	696	391	1659	708	417	1442	1107	417	1443	1086
Arrive On Green	0.11	0.32	0.32	0.11	0.33	0.33	0.12	0.28	0.28	0.04	0.09	0.09
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	555	1221	188	393	1131	193	177	1030	519	228	1038	706
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	14.0	28.4	10.0	15.0	25.4	10.1	6.3	24.0	18.2	8.6	26.2	28.2
Cycle Q Clear(g_c), s	14.0	28.4	10.0	15.0	25.4	10.1	6.3	24.0	18.2	8.6	26.2	28.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	365	1620	696	391	1659	708	417	1442	1107	417	1443	1086
V/C Ratio(X)	1.52	0.75	0.27	1.00	0.68	0.27	0.42	0.71	0.47	0.55	0.72	0.65
Avail Cap(c_a), veh/h	365	1620	696	391	1659	708	417	1502	1140	417	1502	1119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	0.87	0.87	0.87	0.64	0.64	0.64
Uniform Delay (d), s/veh	59.0	40.3	23.5	58.5	38.5	23.0	53.8	42.5	29.5	59.8	54.7	42.0
Incr Delay (d2), s/veh	247.8	3.3	1.0	36.1	1.4	0.6	0.2	1.6	0.5	0.5	1.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.2	13.8	4.5	9.1	12.1	4.5	3.0	11.5	7.0	4.1	12.5	11.1
LnGrp Delay(d),s/veh	306.8	43.6	24.5	94.6	39.9	23.5	54.0	44.1	29.9	60.3	55.9	43.0
LnGrp LOS	F	D	C	F	D	C	D	D	C	E	E	D
Approach Vol, veh/h		1964			1717			1726			1972	
Approach Delay, s/veh		116.2			50.6			40.8			51.8	
Approach LOS		F			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	49.1	21.0	42.9	20.0	48.1	21.0	43.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	5.0	6.0	5.0	5.5				
Max Green Setting (Gmax), s	14.0	41.5	16.0	39.0	15.0	40.5	16.0	39.0				
Max Q Clear Time (g_c+I1), s	16.0	27.4	10.6	26.0	17.0	30.4	8.3	30.2				
Green Ext Time (p_c), s	0.0	9.4	0.2	9.5	0.0	7.4	0.2	7.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			66.1									
HCM 2010 LOS			E									

# HCM 2010 Signalized Intersection Summary

## 5: Magic Mtn Pkwy & McBean Pkwy

04/17/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	437	82	52	376	164	59	921	69	260	1443	683
Future Volume (veh/h)	399	437	82	52	376	164	59	921	69	260	1443	683
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	399	437	82	52	376	164	59	921	0	260	1443	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	620	598	267	289	616	384	369	2944	727	417	3033	749
Arrive On Green	0.12	0.17	0.17	0.08	0.12	0.12	0.04	0.15	0.00	0.12	0.47	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	399	437	82	52	376	164	59	921	0	260	1443	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	10.0	15.5	6.0	1.9	9.3	7.7	2.2	16.9	0.0	9.5	20.2	0.0
Cycle Q Clear(g_c), s	10.0	15.5	6.0	1.9	9.3	7.7	2.2	16.9	0.0	9.5	20.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	620	598	267	289	616	384	369	2944	727	417	3033	749
V/C Ratio(X)	0.64	0.73	0.31	0.18	0.61	0.43	0.16	0.31	0.00	0.62	0.48	0.00
Avail Cap(c_a), veh/h	910	1153	516	391	1310	600	417	2944	727	417	3033	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	0.67	0.67	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.0	52.0	48.1	56.2	55.1	20.9	57.9	37.4	0.0	55.1	23.6	0.0
Incr Delay (d2), s/veh	0.4	3.0	1.1	0.1	1.5	1.2	0.0	0.2	0.0	2.2	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	4.6	7.8	2.7	0.9	4.4	3.6	1.1	7.6	0.0	4.6	9.0	0.0
LnGrp Delay(d),s/veh	55.5	55.0	49.2	56.3	56.6	22.0	57.9	37.6	0.0	57.3	24.2	0.0
LnGrp LOS	E	D	D	E	E	C	E	D		E	C	
Approach Vol, veh/h		918			592			980			1703	
Approach Delay, s/veh		54.7			47.0			38.8			29.2	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	28.3	19.2	68.5	22.4	22.0	21.0	66.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	3.9	17.5	4.2	22.2	12.0	11.3	11.5	18.9				
Green Ext Time (p_c), s	0.0	4.8	0.0	10.1	0.6	4.7	0.2	8.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			39.5									
HCM 2010 LOS			D									
<b>Notes</b>												



\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
5: Magic Mtn Pkwy & McBean Pkwy

04/17/2019






























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	836	772	176	249	524	369	153	1609	163	315	1585	358
Future Volume (veh/h)	836	772	176	249	524	369	153	1609	163	315	1585	358
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	836	772	176	249	524	369	153	1609	0	315	1585	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	902	966	432	339	934	483	416	2182	539	417	2185	540
Arrive On Green	0.18	0.27	0.27	0.10	0.18	0.18	0.24	0.68	0.00	0.12	0.34	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	836	772	176	249	524	369	153	1609	0	315	1585	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	21.7	26.8	12.0	9.3	12.4	15.5	4.9	21.2	0.0	11.7	28.6	0.0
Cycle Q Clear(g_c), s	21.7	26.8	12.0	9.3	12.4	15.5	4.9	21.2	0.0	11.7	28.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	902	966	432	339	934	483	416	2182	539	417	2185	540
V/C Ratio(X)	0.93	0.80	0.41	0.73	0.56	0.76	0.37	0.74	0.00	0.76	0.73	0.00
Avail Cap(c_a), veh/h	910	1153	516	391	1310	600	417	2182	539	417	2185	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	0.52	0.52	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.2	44.6	39.2	57.8	49.0	17.2	45.9	17.3	0.0	56.1	38.1	0.0
Incr Delay (d2), s/veh	14.9	4.1	1.1	4.1	0.8	5.1	0.1	1.2	0.0	6.9	2.1	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	11.2	13.6	5.4	4.6	5.9	7.4	2.3	9.3	0.0	6.0	13.0	0.0
LnGrp Delay(d),s/veh	68.1	48.7	40.3	61.9	49.8	22.3	46.0	18.4	0.0	63.0	40.2	0.0
LnGrp LOS	E	D	D	E	D	C	D	B		E	D	
Approach Vol, veh/h		1784			1142			1762			1900	
Approach Delay, s/veh		57.0			43.6			20.8			44.0	
Approach LOS		E			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	42.0	20.9	51.0	29.8	30.2	21.0	51.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	11.3	28.8	6.9	30.6	23.7	17.5	13.7	23.2				
Green Ext Time (p_c), s	0.2	6.9	0.2	4.7	0.1	6.8	0.2	10.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.2									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/15/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 			 	
Traffic Volume (veh/h)	157	602	69	176	811	111	119	227	159	117	354	309
Future Volume (veh/h)	157	602	69	176	811	111	119	227	159	117	354	309
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	157	602	69	176	811	111	119	227	159	117	354	309
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	863	98	617	2025	275	159	742	332	159	742	475
Arrive On Green	0.09	0.19	0.19	0.35	0.45	0.45	0.09	0.21	0.21	0.09	0.21	0.21
Sat Flow, veh/h	3442	4635	526	1774	4528	616	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	157	439	232	176	606	316	119	227	159	117	354	309
Grp Sat Flow(s),veh/h/ln	1721	1695	1770	1774	1695	1754	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	16.0	16.2	9.5	15.9	16.0	8.6	7.1	5.2	8.5	11.6	22.4
Cycle Q Clear(g_c), s	5.7	16.0	16.2	9.5	15.9	16.0	8.6	7.1	5.2	8.5	11.6	22.4
Prop In Lane	1.00		0.30	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	631	330	617	1516	784	159	742	332	159	742	475
V/C Ratio(X)	0.50	0.69	0.70	0.29	0.40	0.40	0.75	0.31	0.48	0.74	0.48	0.65
Avail Cap(c_a), veh/h	600	989	516	617	1516	784	215	885	396	215	885	539
HCM Platoon Ratio	1.00	1.00	1.00	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	0.93	0.93	0.93	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	57.2	50.2	50.3	31.2	24.6	24.6	58.6	44.0	9.3	58.6	45.8	40.2
Incr Delay (d2), s/veh	0.5	6.2	12.0	0.1	0.7	1.4	5.7	0.4	1.8	4.7	0.8	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	8.0	9.0	4.7	7.6	8.0	4.5	3.5	4.7	4.4	5.7	10.2
LnGrp Delay(d),s/veh	57.7	56.4	62.3	31.3	25.3	26.0	64.3	44.4	11.1	63.2	46.6	43.2
LnGrp LOS	E	E	E	C	C	C	E	D	B	E	D	D
Approach Vol, veh/h		828			1098			505			780	
Approach Delay, s/veh		58.3			26.5			38.6			47.8	
Approach LOS		E			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	64.5	16.8	33.7	51.4	30.1	16.8	33.7				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	38.5	16.0	33.0	23.0	* 39	16.0	33.0				
Max Q Clear Time (g_c+I1), s	7.7	18.0	10.5	9.1	11.5	18.2	10.6	24.4				
Green Ext Time (p_c), s	0.2	9.0	0.1	3.1	0.2	6.4	0.1	3.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.8									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.  
User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd




















04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	319	925	108	145	748	101	154	368	242	170	240	226
Future Volume (veh/h)	319	925	108	145	748	101	154	368	242	170	240	226
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	319	925	108	145	748	101	154	368	242	170	240	226
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	376	2039	237	170	1943	260	179	671	300	195	703	488
Arrive On Green	0.11	0.44	0.44	0.10	0.43	0.43	0.10	0.19	0.19	0.11	0.20	0.20
Sat Flow, veh/h	3442	4620	538	1774	4538	608	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	319	678	355	145	557	292	154	368	242	170	240	226
Grp Sat Flow(s),veh/h/ln	1721	1695	1768	1774	1695	1755	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	12.0	18.4	18.5	10.6	14.9	15.0	11.3	12.4	19.3	12.5	7.7	15.2
Cycle Q Clear(g_c), s	12.0	18.4	18.5	10.6	14.9	15.0	11.3	12.4	19.3	12.5	7.7	15.2
Prop In Lane	1.00		0.30	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	376	1496	780	170	1452	752	179	671	300	195	703	488
V/C Ratio(X)	0.85	0.45	0.46	0.85	0.38	0.39	0.86	0.55	0.81	0.87	0.34	0.46
Avail Cap(c_a), veh/h	600	1496	780	309	1452	752	269	885	396	269	885	569
HCM Platoon Ratio	1.00	1.00	1.00	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	0.91	0.91	0.91	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	57.7	25.7	25.8	58.7	25.8	25.9	58.4	48.4	51.2	57.8	45.5	36.9
Incr Delay (d2), s/veh	3.5	1.0	1.9	4.1	0.7	1.4	11.2	1.2	11.3	15.3	0.5	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	5.9	8.8	9.5	5.4	7.1	7.6	6.1	6.2	9.4	6.9	3.8	6.8
LnGrp Delay(d),s/veh	61.3	26.7	27.7	62.9	26.5	27.3	69.6	49.6	62.4	73.1	45.9	38.0
LnGrp LOS	E	C	C	E	C	C	E	D	E	E	D	D
Approach Vol, veh/h		1352			994			764			636	
Approach Delay, s/veh		35.1			32.0			57.7			50.4	
Approach LOS		D			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.4	62.0	19.5	31.0	17.7	63.8	18.3	32.2				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.0	5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	34.5	20.0	33.0	23.0	34.5	20.0	33.0				
Max Q Clear Time (g_c+I1), s	14.0	17.0	14.5	21.3	12.6	20.5	13.3	17.2				
Green Ext Time (p_c), s	0.4	7.5	0.1	3.7	0.1	7.9	0.1	3.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.5									
HCM 2010 LOS			D									

# HCM 2010 Signalized Intersection Summary




















## 7: Wiley Cyn Rd & Tournament Rd

04/15/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	12	18	17	115	5	175	141	331	4	7	522	69
Future Volume (veh/h)	12	18	17	115	5	175	141	331	4	7	522	69
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	18	17	115	5	175	141	331	4	7	522	69
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	62	40	190	7	377	167	2240	27	27	1720	227
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.09	0.63	0.63	0.02	0.55	0.55
Sat Flow, veh/h	37	261	169	573	30	1583	1774	3581	43	1774	3145	414
Grp Volume(v), veh/h	47	0	0	120	0	175	141	163	172	7	293	298
Grp Sat Flow(s),veh/h/ln	467	0	0	603	0	1583	1774	1770	1855	1774	1770	1790
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	12.5	10.3	5.0	5.0	0.5	11.9	12.0
Cycle Q Clear(g_c), s	29.2	0.0	0.0	28.5	0.0	12.5	10.3	5.0	5.0	0.5	11.9	12.0
Prop In Lane	0.26		0.36	0.96		1.00	1.00		0.02	1.00		0.23
Lane Grp Cap(c), veh/h	145	0	0	197	0	377	167	1107	1160	27	968	979
V/C Ratio(X)	0.32	0.00	0.00	0.61	0.00	0.46	0.85	0.15	0.15	0.26	0.30	0.30
Avail Cap(c_a), veh/h	281	0	0	318	0	516	376	1107	1160	202	968	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.89	0.00	0.89	0.89	0.89	0.89	0.84	0.84	0.84
Uniform Delay (d), s/veh	41.4	0.0	0.0	49.1	0.0	43.1	58.9	10.2	10.2	64.2	16.2	16.3
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.7	0.0	0.8	4.0	0.3	0.2	1.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	4.4	0.0	5.6	5.2	2.5	2.7	0.3	6.0	6.1
LnGrp Delay(d),s/veh	42.7	0.0	0.0	51.8	0.0	43.9	62.9	10.5	10.5	65.8	16.9	16.9
LnGrp LOS	D			D		D	E	B	B	E	B	B
Approach Vol, veh/h		47			295			476			598	
Approach Delay, s/veh		42.7			47.1			26.0			17.5	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	88.5		36.4	17.4	78.2		36.4				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	2.5	7.0		30.5	12.3	14.0		31.2				
Green Ext Time (p_c), s	0.0	3.3		1.0	0.1	6.1		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				27.4								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd































04/17/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	13	16	83	22	202	216	572	21	19	386	76
Future Volume (veh/h)	8	13	16	83	22	202	216	572	21	19	386	76
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	13	16	83	22	202	216	572	21	19	386	76
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	40	62	53	147	34	263	242	2363	87	61	1703	332
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.14	0.68	0.68	0.03	0.58	0.58
Sat Flow, veh/h	44	374	318	593	202	1583	1774	3482	128	1774	2954	576
Grp Volume(v), veh/h	37	0	0	105	0	202	216	290	303	19	230	232
Grp Sat Flow(s),veh/h/ln	736	0	0	796	0	1583	1774	1770	1840	1774	1770	1761
Q Serve(g_s), s	0.3	0.0	0.0	0.3	0.0	16.1	15.8	8.3	8.4	1.4	8.3	8.5
Cycle Q Clear(g_c), s	19.3	0.0	0.0	19.3	0.0	16.1	15.8	8.3	8.4	1.4	8.3	8.5
Prop In Lane	0.22		0.43	0.79		1.00	1.00		0.07	1.00		0.33
Lane Grp Cap(c), veh/h	155	0	0	181	0	263	242	1201	1249	61	1020	1015
V/C Ratio(X)	0.24	0.00	0.00	0.58	0.00	0.77	0.89	0.24	0.24	0.31	0.23	0.23
Avail Cap(c_a), veh/h	401	0	0	413	0	516	376	1201	1249	202	1020	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	0.00	0.00	0.70	0.00	0.70	0.67	0.67	0.67	0.94	0.94	0.94
Uniform Delay (d), s/veh	47.5	0.0	0.0	53.6	0.0	52.6	56.1	8.2	8.2	62.2	13.6	13.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	2.0	0.0	3.3	7.7	0.3	0.3	1.0	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	1.2	0.0	0.0	3.9	0.0	7.3	8.3	4.1	4.3	0.7	4.2	4.3
LnGrp Delay(d),s/veh	48.3	0.0	0.0	55.7	0.0	55.9	63.8	8.5	8.5	63.2	14.1	14.1
LnGrp LOS	D			E		E	E	A	A	E	B	B
Approach Vol, veh/h		37			307			809			481	
Approach Delay, s/veh		48.3			55.8			23.2			16.1	
Approach LOS		D			E			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	95.3		27.2	23.0	81.8		27.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	3.4	10.4		21.3	17.8	10.5		21.3				
Green Ext Time (p_c), s	0.0	6.5		1.2	0.2	4.7		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				27.8								
HCM 2010 LOS				C								



HCM 2010 Signalized Intersection Summary  
 8: Valley St/Orchard Village Rd & Lyons Ave
































05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  			 		 		
Traffic Volume (veh/h)	195	708	54	66	891	415	77	140	88	419	87	243
Future Volume (veh/h)	195	708	54	66	891	415	77	140	88	419	87	243
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	195	708	54	66	891	415	77	140	88	419	87	243
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1725	772	135	2442	1068	188	295	132	668	326	277
Arrive On Green	0.08	0.49	0.49	0.08	0.48	0.48	0.11	0.08	0.08	0.19	0.18	0.18
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	195	708	54	66	891	415	77	140	88	419	87	243
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	7.3	16.9	2.4	4.7	14.6	5.7	5.4	5.0	5.9	14.7	5.3	19.7
Cycle Q Clear(g_c), s	7.3	16.9	2.4	4.7	14.6	5.7	5.4	5.0	5.9	14.7	5.3	19.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	1725	772	135	2442	1068	188	295	132	668	326	277
V/C Ratio(X)	0.68	0.41	0.07	0.49	0.36	0.39	0.41	0.47	0.67	0.63	0.27	0.88
Avail Cap(c_a), veh/h	417	1725	772	175	2442	1068	282	1032	462	668	557	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	0.84	0.84	0.84	1.00	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	58.8	21.7	17.9	58.5	21.6	2.7	55.1	57.7	40.5	48.8	47.1	53.0
Incr Delay (d2), s/veh	1.0	0.7	0.2	0.9	0.4	0.9	1.4	1.2	5.7	1.2	0.4	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	8.4	1.1	2.3	6.9	3.1	2.7	2.5	3.1	7.2	2.8	9.3
LnGrp Delay(d),s/veh	59.8	22.3	18.1	59.4	22.0	3.6	56.6	58.9	46.2	50.0	47.5	62.3
LnGrp LOS	E	C	B	E	C	A	E	E	D	D	D	E
Approach Vol, veh/h		957			1372			305			749	
Approach Delay, s/veh		29.7			18.2			54.7			53.7	
Approach LOS		C			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	68.4	31.1	16.5	15.0	69.4	19.0	28.6				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	9.3	16.6	16.7	7.9	6.7	18.9	7.4	21.7				
Green Ext Time (p_c), s	0.2	10.9	0.4	1.1	0.0	7.2	0.1	1.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.6									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 8: Valley St/Orchard Village Rd & Lyons Ave

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  			 		 	 	
Traffic Volume (veh/h)	289	935	126	98	978	300	112	123	118	365	129	197
Future Volume (veh/h)	289	935	126	98	978	300	112	123	118	365	129	197
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	289	935	126	98	978	300	112	123	118	365	129	197
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	341	1804	807	144	2501	1041	188	298	134	570	275	234
Arrive On Green	0.10	0.51	0.51	0.03	0.16	0.16	0.11	0.08	0.08	0.17	0.15	0.15
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	289	935	126	98	978	300	112	123	118	365	129	197
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	10.9	23.2	5.6	7.2	22.7	6.0	8.0	4.4	8.0	13.1	8.4	16.0
Cycle Q Clear(g_c), s	10.9	23.2	5.6	7.2	22.7	6.0	8.0	4.4	8.0	13.1	8.4	16.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	341	1804	807	144	2501	1041	188	298	134	570	275	234
V/C Ratio(X)	0.85	0.52	0.16	0.68	0.39	0.29	0.60	0.41	0.88	0.64	0.47	0.84
Avail Cap(c_a), veh/h	417	1804	807	175	2501	1041	282	1032	462	574	557	474
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.81	0.81	0.81	1.00	1.00	1.00	0.82	0.82	0.82
Uniform Delay (d), s/veh	58.5	21.6	17.2	62.5	37.6	5.2	56.3	57.3	40.7	51.4	51.5	54.7
Incr Delay (d2), s/veh	9.4	0.9	0.3	4.1	0.4	0.6	3.0	0.9	16.8	1.5	1.2	7.9
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	5.6	11.5	2.5	3.7	10.8	3.9	4.0	2.2	4.5	6.4	4.4	7.5
LnGrp Delay(d),s/veh	67.9	22.5	17.6	66.6	38.0	5.8	59.3	58.2	57.4	52.9	52.7	62.6
LnGrp LOS	E	C	B	E	D	A	E	E	E	D	D	E
Approach Vol, veh/h		1350			1376			353			691	
Approach Delay, s/veh		31.7			33.0			58.3			55.6	
Approach LOS		C			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.1	69.9	27.4	16.6	15.7	72.3	19.0	25.0				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	12.9	24.7	15.1	10.0	9.2	25.2	10.0	18.0				
Green Ext Time (p_c), s	0.2	7.1	0.4	1.1	0.0	7.6	0.2	1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				39.1								
HCM 2010 LOS				D								
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
























HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/15/2019

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	225	863	161	55	744	167	137	148	297	153	260	127
Future Volume (veh/h)	225	863	161	55	744	167	137	148	297	153	260	127
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	225	863	161	55	744	167	137	148	297	153	260	127
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	1580	707	128	1337	741	311	379	339	178	794	355
Arrive On Green	0.14	0.45	0.45	0.07	0.38	0.38	0.09	0.21	0.21	0.10	0.22	0.22
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1770	1583	1774	3539	1583
Grp Volume(v), veh/h	225	863	161	55	744	167	137	148	297	153	260	127
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	16.5	23.6	8.3	3.9	21.9	8.3	5.0	9.5	23.9	11.2	8.1	8.9
Cycle Q Clear(g_c), s	16.5	23.6	8.3	3.9	21.9	8.3	5.0	9.5	23.9	11.2	8.1	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	1580	707	128	1337	741	311	379	339	178	794	355
V/C Ratio(X)	0.90	0.55	0.23	0.43	0.56	0.23	0.44	0.39	0.88	0.86	0.33	0.36
Avail Cap(c_a), veh/h	296	1580	707	228	1337	741	521	456	408	269	912	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)	0.90	0.90	0.90	0.65	0.65	0.65	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	26.8	22.5	58.6	32.3	20.9	56.9	44.5	50.1	58.4	42.8	43.2
Incr Delay (d2), s/veh	22.2	1.2	0.7	0.5	1.1	0.5	0.4	1.1	18.4	10.9	0.4	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	9.6	11.8	3.8	1.9	10.8	3.7	2.4	4.8	12.2	6.0	4.0	4.0
LnGrp Delay(d),s/veh	78.0	28.0	23.2	59.2	33.4	21.3	57.2	45.6	68.5	69.3	43.3	44.2
LnGrp LOS	E	C	C	E	C	C	E	D	E	E	D	D
Approach Vol, veh/h		1249			966			582			540	
Approach Delay, s/veh		36.4			32.8			60.0			50.9	
Approach LOS		D			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	64.9	18.3	34.3	23.6	55.9	16.9	35.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	39.0	20.0	34.0	22.0	34.0	20.0	34.0				
Max Q Clear Time (g_c+I1), s	5.9	25.6	13.2	25.9	18.5	23.9	7.0	10.9				
Green Ext Time (p_c), s	0.0	7.4	0.1	2.3	0.1	5.4	0.2	3.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.8									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
9: Orchard Village Rd & Wiley Cyn Rd





























04/17/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	124	728	154	121	879	215	216	309	174	91	210	68
Future Volume (veh/h)	124	728	154	121	879	215	216	309	174	91	210	68
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	124	728	154	121	879	215	216	309	174	91	210	68
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	1713	766	146	1707	908	313	396	218	156	624	279
Arrive On Green	0.08	0.48	0.48	0.08	0.48	0.48	0.09	0.18	0.18	0.09	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2205	1213	1774	3539	1583
Grp Volume(v), veh/h	124	728	154	121	879	215	216	246	237	91	210	68
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1649	1774	1770	1583
Q Serve(g_s), s	9.1	17.6	7.3	8.9	22.6	8.9	8.0	17.5	18.1	6.5	6.9	4.9
Cycle Q Clear(g_c), s	9.1	17.6	7.3	8.9	22.6	8.9	8.0	17.5	18.1	6.5	6.9	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	149	1713	766	146	1707	908	313	317	296	156	624	279
V/C Ratio(X)	0.83	0.43	0.20	0.83	0.51	0.24	0.69	0.78	0.80	0.59	0.34	0.24
Avail Cap(c_a), veh/h	296	1713	766	228	1707	908	391	456	425	202	912	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)	0.88	0.88	0.88	0.70	0.70	0.70	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	22.1	19.5	59.6	23.5	13.9	58.2	51.6	51.9	57.9	47.6	46.8
Incr Delay (d2), s/veh	4.0	0.7	0.5	5.2	0.8	0.4	2.2	7.6	9.6	1.3	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	4.6	8.8	3.3	4.5	11.2	4.0	3.9	9.2	9.1	3.2	3.4	2.2
LnGrp Delay(d),s/veh	63.6	22.8	20.0	64.9	24.3	14.3	60.4	59.2	61.4	59.2	48.2	47.6
LnGrp LOS	E	C	B	E	C	B	E	E	E	E	D	D
Approach Vol, veh/h		1006			1215			699			369	
Approach Delay, s/veh		27.4			26.6			60.3			50.8	
Approach LOS		C			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	69.9	16.6	29.7	16.1	69.7	17.0	29.3				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	44.0	15.0	34.0	22.0	39.0	15.0	34.0				
Max Q Clear Time (g_c+I1), s	10.9	19.6	8.5	20.1	11.1	24.6	10.0	8.9				
Green Ext Time (p_c), s	0.1	8.8	0.0	3.5	0.1	8.1	0.2	2.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			36.7									
HCM 2010 LOS			D									

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

04/15/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 				 		 	
Traffic Volume (vph)	85	501	256	501	474	103	378	116	631	30	44	43
Future Volume (vph)	85	501	256	501	474	103	378	116	631	30	44	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4827		3433	5085	1583	1681	1724	2787	1610	3142	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4827		3433	5085	1583	1681	1724	2787	1610	3142	
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)	85	501	256	501	474	103	378	116	631	30	44	43
RTOR Reduction (vph)	0	69	0	0	0	61	0	0	351	0	39	0
Lane Group Flow (vph)	85	688	0	501	474	42	246	248	280	27	51	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	11.7	38.4		26.8	53.5	53.5	31.8	31.8	58.6	12.0	12.0	
Effective Green, g (s)	11.7	38.4		26.8	53.5	53.5	31.8	31.8	58.6	12.0	12.0	
Actuated g/C Ratio	0.09	0.29		0.20	0.41	0.41	0.24	0.24	0.44	0.09	0.09	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	156	1404		697	2060	641	404	415	1237	146	285	
v/s Ratio Prot	0.05	c0.14		c0.15	0.09		c0.15	0.14	0.05	c0.02	0.02	
v/s Ratio Perm						0.03			0.05			
v/c Ratio	0.54	0.49		0.72	0.23	0.07	0.61	0.60	0.23	0.18	0.18	
Uniform Delay, d1	57.6	38.7		49.1	25.7	24.0	44.6	44.4	22.7	55.5	55.4	
Progression Factor	1.35	0.65		0.68	0.54	0.55	0.78	0.77	6.66	1.00	1.00	
Incremental Delay, d2	2.0	1.2		3.3	0.2	0.2	2.4	2.2	0.1	0.6	0.3	
Delay (s)	80.0	26.4		36.9	14.3	13.5	37.0	36.6	151.1	56.1	55.7	
Level of Service	F	C		D	B	B	D	D	F	E	E	
Approach Delay (s)		31.8			24.7			100.9			55.8	
Approach LOS		C			C			F			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			54.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			132.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			64.1%			ICU Level of Service			C			
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

04/17/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘↘	↑↑↑	↗	↘	↗	↗↗	↘	↑↑	↘↘
Traffic Volume (vph)	34	768	395	752	620	52	266	32	690	100	122	124
Future Volume (vph)	34	768	395	752	620	52	266	32	690	100	122	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4826		3433	5085	1583	1681	1703	2787	1610	3138	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4826		3433	5085	1583	1681	1703	2787	1610	3138	
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)	34	768	395	752	620	52	266	32	690	100	122	124
RTOR Reduction (vph)	0	71	0	0	0	24	0	0	332	0	111	0
Lane Group Flow (vph)	34	1092	0	752	620	28	149	149	358	90	145	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	6.0	35.6		41.9	71.5	71.5	17.4	17.4	59.3	14.1	14.1	
Effective Green, g (s)	6.0	35.6		41.9	71.5	71.5	17.4	17.4	59.3	14.1	14.1	
Actuated g/C Ratio	0.05	0.27		0.32	0.54	0.54	0.13	0.13	0.45	0.11	0.11	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	80	1301		1089	2754	857	221	224	1252	171	335	
v/s Ratio Prot	0.02	c0.23		c0.22	0.12		c0.09	0.09	0.09	c0.06	0.05	
v/s Ratio Perm						0.02			0.04			
v/c Ratio	0.42	0.84		0.69	0.23	0.03	0.67	0.67	0.29	0.53	0.43	
Uniform Delay, d1	61.3	45.5		39.4	15.8	14.1	54.6	54.5	23.0	55.8	55.2	
Progression Factor	1.29	0.91		1.53	0.60	1.00	0.86	0.86	4.40	1.00	1.00	
Incremental Delay, d2	1.2	5.9		1.8	0.2	0.1	7.2	6.6	0.1	2.9	0.9	
Delay (s)	80.5	47.4		62.2	9.6	14.2	54.2	53.5	101.2	58.7	56.1	
Level of Service	F	D		E	A	B	D	D	F	E	E	
Approach Delay (s)		48.3			37.6			86.9			56.8	
Approach LOS		D			D			F			E	

### Intersection Summary

























HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/15/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	347	382	30	591	38	402	118	24	34	157	171
Future Volume (veh/h)	114	347	382	30	591	38	402	118	24	34	157	171
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	114	347	382	30	591	38	402	118	24	34	157	171
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	1964	1089	81	1852	828	457	321	273	134	215	182
Arrive On Green	0.13	0.93	0.93	0.05	0.52	0.52	0.13	0.17	0.17	0.08	0.12	0.12
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	114	347	382	30	591	38	402	118	24	34	157	171
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	8.3	1.1	0.7	2.2	12.6	1.5	15.1	7.4	1.7	2.4	10.7	11.7
Cycle Q Clear(g_c), s	8.3	1.1	0.7	2.2	12.6	1.5	15.1	7.4	1.7	2.4	10.7	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	1964	1089	81	1852	828	457	321	273	134	215	182
V/C Ratio(X)	0.83	0.18	0.35	0.37	0.32	0.05	0.88	0.37	0.09	0.25	0.73	0.94
Avail Cap(c_a), veh/h	255	1964	1089	215	1852	828	574	607	516	242	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	2.2	0.3	61.2	18.0	15.4	56.2	48.3	45.9	57.5	56.4	39.6
Incr Delay (d2), s/veh	4.2	0.2	0.8	1.1	0.5	0.1	10.8	0.7	0.1	0.4	4.7	19.0
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	4.2	0.5	0.6	1.1	6.3	0.7	7.9	3.9	0.7	1.2	5.8	6.4
LnGrp Delay(d),s/veh	60.8	2.4	1.1	62.2	18.5	15.5	67.0	49.0	46.0	57.9	61.2	58.6
LnGrp LOS	E	A	A	E	B	B	E	D	D	E	E	E
Approach Vol, veh/h		843			659			544			362	
Approach Delay, s/veh		9.7			20.3			62.1			59.7	
Approach LOS		A			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	78.3	22.5	20.2	15.2	74.1	15.0	27.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	16.0	35.0	22.0	39.0	19.0	32.0	18.0	43.0				
Max Q Clear Time (g_c+I1), s	4.2	3.1	17.1	13.7	10.3	14.6	4.4	9.4				
Green Ext Time (p_c), s	0.0	6.9	0.4	1.5	0.1	5.6	0.0	0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.0									
HCM 2010 LOS			C									























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	577	602	25	662	32	464	103	33	26	125	130
Future Volume (veh/h)	126	577	602	25	662	32	464	103	33	26	125	130
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	126	577	602	25	662	32	464	103	33	26	125	130
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	2000	1134	73	1848	827	521	330	281	116	170	144
Arrive On Green	0.14	0.94	0.94	0.04	0.52	0.52	0.15	0.18	0.18	0.07	0.09	0.09
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	126	577	602	25	662	32	464	103	33	26	125	130
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	9.1	1.7	1.4	1.8	14.5	1.3	17.5	6.4	2.3	1.8	8.6	8.8
Cycle Q Clear(g_c), s	9.1	1.7	1.4	1.8	14.5	1.3	17.5	6.4	2.3	1.8	8.6	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	2000	1134	73	1848	827	521	330	281	116	170	144
V/C Ratio(X)	0.85	0.29	0.53	0.34	0.36	0.04	0.89	0.31	0.12	0.22	0.74	0.90
Avail Cap(c_a), veh/h	215	2000	1134	175	1848	827	652	607	516	282	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	1.7	0.2	61.6	18.5	15.4	54.9	47.3	45.6	58.5	58.5	40.4
Incr Delay (d2), s/veh	10.9	0.3	1.4	1.0	0.5	0.1	10.9	0.5	0.2	0.4	6.1	17.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.8	0.9	0.9	7.2	0.6	9.1	3.3	1.0	0.9	4.7	5.0
LnGrp Delay(d),s/veh	66.8	1.9	1.6	62.6	19.1	15.5	65.8	47.8	45.8	58.9	64.6	58.0
LnGrp LOS	E	A	A	E	B	B	E	D	D	E	E	E
Approach Vol, veh/h		1305			719			600			281	
Approach Delay, s/veh		8.1			20.4			61.6			61.0	
Approach LOS		A			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	79.6	25.0	17.0	16.1	73.9	13.6	28.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	35.0	25.0	39.0	16.0	32.0	21.0	43.0				
Max Q Clear Time (g_c+I1), s	3.8	3.7	19.5	10.8	11.1	16.5	3.8	8.4				
Green Ext Time (p_c), s	0.0	12.6	0.5	1.2	0.1	5.9	0.0	0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			27.3									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd























04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	175	34	191	365	57	33	812	113	22	1666	510
Future Volume (veh/h)	139	175	34	191	365	57	33	812	113	22	1666	510
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	139	175	34	191	365	57	33	812	113	22	1666	510
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	459	87	313	477	74	113	1150	358	628	2665	1712
Arrive On Green	0.09	0.15	0.15	0.09	0.16	0.16	0.06	0.23	0.23	0.35	0.52	0.52
Sat Flow, veh/h	3442	2967	565	3442	3073	476	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	139	103	106	191	209	213	33	812	113	22	1666	510
Grp Sat Flow(s),veh/h/ln	1721	1770	1763	1721	1770	1779	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	5.1	6.9	7.1	7.1	14.9	15.2	2.3	19.4	6.1	1.1	30.6	11.4
Cycle Q Clear(g_c), s	5.1	6.9	7.1	7.1	14.9	15.2	2.3	19.4	6.1	1.1	30.6	11.4
Prop In Lane	1.00		0.32	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	311	274	273	313	274	276	113	1150	358	628	2665	1712
V/C Ratio(X)	0.45	0.38	0.39	0.61	0.76	0.77	0.29	0.71	0.32	0.04	0.63	0.30
Avail Cap(c_a), veh/h	600	456	454	600	456	458	161	1580	492	628	2665	1712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	50.1	50.2	57.8	53.4	53.5	58.9	47.0	25.6	27.9	22.2	12.0
Incr Delay (d2), s/veh	0.3	1.2	1.3	0.7	7.3	7.6	0.5	3.3	2.1	0.0	1.1	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	2.4	3.5	3.6	3.4	7.9	8.0	1.2	9.4	3.4	0.5	14.6	4.5
LnGrp Delay(d),s/veh	57.2	51.3	51.4	58.5	60.7	61.2	59.4	50.3	27.6	27.9	23.4	12.5
LnGrp LOS	E	D	D	E	E	E	E	D	C	C	C	B
Approach Vol, veh/h		348			613			958			2198	
Approach Delay, s/veh		53.7			60.2			48.0			20.9	
Approach LOS		D			E			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.4	75.2	16.9	26.5	52.7	35.9	17.0	26.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	34.0	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	4.3	32.6	7.1	17.2	3.1	21.4	9.1	9.1				
Green Ext Time (p_c), s	0.0	7.7	0.2	3.3	0.0	8.5	0.3	1.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			35.8									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd

























04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	634	517	45	234	383	80	83	1602	226	93	1261	434
Future Volume (veh/h)	634	517	45	234	383	80	83	1602	226	93	1261	434
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	634	517	45	234	383	80	83	1602	226	93	1261	434
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	855	74	313	492	102	154	1580	492	292	2016	1590
Arrive On Green	0.17	0.26	0.26	0.09	0.17	0.17	0.09	0.31	0.31	0.16	0.40	0.40
Sat Flow, veh/h	3442	3296	286	3442	2921	604	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	634	277	285	234	231	232	83	1602	226	93	1261	434
Grp Sat Flow(s),veh/h/ln	1721	1770	1812	1721	1770	1756	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	23.0	18.1	18.2	8.8	16.4	16.7	5.9	41.0	11.3	6.1	26.3	3.0
Cycle Q Clear(g_c), s	23.0	18.1	18.2	8.8	16.4	16.7	5.9	41.0	11.3	6.1	26.3	3.0
Prop In Lane	1.00		0.16	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	459	470	313	298	296	154	1580	492	292	2016	1590
V/C Ratio(X)	1.06	0.60	0.61	0.75	0.77	0.79	0.54	1.01	0.46	0.32	0.63	0.27
Avail Cap(c_a), veh/h	600	459	470	600	456	452	161	1580	492	292	2016	1590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	42.9	43.0	58.5	52.5	52.6	57.8	45.5	20.4	48.6	32.0	4.8
Incr Delay (d2), s/veh	46.6	2.0	2.0	1.4	7.3	8.0	1.0	22.7	2.2	0.2	1.5	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	14.8	9.1	9.4	4.2	8.7	8.8	2.9	22.5	6.0	3.0	12.5	2.0
LnGrp Delay(d),s/veh	101.1	44.9	44.9	59.9	59.7	60.6	58.8	68.2	22.6	48.8	33.4	5.2
LnGrp LOS	F	D	D	E	E	E	E	F	C	D	C	A
Approach Vol, veh/h		1196			697			1911			1788	
Approach Delay, s/veh		74.7			60.1			62.4			27.4	
Approach LOS		E			E			E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	58.3	29.0	28.2	27.8	47.0	17.0	40.2				
Change Period (Y+Rc), s	5.0	6.0	6.0	* 6	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	* 34	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	7.9	28.3	25.0	18.7	8.1	43.0	10.8	20.2				
Green Ext Time (p_c), s	0.0	10.1	0.0	3.5	0.0	0.0	0.3	4.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.5									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	0	31	259	11	44	102	924	92	16	842	154
Future Volume (veh/h)	72	0	31	259	11	44	102	924	92	16	842	154
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	72	0	31	259	11	44	102	924	92	16	842	154
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	383	325	337	383	325	683	3008	299	60	1215	221
Arrive On Green	0.21	0.00	0.21	0.21	0.21	0.21	0.38	0.64	0.64	0.03	0.28	0.28
Sat Flow, veh/h	1343	1863	1583	1373	1863	1583	1774	4704	467	1774	4327	787
Grp Volume(v), veh/h	72	0	31	259	11	44	102	665	351	16	659	337
Grp Sat Flow(s),veh/h/ln	1343	1863	1583	1373	1863	1583	1774	1695	1780	1774	1695	1724
Q Serve(g_s), s	6.0	0.0	2.1	24.4	0.6	3.0	5.0	11.6	11.7	1.2	22.9	23.1
Cycle Q Clear(g_c), s	6.6	0.0	2.1	24.4	0.6	3.0	5.0	11.6	11.7	1.2	22.9	23.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		0.46
Lane Grp Cap(c), veh/h	324	383	325	337	383	325	683	2168	1139	60	952	484
V/C Ratio(X)	0.22	0.00	0.10	0.77	0.03	0.14	0.15	0.31	0.31	0.27	0.69	0.70
Avail Cap(c_a), veh/h	435	536	456	450	536	456	683	2168	1139	269	1490	757
HCM Platoon Ratio	1.00	1.00	1.00	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	0.86	0.86	0.86
Uniform Delay (d), s/veh	44.5	0.0	42.5	51.3	41.9	42.8	26.5	10.7	10.7	62.2	42.4	42.4
Incr Delay (d2), s/veh	0.3	0.0	0.1	5.7	0.0	0.2	0.0	0.4	0.7	0.8	3.5	7.0
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	0.0	0.9	9.8	0.3	1.3	2.4	5.5	6.0	0.6	11.2	11.9
LnGrp Delay(d),s/veh	44.9	0.0	42.6	57.0	41.9	43.0	26.5	11.0	11.4	63.0	45.9	49.4
LnGrp LOS	D		D	E	D	D	C	B	B	E	D	D
Approach Vol, veh/h		103			314			1118			1012	
Approach Delay, s/veh		44.2			54.5			12.6			47.3	
Approach LOS		D			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	90.4		32.1	56.8	43.1		32.1				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	3.2	13.7		8.6	7.0	25.1		26.4				
Green Ext Time (p_c), s	0.0	13.4		0.3	0.1	12.0		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.8									
HCM 2010 LOS			C									
<b>Notes</b>												

























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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	7	97	104	3	71	14	1337	189	77	1264	32
Future Volume (veh/h)	166	7	97	104	3	71	14	1337	189	77	1264	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	166	7	97	104	3	71	14	1337	189	77	1264	32
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	272	231	238	272	231	677	2980	421	126	1753	44
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.38	0.66	0.66	0.07	0.34	0.34
Sat Flow, veh/h	1320	1863	1583	1285	1863	1583	1774	4504	637	1774	5101	129
Grp Volume(v), veh/h	166	7	97	104	3	71	14	1006	520	77	840	456
Grp Sat Flow(s),veh/h/ln	1320	1863	1583	1285	1863	1583	1774	1695	1750	1774	1695	1840
Q Serve(g_s), s	16.2	0.4	7.4	10.0	0.2	5.3	0.6	18.9	18.9	5.6	28.5	28.5
Cycle Q Clear(g_c), s	16.4	0.4	7.4	10.4	0.2	5.3	0.6	18.9	18.9	5.6	28.5	28.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.07
Lane Grp Cap(c), veh/h	245	272	231	238	272	231	677	2243	1158	126	1165	632
V/C Ratio(X)	0.68	0.03	0.42	0.44	0.01	0.31	0.02	0.45	0.45	0.61	0.72	0.72
Avail Cap(c_a), veh/h	433	536	456	420	536	456	677	2243	1158	269	1490	808
HCM Platoon Ratio	1.00	1.00	1.00	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	0.63	0.63	0.63
Uniform Delay (d), s/veh	55.3	48.3	51.3	52.8	48.2	50.4	25.4	10.7	10.7	59.5	37.8	37.8
Incr Delay (d2), s/veh	3.2	0.0	1.2	1.3	0.0	0.7	0.0	0.7	1.3	1.1	2.5	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.2	3.3	3.6	0.1	2.4	0.3	9.0	9.5	2.8	13.7	15.2
LnGrp Delay(d),s/veh	58.5	48.4	52.5	54.1	48.2	51.2	25.4	11.4	12.0	60.6	40.3	42.3
LnGrp LOS	E	D	D	D	D	D	C	B	B	E	D	D
Approach Vol, veh/h		270			178			1540			1373	
Approach Delay, s/veh		56.1			52.8			11.7			42.1	
Approach LOS		E			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	93.3		24.2	56.4	51.4		24.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	7.6	20.9		18.4	2.6	30.5		12.4				
Green Ext Time (p_c), s	0.0	21.5		0.8	0.0	14.8		0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.9									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑↑ ↘		↘	
Traffic Vol, veh/h	153	833	846	48	5	27
Future Vol, veh/h	153	833	846	48	5	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	153	833	846	48	5	27

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	894	0	-	0	1509 447
Stage 1	-	-	-	-	870 -
Stage 2	-	-	-	-	639 -
Critical Hdwy	5.34	-	-	-	5.74 7.14
Critical Hdwy Stg 1	-	-	-	-	6.64 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	3.12	-	-	-	3.82 3.92
Pot Cap-1 Maneuver	440	-	-	-	170 478
Stage 1	-	-	-	-	290 -
Stage 2	-	-	-	-	444 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	440	-	-	-	111 478
Mov Cap-2 Maneuver	-	-	-	-	111 -
Stage 1	-	-	-	-	189 -
Stage 2	-	-	-	-	444 -

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	440	-	-	-	315
HCM Lane V/C Ratio	0.348	-	-	-	0.102
HCM Control Delay (s)	17.5	-	-	-	17.7
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	1.5	-	-	-	0.3

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/18/2019

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑		↘	
Traffic Vol, veh/h	31	1187	1010	7	13	74
Future Vol, veh/h	31	1187	1010	7	13	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	1187	1010	7	13	74













Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1017	0	-	0	1551 509
Stage 1	-	-	-	-	1014 -
Stage 2	-	-	-	-	537 -
Critical Hdwy	5.34	-	-	-	5.74 7.14
Critical Hdwy Stg 1	-	-	-	-	6.64 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	3.12	-	-	-	3.82 3.92
Pot Cap-1 Maneuver	384	-	-	-	162 436
Stage 1	-	-	-	-	237 -
Stage 2	-	-	-	-	502 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	384	-	-	-	149 436
Mov Cap-2 Maneuver	-	-	-	-	149 -
Stage 1	-	-	-	-	218 -
Stage 2	-	-	-	-	502 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	384	-	-	-	339
HCM Lane V/C Ratio	0.081	-	-	-	0.257
HCM Control Delay (s)	15.2	-	-	-	19.2
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1













HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps

04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖		↗
Traffic Volume (veh/h)	0	887	383	0	532	536	0	0	0	179	0	131
Future Volume (veh/h)	0	887	383	0	532	536	0	0	0	179	0	131
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	887	383	0	532	536				179	0	131
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2361	1056	0	2361	1295				268	0	239
Arrive On Green	0.00	0.67	0.67	0.00	0.67	0.67				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	887	383	0	532	536				179	0	131
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	7.3	7.0	0.0	3.9	6.1				6.3	0.0	5.1
Cycle Q Clear(g_c), s	0.0	7.3	7.0	0.0	3.9	6.1				6.3	0.0	5.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2361	1056	0	2361	1295				268	0	239
V/C Ratio(X)	0.00	0.38	0.36	0.00	0.23	0.41				0.67	0.00	0.55
Avail Cap(c_a), veh/h	0	2361	1056	0	2361	1295				570	0	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.9	4.8	0.0	4.3	1.6				26.5	0.0	25.9
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.0	0.2	1.0				2.9	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	3.7	3.3	0.0	1.9	5.1				3.3	0.0	2.3
LnGrp Delay(d),s/veh	0.0	5.3	5.8	0.0	4.5	2.6				29.3	0.0	27.9
LnGrp LOS		A	A		A	A				C		C
Approach Vol, veh/h		1270			1068						310	
Approach Delay, s/veh		5.5			3.6						28.7	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.2		15.8		50.2						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		32.8		21.2		32.8						
Max Q Clear Time (g_c+I1), s		9.3		8.3		8.1						
Green Ext Time (p_c), s		10.8		0.8		8.4						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.4									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps













04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Volume (veh/h)	0	1021	189	0	970	615	0	0	0	176	0	169
Future Volume (veh/h)	0	1021	189	0	970	615	0	0	0	176	0	169
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	1021	189	0	970	615				176	0	169
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2360	1056	0	2360	1295				268	0	239
Arrive On Green	0.00	0.67	0.67	0.00	0.67	0.67				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	1021	189	0	970	615				176	0	169
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	8.9	3.0	0.0	8.3	7.6				6.2	0.0	6.7
Cycle Q Clear(g_c), s	0.0	8.9	3.0	0.0	8.3	7.6				6.2	0.0	6.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2360	1056	0	2360	1295				268	0	239
V/C Ratio(X)	0.00	0.43	0.18	0.00	0.41	0.47				0.66	0.00	0.71
Avail Cap(c_a), veh/h	0	2360	1056	0	2360	1295				543	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.1	4.2	0.0	5.0	1.8				26.4	0.0	26.6
Incr Delay (d2), s/veh	0.0	0.6	0.4	0.0	0.5	1.2				2.7	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	4.4	1.4	0.0	4.1	6.4				3.2	0.0	3.2
LnGrp Delay(d),s/veh	0.0	5.7	4.5	0.0	5.6	3.0				29.1	0.0	30.4
LnGrp LOS		A	A		A	A				C		C
Approach Vol, veh/h		1210			1585						345	
Approach Delay, s/veh		5.5			4.6						29.7	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.2		15.8		50.2						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		33.8		20.2		33.8						
Max Q Clear Time (g_c+I1), s		10.9		8.7		10.3						
Green Ext Time (p_c), s		10.8		0.8		13.5						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.7									
HCM 2010 LOS			A									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy













04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	721	376	0	912	238	121	0	725	0	0	0
Future Volume (veh/h)	0	721	376	0	912	238	121	0	725	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	721	376	0	912	238	121	0	725			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2008	898	0	2282	593	1020	0	826			
Arrive On Green	0.00	0.57	0.57	0.00	0.57	0.57	0.30	0.00	0.30			
Sat Flow, veh/h	0	3632	1583	0	4190	1046	3442	0	2787			
Grp Volume(v), veh/h	0	721	376	0	768	382	121	0	725			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1678	1721	0	1393			
Q Serve(g_s), s	0.0	7.3	8.9	0.0	8.4	8.4	1.7	0.0	16.3			
Cycle Q Clear(g_c), s	0.0	7.3	8.9	0.0	8.4	8.4	1.7	0.0	16.3			
Prop In Lane	0.00		1.00	0.00		0.62	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2008	898	0	1923	952	1020	0	826			
V/C Ratio(X)	0.00	0.36	0.42	0.00	0.40	0.40	0.12	0.00	0.88			
Avail Cap(c_a), veh/h	0	2008	898	0	1923	952	1163	0	942			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.8	8.1	0.0	8.0	8.0	16.9	0.0	22.1			
Incr Delay (d2), s/veh	0.0	0.5	1.4	0.0	0.6	1.3	0.0	0.0	8.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.6	4.2	0.0	4.0	4.2	0.8	0.0	7.2			
LnGrp Delay(d),s/veh	0.0	8.3	9.5	0.0	8.6	9.3	17.0	0.0	30.4			
LnGrp LOS		A	A		A	A	B		C			
Approach Vol, veh/h		1097			1150			846				
Approach Delay, s/veh		8.7			8.8			28.5				
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		42.7				42.7		23.3				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		34.7				34.7		22.3				
Max Q Clear Time (g_c+I1), s		10.9				10.4		18.3				
Green Ext Time (p_c), s		14.4				16.2		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			14.2									
HCM 2010 LOS			B									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy






















04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	930	250	0	1344	180	245	0	601	0	0	0
Future Volume (veh/h)	0	930	250	0	1344	180	245	0	601	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	930	250	0	1344	180	245	0	601			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2143	959	0	2748	368	888	0	719			
Arrive On Green	0.00	0.61	0.61	0.00	0.61	0.61	0.26	0.00	0.26			
Sat Flow, veh/h	0	3632	1583	0	4706	608	3442	0	2787			
Grp Volume(v), veh/h	0	930	250	0	1004	520	245	0	601			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1756	1721	0	1393			
Q Serve(g_s), s	0.0	9.3	4.9	0.0	11.0	11.0	3.8	0.0	13.5			
Cycle Q Clear(g_c), s	0.0	9.3	4.9	0.0	11.0	11.0	3.8	0.0	13.5			
Prop In Lane	0.00		1.00	0.00		0.35	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2143	959	0	2053	1063	888	0	719			
V/C Ratio(X)	0.00	0.43	0.26	0.00	0.49	0.49	0.28	0.00	0.84			
Avail Cap(c_a), veh/h	0	2143	959	0	2053	1063	1111	0	899			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.0	6.1	0.0	7.3	7.3	19.6	0.0	23.2			
Incr Delay (d2), s/veh	0.0	0.6	0.7	0.0	0.8	1.6	0.1	0.0	5.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	4.7	2.3	0.0	5.3	5.7	1.8	0.0	5.7			
LnGrp Delay(d),s/veh	0.0	7.6	6.8	0.0	8.1	8.9	19.7	0.0	28.4			
LnGrp LOS		A	A		A	A	B		C			
Approach Vol, veh/h		1180			1524			846				
Approach Delay, s/veh		7.4			8.4			25.9				
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		45.3				45.3		20.7				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		35.7				35.7		21.3				
Max Q Clear Time (g_c+I1), s		11.3				13.0		15.5				
Green Ext Time (p_c), s		16.1				18.8		1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.2									
HCM 2010 LOS			B									



HCM 2010 Signalized Intersection Summary  
 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	479	806	124	54	736	169	175	160	50	48	99	337
Future Volume (veh/h)	479	806	124	54	736	169	175	160	50	48	99	337
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	479	806	124	54	736	169	175	160	50	48	99	337
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	679	2520	385	127	1041	237	200	349	106	122	147	731
Arrive On Green	0.38	0.57	0.57	0.07	0.25	0.25	0.11	0.13	0.13	0.07	0.08	0.08
Sat Flow, veh/h	1774	4452	681	1774	4145	942	1774	2678	811	1774	1863	1583
Grp Volume(v), veh/h	479	612	318	54	601	304	175	104	106	48	99	337
Grp Sat Flow(s),veh/h/ln	1774	1695	1743	1774	1695	1697	1774	1770	1720	1774	1863	1583
Q Serve(g_s), s	30.1	12.6	12.8	3.8	21.3	21.6	12.8	7.2	7.5	3.4	6.8	0.0
Cycle Q Clear(g_c), s	30.1	12.6	12.8	3.8	21.3	21.6	12.8	7.2	7.5	3.4	6.8	0.0
Prop In Lane	1.00		0.39	1.00		0.56	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	679	1919	987	127	851	426	200	230	224	122	147	731
V/C Ratio(X)	0.70	0.32	0.32	0.42	0.71	0.71	0.88	0.45	0.47	0.39	0.67	0.46
Avail Cap(c_a), veh/h	679	1919	987	148	1246	623	242	442	430	242	466	1002
HCM Platoon Ratio	1.00	1.00	1.00	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	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	15.2	15.2	58.6	45.0	45.1	57.7	53.1	53.2	58.8	59.1	24.3
Incr Delay (d2), s/veh	2.8	0.4	0.9	0.8	4.9	9.8	18.2	1.1	1.2	0.8	5.2	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	15.3	6.0	6.3	1.9	10.5	11.3	7.3	3.6	3.7	1.7	3.7	8.4
LnGrp Delay(d),s/veh	37.3	15.6	16.1	59.5	49.9	54.9	75.8	54.1	54.4	59.6	64.4	24.7
LnGrp LOS	D	B	B	E	D	D	E	D	D	E	E	C
Approach Vol, veh/h		1409			959			385			484	
Approach Delay, s/veh		23.1			52.0			64.1			36.3	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	80.2	20.9	16.4	56.1	38.7	14.1	23.2				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	5.8	14.8	14.8	8.8	32.1	23.6	5.4	9.5				
Green Ext Time (p_c), s	0.0	11.1	0.1	1.6	0.0	9.5	0.0	1.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			38.5									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	389	1114	175	74	851	123	213	195	77	134	227	480
Future Volume (veh/h)	389	1114	175	74	851	123	213	195	77	134	227	480
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	389	1114	175	74	851	123	213	195	77	134	227	480
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	488	2064	324	138	1187	171	237	512	195	159	284	678
Arrive On Green	0.28	0.47	0.47	0.08	0.26	0.26	0.13	0.20	0.20	0.09	0.15	0.15
Sat Flow, veh/h	1774	4434	696	1774	4493	646	1774	2507	957	1774	1863	1583
Grp Volume(v), veh/h	389	852	437	74	641	333	213	136	136	134	227	480
Grp Sat Flow(s),veh/h/ln	1774	1695	1740	1774	1695	1749	1774	1770	1694	1774	1863	1583
Q Serve(g_s), s	26.9	23.7	23.7	5.3	22.6	22.8	15.6	8.7	9.2	9.8	15.5	0.0
Cycle Q Clear(g_c), s	26.9	23.7	23.7	5.3	22.6	22.8	15.6	8.7	9.2	9.8	15.5	0.0
Prop In Lane	1.00		0.40	1.00		0.37	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	488	1578	810	138	896	462	237	362	346	159	284	678
V/C Ratio(X)	0.80	0.54	0.54	0.54	0.72	0.72	0.90	0.38	0.39	0.84	0.80	0.71
Avail Cap(c_a), veh/h	488	1578	810	148	1246	643	242	442	423	242	466	832
HCM Platoon Ratio	1.00	1.00	1.00	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	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	25.2	25.2	58.6	44.1	44.1	56.3	45.3	45.4	59.2	54.0	31.0
Incr Delay (d2), s/veh	8.3	1.3	2.6	1.2	4.9	9.3	22.4	0.4	0.5	9.7	5.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.3	11.3	11.9	2.7	11.2	12.2	9.1	4.3	4.4	5.2	8.4	14.7
LnGrp Delay(d),s/veh	52.7	26.5	27.8	59.8	48.9	53.5	78.7	45.7	45.9	68.9	59.1	33.1
LnGrp LOS	D	C	C	E	D	D	E	D	D	E	E	C
Approach Vol, veh/h		1678			1048			485			841	
Approach Delay, s/veh		32.9			51.1			60.2			45.8	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	67.0	23.6	26.2	41.8	40.4	16.8	33.0				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	7.3	25.7	17.6	17.5	28.9	24.8	11.8	11.2				
Green Ext Time (p_c), s	0.0	13.3	0.0	2.6	0.0	10.0	0.1	1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			43.6									
HCM 2010 LOS			D									
<b>Notes</b>												

























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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 4: McBean Pkwy & Valencia Blvd

04/18/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	497	869	135	406	1286	56	245	900	383	151	659	783
Future Volume (veh/h)	497	869	135	406	1286	56	245	900	383	151	659	783
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	497	869	135	406	1286	56	245	900	383	151	659	783
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1203	567	641	1612	693	417	1453	1316	416	1451	1112
Arrive On Green	0.11	0.24	0.24	0.19	0.32	0.32	0.12	0.29	0.29	0.04	0.09	0.09
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	497	869	135	406	1286	56	245	900	383	151	659	783
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	20.8	4.0	14.4	30.5	2.7	8.9	20.3	3.3	5.6	16.2	31.1
Cycle Q Clear(g_c), s	15.0	20.8	4.0	14.4	30.5	2.7	8.9	20.3	3.3	5.6	16.2	31.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1203	567	641	1612	693	417	1453	1316	416	1451	1112
V/C Ratio(X)	1.27	0.72	0.24	0.63	0.80	0.08	0.59	0.62	0.29	0.36	0.45	0.70
Avail Cap(c_a), veh/h	391	1560	678	641	1612	693	417	1502	1343	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	0.95	0.95	0.95	0.85	0.85	0.85
Uniform Delay (d), s/veh	58.5	46.4	11.6	49.5	41.2	21.6	54.9	40.9	8.0	58.4	50.1	42.1
Incr Delay (d2), s/veh	140.6	3.8	1.0	1.4	2.9	0.2	1.4	0.9	0.2	0.2	0.3	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	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.8	10.2	2.1	6.9	14.7	1.2	4.3	9.6	2.3	2.7	7.7	12.4
LnGrp Delay(d),s/veh	199.1	50.2	12.6	50.9	44.1	21.8	56.3	41.9	8.2	58.6	50.4	44.1
LnGrp LOS	F	D	B	D	D	C	E	D	A	E	D	D
Approach Vol, veh/h		1501			1748			1528			1593	
Approach Delay, s/veh		96.1			45.0			35.7			48.1	
Approach LOS		F			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	47.8	20.9	43.2	30.6	37.2	21.0	43.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	6.0	* 6	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	* 41	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	32.5	7.6	22.3	16.4	22.8	10.9	33.1				
Green Ext Time (p_c), s	0.0	6.1	0.1	10.0	0.0	8.5	0.2	4.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			55.6									
HCM 2010 LOS			E									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 4: McBean Pkwy & Valencia Blvd

























04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	611	1343	207	429	1244	212	195	1119	561	251	1137	777
Future Volume (veh/h)	611	1343	207	429	1244	212	195	1119	561	251	1137	777
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	611	1343	207	429	1244	212	195	1119	561	251	1137	777
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1588	686	391	1588	686	417	1475	1125	417	1475	1125
Arrive On Green	0.11	0.31	0.31	0.11	0.31	0.31	0.12	0.29	0.29	0.04	0.10	0.10
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	611	1343	207	429	1244	212	195	1119	561	251	1137	777
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	32.6	11.2	15.0	29.4	11.6	7.0	26.4	19.8	9.5	28.8	30.8
Cycle Q Clear(g_c), s	15.0	32.6	11.2	15.0	29.4	11.6	7.0	26.4	19.8	9.5	28.8	30.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1588	686	391	1588	686	417	1475	1125	417	1475	1125
V/C Ratio(X)	1.56	0.85	0.30	1.10	0.78	0.31	0.47	0.76	0.50	0.60	0.77	0.69
Avail Cap(c_a), veh/h	391	1588	686	391	1588	686	417	1502	1140	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.42	0.42	0.42	0.84	0.84	0.84	0.45	0.45	0.45
Uniform Delay (d), s/veh	58.5	42.4	24.4	58.5	41.3	24.5	54.0	42.7	29.4	60.2	55.4	41.6
Incr Delay (d2), s/veh	265.2	5.7	1.1	59.6	1.7	0.5	0.3	2.1	0.5	0.8	1.3	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	21.5	16.1	5.1	10.4	14.0	5.1	3.3	12.6	7.7	4.6	13.7	12.0
LnGrp Delay(d),s/veh	323.7	48.1	25.5	118.1	43.0	24.9	54.3	44.8	29.9	61.0	56.7	42.6
LnGrp LOS	F	D	C	F	D	C	D	D	C	E	E	D
Approach Vol, veh/h		2161			1885			1875			2165	
Approach Delay, s/veh		123.9			58.1			41.3			52.1	
Approach LOS		F			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	47.2	21.0	43.8	20.0	47.2	21.0	43.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	5.0	6.0	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	40.5	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	31.4	11.5	28.4	17.0	34.6	9.0	32.8				
Green Ext Time (p_c), s	0.0	7.0	0.2	8.4	0.0	4.9	0.2	5.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			70.2									
HCM 2010 LOS			E									

# HCM 2010 Signalized Intersection Summary

## 5: Magic Mtn Pkwy & McBean Pkwy

04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	439	481	89	56	414	180	65	1010	76	286	1573	751
Future Volume (veh/h)	439	481	89	56	414	180	65	1010	76	286	1573	751
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	439	481	89	56	414	180	65	1010	0	286	1573	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	653	649	291	295	668	400	379	2837	701	417	2909	719
Arrive On Green	0.13	0.18	0.18	0.09	0.13	0.13	0.04	0.15	0.00	0.12	0.45	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	439	481	89	56	414	180	65	1010	0	286	1573	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	11.0	17.0	6.4	2.0	10.2	8.3	2.4	18.7	0.0	10.5	23.4	0.0
Cycle Q Clear(g_c), s	11.0	17.0	6.4	2.0	10.2	8.3	2.4	18.7	0.0	10.5	23.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	653	649	291	295	668	400	379	2837	701	417	2909	719
V/C Ratio(X)	0.67	0.74	0.31	0.19	0.62	0.45	0.17	0.36	0.00	0.69	0.54	0.00
Avail Cap(c_a), veh/h	910	1153	516	391	1310	600	417	2837	701	417	2909	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	0.59	0.59	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.7	50.9	46.6	56.1	54.2	20.1	57.8	39.4	0.0	55.6	26.1	0.0
Incr Delay (d2), s/veh	0.5	2.9	1.0	0.1	1.4	1.2	0.0	0.2	0.0	3.9	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	5.1	8.5	2.9	1.0	4.8	3.8	1.2	8.4	0.0	5.2	10.5	0.0
LnGrp Delay(d),s/veh	55.2	53.8	47.6	56.2	55.6	21.3	57.8	39.6	0.0	59.5	26.8	0.0
LnGrp LOS	E	D	D	E	E	C	E	D		E	C	
Approach Vol, veh/h		1009			650			1075			1859	
Approach Delay, s/veh		53.8			46.2			40.7			31.8	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.3	30.2	19.5	65.9	23.2	23.3	21.0	64.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	4.0	19.0	4.4	25.4	13.0	12.2	12.5	20.7				
Green Ext Time (p_c), s	0.0	5.3	0.1	8.5	0.7	5.2	0.2	8.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			40.8									
HCM 2010 LOS			D									
<b>Notes</b>												



























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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 5: Magic Mtn Pkwy & McBean Pkwy

04/18/2019

































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	920	849	194	274	576	406	167	1759	178	347	1740	394
Future Volume (veh/h)	920	849	194	274	576	406	167	1759	178	347	1740	394
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	920	849	194	274	576	406	167	1759	0	347	1740	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	917	1022	457	339	999	503	416	2082	514	417	2083	515
Arrive On Green	0.18	0.29	0.29	0.10	0.20	0.20	0.24	0.65	0.00	0.12	0.33	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	920	849	194	274	576	406	167	1759	0	347	1740	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	24.2	29.6	13.1	10.3	13.5	16.9	5.4	28.1	0.0	13.0	33.2	0.0
Cycle Q Clear(g_c), s	24.2	29.6	13.1	10.3	13.5	16.9	5.4	28.1	0.0	13.0	33.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	917	1022	457	339	999	503	416	2082	514	417	2083	515
V/C Ratio(X)	1.00	0.83	0.42	0.81	0.58	0.81	0.40	0.84	0.00	0.83	0.84	0.00
Avail Cap(c_a), veh/h	917	1153	516	391	1310	600	417	2082	514	417	2083	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.29	0.29	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.9	43.9	38.0	58.3	48.1	16.8	46.0	20.5	0.0	56.7	41.3	0.0
Incr Delay (d2), s/veh	30.6	5.4	1.1	7.8	0.8	6.9	0.1	1.3	0.0	12.6	4.1	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	13.7	15.3	5.8	5.3	6.4	8.3	2.6	12.4	0.0	6.9	15.2	0.0
LnGrp Delay(d),s/veh	84.6	49.3	39.1	66.0	48.8	23.7	46.1	21.9	0.0	69.3	45.4	0.0
LnGrp LOS	F	D	D	E	D	C	D	C		E	D	
Approach Vol, veh/h		1963			1256			1926			2087	
Approach Delay, s/veh		64.8			44.5			24.0			49.4	
Approach LOS		E			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	44.1	21.0	48.9	30.2	31.9	21.0	48.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	12.3	31.6	7.4	35.2	26.2	18.9	15.0	30.1				
Green Ext Time (p_c), s	0.1	6.5	0.2	0.7	0.0	7.1	0.1	5.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			46.0									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/18/2019

































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	173	662	76	194	892	122	131	249	175	129	389	340
Future Volume (veh/h)	173	662	76	194	892	122	131	249	175	129	389	340
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	173	662	76	194	892	122	131	249	175	129	389	340
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	931	106	564	1957	267	160	793	355	160	793	498
Arrive On Green	0.09	0.20	0.20	0.32	0.43	0.43	0.09	0.22	0.22	0.09	0.22	0.22
Sat Flow, veh/h	3442	4633	527	1774	4527	617	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	173	483	255	194	667	347	131	249	175	129	389	340
Grp Sat Flow(s),veh/h/ln	1721	1695	1770	1774	1695	1754	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.4	17.5	17.8	11.1	18.4	18.5	9.6	7.8	6.1	9.4	12.6	24.7
Cycle Q Clear(g_c), s	6.4	17.5	17.8	11.1	18.4	18.5	9.6	7.8	6.1	9.4	12.6	24.7
Prop In Lane	1.00		0.30	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	682	356	564	1465	758	160	793	355	160	793	498
V/C Ratio(X)	0.55	0.71	0.72	0.34	0.46	0.46	0.82	0.31	0.49	0.81	0.49	0.68
Avail Cap(c_a), veh/h	600	989	516	564	1465	758	215	885	396	215	885	540
HCM Platoon Ratio	1.00	1.00	1.00	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	0.90	0.90	0.90	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.5	49.1	49.2	34.5	26.5	26.5	59.0	42.7	10.2	58.9	44.6	39.5
Incr Delay (d2), s/veh	0.6	6.1	11.7	0.1	0.9	1.8	12.4	0.4	1.8	10.5	0.8	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	3.1	8.8	9.9	5.5	8.8	9.3	5.2	3.8	5.1	5.1	6.3	11.3
LnGrp Delay(d),s/veh	58.0	55.3	61.0	34.6	27.4	28.3	71.4	43.1	12.0	69.4	45.4	43.3
LnGrp LOS	E	E	E	C	C	C	E	D	B	E	D	D
Approach Vol, veh/h		911			1208			555			858	
Approach Delay, s/veh		57.4			28.8			40.0			48.2	
Approach LOS		E			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	62.5	16.9	35.6	47.5	32.0	16.9	35.6				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	38.5	16.0	33.0	23.0	* 39	16.0	33.0				
Max Q Clear Time (g_c+I1), s	8.4	20.5	11.4	9.8	13.1	19.8	11.6	26.7				
Green Ext Time (p_c), s	0.2	9.2	0.1	3.4	0.2	6.8	0.1	2.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				42.6								
HCM 2010 LOS				D								
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.  
User approved changes to right turn type.




















HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	351	1018	119	160	823	111	169	405	266	186	263	248
Future Volume (veh/h)	351	1018	119	160	823	111	169	405	266	186	263	248
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	351	1018	119	160	823	111	169	405	266	186	263	248
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1893	221	186	1796	241	194	721	323	211	755	525
Arrive On Green	0.12	0.41	0.41	0.10	0.40	0.40	0.11	0.20	0.20	0.12	0.21	0.21
Sat Flow, veh/h	3442	4619	539	1774	4537	609	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	351	747	390	160	614	320	169	405	266	186	263	248
Grp Sat Flow(s),veh/h/ln	1721	1695	1768	1774	1695	1755	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	13.2	22.0	22.1	11.7	17.6	17.8	12.4	13.6	21.2	13.6	8.3	16.4
Cycle Q Clear(g_c), s	13.2	22.0	22.1	11.7	17.6	17.8	12.4	13.6	21.2	13.6	8.3	16.4
Prop In Lane	1.00		0.30	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	408	1389	724	186	1342	695	194	721	323	211	755	525
V/C Ratio(X)	0.86	0.54	0.54	0.86	0.46	0.46	0.87	0.56	0.82	0.88	0.35	0.47
Avail Cap(c_a), veh/h	600	1389	724	309	1342	695	269	885	396	269	885	584
HCM Platoon Ratio	1.00	1.00	1.00	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	0.88	0.88	0.88	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	57.1	29.5	29.5	58.2	29.4	29.5	57.9	47.2	50.3	57.2	44.1	34.9
Incr Delay (d2), s/veh	5.9	1.5	2.9	5.5	1.0	1.9	15.6	1.2	13.2	19.3	0.5	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	6.6	10.6	11.3	6.0	8.5	9.0	6.9	6.8	10.5	7.8	4.1	7.3
LnGrp Delay(d),s/veh	63.0	31.0	32.4	63.7	30.4	31.4	73.4	48.4	63.5	76.5	44.6	36.0
LnGrp LOS	E	C	C	E	C	C	E	D	E	E	D	D
Approach Vol, veh/h		1488			1094			840			697	
Approach Delay, s/veh		38.9			35.6			58.2			50.1	
Approach LOS		D			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.6	57.8	20.7	32.9	18.8	59.6	19.4	34.2				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.0	5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	34.5	20.0	33.0	23.0	34.5	20.0	33.0				
Max Q Clear Time (g_c+I1), s	15.2	19.8	15.6	23.2	13.7	24.1	14.4	18.4				
Green Ext Time (p_c), s	0.4	7.5	0.1	3.7	0.1	6.9	0.1	3.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			43.8									
HCM 2010 LOS			D									




















HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd

04/17/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	19	19	127	6	191	154	364	4	8	574	76
Future Volume (veh/h)	13	19	19	127	6	191	154	364	4	8	574	76
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	13	19	19	127	6	191	154	364	4	8	574	76
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	61	42	200	8	424	180	2129	23	31	1602	212
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.10	0.59	0.59	0.02	0.51	0.51
Sat Flow, veh/h	33	229	155	549	31	1583	1774	3586	39	1774	3144	415
Grp Volume(v), veh/h	51	0	0	133	0	191	154	179	189	8	322	328
Grp Sat Flow(s),veh/h/ln	417	0	0	580	0	1583	1774	1770	1856	1774	1770	1789
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	13.3	11.3	6.1	6.1	0.6	14.4	14.5
Cycle Q Clear(g_c), s	33.3	0.0	0.0	32.4	0.0	13.3	11.3	6.1	6.1	0.6	14.4	14.5
Prop In Lane	0.25		0.37	0.95		1.00	1.00		0.02	1.00		0.23
Lane Grp Cap(c), veh/h	146	0	0	209	0	424	180	1050	1102	31	902	912
V/C Ratio(X)	0.35	0.00	0.00	0.64	0.00	0.45	0.86	0.17	0.17	0.26	0.36	0.36
Avail Cap(c_a), veh/h	235	0	0	289	0	516	376	1050	1102	202	902	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.89	0.00	0.89	0.88	0.88	0.88	0.84	0.84	0.84
Uniform Delay (d), s/veh	39.2	0.0	0.0	47.1	0.0	40.2	58.4	12.1	12.1	64.0	19.4	19.4
Incr Delay (d2), s/veh	1.4	0.0	0.0	2.9	0.0	0.7	4.0	0.3	0.3	1.4	0.9	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	0.0	4.9	0.0	5.9	5.7	3.0	3.2	0.3	7.3	7.4
LnGrp Delay(d),s/veh	40.6	0.0	0.0	50.0	0.0	40.9	62.3	12.4	12.4	65.4	20.4	20.4
LnGrp LOS	D			D		D	E	B	B	E	C	C
Approach Vol, veh/h		51			324			522			658	
Approach Delay, s/veh		40.6			44.6			27.2			20.9	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	84.3		40.4	18.4	73.2		40.4				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	2.6	8.1		34.4	13.3	16.5		35.3				
Green Ext Time (p_c), s	0.0	3.7		0.9	0.2	6.6		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				28.6								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd
































04/18/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	9	14	18	91	23	219	238	629	23	21	424	84
Future Volume (veh/h)	9	14	18	91	23	219	238	629	23	21	424	84
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	9	14	18	91	23	219	238	629	23	21	424	84
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	62	54	156	34	313	264	2245	82	65	1571	309
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.15	0.64	0.64	0.04	0.53	0.53
Sat Flow, veh/h	38	313	274	544	174	1583	1774	3483	127	1774	2950	580
Grp Volume(v), veh/h	41	0	0	114	0	219	238	319	333	21	253	255
Grp Sat Flow(s),veh/h/ln	625	0	0	718	0	1583	1774	1770	1840	1774	1770	1760
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	17.0	17.4	10.3	10.3	1.5	10.3	10.4
Cycle Q Clear(g_c), s	23.6	0.0	0.0	23.3	0.0	17.0	17.4	10.3	10.3	1.5	10.3	10.4
Prop In Lane	0.22		0.44	0.80		1.00	1.00		0.07	1.00		0.33
Lane Grp Cap(c), veh/h	157	0	0	191	0	313	264	1141	1186	65	943	938
V/C Ratio(X)	0.26	0.00	0.00	0.60	0.00	0.70	0.90	0.28	0.28	0.32	0.27	0.27
Avail Cap(c_a), veh/h	353	0	0	377	0	516	376	1141	1186	202	943	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.70	0.00	0.70	0.64	0.64	0.64	0.94	0.94	0.94
Uniform Delay (d), s/veh	44.6	0.0	0.0	51.4	0.0	49.3	55.3	10.2	10.2	62.0	16.8	16.9
Incr Delay (d2), s/veh	0.9	0.0	0.0	2.1	0.0	2.0	10.6	0.4	0.4	1.0	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	4.2	0.0	7.6	9.3	5.2	5.4	0.8	5.2	5.2
LnGrp Delay(d),s/veh	45.5	0.0	0.0	53.5	0.0	51.3	65.8	10.6	10.5	63.0	17.5	17.5
LnGrp LOS	D			D		D	E	B	B	E	B	B
Approach Vol, veh/h		41			333			890			529	
Approach Delay, s/veh		45.5			52.1			25.3			19.3	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	90.9		31.3	24.6	76.1		31.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	3.5	12.3		25.3	19.4	12.4		25.6				
Green Ext Time (p_c), s	0.0	7.3		1.2	0.2	5.1		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				29.0								
HCM 2010 LOS				C								



HCM 2010 Signalized Intersection Summary  
 8: Valley St/Orchard Village Rd & Lyons Ave

05/01/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  			 		 	 	
Traffic Volume (veh/h)	213	779	59	73	980	447	85	151	97	459	96	267
Future Volume (veh/h)	213	779	59	73	980	447	85	151	97	459	96	267
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	213	779	59	73	980	447	85	151	97	459	96	267
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1665	745	138	2363	1068	188	295	132	721	355	302
Arrive On Green	0.08	0.47	0.47	0.08	0.46	0.46	0.11	0.08	0.08	0.21	0.19	0.19
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	213	779	59	73	980	447	85	151	97	459	96	267
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	8.0	19.7	2.7	5.2	16.9	6.3	5.9	5.4	6.5	16.1	5.8	21.7
Cycle Q Clear(g_c), s	8.0	19.7	2.7	5.2	16.9	6.3	5.9	5.4	6.5	16.1	5.8	21.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	1665	745	138	2363	1068	188	295	132	721	355	302
V/C Ratio(X)	0.74	0.47	0.08	0.53	0.41	0.42	0.45	0.51	0.74	0.64	0.27	0.88
Avail Cap(c_a), veh/h	417	1665	745	175	2363	1068	282	1032	462	721	557	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	0.81	0.81	0.81	1.00	1.00	1.00	0.77	0.77	0.77
Uniform Delay (d), s/veh	59.1	23.7	19.2	58.6	23.4	2.8	55.4	57.9	40.6	47.6	45.6	52.0
Incr Delay (d2), s/veh	1.6	0.8	0.2	1.0	0.4	1.0	1.7	1.4	7.7	1.1	0.4	10.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	9.8	1.2	2.6	8.0	3.4	3.0	2.7	3.5	7.8	3.0	10.4
LnGrp Delay(d),s/veh	60.7	24.6	19.4	59.5	23.9	3.8	57.1	59.3	48.2	48.7	46.0	62.4
LnGrp LOS	E	C	B	E	C	A	E	E	D	D	D	E
Approach Vol, veh/h		1051			1500			333			822	
Approach Delay, s/veh		31.6			19.6			55.5			52.8	
Approach LOS		C			B			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	66.3	33.2	16.5	15.2	67.1	19.0	30.7				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	10.0	18.9	18.1	8.5	7.2	21.7	7.9	23.7				
Green Ext Time (p_c), s	0.2	10.7	0.4	1.2	0.0	7.2	0.1	1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.6									
HCM 2010 LOS			C									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 8: Valley St/Orchard Village Rd & Lyons Ave
























05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	317	1029	139	108	1076	328	123	134	130	391	141	216
Future Volume (veh/h)	317	1029	139	108	1076	328	123	134	130	391	141	216
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	317	1029	139	108	1076	328	123	134	130	391	141	216
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	1757	786	145	2397	1018	188	323	144	590	299	254
Arrive On Green	0.11	0.50	0.50	0.03	0.16	0.16	0.11	0.09	0.09	0.17	0.16	0.16
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	317	1029	139	108	1076	328	123	134	130	391	141	216
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	12.0	27.2	6.4	8.0	25.4	6.8	8.8	4.7	8.8	14.0	9.1	17.5
Cycle Q Clear(g_c), s	12.0	27.2	6.4	8.0	25.4	6.8	8.8	4.7	8.8	14.0	9.1	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	368	1757	786	145	2397	1018	188	323	144	590	299	254
V/C Ratio(X)	0.86	0.59	0.18	0.74	0.45	0.32	0.65	0.42	0.90	0.66	0.47	0.85
Avail Cap(c_a), veh/h	417	1757	786	175	2397	1018	282	1032	462	590	557	474
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	0.78	0.78	0.78	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	58.0	23.6	18.3	62.9	40.2	5.8	56.7	56.7	40.2	51.1	50.3	53.9
Incr Delay (d2), s/veh	11.4	1.1	0.4	7.8	0.5	0.7	3.8	0.9	17.5	1.7	1.1	7.2
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	6.3	13.6	2.9	4.2	12.0	4.3	4.5	2.3	5.0	6.8	4.7	8.2
LnGrp Delay(d),s/veh	69.3	24.7	18.7	70.7	40.6	6.4	60.5	57.5	57.6	52.8	51.4	61.1
LnGrp LOS	E	C	B	E	D	A	E	E	E	D	D	E
Approach Vol, veh/h		1485			1512			387			748	
Approach Delay, s/veh		33.7			35.4			58.5			55.0	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.1	67.2	28.1	17.5	15.8	70.5	19.0	26.7				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	14.0	27.4	16.0	10.8	10.0	29.2	10.8	19.5				
Green Ext Time (p_c), s	0.1	5.9	0.4	1.2	0.0	6.1	0.2	1.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			40.5									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
























HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/17/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	248	926	177	58	814	184	151	163	327	168	286	117
Future Volume (veh/h)	248	926	177	58	814	184	151	163	327	168	286	117
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	248	926	177	58	814	184	151	163	327	168	286	117
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	1489	666	130	1206	683	312	408	365	193	880	394
Arrive On Green	0.15	0.42	0.42	0.07	0.34	0.34	0.09	0.23	0.23	0.11	0.25	0.25
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1770	1583	1774	3539	1583
Grp Volume(v), veh/h	248	926	177	58	814	184	151	163	327	168	286	117
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	18.2	27.1	9.6	4.1	26.0	9.9	5.5	10.3	26.4	12.3	8.7	7.9
Cycle Q Clear(g_c), s	18.2	27.1	9.6	4.1	26.0	9.9	5.5	10.3	26.4	12.3	8.7	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	1489	666	130	1206	683	312	408	365	193	880	394
V/C Ratio(X)	0.91	0.62	0.27	0.45	0.67	0.27	0.48	0.40	0.90	0.87	0.32	0.30
Avail Cap(c_a), veh/h	296	1489	666	228	1206	683	521	456	408	269	912	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)	0.88	0.88	0.88	0.71	0.71	0.71	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	30.0	24.9	58.6	37.2	24.1	57.1	43.1	49.3	57.9	40.5	40.2
Incr Delay (d2), s/veh	25.8	1.7	0.9	0.6	2.2	0.7	0.4	1.1	21.8	15.3	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	13.6	4.4	2.1	13.0	4.4	2.6	5.1	13.7	6.8	4.3	3.5
LnGrp Delay(d),s/veh	80.8	31.7	25.8	59.2	39.4	24.8	57.5	44.1	71.1	73.2	40.9	40.9
LnGrp LOS	F	C	C	E	D	C	E	D	E	E	D	D
Approach Vol, veh/h		1351			1056			641			571	
Approach Delay, s/veh		40.0			38.0			61.0			50.4	
Approach LOS		D			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.7	61.5	19.4	36.4	25.2	51.0	17.0	38.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	39.0	20.0	34.0	22.0	34.0	20.0	34.0				
Max Q Clear Time (g_c+I1), s	6.1	29.1	14.3	28.4	20.2	28.0	7.5	10.7				
Green Ext Time (p_c), s	0.0	6.3	0.1	2.0	0.1	3.8	0.2	3.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			44.8									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	136	795	169	111	946	235	238	340	174	91	210	68
Future Volume (veh/h)	136	795	169	111	946	235	238	340	174	91	210	68
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	136	795	169	111	946	235	238	340	174	91	210	68
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	1684	754	145	1653	883	313	429	215	156	653	292
Arrive On Green	0.09	0.48	0.48	0.08	0.47	0.47	0.09	0.19	0.19	0.09	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2283	1147	1774	3539	1583
Grp Volume(v), veh/h	136	795	169	111	946	235	238	262	252	91	210	68
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1660	1774	1770	1583
Q Serve(g_s), s	10.0	20.0	8.3	8.1	25.7	10.2	8.9	18.6	19.2	6.5	6.8	4.8
Cycle Q Clear(g_c), s	10.0	20.0	8.3	8.1	25.7	10.2	8.9	18.6	19.2	6.5	6.8	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		1.00
Lane Grp Cap(c), veh/h	161	1684	754	145	1653	883	313	332	312	156	653	292
V/C Ratio(X)	0.84	0.47	0.22	0.76	0.57	0.27	0.76	0.79	0.81	0.59	0.32	0.23
Avail Cap(c_a), veh/h	296	1684	754	228	1653	883	391	456	428	202	912	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)	0.86	0.86	0.86	0.62	0.62	0.62	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	23.4	20.3	59.3	25.6	15.1	58.6	51.1	51.3	57.9	46.6	45.8
Incr Delay (d2), s/veh	3.9	0.8	0.6	1.9	0.9	0.5	4.8	8.4	10.2	1.3	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	5.0	9.9	3.7	4.1	12.7	4.5	4.4	9.9	9.7	3.2	3.4	2.2
LnGrp Delay(d),s/veh	63.0	24.2	20.9	61.3	26.5	15.6	63.4	59.5	61.6	59.2	47.1	46.5
LnGrp LOS	E	C	C	E	C	B	E	E	E	E	D	D
Approach Vol, veh/h		1100			1292			752			369	
Approach Delay, s/veh		28.5			27.5			61.4			50.0	
Approach LOS		C			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	68.8	16.6	30.8	17.0	67.6	17.0	30.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	44.0	15.0	34.0	22.0	39.0	15.0	34.0				
Max Q Clear Time (g_c+I1), s	10.1	22.0	8.5	21.2	12.0	27.7	10.9	8.8				
Green Ext Time (p_c), s	0.1	9.3	0.0	3.6	0.1	7.3	0.2	2.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			37.4									
HCM 2010 LOS			D									

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

04/18/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗↗		↘↘	↗↗↗	↗	↘	↗	↗↗	↘	↗↗	
Traffic Volume (vph)	52	539	282	551	516	101	416	79	694	30	40	35
Future Volume (vph)	52	539	282	551	516	101	416	79	694	30	40	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4823		3433	5085	1583	1681	1711	2787	1610	3156	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4823		3433	5085	1583	1681	1711	2787	1610	3156	
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)	52	539	282	551	516	101	416	79	694	30	40	35
RTOR Reduction (vph)	0	71	0	0	0	56	0	0	369	0	32	0
Lane Group Flow (vph)	52	750	0	551	516	45	245	250	325	27	46	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	8.4	37.6		30.1	59.3	59.3	31.7	31.7	61.8	9.6	9.6	
Effective Green, g (s)	8.4	37.6		30.1	59.3	59.3	31.7	31.7	61.8	9.6	9.6	
Actuated g/C Ratio	0.06	0.28		0.23	0.45	0.45	0.24	0.24	0.47	0.07	0.07	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	112	1373		782	2284	711	403	410	1304	117	229	
v/s Ratio Prot	0.03	c0.16		c0.16	0.10		0.15	c0.15	0.06	c0.02	0.01	
v/s Ratio Perm						0.03			0.06			
v/c Ratio	0.46	0.55		0.70	0.23	0.06	0.61	0.61	0.25	0.23	0.20	
Uniform Delay, d1	59.6	40.0		46.9	22.3	20.6	44.6	44.6	21.1	57.7	57.6	
Progression Factor	0.73	0.99		0.58	0.55	0.58	0.81	0.81	7.19	1.00	1.00	
Incremental Delay, d2	1.1	1.5		2.7	0.2	0.2	2.4	2.3	0.1	1.0	0.4	
Delay (s)	44.5	41.0		29.9	12.5	12.2	38.4	38.4	152.0	58.7	58.0	
Level of Service	D	D		C	B	B	D	D	F	E	E	
Approach Delay (s)		41.2			20.6			104.7			58.2	
Approach LOS		D			C			F			E	

### Intersection Summary

HCM 2000 Control Delay	57.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

04/19/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘↘	↑↑↑	↗	↘	↗	↗↗	↘	↑↑	
Traffic Volume (vph)	21	840	435	827	668	52	293	25	759	96	91	94
Future Volume (vph)	21	840	435	827	668	52	293	25	759	96	91	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4825		3433	5085	1583	1681	1698	2787	1610	3137	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4825		3433	5085	1583	1681	1698	2787	1610	3137	
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)	21	840	435	827	668	52	293	25	759	96	91	94
RTOR Reduction (vph)	0	71	0	0	0	24	0	0	337	0	84	0
Lane Group Flow (vph)	21	1204	0	827	668	28	158	160	422	86	111	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	6.0	36.4		40.6	71.0	71.0	18.1	18.1	58.7	13.9	13.9	
Effective Green, g (s)	6.0	36.4		40.6	71.0	71.0	18.1	18.1	58.7	13.9	13.9	
Actuated g/C Ratio	0.05	0.28		0.31	0.54	0.54	0.14	0.14	0.44	0.11	0.11	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	80	1330		1055	2735	851	230	232	1239	169	330	
v/s Ratio Prot	0.01	c0.25		c0.24	0.13		0.09	c0.09	0.10	c0.05	0.04	
v/s Ratio Perm						0.02			0.05			
v/c Ratio	0.26	0.91		0.78	0.24	0.03	0.69	0.69	0.34	0.51	0.34	
Uniform Delay, d1	60.9	46.1		41.7	16.2	14.3	54.3	54.3	24.0	55.8	54.8	
Progression Factor	1.42	0.85		1.49	0.66	1.00	0.83	0.83	3.16	1.00	1.00	
Incremental Delay, d2	0.5	9.0		3.7	0.2	0.1	7.3	7.3	0.1	2.4	0.6	
Delay (s)	87.2	48.2		65.6	10.9	14.4	52.5	52.5	75.8	58.2	55.4	
Level of Service	F	D		E	B	B	D	D	E	E	E	
Approach Delay (s)		48.8			40.3			69.0			56.2	
Approach LOS		D			D			E			E	

### Intersection Summary

























HCM 2000 Control Delay	51.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/17/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	381	419	33	647	42	437	130	26	37	173	188
Future Volume (veh/h)	125	381	419	33	647	42	437	130	26	37	173	188
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	125	381	419	33	647	42	437	130	26	37	173	188
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	1889	1071	85	1762	788	491	350	298	140	232	197
Arrive On Green	0.14	0.89	0.89	0.05	0.50	0.50	0.14	0.19	0.19	0.08	0.12	0.12
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	125	381	419	33	647	42	437	130	26	37	173	188
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	9.1	1.9	1.3	2.4	14.8	1.8	16.5	8.0	1.8	2.6	11.8	12.7
Cycle Q Clear(g_c), s	9.1	1.9	1.3	2.4	14.8	1.8	16.5	8.0	1.8	2.6	11.8	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	1889	1071	85	1762	788	491	350	298	140	232	197
V/C Ratio(X)	0.84	0.20	0.39	0.39	0.37	0.05	0.89	0.37	0.09	0.26	0.75	0.95
Avail Cap(c_a), veh/h	255	1889	1071	215	1762	788	574	607	516	242	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	3.4	0.6	61.0	20.4	17.1	55.6	46.8	44.2	57.2	55.8	38.4
Incr Delay (d2), s/veh	4.1	0.2	0.9	1.1	0.6	0.1	13.2	0.7	0.1	0.4	4.8	20.7
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	4.6	0.9	0.9	1.2	7.3	0.8	8.7	4.2	0.8	1.3	6.4	7.1
LnGrp Delay(d),s/veh	60.0	3.6	1.4	62.0	20.9	17.2	68.8	47.4	44.4	57.6	60.5	59.1
LnGrp LOS	E	A	A	E	C	B	E	D	D	E	E	E
Approach Vol, veh/h		925			722			593			398	
Approach Delay, s/veh		10.3			22.6			63.1			59.6	
Approach LOS		B			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	75.5	23.8	21.4	16.0	70.7	15.4	29.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	16.0	35.0	22.0	39.0	19.0	32.0	18.0	43.0				
Max Q Clear Time (g_c+I1), s	4.4	3.9	18.5	14.7	11.1	16.8	4.6	10.0				
Green Ext Time (p_c), s	0.0	7.6	0.4	1.7	0.1	5.7	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.0									
HCM 2010 LOS			C									























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	631	658	28	727	35	510	113	36	29	138	143
Future Volume (veh/h)	139	631	658	28	727	35	510	113	36	29	138	143
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	139	631	658	28	727	35	510	113	36	29	138	143
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	1921	1119	78	1752	784	565	359	305	123	183	155
Arrive On Green	0.15	0.91	0.91	0.04	0.50	0.50	0.16	0.19	0.19	0.07	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	139	631	658	28	727	35	510	113	36	29	138	143
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	10.1	3.1	3.0	2.0	17.2	1.5	19.2	6.9	2.5	2.0	9.5	9.6
Cycle Q Clear(g_c), s	10.1	3.1	3.0	2.0	17.2	1.5	19.2	6.9	2.5	2.0	9.5	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	162	1921	1119	78	1752	784	565	359	305	123	183	155
V/C Ratio(X)	0.86	0.33	0.59	0.36	0.41	0.04	0.90	0.32	0.12	0.24	0.76	0.92
Avail Cap(c_a), veh/h	215	1921	1119	175	1752	784	652	607	516	282	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	3.0	0.4	61.3	21.2	17.2	54.1	45.8	44.0	58.1	58.0	39.2
Incr Delay (d2), s/veh	14.3	0.3	1.7	1.0	0.7	0.1	13.6	0.5	0.2	0.4	6.3	19.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	1.6	1.2	1.0	8.6	0.7	10.2	3.6	1.1	1.0	5.2	5.5
LnGrp Delay(d),s/veh	69.4	3.3	2.1	62.4	21.9	17.3	67.8	46.3	44.2	58.5	64.2	58.3
LnGrp LOS	E	A	A	E	C	B	E	D	D	E	E	E
Approach Vol, veh/h		1428			790			659			310	
Approach Delay, s/veh		9.2			23.1			62.8			61.0	
Approach LOS		A			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	76.6	26.7	17.9	17.1	70.3	14.2	30.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	35.0	25.0	39.0	16.0	32.0	21.0	43.0				
Max Q Clear Time (g_c+I1), s	4.0	5.1	21.2	11.6	12.1	19.2	4.0	8.9				
Green Ext Time (p_c), s	0.0	13.8	0.5	1.3	0.1	5.7	0.0	0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			28.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd























04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	193	37	207	402	63	36	892	124	24	1823	561
Future Volume (veh/h)	153	193	37	207	402	63	36	892	124	24	1823	561
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	153	193	37	207	402	63	36	892	124	24	1823	561
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	499	94	313	516	80	118	1234	384	576	2583	1668
Arrive On Green	0.09	0.17	0.17	0.09	0.17	0.17	0.07	0.24	0.24	0.32	0.51	0.51
Sat Flow, veh/h	3442	2974	560	3442	3070	478	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	153	113	117	207	230	235	36	892	124	24	1823	561
Grp Sat Flow(s),veh/h/ln	1721	1770	1764	1721	1770	1778	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	5.6	7.5	7.8	7.7	16.4	16.7	2.6	21.3	6.5	1.2	36.3	13.4
Cycle Q Clear(g_c), s	5.6	7.5	7.8	7.7	16.4	16.7	2.6	21.3	6.5	1.2	36.3	13.4
Prop In Lane	1.00		0.32	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	297	296	313	297	299	118	1234	384	576	2583	1668
V/C Ratio(X)	0.49	0.38	0.39	0.66	0.77	0.78	0.30	0.72	0.32	0.04	0.71	0.34
Avail Cap(c_a), veh/h	600	456	454	600	456	458	161	1580	492	576	2583	1668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	48.8	48.9	58.0	52.5	52.6	58.7	45.9	24.4	30.5	24.9	13.3
Incr Delay (d2), s/veh	0.4	1.1	1.2	0.9	7.3	7.8	0.5	3.2	1.9	0.0	1.6	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	2.7	3.8	3.9	3.7	8.7	8.9	1.3	10.4	3.6	0.6	17.3	5.3
LnGrp Delay(d),s/veh	57.5	49.9	50.1	58.9	59.8	60.4	59.1	49.1	26.3	30.5	26.6	13.9
LnGrp LOS	E	D	D	E	E	E	E	D	C	C	C	B
Approach Vol, veh/h		383			672			1052			2408	
Approach Delay, s/veh		53.0			59.8			46.8			23.6	
Approach LOS		D			E			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	73.1	17.0	28.2	48.8	38.0	17.0	28.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	34.0	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	4.6	38.3	7.6	18.7	3.2	23.3	9.7	9.8				
Green Ext Time (p_c), s	0.0	2.6	0.2	3.5	0.0	8.8	0.3	1.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			36.9									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	697	569	50	256	421	88	91	1756	244	102	1385	477
Future Volume (veh/h)	697	569	50	256	421	88	91	1756	244	102	1385	477
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	697	569	50	256	421	88	91	1756	244	102	1385	477
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	898	79	313	531	110	156	1580	492	269	1942	1550
Arrive On Green	0.17	0.27	0.27	0.09	0.18	0.18	0.09	0.31	0.31	0.15	0.38	0.38
Sat Flow, veh/h	3442	3293	289	3442	2920	606	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	697	305	314	256	254	255	91	1756	244	102	1385	477
Grp Sat Flow(s),veh/h/ln	1721	1770	1812	1721	1770	1756	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	23.0	20.0	20.1	9.6	18.1	18.4	6.5	41.0	12.4	6.8	30.5	3.4
Cycle Q Clear(g_c), s	23.0	20.0	20.1	9.6	18.1	18.4	6.5	41.0	12.4	6.8	30.5	3.4
Prop In Lane	1.00		0.16	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	483	494	313	322	320	156	1580	492	269	1942	1550
V/C Ratio(X)	1.16	0.63	0.63	0.82	0.79	0.80	0.59	1.11	0.50	0.38	0.71	0.31
Avail Cap(c_a), veh/h	600	483	494	600	456	452	161	1580	492	269	1942	1550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	1.00	1.00	1.00	0.62	0.62	0.62	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	42.2	42.2	58.9	51.6	51.7	57.9	45.5	20.7	50.4	34.7	5.4
Incr Delay (d2), s/veh	84.8	2.2	2.1	2.0	8.5	9.2	2.0	56.5	2.2	0.3	2.3	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	18.0	10.0	10.3	4.7	9.6	9.7	3.3	27.4	6.4	3.4	14.6	2.4
LnGrp Delay(d),s/veh	139.3	44.3	44.3	61.0	60.0	60.8	59.9	102.0	22.9	50.8	36.9	5.9
LnGrp LOS	F	D	D	E	E	E	E	F	C	D	D	A
Approach Vol, veh/h		1316			765			2091			1964	
Approach Delay, s/veh		94.6			60.6			90.9			30.1	
Approach LOS		F			E			F			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	56.4	29.0	30.0	26.0	47.0	17.0	42.0				
Change Period (Y+Rc), s	5.0	6.0	6.0	* 6	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	* 34	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	8.5	32.5	25.0	20.4	8.8	43.0	11.6	22.1				
Green Ext Time (p_c), s	0.0	7.3	0.0	3.7	0.0	0.0	0.3	4.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			68.5									
HCM 2010 LOS			E									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/18/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	0	29	285	11	48	100	1013	101	18	914	147
Future Volume (veh/h)	76	0	29	285	11	48	100	1013	101	18	914	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	76	0	29	285	11	48	100	1013	101	18	914	147
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	417	354	362	417	354	624	2908	289	65	1308	210
Arrive On Green	0.22	0.00	0.22	0.22	0.22	0.22	0.35	0.62	0.62	0.04	0.30	0.30
Sat Flow, veh/h	1338	1863	1583	1375	1863	1583	1774	4702	468	1774	4420	708
Grp Volume(v), veh/h	76	0	29	285	11	48	100	730	384	18	700	361
Grp Sat Flow(s),veh/h/ln	1338	1863	1583	1375	1863	1583	1774	1695	1780	1774	1695	1738
Q Serve(g_s), s	6.2	0.0	1.9	26.8	0.6	3.2	5.1	13.8	13.9	1.3	24.2	24.3
Cycle Q Clear(g_c), s	6.8	0.0	1.9	26.8	0.6	3.2	5.1	13.8	13.9	1.3	24.2	24.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		0.41
Lane Grp Cap(c), veh/h	348	417	354	362	417	354	624	2097	1101	65	1003	514
V/C Ratio(X)	0.22	0.00	0.08	0.79	0.03	0.14	0.16	0.35	0.35	0.28	0.70	0.70
Avail Cap(c_a), veh/h	434	536	456	450	536	456	624	2097	1101	269	1490	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	42.7	0.0	40.5	50.2	40.0	41.0	29.4	12.2	12.3	61.9	41.2	41.3
Incr Delay (d2), s/veh	0.3	0.0	0.1	7.2	0.0	0.2	0.0	0.5	0.9	0.7	3.5	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.8	10.9	0.3	1.4	2.5	6.5	7.0	0.7	11.8	12.7
LnGrp Delay(d),s/veh	43.0	0.0	40.6	57.4	40.0	41.2	29.5	12.7	13.1	62.6	44.7	48.0
LnGrp LOS	D		D	E	D	D	C	B	B	E	D	D
Approach Vol, veh/h		105			344			1214			1079	
Approach Delay, s/veh		42.3			54.6			14.2			46.1	
Approach LOS		D			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	87.6		34.5	52.4	45.1		34.5				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	3.3	15.9		8.8	7.1	26.3		28.8				
Green Ext Time (p_c), s	0.0	15.0		0.3	0.1	12.7		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.9									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	4	92	114	3	78	11	1456	208	85	1385	30
Future Volume (veh/h)	161	4	92	114	3	78	11	1456	208	85	1385	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	161	4	92	114	3	78	11	1456	208	85	1385	30
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	266	226	237	266	226	643	2986	426	128	1876	41
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.36	0.66	0.66	0.07	0.37	0.37
Sat Flow, veh/h	1312	1863	1583	1294	1863	1583	1774	4498	642	1774	5122	111
Grp Volume(v), veh/h	161	4	92	114	3	78	11	1097	567	85	917	498
Grp Sat Flow(s),veh/h/ln	1312	1863	1583	1294	1863	1583	1774	1695	1749	1774	1695	1843
Q Serve(g_s), s	15.9	0.2	7.0	11.0	0.2	5.9	0.5	21.2	21.3	6.2	31.0	31.0
Cycle Q Clear(g_c), s	16.0	0.2	7.0	11.2	0.2	5.9	0.5	21.2	21.3	6.2	31.0	31.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.06
Lane Grp Cap(c), veh/h	240	266	226	237	266	226	643	2250	1161	128	1241	675
V/C Ratio(X)	0.67	0.02	0.41	0.48	0.01	0.35	0.02	0.49	0.49	0.66	0.74	0.74
Avail Cap(c_a), veh/h	430	536	456	425	536	456	643	2250	1161	269	1490	810
HCM Platoon Ratio	1.00	1.00	1.00	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	0.54	0.54	0.54
Uniform Delay (d), s/veh	55.5	48.6	51.5	53.4	48.6	51.0	27.0	11.0	11.0	59.6	36.3	36.3
Incr Delay (d2), s/veh	3.2	0.0	1.2	1.5	0.0	0.9	0.0	0.8	1.5	1.2	2.2	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.1	3.1	4.0	0.1	2.6	0.3	10.1	10.7	3.1	14.9	16.5
LnGrp Delay(d),s/veh	58.7	48.6	52.7	55.0	48.6	51.9	27.0	11.8	12.5	60.8	38.5	40.3
LnGrp LOS	E	D	D	D	D	D	C	B	B	E	D	D
Approach Vol, veh/h		257			195			1675			1500	
Approach Delay, s/veh		56.4			53.7			12.1			40.4	
Approach LOS		E			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.6	93.6		23.8	53.8	54.3		23.8				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	8.2	23.3		18.0	2.5	33.0		13.2				
Green Ext Time (p_c), s	0.0	22.7		0.8	0.0	15.3		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.2									
HCM 2010 LOS			C									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/18/2019

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑		↘	
Traffic Vol, veh/h	168	862	913	53	6	30
Future Vol, veh/h	168	862	913	53	6	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	862	913	53	6	30

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	966	0	-	0	1621 483
Stage 1	-	-	-	-	940 -
Stage 2	-	-	-	-	681 -
Critical Hdwy	5.34	-	-	-	5.74 7.14
Critical Hdwy Stg 1	-	-	-	-	6.64 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	3.12	-	-	-	3.82 3.92
Pot Cap-1 Maneuver	406	-	-	-	149 453
Stage 1	-	-	-	-	263 -
Stage 2	-	-	-	-	422 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	406	-	-	-	87 453
Mov Cap-2 Maneuver	-	-	-	-	87 -
Stage 1	-	-	-	-	154 -
Stage 2	-	-	-	-	422 -

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	406	-	-	-	266
HCM Lane V/C Ratio	0.414	-	-	-	0.135
HCM Control Delay (s)	20	-	-	-	20.6
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	2	-	-	-	0.5

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/18/2019

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑↑	↑↑↑		↵	
Traffic Vol, veh/h	34	1285	1054	8	14	81
Future Vol, veh/h	34	1285	1054	8	14	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	1285	1054	8	14	81













Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1062	0	0 1640 531
Stage 1	-	-	- 1058 -
Stage 2	-	-	- 582 -
Critical Hdwy	5.34	-	- 5.74 7.14
Critical Hdwy Stg 1	-	-	- 6.64 -
Critical Hdwy Stg 2	-	-	- 6.04 -
Follow-up Hdwy	3.12	-	- 3.82 3.92
Pot Cap-1 Maneuver	365	-	- 146 422
Stage 1	-	-	- 223 -
Stage 2	-	-	- 476 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	365	-	- 132 422
Mov Cap-2 Maneuver	-	-	- 132 -
Stage 1	-	-	- 202 -
Stage 2	-	-	- 476 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	21
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	365	-	-	-	319
HCM Lane V/C Ratio	0.093	-	-	-	0.298
HCM Control Delay (s)	15.9	-	-	-	21
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.2













HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps

04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖		↗
Traffic Volume (veh/h)	0	900	383	0	534	540	0	0	0	193	0	131
Future Volume (veh/h)	0	900	383	0	534	540	0	0	0	193	0	131
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	900	383	0	534	540				193	0	131
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2361	1056	0	2361	1295				268	0	239
Arrive On Green	0.00	0.67	0.67	0.00	0.67	0.67				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	900	383	0	534	540				193	0	131
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	7.5	7.0	0.0	3.9	6.2				6.8	0.0	5.1
Cycle Q Clear(g_c), s	0.0	7.5	7.0	0.0	3.9	6.2				6.8	0.0	5.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2361	1056	0	2361	1295				268	0	239
V/C Ratio(X)	0.00	0.38	0.36	0.00	0.23	0.42				0.72	0.00	0.55
Avail Cap(c_a), veh/h	0	2361	1056	0	2361	1295				570	0	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.9	4.8	0.0	4.3	1.7				26.7	0.0	25.9
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.0	0.2	1.0				3.6	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	3.8	3.3	0.0	1.9	5.2				3.6	0.0	2.3
LnGrp Delay(d),s/veh	0.0	5.4	5.8	0.0	4.5	2.6				30.3	0.0	27.9
LnGrp LOS		A	A		A	A				C		C
Approach Vol, veh/h		1283			1074						324	
Approach Delay, s/veh		5.5			3.6						29.3	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.2		15.8		50.2						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		32.8		21.2		32.8						
Max Q Clear Time (g_c+I1), s		9.5		8.8		8.2						
Green Ext Time (p_c), s		10.9		0.8		8.4						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.6									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps













04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖		↗
Traffic Volume (veh/h)	0	1025	189	0	983	632	0	0	0	180	0	169
Future Volume (veh/h)	0	1025	189	0	983	632	0	0	0	180	0	169
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	1025	189	0	983	632				180	0	169
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	2360	1056	0	2360	1295				268	0	239
Arrive On Green	0.00	0.67	0.67	0.00	0.67	0.67				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	1025	189	0	983	632				180	0	169
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	9.0	3.0	0.0	8.5	8.0				6.3	0.0	6.7
Cycle Q Clear(g_c), s	0.0	9.0	3.0	0.0	8.5	8.0				6.3	0.0	6.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2360	1056	0	2360	1295				268	0	239
V/C Ratio(X)	0.00	0.43	0.18	0.00	0.42	0.49				0.67	0.00	0.71
Avail Cap(c_a), veh/h	0	2360	1056	0	2360	1295				543	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.2	4.2	0.0	5.1	1.8				26.5	0.0	26.6
Incr Delay (d2), s/veh	0.0	0.6	0.4	0.0	0.5	1.3				2.9	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	4.5	1.4	0.0	4.3	6.6				3.3	0.0	3.2
LnGrp Delay(d),s/veh	0.0	5.7	4.5	0.0	5.6	3.1				29.4	0.0	30.4
LnGrp LOS		A	A		A	A				C		C
Approach Vol, veh/h		1214			1615						349	
Approach Delay, s/veh		5.5			4.6						29.9	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		50.2		15.8		50.2						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		33.8		20.2		33.8						
Max Q Clear Time (g_c+I1), s		11.0		8.7		10.5						
Green Ext Time (p_c), s		10.8		0.9		13.7						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.8									
HCM 2010 LOS			A									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy













04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	747	376	0	918	242	121	0	740	0	0	0
Future Volume (veh/h)	0	747	376	0	918	242	121	0	740	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	747	376	0	918	242	121	0	740			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	1992	891	0	2258	593	1035	0	838			
Arrive On Green	0.00	0.56	0.56	0.00	0.56	0.56	0.30	0.00	0.30			
Sat Flow, veh/h	0	3632	1583	0	4180	1054	3442	0	2787			
Grp Volume(v), veh/h	0	747	376	0	775	385	121	0	740			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1677	1721	0	1393			
Q Serve(g_s), s	0.0	7.7	9.0	0.0	8.6	8.6	1.7	0.0	16.7			
Cycle Q Clear(g_c), s	0.0	7.7	9.0	0.0	8.6	8.6	1.7	0.0	16.7			
Prop In Lane	0.00		1.00	0.00		0.63	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1992	891	0	1908	944	1035	0	838			
V/C Ratio(X)	0.00	0.38	0.42	0.00	0.41	0.41	0.12	0.00	0.88			
Avail Cap(c_a), veh/h	0	1992	891	0	1908	944	1163	0	942			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	8.0	8.3	0.0	8.2	8.2	16.7	0.0	22.0			
Incr Delay (d2), s/veh	0.0	0.5	1.5	0.0	0.6	1.3	0.0	0.0	8.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.9	4.2	0.0	4.2	4.3	0.8	0.0	7.4			
LnGrp Delay(d),s/veh	0.0	8.5	9.7	0.0	8.8	9.5	16.8	0.0	30.8			
LnGrp LOS		A	A		A	A	B		C			
Approach Vol, veh/h		1123			1160			861				
Approach Delay, s/veh		8.9			9.0			28.9				
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		42.4				42.4		23.6				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		34.7				34.7		22.3				
Max Q Clear Time (g_c+I1), s		11.0				10.6		18.7				
Green Ext Time (p_c), s		14.7				16.2		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			14.4									
HCM 2010 LOS			B									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy

04/19/2019






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	939	250	0	1373	193	245	0	606	0	0	0
Future Volume (veh/h)	0	939	250	0	1373	193	245	0	606	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	939	250	0	1373	193	245	0	606			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2138	956	0	2723	383	894	0	723			
Arrive On Green	0.00	0.60	0.60	0.00	0.60	0.60	0.26	0.00	0.26			
Sat Flow, veh/h	0	3632	1583	0	4675	633	3442	0	2787			
Grp Volume(v), veh/h	0	939	250	0	1033	533	245	0	606			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1751	1721	0	1393			
Q Serve(g_s), s	0.0	9.4	4.9	0.0	11.4	11.5	3.7	0.0	13.6			
Cycle Q Clear(g_c), s	0.0	9.4	4.9	0.0	11.4	11.5	3.7	0.0	13.6			
Prop In Lane	0.00		1.00	0.00		0.36	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2138	956	0	2048	1058	894	0	723			
V/C Ratio(X)	0.00	0.44	0.26	0.00	0.50	0.50	0.27	0.00	0.84			
Avail Cap(c_a), veh/h	0	2138	956	0	2048	1058	1111	0	899			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.0	6.1	0.0	7.4	7.4	19.5	0.0	23.1			
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.9	1.7	0.1	0.0	5.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	4.8	2.3	0.0	5.6	6.0	1.8	0.0	5.8			
LnGrp Delay(d),s/veh	0.0	7.7	6.8	0.0	8.3	9.2	19.6	0.0	28.5			
LnGrp LOS		A	A		A	A	B		C			
Approach Vol, veh/h		1189			1566			851				
Approach Delay, s/veh		7.5			8.6			26.0				
Approach LOS		A			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		45.2				45.2		20.8				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		35.7				35.7		21.3				
Max Q Clear Time (g_c+I1), s		11.4				13.5		15.6				
Green Ext Time (p_c), s		16.1				18.7		1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				12.3								
HCM 2010 LOS				B								



# HCM 2010 Signalized Intersection Summary

## 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	479	849	124	55	747	173	175	160	54	51	99	337
Future Volume (veh/h)	479	849	124	55	747	173	175	160	54	51	99	337
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	479	849	124	55	747	173	175	160	54	51	99	337
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	673	2538	369	128	1053	241	200	338	110	125	147	726
Arrive On Green	0.38	0.57	0.57	0.07	0.25	0.25	0.11	0.13	0.13	0.07	0.08	0.08
Sat Flow, veh/h	1774	4486	652	1774	4137	948	1774	2625	856	1774	1863	1583
Grp Volume(v), veh/h	479	641	332	55	611	309	175	106	108	51	99	337
Grp Sat Flow(s),veh/h/ln	1774	1695	1748	1774	1695	1695	1774	1770	1712	1774	1863	1583
Q Serve(g_s), s	30.3	13.4	13.5	3.9	21.6	22.0	12.8	7.3	7.7	3.6	6.8	0.0
Cycle Q Clear(g_c), s	30.3	13.4	13.5	3.9	21.6	22.0	12.8	7.3	7.7	3.6	6.8	0.0
Prop In Lane	1.00		0.37	1.00		0.56	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	673	1918	989	128	863	432	200	228	220	125	147	726
V/C Ratio(X)	0.71	0.33	0.34	0.43	0.71	0.72	0.88	0.47	0.49	0.41	0.67	0.46
Avail Cap(c_a), veh/h	673	1918	989	148	1246	623	242	442	428	242	466	997
HCM Platoon Ratio	1.00	1.00	1.00	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	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	15.3	15.4	58.6	44.7	44.9	57.7	53.3	53.5	58.7	59.1	24.6
Incr Delay (d2), s/veh	3.0	0.5	0.9	0.8	4.9	9.8	18.1	1.1	1.3	0.8	5.2	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	15.3	6.4	6.7	2.0	10.7	11.5	7.3	3.7	3.7	1.8	3.7	8.4
LnGrp Delay(d),s/veh	37.8	15.8	16.3	59.5	49.6	54.6	75.8	54.4	54.8	59.5	64.4	25.0
LnGrp LOS	D	B	B	E	D	D	E	D	D	E	E	C
Approach Vol, veh/h		1452			975			389			487	
Approach Delay, s/veh		23.2			51.8			64.1			36.6	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	80.2	20.9	16.4	55.6	39.1	14.3	23.0				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	5.9	15.5	14.8	8.8	32.3	24.0	5.6	9.7				
Green Ext Time (p_c), s	0.0	11.6	0.1	1.6	0.0	9.7	0.0	1.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			38.4									
HCM 2010 LOS			D									
<b>Notes</b>												






















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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	389	1128	175	79	894	127	213	195	78	137	227	480
Future Volume (veh/h)	389	1128	175	79	894	127	213	195	78	137	227	480
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	389	1128	175	79	894	127	213	195	78	137	227	480
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	471	2064	320	140	1235	175	237	506	196	162	284	662
Arrive On Green	0.27	0.46	0.46	0.08	0.27	0.27	0.13	0.20	0.20	0.09	0.15	0.15
Sat Flow, veh/h	1774	4443	689	1774	4503	637	1774	2497	965	1774	1863	1583
Grp Volume(v), veh/h	389	861	442	79	672	349	213	136	137	137	227	480
Grp Sat Flow(s),veh/h/ln	1774	1695	1741	1774	1695	1750	1774	1770	1692	1774	1863	1583
Q Serve(g_s), s	27.2	24.0	24.1	5.7	23.7	23.9	15.6	8.8	9.3	10.0	15.5	0.0
Cycle Q Clear(g_c), s	27.2	24.0	24.1	5.7	23.7	23.9	15.6	8.8	9.3	10.0	15.5	0.0
Prop In Lane	1.00		0.40	1.00		0.36	1.00		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	471	1575	809	140	930	480	237	358	343	162	284	662
V/C Ratio(X)	0.83	0.55	0.55	0.57	0.72	0.73	0.90	0.38	0.40	0.85	0.80	0.73
Avail Cap(c_a), veh/h	471	1575	809	148	1246	643	242	442	423	242	466	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	25.4	25.4	58.6	43.4	43.4	56.3	45.5	45.7	59.1	54.0	32.1
Incr Delay (d2), s/veh	10.9	1.4	2.6	2.4	4.9	9.3	22.4	0.4	0.5	10.8	5.1	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	11.5	12.1	2.9	11.7	12.8	9.1	4.3	4.4	5.4	8.4	14.9
LnGrp Delay(d),s/veh	56.5	26.7	28.0	61.0	48.2	52.7	78.7	45.9	46.1	69.8	59.1	34.6
LnGrp LOS	E	C	C	E	D	D	E	D	D	E	E	C
Approach Vol, veh/h		1692			1100			486			844	
Approach Delay, s/veh		33.9			50.6			60.3			46.9	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	66.8	23.6	26.2	40.5	41.7	17.0	32.7				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	7.7	26.1	17.6	17.5	29.2	25.9	12.0	11.3				
Green Ext Time (p_c), s	0.0	13.3	0.0	2.6	0.0	10.3	0.1	1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			44.1									
HCM 2010 LOS			D									
<b>Notes</b>												

























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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 4: McBean Pkwy & Valencia Blvd

04/18/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	497	869	135	417	1286	56	245	903	385	151	673	783
Future Volume (veh/h)	497	869	135	417	1286	56	245	903	385	151	673	783
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	497	869	135	417	1286	56	245	903	385	151	673	783
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1203	567	641	1611	693	417	1454	1316	416	1452	1112
Arrive On Green	0.11	0.24	0.24	0.19	0.32	0.32	0.12	0.29	0.29	0.04	0.09	0.09
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	497	869	135	417	1286	56	245	903	385	151	673	783
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	20.8	4.0	14.8	30.5	2.7	8.9	20.3	3.4	5.6	16.5	31.1
Cycle Q Clear(g_c), s	15.0	20.8	4.0	14.8	30.5	2.7	8.9	20.3	3.4	5.6	16.5	31.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1203	567	641	1611	693	417	1454	1316	416	1452	1112
V/C Ratio(X)	1.27	0.72	0.24	0.65	0.80	0.08	0.59	0.62	0.29	0.36	0.46	0.70
Avail Cap(c_a), veh/h	391	1560	678	641	1611	693	417	1502	1342	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	0.95	0.95	0.95	0.85	0.85	0.85
Uniform Delay (d), s/veh	58.5	46.4	11.6	49.7	41.2	21.6	54.9	40.9	8.0	58.4	50.2	42.1
Incr Delay (d2), s/veh	140.6	3.8	1.0	1.6	2.9	0.2	1.4	1.0	0.2	0.2	0.3	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	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.8	10.2	2.1	7.2	14.7	1.2	4.3	9.7	2.3	2.7	7.8	12.4
LnGrp Delay(d),s/veh	199.1	50.2	12.6	51.3	44.1	21.8	56.3	41.9	8.2	58.6	50.5	44.0
LnGrp LOS	F	D	B	D	D	C	E	D	A	E	D	D
Approach Vol, veh/h		1501			1759			1533			1607	
Approach Delay, s/veh		96.1			45.1			35.7			48.1	
Approach LOS		F			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	47.8	20.9	43.2	30.6	37.2	21.0	43.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	6.0	* 6	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	* 41	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	32.5	7.6	22.3	16.8	22.8	10.9	33.1				
Green Ext Time (p_c), s	0.0	6.1	0.1	10.0	0.0	8.5	0.2	4.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			55.6									
HCM 2010 LOS			E									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

























HCM 2010 Signalized Intersection Summary  
4: McBean Pkwy & Valencia Blvd

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	611	1343	207	432	1244	212	195	1132	570	251	1141	777
Future Volume (veh/h)	611	1343	207	432	1244	212	195	1132	570	251	1141	777
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	611	1343	207	432	1244	212	195	1132	570	251	1141	777
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1588	686	391	1588	686	417	1475	1125	417	1475	1125
Arrive On Green	0.11	0.31	0.31	0.11	0.31	0.31	0.12	0.29	0.29	0.04	0.10	0.10
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	611	1343	207	432	1244	212	195	1132	570	251	1141	777
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	32.6	11.2	15.0	29.4	11.6	7.0	26.8	20.2	9.5	28.9	30.8
Cycle Q Clear(g_c), s	15.0	32.6	11.2	15.0	29.4	11.6	7.0	26.8	20.2	9.5	28.9	30.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1588	686	391	1588	686	417	1475	1125	417	1475	1125
V/C Ratio(X)	1.56	0.85	0.30	1.10	0.78	0.31	0.47	0.77	0.51	0.60	0.77	0.69
Avail Cap(c_a), veh/h	391	1588	686	391	1588	686	417	1502	1140	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.42	0.42	0.42	0.82	0.82	0.82	0.45	0.45	0.45
Uniform Delay (d), s/veh	58.5	42.4	24.4	58.5	41.3	24.5	54.0	42.8	29.5	60.2	55.4	41.6
Incr Delay (d2), s/veh	265.2	5.7	1.1	62.4	1.7	0.5	0.2	2.2	0.5	0.8	1.3	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	21.5	16.1	5.1	10.5	14.0	5.1	3.3	12.9	7.8	4.6	13.8	12.0
LnGrp Delay(d),s/veh	323.7	48.2	25.5	120.9	43.0	24.9	54.3	45.0	30.0	61.0	56.8	42.5
LnGrp LOS	F	D	C	F	D	C	D	D	C	E	E	D
Approach Vol, veh/h		2161			1888			1897			2169	
Approach Delay, s/veh		123.9			58.8			41.5			52.2	
Approach LOS		F			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	47.2	21.0	43.8	20.0	47.2	21.0	43.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	5.0	6.0	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	40.5	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	31.4	11.5	28.8	17.0	34.6	9.0	32.8				
Green Ext Time (p_c), s	0.0	7.0	0.2	8.2	0.0	4.9	0.2	5.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			70.3									
HCM 2010 LOS			E									

HCM 2010 Signalized Intersection Summary  
5: Magic Mtn Pkwy & McBean Pkwy

04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	439	481	90	57	414	180	65	1013	76	286	1586	751
Future Volume (veh/h)	439	481	90	57	414	180	65	1013	76	286	1586	751
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	439	481	90	57	414	180	65	1013	0	286	1586	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	655	650	291	297	668	400	379	2834	700	417	2906	718
Arrive On Green	0.13	0.18	0.18	0.09	0.13	0.13	0.04	0.15	0.00	0.12	0.45	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	439	481	90	57	414	180	65	1013	0	286	1586	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	11.0	17.0	6.5	2.0	10.2	8.3	2.4	18.8	0.0	10.5	23.7	0.0
Cycle Q Clear(g_c), s	11.0	17.0	6.5	2.0	10.2	8.3	2.4	18.8	0.0	10.5	23.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	655	650	291	297	668	400	379	2834	700	417	2906	718
V/C Ratio(X)	0.67	0.74	0.31	0.19	0.62	0.45	0.17	0.36	0.00	0.69	0.55	0.00
Avail Cap(c_a), veh/h	910	1153	516	391	1310	600	417	2834	700	417	2906	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	0.59	0.59	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.6	50.9	46.6	56.0	54.2	20.0	57.8	39.5	0.0	55.6	26.2	0.0
Incr Delay (d2), s/veh	0.4	2.9	1.0	0.1	1.4	1.2	0.0	0.2	0.0	3.9	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	5.1	8.5	2.9	1.0	4.8	3.8	1.2	8.4	0.0	5.2	10.6	0.0
LnGrp Delay(d),s/veh	55.1	53.8	47.7	56.1	55.6	21.2	57.8	39.7	0.0	59.5	26.9	0.0
LnGrp LOS	E	D	D	E	E	C	E	D		E	C	
Approach Vol, veh/h		1010			651			1078			1872	
Approach Delay, s/veh		53.8			46.2			40.8			31.9	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	30.2	19.5	65.9	23.3	23.3	21.0	64.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	4.0	19.0	4.4	25.7	13.0	12.2	12.5	20.8				
Green Ext Time (p_c), s	0.0	5.3	0.1	8.4	0.7	5.2	0.2	8.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			40.8									
HCM 2010 LOS			D									
<b>Notes</b>												



























\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 5: Magic Mtn Pkwy & McBean Pkwy

04/19/2019

































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	920	849	194	274	576	406	168	1769	179	347	1743	394
Future Volume (veh/h)	920	849	194	274	576	406	168	1769	179	347	1743	394
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	920	849	194	274	576	406	168	1769	0	347	1743	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	917	1022	457	339	999	503	416	2082	514	417	2083	515
Arrive On Green	0.18	0.29	0.29	0.10	0.20	0.20	0.24	0.65	0.00	0.12	0.33	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	920	849	194	274	576	406	168	1769	0	347	1743	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	24.2	29.6	13.1	10.3	13.5	16.9	5.4	28.5	0.0	13.0	33.3	0.0
Cycle Q Clear(g_c), s	24.2	29.6	13.1	10.3	13.5	16.9	5.4	28.5	0.0	13.0	33.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	917	1022	457	339	999	503	416	2082	514	417	2083	515
V/C Ratio(X)	1.00	0.83	0.42	0.81	0.58	0.81	0.40	0.85	0.00	0.83	0.84	0.00
Avail Cap(c_a), veh/h	917	1153	516	391	1310	600	417	2082	514	417	2083	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.28	0.28	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.9	43.9	38.0	58.3	48.1	16.8	46.0	20.6	0.0	56.7	41.3	0.0
Incr Delay (d2), s/veh	30.6	5.4	1.1	7.8	0.8	6.9	0.1	1.3	0.0	12.6	4.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.7	15.3	5.8	5.3	6.4	8.3	2.6	12.5	0.0	6.9	15.4	0.0
LnGrp Delay(d),s/veh	84.6	49.3	39.1	66.0	48.8	23.7	46.1	21.9	0.0	69.3	45.5	0.0
LnGrp LOS	F	D	D	E	D	C	D	C		E	D	
Approach Vol, veh/h		1963			1256			1937			2090	
Approach Delay, s/veh		64.8			44.5			24.0			49.4	
Approach LOS		E			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	44.1	21.0	48.9	30.2	31.9	21.0	48.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	12.3	31.6	7.4	35.3	26.2	18.9	15.0	30.5				
Green Ext Time (p_c), s	0.1	6.5	0.2	0.7	0.0	7.1	0.1	5.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			46.0									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/18/2019






























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	173	662	76	194	892	122	131	250	175	129	389	340
Future Volume (veh/h)	173	662	76	194	892	122	131	250	175	129	389	340
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	173	662	76	194	892	122	131	250	175	129	389	340
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	931	106	564	1957	267	160	793	355	160	793	498
Arrive On Green	0.09	0.20	0.20	0.32	0.43	0.43	0.09	0.22	0.22	0.09	0.22	0.22
Sat Flow, veh/h	3442	4633	527	1774	4527	617	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	173	483	255	194	667	347	131	250	175	129	389	340
Grp Sat Flow(s),veh/h/ln	1721	1695	1770	1774	1695	1754	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.4	17.5	17.8	11.1	18.4	18.5	9.6	7.8	6.1	9.4	12.6	24.7
Cycle Q Clear(g_c), s	6.4	17.5	17.8	11.1	18.4	18.5	9.6	7.8	6.1	9.4	12.6	24.7
Prop In Lane	1.00		0.30	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	682	356	564	1465	758	160	793	355	160	793	498
V/C Ratio(X)	0.55	0.71	0.72	0.34	0.46	0.46	0.82	0.32	0.49	0.81	0.49	0.68
Avail Cap(c_a), veh/h	600	989	516	564	1465	758	215	885	396	215	885	540
HCM Platoon Ratio	1.00	1.00	1.00	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	0.90	0.90	0.90	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.5	49.1	49.2	34.5	26.5	26.5	59.0	42.8	10.2	58.9	44.6	39.5
Incr Delay (d2), s/veh	0.6	6.1	11.7	0.1	0.9	1.8	12.4	0.4	1.8	10.5	0.8	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	3.1	8.8	9.9	5.5	8.8	9.3	5.2	3.9	5.1	5.1	6.3	11.3
LnGrp Delay(d),s/veh	58.0	55.3	61.0	34.6	27.4	28.3	71.4	43.1	12.0	69.4	45.4	43.3
LnGrp LOS	E	E	E	C	C	C	E	D	B	E	D	D
Approach Vol, veh/h		911			1208			556			858	
Approach Delay, s/veh		57.4			28.8			40.0			48.2	
Approach LOS		E			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	62.5	16.9	35.6	47.5	32.0	16.9	35.6				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	38.5	16.0	33.0	23.0	* 39	16.0	33.0				
Max Q Clear Time (g_c+I1), s	8.4	20.5	11.4	9.8	13.1	19.8	11.6	26.7				
Green Ext Time (p_c), s	0.2	9.2	0.1	3.4	0.2	6.8	0.1	2.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			42.6									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.  
User approved changes to right turn type.




















HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 			 	
Traffic Volume (veh/h)	351	1018	119	160	823	111	169	405	266	187	264	249
Future Volume (veh/h)	351	1018	119	160	823	111	169	405	266	187	264	249
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	351	1018	119	160	823	111	169	405	266	187	264	249
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1890	221	186	1794	241	194	721	323	212	757	526
Arrive On Green	0.12	0.41	0.41	0.10	0.40	0.40	0.11	0.20	0.20	0.12	0.21	0.21
Sat Flow, veh/h	3442	4619	539	1774	4537	609	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	351	747	390	160	614	320	169	405	266	187	264	249
Grp Sat Flow(s),veh/h/ln	1721	1695	1768	1774	1695	1755	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	13.2	22.0	22.1	11.7	17.6	17.8	12.4	13.6	21.2	13.7	8.4	16.4
Cycle Q Clear(g_c), s	13.2	22.0	22.1	11.7	17.6	17.8	12.4	13.6	21.2	13.7	8.4	16.4
Prop In Lane	1.00		0.30	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	408	1387	723	186	1340	694	194	721	323	212	757	526
V/C Ratio(X)	0.86	0.54	0.54	0.86	0.46	0.46	0.87	0.56	0.82	0.88	0.35	0.47
Avail Cap(c_a), veh/h	600	1387	723	309	1340	694	269	885	396	269	885	584
HCM Platoon Ratio	1.00	1.00	1.00	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	0.88	0.88	0.88	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.1	29.5	29.6	58.2	29.5	29.5	57.9	47.2	50.3	57.2	44.1	34.9
Incr Delay (d2), s/veh	5.9	1.5	2.9	5.5	1.0	1.9	15.6	1.2	13.2	19.4	0.4	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	6.6	10.6	11.3	6.0	8.5	9.0	6.9	6.8	10.5	7.8	4.2	7.4
LnGrp Delay(d),s/veh	63.0	31.0	32.4	63.7	30.5	31.5	73.4	48.4	63.5	76.6	44.5	36.0
LnGrp LOS	E	C	C	E	C	C	E	D	E	E	D	D
Approach Vol, veh/h		1488			1094			840			700	
Approach Delay, s/veh		38.9			35.6			58.2			50.1	
Approach LOS		D			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.6	57.7	20.8	32.9	18.8	59.5	19.4	34.2				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.0	5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	34.5	20.0	33.0	23.0	34.5	20.0	33.0				
Max Q Clear Time (g_c+I1), s	15.2	19.8	15.7	23.2	13.7	24.1	14.4	18.4				
Green Ext Time (p_c), s	0.4	7.5	0.1	3.7	0.1	6.9	0.1	3.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			43.9									
HCM 2010 LOS			D									




















HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd

04/18/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	20	19	127	6	192	155	364	4	8	574	76
Future Volume (veh/h)	13	20	19	127	6	192	155	364	4	8	574	76
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	13	20	19	127	6	192	155	364	4	8	574	76
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	64	42	200	8	432	181	2112	23	31	1585	209
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.10	0.59	0.59	0.02	0.50	0.50
Sat Flow, veh/h	32	234	153	540	30	1583	1774	3586	39	1774	3144	415
Grp Volume(v), veh/h	52	0	0	133	0	192	155	179	189	8	322	328
Grp Sat Flow(s),veh/h/ln	419	0	0	570	0	1583	1774	1770	1856	1774	1770	1789
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	13.3	11.3	6.1	6.1	0.6	14.6	14.7
Cycle Q Clear(g_c), s	33.9	0.0	0.0	33.0	0.0	13.3	11.3	6.1	6.1	0.6	14.6	14.7
Prop In Lane	0.25		0.37	0.95		1.00	1.00		0.02	1.00		0.23
Lane Grp Cap(c), veh/h	148	0	0	209	0	432	181	1042	1093	31	892	902
V/C Ratio(X)	0.35	0.00	0.00	0.64	0.00	0.44	0.86	0.17	0.17	0.26	0.36	0.36
Avail Cap(c_a), veh/h	230	0	0	282	0	516	376	1042	1093	202	892	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.87	0.00	0.87	0.88	0.88	0.88	0.83	0.83	0.83
Uniform Delay (d), s/veh	38.9	0.0	0.0	46.8	0.0	39.7	58.3	12.4	12.4	64.0	19.8	19.8
Incr Delay (d2), s/veh	1.4	0.0	0.0	2.8	0.0	0.6	4.0	0.3	0.3	1.4	0.9	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	0.0	4.9	0.0	5.9	5.8	3.1	3.2	0.3	7.3	7.4
LnGrp Delay(d),s/veh	40.3	0.0	0.0	49.6	0.0	40.4	62.3	12.7	12.7	65.4	20.8	20.8
LnGrp LOS	D			D		D	E	B	B	E	C	C
Approach Vol, veh/h		52			325			523			658	
Approach Delay, s/veh		40.3			44.2			27.4			21.3	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	83.7		41.0	18.5	72.6		41.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	2.6	8.1		35.0	13.3	16.7		35.9				
Green Ext Time (p_c), s	0.0	3.7		0.8	0.2	6.6		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				28.8								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd

























04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	9	14	18	91	24	222	238	629	23	21	425	84
Future Volume (veh/h)	9	14	18	91	24	222	238	629	23	21	425	84
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	9	14	18	91	24	222	238	629	23	21	425	84
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	62	54	156	36	313	264	2245	82	65	1572	308
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.15	0.64	0.64	0.04	0.53	0.53
Sat Flow, veh/h	38	313	274	542	181	1583	1774	3483	127	1774	2951	579
Grp Volume(v), veh/h	41	0	0	115	0	222	238	319	333	21	254	255
Grp Sat Flow(s),veh/h/ln	625	0	0	723	0	1583	1774	1770	1840	1774	1770	1761
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	17.3	17.4	10.3	10.3	1.5	10.3	10.5
Cycle Q Clear(g_c), s	23.6	0.0	0.0	23.3	0.0	17.3	17.4	10.3	10.3	1.5	10.3	10.5
Prop In Lane	0.22		0.44	0.79		1.00	1.00		0.07	1.00		0.33
Lane Grp Cap(c), veh/h	157	0	0	192	0	313	264	1141	1186	65	943	938
V/C Ratio(X)	0.26	0.00	0.00	0.60	0.00	0.71	0.90	0.28	0.28	0.32	0.27	0.27
Avail Cap(c_a), veh/h	352	0	0	378	0	516	376	1141	1186	202	943	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.67	0.00	0.67	0.64	0.64	0.64	0.94	0.94	0.94
Uniform Delay (d), s/veh	44.6	0.0	0.0	51.4	0.0	49.4	55.3	10.2	10.2	62.0	16.8	16.9
Incr Delay (d2), s/veh	0.9	0.0	0.0	2.0	0.0	2.0	10.6	0.4	0.4	1.0	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	4.2	0.0	7.8	9.3	5.2	5.4	0.8	5.2	5.3
LnGrp Delay(d),s/veh	45.4	0.0	0.0	53.4	0.0	51.4	65.8	10.6	10.6	63.0	17.5	17.5
LnGrp LOS	D			D		D	E	B	B	E	B	B
Approach Vol, veh/h		41			337			890			530	
Approach Delay, s/veh		45.4			52.1			25.3			19.3	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	90.9		31.3	24.6	76.1		31.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	3.5	12.3		25.3	19.4	12.5		25.6				
Green Ext Time (p_c), s	0.0	7.3		1.2	0.2	5.2		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				29.0								
HCM 2010 LOS				C								



HCM 2010 Signalized Intersection Summary  
 8: Valley St/Orchard Village Rd & Lyons Ave

05/01/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	214	779	59	73	980	456	85	154	97	461	96	267
Future Volume (veh/h)	214	779	59	73	980	456	85	154	97	461	96	267
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	214	779	59	73	980	456	85	154	97	461	96	267
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1665	745	138	2363	1068	188	295	132	721	355	302
Arrive On Green	0.08	0.47	0.47	0.08	0.46	0.46	0.11	0.08	0.08	0.21	0.19	0.19
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	214	779	59	73	980	456	85	154	97	461	96	267
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	8.0	19.7	2.7	5.2	16.9	6.5	5.9	5.5	6.5	16.1	5.8	21.7
Cycle Q Clear(g_c), s	8.0	19.7	2.7	5.2	16.9	6.5	5.9	5.5	6.5	16.1	5.8	21.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	1665	745	138	2363	1068	188	295	132	721	355	302
V/C Ratio(X)	0.75	0.47	0.08	0.53	0.41	0.43	0.45	0.52	0.74	0.64	0.27	0.88
Avail Cap(c_a), veh/h	417	1665	745	175	2363	1068	282	1032	462	721	557	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	0.81	0.81	0.81	1.00	1.00	1.00	0.77	0.77	0.77
Uniform Delay (d), s/veh	59.1	23.7	19.2	58.6	23.4	2.8	55.4	58.0	40.6	47.6	45.6	52.0
Incr Delay (d2), s/veh	1.7	0.8	0.2	1.0	0.4	1.0	1.7	1.4	7.7	1.1	0.4	10.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	9.8	1.2	2.6	8.0	3.5	3.0	2.8	3.5	7.8	3.0	10.4
LnGrp Delay(d),s/veh	60.8	24.6	19.4	59.5	23.9	3.8	57.1	59.4	48.2	48.7	46.0	62.4
LnGrp LOS	E	C	B	E	C	A	E	E	D	D	D	E
Approach Vol, veh/h		1052			1509			336			824	
Approach Delay, s/veh		31.7			19.5			55.6			52.8	
Approach LOS		C			B			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	66.3	33.2	16.5	15.2	67.1	19.0	30.7				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	10.0	18.9	18.1	8.5	7.2	21.7	7.9	23.7				
Green Ext Time (p_c), s	0.2	10.8	0.4	1.2	0.0	7.2	0.1	1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.6									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 8: Valley St/Orchard Village Rd & Lyons Ave

05/01/2019
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	318	1029	139	108	1076	330	123	135	130	401	142	217
Future Volume (veh/h)	318	1029	139	108	1076	330	123	135	130	401	142	217
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	318	1029	139	108	1076	330	123	135	130	401	142	217
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	369	1755	785	145	2393	1017	188	323	145	592	300	255
Arrive On Green	0.11	0.50	0.50	0.03	0.16	0.16	0.11	0.09	0.09	0.17	0.16	0.16
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	318	1029	139	108	1076	330	123	135	130	401	142	217
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	12.0	27.3	6.4	8.0	25.4	6.8	8.8	4.8	8.8	14.4	9.1	17.6
Cycle Q Clear(g_c), s	12.0	27.3	6.4	8.0	25.4	6.8	8.8	4.8	8.8	14.4	9.1	17.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	369	1755	785	145	2393	1017	188	323	145	592	300	255
V/C Ratio(X)	0.86	0.59	0.18	0.74	0.45	0.32	0.65	0.42	0.90	0.68	0.47	0.85
Avail Cap(c_a), veh/h	417	1755	785	175	2393	1017	282	1032	462	592	557	474
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	0.78	0.78	0.78	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	58.0	23.6	18.4	62.9	40.2	5.8	56.7	56.7	40.2	51.2	50.3	53.8
Incr Delay (d2), s/veh	11.4	1.1	0.4	7.8	0.5	0.7	3.8	0.9	17.4	1.9	1.0	7.0
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	6.3	13.6	2.9	4.2	12.0	4.3	4.5	2.4	5.0	7.0	4.8	8.2
LnGrp Delay(d),s/veh	69.4	24.8	18.8	70.7	40.7	6.4	60.5	57.5	57.6	53.1	51.3	60.9
LnGrp LOS	E	C	B	E	D	A	E	E	E	D	D	E
Approach Vol, veh/h		1486			1514			388			760	
Approach Delay, s/veh		33.8			35.4			58.5			55.0	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.1	67.1	28.2	17.5	15.8	70.5	19.0	26.8				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	14.0	27.4	16.4	10.8	10.0	29.3	10.8	19.6				
Green Ext Time (p_c), s	0.1	5.9	0.4	1.2	0.0	6.1	0.2	1.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			40.6									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
























HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/18/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	248	947	177	61	818	184	151	163	327	168	286	138
Future Volume (veh/h)	248	947	177	61	818	184	151	163	327	168	286	138
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	248	947	177	61	818	184	151	163	327	168	286	138
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	1485	664	132	1206	683	312	408	365	193	880	394
Arrive On Green	0.15	0.42	0.42	0.07	0.34	0.34	0.09	0.23	0.23	0.11	0.25	0.25
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1770	1583	1774	3539	1583
Grp Volume(v), veh/h	248	947	177	61	818	184	151	163	327	168	286	138
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	18.2	28.0	9.6	4.4	26.2	9.9	5.5	10.3	26.4	12.3	8.7	9.5
Cycle Q Clear(g_c), s	18.2	28.0	9.6	4.4	26.2	9.9	5.5	10.3	26.4	12.3	8.7	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	1485	664	132	1206	683	312	408	365	193	880	394
V/C Ratio(X)	0.91	0.64	0.27	0.46	0.68	0.27	0.48	0.40	0.90	0.87	0.32	0.35
Avail Cap(c_a), veh/h	296	1485	664	228	1206	683	521	456	408	269	912	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)	0.88	0.88	0.88	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	30.3	25.0	58.6	37.3	24.1	57.1	43.1	49.3	57.9	40.5	40.8
Incr Delay (d2), s/veh	25.7	1.9	0.9	0.7	2.2	0.7	0.4	1.1	21.8	15.3	0.4	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	10.8	14.1	4.4	2.2	13.1	4.4	2.6	5.1	13.7	6.8	4.3	4.2
LnGrp Delay(d),s/veh	80.7	32.2	25.9	59.2	39.5	24.8	57.5	44.1	71.1	73.2	40.9	41.7
LnGrp LOS	F	C	C	E	D	C	E	D	E	E	D	D
Approach Vol, veh/h		1372			1063			641			592	
Approach Delay, s/veh		40.2			38.1			61.0			50.3	
Approach LOS		D			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	61.4	19.4	36.4	25.2	51.0	17.0	38.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	39.0	20.0	34.0	22.0	34.0	20.0	34.0				
Max Q Clear Time (g_c+I1), s	6.4	30.0	14.3	28.4	20.2	28.2	7.5	11.5				
Green Ext Time (p_c), s	0.0	5.9	0.1	2.0	0.1	3.8	0.2	3.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			44.8									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd
























04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	136	800	169	130	965	236	238	340	191	100	231	74
Future Volume (veh/h)	136	800	169	130	965	236	238	340	191	100	231	74
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	136	800	169	130	965	236	238	340	191	100	231	74
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	1644	735	155	1630	873	313	426	235	157	676	302
Arrive On Green	0.09	0.46	0.46	0.09	0.46	0.46	0.09	0.19	0.19	0.09	0.19	0.19
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2204	1214	1774	3539	1583
Grp Volume(v), veh/h	136	800	169	130	965	236	238	272	259	100	231	74
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1648	1774	1770	1583
Q Serve(g_s), s	10.0	20.6	8.4	9.5	26.7	10.4	8.9	19.3	19.9	7.2	7.5	5.2
Cycle Q Clear(g_c), s	10.0	20.6	8.4	9.5	26.7	10.4	8.9	19.3	19.9	7.2	7.5	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	161	1644	735	155	1630	873	313	342	319	157	676	302
V/C Ratio(X)	0.84	0.49	0.23	0.84	0.59	0.27	0.76	0.79	0.81	0.64	0.34	0.24
Avail Cap(c_a), veh/h	296	1644	735	228	1630	873	391	456	425	202	912	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)	0.86	0.86	0.86	0.57	0.57	0.57	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	24.5	21.2	59.4	26.4	15.6	58.6	50.7	51.0	58.1	46.2	45.3
Incr Delay (d2), s/veh	3.9	0.9	0.6	6.7	0.9	0.4	4.8	8.9	10.9	1.6	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	5.0	10.3	3.8	5.0	13.2	4.6	4.4	10.3	10.0	3.6	3.7	2.4
LnGrp Delay(d),s/veh	63.0	25.3	21.8	66.0	27.3	16.0	63.4	59.7	61.9	59.7	46.7	46.0
LnGrp LOS	E	C	C	E	C	B	E	E	E	E	D	D
Approach Vol, veh/h		1105			1331			769			405	
Approach Delay, s/veh		29.4			29.1			61.6			49.8	
Approach LOS		C			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	67.3	16.7	31.5	17.0	66.8	17.0	31.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	44.0	15.0	34.0	22.0	39.0	15.0	34.0				
Max Q Clear Time (g_c+I1), s	11.5	22.6	9.2	21.9	12.0	28.7	10.9	9.5				
Green Ext Time (p_c), s	0.1	9.2	0.0	3.6	0.1	6.8	0.2	2.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			38.4									
HCM 2010 LOS			D									

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	550	282	551	521	112	416	123	694	33	48	46
Future Volume (vph)	90	550	282	551	521	112	416	123	694	33	48	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4827		3433	5085	1583	1681	1722	2787	1610	3144	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4827		3433	5085	1583	1681	1722	2787	1610	3144	
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)	90	550	282	551	521	112	416	123	694	33	48	46
RTOR Reduction (vph)	0	74	0	0	0	70	0	0	351	0	42	0
Lane Group Flow (vph)	90	758	0	551	521	42	266	273	343	30	55	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	12.0	31.8		29.7	49.5	49.5	35.5	35.5	65.2	12.0	12.0	
Effective Green, g (s)	12.0	31.8		29.7	49.5	49.5	35.5	35.5	65.2	12.0	12.0	
Actuated g/C Ratio	0.09	0.24		0.22	0.38	0.38	0.27	0.27	0.49	0.09	0.09	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	160	1162		772	1906	593	452	463	1376	146	285	
v/s Ratio Prot	0.05	c0.16		c0.16	0.10		0.16	c0.16	0.06	c0.02	0.02	
v/s Ratio Perm						0.03			0.07			
v/c Ratio	0.56	0.65		0.71	0.27	0.07	0.59	0.59	0.25	0.21	0.19	
Uniform Delay, d1	57.5	45.1		47.2	28.7	26.5	41.9	41.9	19.3	55.6	55.5	
Progression Factor	0.72	0.98		0.57	0.57	0.48	0.76	0.76	7.01	1.00	1.00	
Incremental Delay, d2	2.6	2.8		2.8	0.3	0.2	1.8	1.7	0.1	0.7	0.3	
Delay (s)	43.9	46.8		30.0	16.6	12.9	33.5	33.5	135.2	56.3	55.9	
Level of Service	D	D		C	B	B	C	C	F	E	E	
Approach Delay (s)		46.5			22.5			90.7			56.0	
Approach LOS		D			C			F			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			54.4			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			132.0			Sum of lost time (s)				23.0		
Intersection Capacity Utilization			68.2%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

04/19/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑		↙↙	↑↑↑	↗	↙	↗	↗↗	↙	↑↑	
Traffic Volume (vph)	36	844	435	827	681	57	293	34	759	109	130	133
Future Volume (vph)	36	844	435	827	681	57	293	34	759	109	130	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4826		3433	5085	1583	1681	1702	2787	1610	3137	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4826		3433	5085	1583	1681	1702	2787	1610	3137	
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)	36	844	435	827	681	57	293	34	759	109	130	133
RTOR Reduction (vph)	0	71	0	0	0	27	0	0	320	0	118	0
Lane Group Flow (vph)	36	1208	0	827	681	30	164	163	439	98	156	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	6.0	36.5		39.2	69.7	69.7	18.6	18.6	57.8	14.7	14.7	
Effective Green, g (s)	6.0	36.5		39.2	69.7	69.7	18.6	18.6	57.8	14.7	14.7	
Actuated g/C Ratio	0.05	0.28		0.30	0.53	0.53	0.14	0.14	0.44	0.11	0.11	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	80	1334		1019	2685	835	236	239	1220	179	349	
v/s Ratio Prot	0.02	c0.25		c0.24	0.13		c0.10	0.10	0.11	c0.06	0.05	
v/s Ratio Perm						0.02			0.05			
v/c Ratio	0.45	0.91		0.81	0.25	0.04	0.69	0.68	0.36	0.55	0.45	
Uniform Delay, d1	61.4	46.1		43.0	17.0	15.0	54.0	53.9	24.8	55.5	54.8	
Progression Factor	1.32	0.85		1.47	0.66	1.00	0.82	0.82	2.58	1.00	1.00	
Incremental Delay, d2	1.2	9.0		4.7	0.2	0.1	7.5	6.8	0.2	3.4	0.9	
Delay (s)	82.5	48.3		68.0	11.3	15.1	52.0	51.2	64.1	58.9	55.8	
Level of Service	F	D		E	B	B	D	D	E	E	E	
Approach Delay (s)		49.2			41.4			60.3			56.6	
Approach LOS		D			D			E			E	

### Intersection Summary

























HCM 2000 Control Delay	49.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	382	420	33	650	42	442	130	26	37	173	188
Future Volume (veh/h)	125	382	420	33	650	42	442	130	26	37	173	188
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	125	382	420	33	650	42	442	130	26	37	173	188
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	1884	1071	85	1758	786	495	353	300	140	232	197
Arrive On Green	0.14	0.89	0.89	0.05	0.50	0.50	0.14	0.19	0.19	0.08	0.12	0.12
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	125	382	420	33	650	42	442	130	26	37	173	188
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	9.1	1.9	1.3	2.4	14.9	1.8	16.7	8.0	1.8	2.6	11.8	12.7
Cycle Q Clear(g_c), s	9.1	1.9	1.3	2.4	14.9	1.8	16.7	8.0	1.8	2.6	11.8	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	1884	1071	85	1758	786	495	353	300	140	232	197
V/C Ratio(X)	0.84	0.20	0.39	0.39	0.37	0.05	0.89	0.37	0.09	0.26	0.75	0.95
Avail Cap(c_a), veh/h	255	1884	1071	215	1758	786	574	607	516	242	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	3.5	0.6	61.0	20.5	17.2	55.5	46.6	44.1	57.2	55.8	38.4
Incr Delay (d2), s/veh	4.1	0.2	0.9	1.1	0.6	0.1	13.6	0.6	0.1	0.4	4.8	20.7
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	4.6	0.9	0.9	1.2	7.5	0.8	8.9	4.2	0.8	1.3	6.4	7.1
LnGrp Delay(d),s/veh	60.0	3.7	1.5	62.0	21.1	17.3	69.1	47.2	44.2	57.6	60.5	59.1
LnGrp LOS	E	A	A	E	C	B	E	D	D	E	E	E
Approach Vol, veh/h		927			725			598			398	
Approach Delay, s/veh		10.3			22.7			63.3			59.6	
Approach LOS		B			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	75.3	24.0	21.4	16.0	70.6	15.4	30.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	16.0	35.0	22.0	39.0	19.0	32.0	18.0	43.0				
Max Q Clear Time (g_c+I1), s	4.4	3.9	18.7	14.7	11.1	16.9	4.6	10.0				
Green Ext Time (p_c), s	0.0	7.7	0.3	1.7	0.1	5.7	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.1									
HCM 2010 LOS			C									























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	634	662	28	728	35	510	113	36	29	138	143
Future Volume (veh/h)	139	634	662	28	728	35	510	113	36	29	138	143
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	139	634	662	28	728	35	510	113	36	29	138	143
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	1921	1119	78	1752	784	565	359	305	123	183	155
Arrive On Green	0.15	0.91	0.91	0.04	0.50	0.50	0.16	0.19	0.19	0.07	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	139	634	662	28	728	35	510	113	36	29	138	143
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	10.1	3.2	3.1	2.0	17.3	1.5	19.2	6.9	2.5	2.0	9.5	9.6
Cycle Q Clear(g_c), s	10.1	3.2	3.1	2.0	17.3	1.5	19.2	6.9	2.5	2.0	9.5	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	162	1921	1119	78	1752	784	565	359	305	123	183	155
V/C Ratio(X)	0.86	0.33	0.59	0.36	0.42	0.04	0.90	0.32	0.12	0.24	0.76	0.92
Avail Cap(c_a), veh/h	215	1921	1119	175	1752	784	652	607	516	282	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	3.0	0.4	61.3	21.2	17.2	54.1	45.8	44.0	58.1	58.0	39.2
Incr Delay (d2), s/veh	14.2	0.3	1.7	1.0	0.7	0.1	13.6	0.5	0.2	0.4	6.3	19.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	1.6	1.3	1.0	8.6	0.7	10.2	3.6	1.1	1.0	5.2	5.5
LnGrp Delay(d),s/veh	69.3	3.3	2.1	62.4	21.9	17.3	67.8	46.3	44.2	58.5	64.2	58.3
LnGrp LOS	E	A	A	E	C	B	E	D	D	E	E	E
Approach Vol, veh/h		1435			791			659			310	
Approach Delay, s/veh		9.2			23.1			62.8			61.0	
Approach LOS		A			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	76.6	26.7	17.9	17.1	70.3	14.2	30.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	35.0	25.0	39.0	16.0	32.0	21.0	43.0				
Max Q Clear Time (g_c+I1), s	4.0	5.2	21.2	11.6	12.1	19.3	4.0	8.9				
Green Ext Time (p_c), s	0.0	13.9	0.5	1.3	0.1	5.7	0.0	0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			28.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd

04/18/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	193	37	210	402	63	36	893	124	24	1832	561
Future Volume (veh/h)	153	193	37	210	402	63	36	893	124	24	1832	561
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	153	193	37	210	402	63	36	893	124	24	1832	561
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	499	94	313	516	80	118	1235	385	575	2583	1668
Arrive On Green	0.09	0.17	0.17	0.09	0.17	0.17	0.07	0.24	0.24	0.32	0.51	0.51
Sat Flow, veh/h	3442	2974	560	3442	3070	478	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	153	113	117	210	230	235	36	893	124	24	1832	561
Grp Sat Flow(s),veh/h/ln	1721	1770	1764	1721	1770	1778	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	5.6	7.5	7.8	7.8	16.4	16.7	2.6	21.3	6.5	1.2	36.6	13.4
Cycle Q Clear(g_c), s	5.6	7.5	7.8	7.8	16.4	16.7	2.6	21.3	6.5	1.2	36.6	13.4
Prop In Lane	1.00		0.32	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	297	296	313	297	299	118	1235	385	575	2583	1668
V/C Ratio(X)	0.49	0.38	0.39	0.67	0.77	0.78	0.30	0.72	0.32	0.04	0.71	0.34
Avail Cap(c_a), veh/h	600	456	454	600	456	458	161	1580	492	575	2583	1668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	48.8	48.9	58.1	52.5	52.6	58.7	45.9	24.3	30.6	25.0	13.3
Incr Delay (d2), s/veh	0.3	1.1	1.1	0.9	7.3	7.8	0.5	3.2	1.9	0.0	1.7	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	2.7	3.8	3.9	3.7	8.7	8.9	1.3	10.4	3.6	0.6	17.5	5.3
LnGrp Delay(d),s/veh	57.5	49.9	50.1	59.0	59.8	60.4	59.1	49.1	26.2	30.6	26.6	13.9
LnGrp LOS	E	D	D	E	E	E	E	D	C	C	C	B
Approach Vol, veh/h		383			675			1053			2417	
Approach Delay, s/veh		53.0			59.8			46.7			23.7	
Approach LOS		D			E			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	73.1	17.0	28.2	48.8	38.1	17.0	28.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	34.0	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	4.6	38.6	7.6	18.7	3.2	23.3	9.8	9.8				
Green Ext Time (p_c), s	0.0	2.4	0.2	3.5	0.0	8.8	0.3	1.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			36.9									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd

04/19/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	697	569	50	257	421	88	91	1762	248	102	1387	477
Future Volume (veh/h)	697	569	50	257	421	88	91	1762	248	102	1387	477
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	697	569	50	257	421	88	91	1762	248	102	1387	477
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	898	79	313	531	110	156	1580	492	269	1942	1550
Arrive On Green	0.17	0.27	0.27	0.09	0.18	0.18	0.09	0.31	0.31	0.15	0.38	0.38
Sat Flow, veh/h	3442	3293	289	3442	2920	606	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	697	305	314	257	254	255	91	1762	248	102	1387	477
Grp Sat Flow(s),veh/h/ln	1721	1770	1812	1721	1770	1756	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	23.0	20.0	20.1	9.7	18.1	18.4	6.5	41.0	12.6	6.8	30.6	3.4
Cycle Q Clear(g_c), s	23.0	20.0	20.1	9.7	18.1	18.4	6.5	41.0	12.6	6.8	30.6	3.4
Prop In Lane	1.00		0.16	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	483	494	313	322	320	156	1580	492	269	1942	1550
V/C Ratio(X)	1.16	0.63	0.63	0.82	0.79	0.80	0.59	1.12	0.50	0.38	0.71	0.31
Avail Cap(c_a), veh/h	600	483	494	600	456	452	161	1580	492	269	1942	1550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	1.00	1.00	1.00	0.62	0.62	0.62	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	42.2	42.2	58.9	51.6	51.7	57.9	45.5	20.8	50.4	34.7	5.4
Incr Delay (d2), s/veh	84.8	2.2	2.1	2.0	8.5	9.2	2.0	58.1	2.3	0.3	2.3	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	18.0	10.0	10.4	4.7	9.6	9.7	3.3	27.7	6.5	3.4	14.7	2.4
LnGrp Delay(d),s/veh	139.3	44.4	44.4	61.0	60.0	60.8	59.9	103.6	23.0	50.8	37.0	5.9
LnGrp LOS	F	D	D	E	E	E	E	F	C	D	D	A
Approach Vol, veh/h		1316			766			2101			1966	
Approach Delay, s/veh		94.6			60.6			92.2			30.1	
Approach LOS		F			E			F			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	56.4	29.0	30.0	26.0	47.0	17.0	42.0				
Change Period (Y+Rc), s	5.0	6.0	6.0	* 6	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	* 34	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	8.5	32.6	25.0	20.4	8.8	43.0	11.7	22.1				
Green Ext Time (p_c), s	0.0	7.3	0.0	3.7	0.0	0.0	0.3	4.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			68.9									
HCM 2010 LOS			E									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/18/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	0	34	285	12	48	111	1016	101	18	925	167
Future Volume (veh/h)	79	0	34	285	12	48	111	1016	101	18	925	167
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	79	0	34	285	12	48	111	1016	101	18	925	167
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	418	356	362	418	356	608	2905	288	65	1317	237
Arrive On Green	0.22	0.00	0.22	0.22	0.22	0.22	0.34	0.62	0.62	0.04	0.30	0.30
Sat Flow, veh/h	1337	1863	1583	1369	1863	1583	1774	4704	467	1774	4335	780
Grp Volume(v), veh/h	79	0	34	285	12	48	111	732	385	18	723	369
Grp Sat Flow(s),veh/h/ln	1337	1863	1583	1369	1863	1583	1774	1695	1780	1774	1695	1725
Q Serve(g_s), s	6.5	0.0	2.2	26.9	0.7	3.2	5.8	13.9	13.9	1.3	24.9	25.0
Cycle Q Clear(g_c), s	7.1	0.0	2.2	26.9	0.7	3.2	5.8	13.9	13.9	1.3	24.9	25.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		0.45
Lane Grp Cap(c), veh/h	348	418	356	362	418	356	608	2094	1099	65	1030	524
V/C Ratio(X)	0.23	0.00	0.10	0.79	0.03	0.13	0.18	0.35	0.35	0.28	0.70	0.70
Avail Cap(c_a), veh/h	433	536	456	449	536	456	608	2094	1099	269	1490	758
HCM Platoon Ratio	1.00	1.00	1.00	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	0.84	0.84	0.84
Uniform Delay (d), s/veh	42.7	0.0	40.5	50.1	39.9	40.9	30.4	12.3	12.3	61.9	40.7	40.7
Incr Delay (d2), s/veh	0.3	0.0	0.1	7.3	0.0	0.2	0.1	0.5	0.9	0.7	3.4	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.0	10.9	0.3	1.4	2.8	6.6	7.1	0.7	12.1	12.9
LnGrp Delay(d),s/veh	43.0	0.0	40.7	57.4	40.0	41.1	30.5	12.8	13.2	62.6	44.0	47.3
LnGrp LOS	D		D	E	D	D	C	B	B	E	D	D
Approach Vol, veh/h		113			345			1228			1110	
Approach Delay, s/veh		42.3			54.5			14.5			45.4	
Approach LOS		D			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	87.5		34.7	51.2	46.1		34.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	3.3	15.9		9.1	7.8	27.0		28.9				
Green Ext Time (p_c), s	0.0	15.1		0.3	0.1	13.1		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.8									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	7	105	114	3	78	15	1469	208	85	1390	35
Future Volume (veh/h)	181	7	105	114	3	78	15	1469	208	85	1390	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	181	7	105	114	3	78	15	1469	208	85	1390	35
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	295	250	252	295	250	612	2919	413	128	1878	47
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.34	0.65	0.65	0.07	0.37	0.37
Sat Flow, veh/h	1312	1863	1583	1276	1863	1583	1774	4504	637	1774	5102	128
Grp Volume(v), veh/h	181	7	105	114	3	78	15	1105	572	85	924	501
Grp Sat Flow(s),veh/h/ln	1312	1863	1583	1276	1863	1583	1774	1695	1750	1774	1695	1840
Q Serve(g_s), s	17.8	0.4	7.9	10.9	0.2	5.8	0.7	22.5	22.5	6.2	31.2	31.2
Cycle Q Clear(g_c), s	18.0	0.4	7.9	11.4	0.2	5.8	0.7	22.5	22.5	6.2	31.2	31.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.07
Lane Grp Cap(c), veh/h	260	295	250	252	295	250	612	2198	1135	128	1248	677
V/C Ratio(X)	0.70	0.02	0.42	0.45	0.01	0.31	0.02	0.50	0.50	0.66	0.74	0.74
Avail Cap(c_a), veh/h	430	536	456	418	536	456	612	2198	1135	269	1490	809
HCM Platoon Ratio	1.00	1.00	1.00	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	0.54	0.54	0.54
Uniform Delay (d), s/veh	54.4	46.9	50.1	51.7	46.8	49.2	28.6	12.1	12.1	59.6	36.2	36.2
Incr Delay (d2), s/veh	3.3	0.0	1.1	1.3	0.0	0.7	0.0	0.8	1.6	1.2	2.2	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.2	3.5	4.0	0.1	2.6	0.4	10.7	11.3	3.1	15.0	16.6
LnGrp Delay(d),s/veh	57.8	47.0	51.2	53.0	46.9	49.9	28.6	12.9	13.7	60.8	38.4	40.2
LnGrp LOS	E	D	D	D	D	D	C	B	B	E	D	D
Approach Vol, veh/h		293			195			1692			1510	
Approach Delay, s/veh		55.2			51.7			13.3			40.3	
Approach LOS		E			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.6	91.6		25.9	51.5	54.6		25.9				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	8.2	24.5		20.0	2.7	33.2		13.4				
Green Ext Time (p_c), s	0.0	22.4		0.9	0.0	15.4		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.7									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/18/2019

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑↑ ↘		↘	
Traffic Vol, veh/h	168	911	929	53	6	30
Future Vol, veh/h	168	911	929	53	6	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	911	929	53	6	30

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	982	0	0	1656	491
Stage 1	-	-	-	956	-
Stage 2	-	-	-	700	-
Critical Hdwy	5.34	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	3.82	3.92
Pot Cap-1 Maneuver	399	-	-	143	448
Stage 1	-	-	-	257	-
Stage 2	-	-	-	413	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	399	-	-	83	448
Mov Cap-2 Maneuver	-	-	-	83	-
Stage 1	-	-	-	149	-
Stage 2	-	-	-	413	-

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	21.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	399	-	-	-	259
HCM Lane V/C Ratio	0.421	-	-	-	0.139
HCM Control Delay (s)	20.4	-	-	-	21.1
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	2	-	-	-	0.5

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑		↘	
Traffic Vol, veh/h	34	1304	1106	8	14	81
Future Vol, veh/h	34	1304	1106	8	14	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	1304	1106	8	14	81













Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1114	0	-	0	1700 557
Stage 1	-	-	-	-	1110 -
Stage 2	-	-	-	-	590 -
Critical Hdwy	5.34	-	-	-	5.74 7.14
Critical Hdwy Stg 1	-	-	-	-	6.64 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	3.12	-	-	-	3.82 3.92
Pot Cap-1 Maneuver	345	-	-	-	135 406
Stage 1	-	-	-	-	207 -
Stage 2	-	-	-	-	471 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	345	-	-	-	122 406
Mov Cap-2 Maneuver	-	-	-	-	122 -
Stage 1	-	-	-	-	187 -
Stage 2	-	-	-	-	471 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	22.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	345	-	-	-	302
HCM Lane V/C Ratio	0.099	-	-	-	0.315
HCM Control Delay (s)	16.6	-	-	-	22.3
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.3













HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Volume (veh/h)	0	1564	271	0	934	210	0	0	0	702	0	334
Future Volume (veh/h)	0	1564	271	0	934	210	0	0	0	702	0	334
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	1564	271	0	934	210				702	0	334
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	1544	691	0	1544	1295				677	0	605
Arrive On Green	0.00	0.44	0.44	0.00	0.44	0.44				0.38	0.00	0.38
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	1564	271	0	934	210				702	0	334
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	28.8	7.7	0.0	13.3	1.8				25.2	0.0	10.9
Cycle Q Clear(g_c), s	0.0	28.8	7.7	0.0	13.3	1.8				25.2	0.0	10.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1544	691	0	1544	1295				677	0	605
V/C Ratio(X)	0.00	1.01	0.39	0.00	0.60	0.16				1.04	0.00	0.55
Avail Cap(c_a), veh/h	0	1544	691	0	1544	1295				677	0	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.6	12.6	0.0	14.2	1.3				20.4	0.0	16.0
Incr Delay (d2), s/veh	0.0	26.1	1.7	0.0	1.8	0.3				44.3	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	19.5	3.6	0.0	6.9	2.5				20.6	0.0	4.9
LnGrp Delay(d),s/veh	0.0	44.7	14.3	0.0	16.0	1.5				64.7	0.0	17.1
LnGrp LOS		F	B		B	A				F		B
Approach Vol, veh/h		1835			1144						1036	
Approach Delay, s/veh		40.2			13.3						49.4	
Approach LOS		D			B						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		35.0		31.0		35.0						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		28.8		25.2		28.8						
Max Q Clear Time (g_c+I1), s		30.8		27.2		15.3						
Green Ext Time (p_c), s		0.0		0.0		7.3						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			34.9									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps













04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Volume (veh/h)	0	1512	400	0	1801	520	0	0	0	738	0	360
Future Volume (veh/h)	0	1512	400	0	1801	520	0	0	0	738	0	360
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	1512	400	0	1801	520				738	0	360
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	1813	811	0	1813	1295				543	0	485
Arrive On Green	0.00	0.51	0.51	0.00	0.51	0.51				0.31	0.00	0.31
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	1512	400	0	1801	520				738	0	360
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	24.0	10.9	0.0	33.4	5.9				20.2	0.0	13.5
Cycle Q Clear(g_c), s	0.0	24.0	10.9	0.0	33.4	5.9				20.2	0.0	13.5
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1813	811	0	1813	1295				543	0	485
V/C Ratio(X)	0.00	0.83	0.49	0.00	0.99	0.40				1.36	0.00	0.74
Avail Cap(c_a), veh/h	0	1813	811	0	1813	1295				543	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	10.5	0.0	16.0	1.6				22.9	0.0	20.6
Incr Delay (d2), s/veh	0.0	4.7	2.1	0.0	19.7	0.9				173.3	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.7	5.1	0.0	21.0	7.1				35.9	0.0	6.6
LnGrp Delay(d),s/veh	0.0	18.4	12.7	0.0	35.7	2.6				196.2	0.0	26.7
LnGrp LOS		B	B		D	A				F		C
Approach Vol, veh/h		1912			2321						1098	
Approach Delay, s/veh		17.2			28.3						140.6	
Approach LOS		B			C						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		40.0		26.0		40.0						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		33.8		20.2		33.8						
Max Q Clear Time (g_c+I1), s		26.0		22.2		35.4						
Green Ext Time (p_c), s		6.7		0.0		0.0						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			47.4									
HCM 2010 LOS			D									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy













04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	1770	496	0	850	408	294	0	487	0	0	0
Future Volume (veh/h)	0	1770	496	0	850	408	294	0	487	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	1770	496	0	850	408	294	0	487			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2287	1023	0	2191	1023	748	0	606			
Arrive On Green	0.00	0.65	0.65	0.00	0.65	0.65	0.22	0.00	0.22			
Sat Flow, veh/h	0	3632	1583	0	3558	1583	3442	0	2787			
Grp Volume(v), veh/h	0	1770	496	0	850	408	294	0	487			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1583	1721	0	1393			
Q Serve(g_s), s	0.0	23.4	10.7	0.0	7.8	8.1	4.8	0.0	10.9			
Cycle Q Clear(g_c), s	0.0	23.4	10.7	0.0	7.8	8.1	4.8	0.0	10.9			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2287	1023	0	2191	1023	748	0	606			
V/C Ratio(X)	0.00	0.77	0.48	0.00	0.39	0.40	0.39	0.00	0.80			
Avail Cap(c_a), veh/h	0	2287	1023	0	2191	1023	980	0	794			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	8.3	6.0	0.0	5.5	5.6	22.1	0.0	24.5			
Incr Delay (d2), s/veh	0.0	2.6	1.6	0.0	0.5	1.2	0.2	0.0	4.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	11.9	5.0	0.0	3.7	3.8	2.3	0.0	4.5			
LnGrp Delay(d),s/veh	0.0	10.9	7.7	0.0	6.0	6.7	22.3	0.0	28.6			
LnGrp LOS		B	A		A	A	C		C			
Approach Vol, veh/h		2266			1258			781				
Approach Delay, s/veh		10.2			6.3			26.2				
Approach LOS		B			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		47.9				47.9		18.1				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		38.2				38.2		18.8				
Max Q Clear Time (g_c+I1), s		25.4				10.1		12.9				
Green Ext Time (p_c), s		12.5				19.5		1.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			11.9									
HCM 2010 LOS			B									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy






















04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	1704	545	0	1987	625	334	0	442	0	0	0
Future Volume (veh/h)	0	1704	545	0	1987	625	334	0	442	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	1704	545	0	1987	625	334	0	442			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2336	1045	0	2571	761	701	0	568			
Arrive On Green	0.00	0.66	0.66	0.00	0.66	0.66	0.20	0.00	0.20			
Sat Flow, veh/h	0	3632	1583	0	4064	1153	3442	0	2787			
Grp Volume(v), veh/h	0	1704	545	0	1713	899	334	0	442			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1659	1721	0	1393			
Q Serve(g_s), s	0.0	20.8	11.8	0.0	22.9	26.6	5.6	0.0	9.9			
Cycle Q Clear(g_c), s	0.0	20.8	11.8	0.0	22.9	26.6	5.6	0.0	9.9			
Prop In Lane	0.00		1.00	0.00		0.69	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2336	1045	0	2237	1095	701	0	568			
V/C Ratio(X)	0.00	0.73	0.52	0.00	0.77	0.82	0.48	0.00	0.78			
Avail Cap(c_a), veh/h	0	2336	1045	0	2237	1095	980	0	794			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.4	5.8	0.0	7.7	8.3	23.2	0.0	24.9			
Incr Delay (d2), s/veh	0.0	2.0	1.9	0.0	2.6	7.0	0.4	0.0	2.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	10.6	5.5	0.0	11.3	13.9	2.7	0.0	4.0			
LnGrp Delay(d),s/veh	0.0	9.4	7.7	0.0	10.3	15.3	23.5	0.0	27.6			
LnGrp LOS		A	A		B	B	C		C			
Approach Vol, veh/h		2249			2612			776				
Approach Delay, s/veh		9.0			12.0			25.9				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		48.9				48.9		17.1				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		38.2				38.2		18.8				
Max Q Clear Time (g_c+I1), s		22.8				28.6		11.9				
Green Ext Time (p_c), s		14.9				9.6		1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.7									
HCM 2010 LOS			B									



HCM 2010 Signalized Intersection Summary  
 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy






















05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	571	1349	98	5	1081	353	134	129	28	68	26	65
Future Volume (veh/h)	571	1349	98	5	1081	353	134	129	28	68	26	65
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	571	1349	98	5	1081	353	134	129	28	68	26	65
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	565	3160	230	25	1308	427	159	272	58	136	136	620
Arrive On Green	0.32	0.65	0.65	0.01	0.34	0.34	0.09	0.09	0.09	0.08	0.07	0.07
Sat Flow, veh/h	1774	4839	352	1774	3795	1239	1774	2908	615	1774	1863	1583
Grp Volume(v), veh/h	571	945	502	5	966	468	134	77	80	68	26	65
Grp Sat Flow(s),veh/h/ln	1774	1695	1801	1774	1695	1644	1774	1770	1754	1774	1863	1583
Q Serve(g_s), s	42.0	17.7	17.7	0.4	34.4	34.5	9.8	5.5	5.7	4.9	1.7	0.0
Cycle Q Clear(g_c), s	42.0	17.7	17.7	0.4	34.4	34.5	9.8	5.5	5.7	4.9	1.7	0.0
Prop In Lane	1.00		0.20	1.00		0.75	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	565	2214	1176	25	1169	567	159	166	164	136	136	620
V/C Ratio(X)	1.01	0.43	0.43	0.20	0.83	0.83	0.84	0.47	0.49	0.50	0.19	0.10
Avail Cap(c_a), veh/h	565	2214	1176	148	1246	604	242	442	439	242	466	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	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	11.0	11.0	64.4	39.6	39.6	59.2	56.7	56.8	58.5	57.5	25.5
Incr Delay (d2), s/veh	40.6	0.6	1.1	1.5	6.7	13.0	6.8	1.4	1.5	1.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.9	8.5	9.2	0.2	17.2	17.6	5.1	2.7	2.8	2.4	0.9	1.5
LnGrp Delay(d),s/veh	85.6	11.6	12.2	65.8	46.4	52.6	65.9	58.1	58.3	59.6	58.2	25.6
LnGrp LOS	F	B	B	E	D	D	E	E	E	E	E	C
Approach Vol, veh/h		2018			1439			291			159	
Approach Delay, s/veh		32.7			48.4			61.8			45.5	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	91.7	17.8	15.6	47.5	51.0	15.1	18.4				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	2.4	19.7	11.8	3.7	44.0	36.5	6.9	7.7				
Green Ext Time (p_c), s	0.0	17.3	0.1	0.3	0.0	9.1	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.2									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	1501	270	70	1533	252	131	98	18	404	265	739
Future Volume (veh/h)	293	1501	270	70	1533	252	131	98	18	404	265	739
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	293	1501	270	70	1533	252	131	98	18	404	265	739
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	1799	323	136	1614	265	156	627	112	242	466	588
Arrive On Green	0.12	0.41	0.41	0.08	0.37	0.37	0.09	0.21	0.21	0.14	0.25	0.25
Sat Flow, veh/h	1774	4337	778	1774	4404	722	1774	2999	538	1774	1863	1583
Grp Volume(v), veh/h	293	1172	599	70	1179	606	131	57	59	404	265	739
Grp Sat Flow(s),veh/h/ln	1774	1695	1725	1774	1695	1735	1774	1770	1768	1774	1863	1583
Q Serve(g_s), s	16.0	40.8	41.0	5.0	44.6	44.8	9.6	3.5	3.6	18.0	16.4	33.0
Cycle Q Clear(g_c), s	16.0	40.8	41.0	5.0	44.6	44.8	9.6	3.5	3.6	18.0	16.4	33.0
Prop In Lane	1.00		0.45	1.00		0.42	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	215	1406	716	136	1243	636	156	370	369	242	466	588
V/C Ratio(X)	1.36	0.83	0.84	0.51	0.95	0.95	0.84	0.15	0.16	1.67	0.57	1.26
Avail Cap(c_a), veh/h	215	1406	716	148	1246	638	242	442	442	242	466	588
HCM Platoon Ratio	1.00	1.00	1.00	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	0.46	0.46	0.46	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.0	34.5	34.6	58.5	40.6	40.7	59.3	42.7	42.7	57.0	43.3	41.5
Incr Delay (d2), s/veh	189.2	5.9	11.2	1.1	15.9	25.7	4.2	0.1	0.1	319.0	1.6	128.9
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	19.2	20.2	21.7	2.5	23.5	26.1	4.9	1.7	1.8	30.2	8.7	37.1
LnGrp Delay(d),s/veh	247.1	40.5	45.8	59.7	56.5	66.4	63.5	42.8	42.8	376.0	44.9	170.4
LnGrp LOS	F	D	D	E	E	E	E	D	D	F	D	F
Approach Vol, veh/h		2064			1855			247			1408	
Approach Delay, s/veh		71.4			59.8			53.8			205.8	
Approach LOS		E			E			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.2	60.3	17.6	39.0	21.5	53.9	23.0	33.6				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	7.0	43.0	11.6	35.0	18.0	46.8	20.0	5.6				
Green Ext Time (p_c), s	0.0	4.9	0.1	0.0	0.0	1.6	0.0	0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			100.7									
HCM 2010 LOS			F									
<b>Notes</b>												

























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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 4: McBean Pkwy & Valencia Blvd

04/19/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	443	1266	99	392	964	115	327	1189	416	67	671	973
Future Volume (veh/h)	443	1266	99	392	964	115	327	1189	416	67	671	973
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	443	1266	99	392	964	115	327	1189	416	67	671	973
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1492	656	412	1560	661	417	1555	1185	381	1502	1140
Arrive On Green	0.11	0.29	0.29	0.12	0.31	0.31	0.12	0.31	0.31	0.04	0.10	0.10
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	443	1266	99	392	964	115	327	1189	416	67	671	973
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	30.9	3.0	14.9	21.4	6.0	12.2	28.0	3.4	2.5	16.4	39.0
Cycle Q Clear(g_c), s	15.0	30.9	3.0	14.9	21.4	6.0	12.2	28.0	3.4	2.5	16.4	39.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1492	656	412	1560	661	417	1555	1185	381	1502	1140
V/C Ratio(X)	1.13	0.85	0.15	0.95	0.62	0.17	0.78	0.76	0.35	0.18	0.45	0.85
Avail Cap(c_a), veh/h	391	1560	678	412	1560	661	417	1555	1185	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.62	0.62	0.62	0.96	0.96	0.96	0.32	0.32	0.32
Uniform Delay (d), s/veh	58.5	43.9	9.9	57.7	39.1	24.1	56.3	41.5	10.6	57.7	49.4	44.4
Incr Delay (d2), s/veh	86.8	6.2	0.5	23.7	1.1	0.4	8.4	2.5	0.3	0.0	0.1	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	11.8	15.3	1.6	8.5	10.2	2.7	6.3	13.5	3.0	1.2	7.7	15.6
LnGrp Delay(d),s/veh	145.3	50.1	10.4	81.5	40.3	24.5	64.7	44.0	10.9	57.8	49.5	46.8
LnGrp LOS	F	D	B	F	D	C	E	D	B	E	D	D
Approach Vol, veh/h		1808			1471			1932			1711	
Approach Delay, s/veh		71.2			50.0			40.4			48.3	
Approach LOS		E			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	46.5	19.6	45.9	21.8	44.7	21.0	44.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	6.0	* 6	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	* 41	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	23.4	4.5	30.0	16.9	32.9	14.2	41.0				
Green Ext Time (p_c), s	0.0	9.1	0.1	7.3	0.0	5.8	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			52.4									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

























HCM 2010 Signalized Intersection Summary  
 4: McBean Pkwy & Valencia Blvd

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1068	1354	406	931	1150	238	247	1140	665	121	1295	1114
Future Volume (veh/h)	1068	1354	406	931	1150	238	247	1140	665	121	1295	1114
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1068	1354	406	931	1150	238	247	1140	665	121	1295	1114
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1560	678	391	1560	675	417	1510	1144	412	1502	1140
Arrive On Green	0.11	0.31	0.31	0.11	0.31	0.31	0.12	0.30	0.30	0.04	0.10	0.10
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	1068	1354	406	931	1150	238	247	1140	665	121	1295	1114
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	33.2	26.0	15.0	26.7	13.4	9.0	26.8	24.4	4.5	33.1	39.0
Cycle Q Clear(g_c), s	15.0	33.2	26.0	15.0	26.7	13.4	9.0	26.8	24.4	4.5	33.1	39.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1560	678	391	1560	675	417	1510	1144	412	1502	1140
V/C Ratio(X)	2.73	0.87	0.60	2.38	0.74	0.35	0.59	0.76	0.58	0.29	0.86	0.98
Avail Cap(c_a), veh/h	391	1560	678	391	1560	675	417	1510	1144	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.63	0.63	0.63	0.77	0.77	0.77	0.28	0.28	0.28
Uniform Delay (d), s/veh	58.5	43.2	29.0	58.5	41.0	25.5	54.9	42.1	30.1	58.0	56.9	47.2
Incr Delay (d2), s/veh	786.0	6.8	3.9	626.2	2.0	0.9	1.2	1.9	0.8	0.0	1.7	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	49.8	16.5	12.1	41.1	12.7	6.0	4.3	12.8	9.5	2.2	15.8	21.2
LnGrp Delay(d),s/veh	844.5	50.0	32.9	684.7	43.0	26.4	56.1	44.0	30.9	58.0	58.6	56.9
LnGrp LOS	F	D	C	F	D	C	E	D	C	E	E	E
Approach Vol, veh/h		2828			2319			2052			2530	
Approach Delay, s/veh		347.6			298.9			41.2			57.8	
Approach LOS		F			F			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	46.5	20.8	44.7	20.0	46.5	21.0	44.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	5.0	6.0	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	40.5	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	28.7	6.5	28.8	17.0	35.2	11.0	41.0				
Green Ext Time (p_c), s	0.0	8.4	0.1	8.4	0.0	4.6	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			196.0									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary  
5: Magic Mtn Pkwy & McBean Pkwy

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	612	1367	211	22	1000	566	282	1265	28	536	1711	798
Future Volume (veh/h)	612	1367	211	22	1000	566	282	1265	28	536	1711	798
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	612	1367	211	22	1000	566	282	1265	0	536	1711	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	705	1217	544	188	1271	588	417	2010	497	417	2010	497
Arrive On Green	0.14	0.34	0.34	0.05	0.25	0.25	0.04	0.10	0.00	0.12	0.31	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	612	1367	211	22	1000	566	282	1265	0	536	1711	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	15.8	45.4	13.3	0.8	24.2	26.4	10.7	25.0	0.0	16.0	33.0	0.0
Cycle Q Clear(g_c), s	15.8	45.4	13.3	0.8	24.2	26.4	10.7	25.0	0.0	16.0	33.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	705	1217	544	188	1271	588	417	2010	497	417	2010	497
V/C Ratio(X)	0.87	1.12	0.39	0.12	0.79	0.96	0.68	0.63	0.00	1.28	0.85	0.00
Avail Cap(c_a), veh/h	910	1217	544	391	1310	600	417	2010	497	417	2010	497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	0.44	0.44	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.5	43.3	32.8	59.4	46.2	16.8	60.8	51.8	0.0	58.0	42.4	0.0
Incr Delay (d2), s/veh	6.1	66.7	0.8	0.0	0.3	5.1	1.6	0.7	0.0	145.3	4.8	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	7.7	33.4	6.0	0.4	11.4	12.2	5.2	11.2	0.0	16.0	15.3	0.0
LnGrp Delay(d),s/veh	61.6	110.0	33.6	59.4	46.5	21.9	62.4	52.5	0.0	203.3	47.2	0.0
LnGrp LOS	E	F	C	E	D	C	E	D		F	D	
Approach Vol, veh/h		2190			1588			1547			2247	
Approach Delay, s/veh		89.1			37.9			54.3			84.4	
Approach LOS		F			D			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	51.4	21.0	47.4	24.6	39.0	21.0	47.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	2.8	47.4	12.7	35.0	17.8	28.4	18.0	27.0				
Green Ext Time (p_c), s	0.0	0.0	0.2	0.9	0.8	4.6	0.0	6.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			69.9									
HCM 2010 LOS			E									
<b>Notes</b>												



























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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 5: Magic Mtn Pkwy & McBean Pkwy

04/19/2019






























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	652	1785	487	191	1428	691	517	1992	174	372	1765	300
Future Volume (veh/h)	652	1785	487	191	1428	691	517	1992	174	372	1765	300
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	652	1785	487	191	1428	691	517	1992	0	372	1765	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	795	1153	516	339	1310	600	417	1845	456	417	1845	456
Arrive On Green	0.16	0.33	0.33	0.10	0.26	0.26	0.24	0.58	0.00	0.12	0.29	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	652	1785	487	191	1428	691	517	1992	0	372	1765	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	16.6	43.0	39.5	7.0	34.0	27.3	16.0	38.0	0.0	14.1	35.7	0.0
Cycle Q Clear(g_c), s	16.6	43.0	39.5	7.0	34.0	27.3	16.0	38.0	0.0	14.1	35.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	795	1153	516	339	1310	600	417	1845	456	417	1845	456
V/C Ratio(X)	0.82	1.55	0.94	0.56	1.09	1.15	1.24	1.08	0.00	0.89	0.96	0.00
Avail Cap(c_a), veh/h	910	1153	516	391	1310	600	417	1845	456	417	1845	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	0.09	0.09	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.7	44.5	43.3	56.8	49.0	16.7	50.0	28.0	0.0	57.1	46.2	0.0
Incr Delay (d2), s/veh	4.7	251.0	26.6	0.0	42.0	70.5	109.7	36.9	0.0	20.1	12.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	61.2	21.1	3.3	21.0	23.5	13.9	21.1	0.0	7.8	17.5	0.0
LnGrp Delay(d),s/veh	58.3	295.5	70.0	56.9	91.0	87.1	159.7	64.9	0.0	77.3	59.1	0.0
LnGrp LOS	E	F	E	E	F	F	F	F		E	E	
Approach Vol, veh/h		2924			2310			2509			2137	
Approach Delay, s/veh		205.1			87.0			84.4			62.3	
Approach LOS		F			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	49.0	21.0	44.0	27.0	40.0	21.0	44.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	9.0	45.0	18.0	37.7	18.6	36.0	16.1	40.0				
Green Ext Time (p_c), s	0.2	0.0	0.0	0.0	0.8	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			116.0									
HCM 2010 LOS			F									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/19/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 			 	
Traffic Volume (veh/h)	387	1017	137	144	806	82	205	295	91	139	267	587
Future Volume (veh/h)	387	1017	137	144	806	82	205	295	91	139	267	587
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	387	1017	137	144	806	82	205	295	91	139	267	587
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	443	1231	166	338	1582	160	215	988	442	164	885	600
Arrive On Green	0.13	0.27	0.27	0.19	0.34	0.34	0.12	0.28	0.28	0.09	0.25	0.25
Sat Flow, veh/h	3442	4536	610	1774	4694	475	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	387	760	394	144	581	307	205	295	91	139	267	587
Grp Sat Flow(s),veh/h/ln	1721	1695	1755	1774	1695	1779	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	14.6	27.8	27.9	9.4	18.1	18.3	15.2	8.7	3.6	10.2	8.1	33.0
Cycle Q Clear(g_c), s	14.6	27.8	27.9	9.4	18.1	18.3	15.2	8.7	3.6	10.2	8.1	33.0
Prop In Lane	1.00		0.35	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	443	920	476	338	1143	600	215	988	442	164	885	600
V/C Ratio(X)	0.87	0.83	0.83	0.43	0.51	0.51	0.95	0.30	0.21	0.85	0.30	0.98
Avail Cap(c_a), veh/h	600	989	512	338	1143	600	215	988	442	215	885	600
HCM Platoon Ratio	1.00	1.00	1.00	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	0.97	0.97	0.97	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	56.4	45.2	45.2	47.0	35.0	35.1	57.6	37.4	13.7	59.0	40.2	40.5
Incr Delay (d2), s/veh	8.4	8.4	15.2	0.3	1.6	3.0	47.7	0.3	0.4	16.6	0.3	30.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	14.0	15.5	4.7	8.7	9.5	10.3	4.3	2.4	5.8	4.0	26.1
LnGrp Delay(d),s/veh	64.9	53.5	60.4	47.4	36.6	38.1	105.4	37.7	14.1	75.6	40.5	70.9
LnGrp LOS	E	D	E	D	D	D	F	D	B	E	D	E
Approach Vol, veh/h		1541			1032			591			993	
Approach Delay, s/veh		58.1			38.5			57.6			63.4	
Approach LOS		E			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	50.0	17.2	42.8	30.7	41.3	21.0	39.0				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	38.5	16.0	33.0	23.0	* 39	16.0	33.0				
Max Q Clear Time (g_c+I1), s	16.6	20.3	12.2	10.7	11.4	29.9	17.2	35.0				
Green Ext Time (p_c), s	0.4	8.1	0.1	3.3	0.1	6.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			54.4									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.  
User approved changes to right turn type.




















HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	613	1199	20	130	1256	181	313	331	141	165	703	650
Future Volume (veh/h)	613	1199	20	130	1256	181	313	331	141	165	703	650
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	613	1199	20	130	1256	181	313	331	141	165	703	650
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	1780	30	160	1174	169	269	1042	466	190	885	672
Arrive On Green	0.17	0.35	0.35	0.09	0.26	0.26	0.15	0.29	0.29	0.11	0.25	0.25
Sat Flow, veh/h	3442	5152	86	1774	4491	647	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	613	789	430	130	948	489	313	331	141	165	703	650
Grp Sat Flow(s),veh/h/ln	1721	1695	1848	1774	1695	1749	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	23.0	26.2	26.2	9.5	34.5	34.5	20.0	9.6	9.1	12.1	24.5	33.0
Cycle Q Clear(g_c), s	23.0	26.2	26.2	9.5	34.5	34.5	20.0	9.6	9.1	12.1	24.5	33.0
Prop In Lane	1.00		0.05	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	1171	638	160	886	457	269	1042	466	190	885	672
V/C Ratio(X)	1.02	0.67	0.67	0.81	1.07	1.07	1.16	0.32	0.30	0.87	0.79	0.97
Avail Cap(c_a), veh/h	600	1171	638	309	886	457	269	1042	466	269	885	672
HCM Platoon Ratio	1.00	1.00	1.00	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	0.57	0.57	0.57	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	54.5	36.9	36.9	59.0	48.7	48.8	56.0	36.3	36.1	58.0	46.3	37.1
Incr Delay (d2), s/veh	42.5	3.1	5.6	2.2	44.1	52.1	106.8	0.3	0.6	12.6	4.7	24.4
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	14.4	12.8	14.4	4.8	21.5	23.2	17.8	4.7	4.1	6.6	12.6	27.7
LnGrp Delay(d),s/veh	97.0	40.0	42.5	61.1	92.8	100.9	162.8	36.6	36.7	70.6	51.0	61.5
LnGrp LOS	F	D	D	E	F	F	F	D	D	E	D	E
Approach Vol, veh/h		1832			1567			785			1518	
Approach Delay, s/veh		59.6			92.7			86.9			57.6	
Approach LOS		E			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.0	40.0	19.2	44.8	16.9	51.1	25.0	39.0				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.0	5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	34.5	20.0	33.0	23.0	34.5	20.0	33.0				
Max Q Clear Time (g_c+I1), s	25.0	36.5	14.1	11.6	11.5	28.2	22.0	35.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	3.9	0.1	4.7	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				71.9								
HCM 2010 LOS				E								




















HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	61	25	64	13	9	44	113	525	52	54	861	45
Future Volume (veh/h)	61	25	64	13	9	44	113	525	52	54	861	45
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	61	25	64	13	9	44	113	525	52	54	861	45
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	39	77	122	74	186	137	2287	226	104	2341	122
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.70	0.70	0.06	0.68	0.68
Sat Flow, veh/h	547	334	656	670	631	1583	1774	3254	321	1774	3422	179
Grp Volume(v), veh/h	150	0	0	22	0	44	113	285	292	54	445	461
Grp Sat Flow(s),veh/h/ln	1537	0	0	1301	0	1583	1774	1770	1806	1774	1770	1831
Q Serve(g_s), s	10.8	0.0	0.0	0.0	0.0	3.3	8.3	7.5	7.6	3.9	14.0	14.0
Cycle Q Clear(g_c), s	12.6	0.0	0.0	1.4	0.0	3.3	8.3	7.5	7.6	3.9	14.0	14.0
Prop In Lane	0.41		0.43	0.59		1.00	1.00		0.18	1.00		0.10
Lane Grp Cap(c), veh/h	219	0	0	196	0	186	137	1244	1269	104	1211	1253
V/C Ratio(X)	0.69	0.00	0.00	0.11	0.00	0.24	0.82	0.23	0.23	0.52	0.37	0.37
Avail Cap(c_a), veh/h	534	0	0	506	0	516	376	1244	1269	202	1211	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.87	0.00	0.87	0.84	0.84	0.84	0.83	0.83	0.83
Uniform Delay (d), s/veh	56.9	0.0	0.0	52.0	0.0	52.9	60.0	6.9	7.0	60.3	8.8	8.8
Incr Delay (d2), s/veh	3.8	0.0	0.0	0.2	0.0	0.6	3.9	0.4	0.4	1.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	0.0	0.7	0.0	1.5	4.2	3.8	3.9	2.0	7.0	7.3
LnGrp Delay(d),s/veh	60.7	0.0	0.0	52.3	0.0	53.5	63.9	7.3	7.3	61.5	9.5	9.5
LnGrp LOS	E			D		D	E	A	A	E	A	A
Approach Vol, veh/h		150			66			690			960	
Approach Delay, s/veh		60.7			53.1			16.6			12.4	
Approach LOS		E			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	98.8		20.5	15.2	96.3		20.5				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	5.9	9.6		5.3	10.3	16.0		14.6				
Green Ext Time (p_c), s	0.0	6.3		0.2	0.1	10.0		0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				19.3								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd

04/19/2019

























												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	79	19	74	81	66	341	99	930	54	69	1019	32
Future Volume (veh/h)	79	19	74	81	66	341	99	930	54	69	1019	32
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	79	19	74	81	66	341	99	930	54	69	1019	32
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	36	85	188	142	376	122	1967	114	111	2005	63
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.07	0.58	0.58	0.06	0.57	0.57
Sat Flow, veh/h	322	151	357	615	598	1583	1774	3400	197	1774	3503	110
Grp Volume(v), veh/h	172	0	0	147	0	341	99	484	500	69	515	536
Grp Sat Flow(s),veh/h/ln	830	0	0	1212	0	1583	1774	1770	1828	1774	1770	1843
Q Serve(g_s), s	14.5	0.0	0.0	0.0	0.0	27.6	7.3	20.9	20.9	5.0	23.2	23.2
Cycle Q Clear(g_c), s	28.3	0.0	0.0	13.7	0.0	27.6	7.3	20.9	20.9	5.0	23.2	23.2
Prop In Lane	0.46		0.43	0.55		1.00	1.00		0.11	1.00		0.06
Lane Grp Cap(c), veh/h	237	0	0	330	0	376	122	1024	1058	111	1013	1055
V/C Ratio(X)	0.73	0.00	0.00	0.45	0.00	0.91	0.81	0.47	0.47	0.62	0.51	0.51
Avail Cap(c_a), veh/h	347	0	0	463	0	516	376	1024	1058	202	1013	1055
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.63	0.00	0.63	0.59	0.59	0.59	0.66	0.66	0.66
Uniform Delay (d), s/veh	52.3	0.0	0.0	43.2	0.0	48.9	60.6	16.1	16.1	60.3	17.0	17.0
Incr Delay (d2), s/veh	4.2	0.0	0.0	0.6	0.0	10.9	2.8	0.9	0.9	1.4	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	6.4	0.0	0.0	4.7	0.0	13.3	3.7	10.5	10.8	2.5	11.6	12.1
LnGrp Delay(d),s/veh	56.5	0.0	0.0	43.8	0.0	59.9	63.4	17.1	17.0	61.7	18.2	18.2
LnGrp LOS	E			D		E	E	B	B	E	B	B
Approach Vol, veh/h		172			488			1083			1120	
Approach Delay, s/veh		56.5			55.0			21.3			20.9	
Approach LOS		E			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.3	82.4		36.3	14.1	81.5		36.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	7.0	22.9		29.6	9.3	25.2		30.3				
Green Ext Time (p_c), s	0.0	12.0		1.7	0.1	9.9		0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				29.0								
HCM 2010 LOS				C								



# HCM 2010 Signalized Intersection Summary

## 8: Valley St/Orchard Village Rd & Lyons Ave

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1051	8	126	746	421	13	166	132	338	124	71
Future Volume (veh/h)	90	1051	8	126	746	421	13	166	132	338	124	71
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	90	1051	8	126	746	421	13	166	132	338	124	71
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	1941	868	150	2810	1056	188	331	148	394	197	167
Arrive On Green	0.08	0.55	0.55	0.08	0.55	0.55	0.11	0.09	0.09	0.11	0.11	0.11
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	90	1051	8	126	746	421	13	166	132	338	124	71
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	3.3	25.2	0.3	9.2	10.2	5.6	0.9	5.9	8.9	12.7	8.4	5.5
Cycle Q Clear(g_c), s	3.3	25.2	0.3	9.2	10.2	5.6	0.9	5.9	8.9	12.7	8.4	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	276	1941	868	150	2810	1056	188	331	148	394	197	167
V/C Ratio(X)	0.33	0.54	0.01	0.84	0.27	0.40	0.07	0.50	0.89	0.86	0.63	0.42
Avail Cap(c_a), veh/h	417	1941	868	175	2810	1056	282	1032	462	574	557	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	0.84	0.84	0.84	1.00	1.00	1.00	0.36	0.36	0.36
Uniform Delay (d), s/veh	57.3	19.1	13.5	59.5	15.5	2.9	53.1	56.9	39.7	57.4	56.5	55.3
Incr Delay (d2), s/veh	0.2	0.9	0.0	20.2	0.2	0.9	0.2	1.2	16.2	2.3	1.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	12.5	0.1	5.4	4.8	3.2	0.4	2.9	5.0	6.2	4.4	2.5
LnGrp Delay(d),s/veh	57.5	20.0	13.5	79.8	15.7	3.8	53.3	58.1	55.9	59.7	58.0	56.0
LnGrp LOS	E	C	B	E	B	A	D	E	E	E	E	E
Approach Vol, veh/h		1149			1293			311			533	
Approach Delay, s/veh		22.9			18.1			56.9			58.8	
Approach LOS		C			B			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.6	77.9	20.6	17.8	16.2	77.4	19.0	19.5				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	5.3	12.2	14.7	10.9	11.2	27.2	2.9	10.4				
Green Ext Time (p_c), s	0.1	11.0	0.4	1.4	0.0	6.9	0.0	1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			30.1									
HCM 2010 LOS			C									
<b>Notes</b>												































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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 8: Valley St/Orchard Village Rd & Lyons Ave

05/01/2019
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  			 		 		
Traffic Volume (veh/h)	193	948	16	191	1350	520	7	226	249	888	234	63
Future Volume (veh/h)	193	948	16	191	1350	520	7	226	249	888	234	63
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	193	948	16	191	1350	520	7	226	249	888	234	63
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1505	673	175	2240	961	188	533	238	574	400	340
Arrive On Green	0.08	0.43	0.43	0.03	0.15	0.15	0.11	0.15	0.15	0.17	0.21	0.21
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	193	948	16	191	1350	520	7	226	249	888	234	63
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	7.2	27.8	0.8	13.0	32.8	11.0	0.5	7.6	15.7	22.0	14.9	4.3
Cycle Q Clear(g_c), s	7.2	27.8	0.8	13.0	32.8	11.0	0.5	7.6	15.7	22.0	14.9	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	1505	673	175	2240	961	188	533	238	574	400	340
V/C Ratio(X)	0.67	0.63	0.02	1.09	0.60	0.54	0.04	0.42	1.04	1.55	0.58	0.19
Avail Cap(c_a), veh/h	417	1505	673	175	2240	961	282	1032	462	574	557	474
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	0.73	0.73	0.73	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	58.8	29.8	22.0	63.9	45.6	10.8	53.0	50.9	35.0	55.0	46.5	42.4
Incr Delay (d2), s/veh	0.7	1.4	0.0	85.3	0.9	1.6	0.1	0.5	43.1	247.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	13.8	0.3	10.5	15.6	16.3	0.2	3.8	10.2	30.1	7.7	1.9
LnGrp Delay(d),s/veh	59.5	31.2	22.1	149.2	46.5	12.4	53.0	51.4	78.1	302.4	46.7	42.4
LnGrp LOS	E	C	C	F	D	B	D	D	F	F	D	D
Approach Vol, veh/h		1157			2061			482			1185	
Approach Delay, s/veh		35.7			47.4			65.2			238.1	
Approach LOS		D			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	63.1	27.5	25.4	18.0	61.1	19.0	33.9				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	9.2	34.8	24.0	17.7	15.0	29.8	2.5	16.9				
Green Ext Time (p_c), s	0.2	0.2	0.0	2.2	0.0	5.2	0.0	1.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			92.7									
HCM 2010 LOS			F									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
























HCM 2010 Signalized Intersection Summary  
9: Orchard Village Rd & Wiley Cyn Rd

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	119	1022	353	546	782	241	201	405	102	348	654	689
Future Volume (veh/h)	119	1022	353	546	782	241	201	405	102	348	654	689
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	119	1022	353	546	782	241	201	405	102	348	654	689
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	1260	564	228	1425	781	313	553	138	269	912	408
Arrive On Green	0.08	0.36	0.36	0.13	0.40	0.40	0.09	0.20	0.20	0.15	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2808	700	1774	3539	1583
Grp Volume(v), veh/h	119	1022	353	546	782	241	201	254	253	348	654	689
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1739	1774	1770	1583
Q Serve(g_s), s	8.7	34.5	24.4	17.0	22.4	12.0	7.4	17.7	18.1	20.0	22.2	34.0
Cycle Q Clear(g_c), s	8.7	34.5	24.4	17.0	22.4	12.0	7.4	17.7	18.1	20.0	22.2	34.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	146	1260	564	228	1425	781	313	348	342	269	912	408
V/C Ratio(X)	0.82	0.81	0.63	2.39	0.55	0.31	0.64	0.73	0.74	1.29	0.72	1.69
Avail Cap(c_a), veh/h	296	1260	564	228	1425	781	521	456	448	269	912	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)	0.93	0.93	0.93	0.09	0.09	0.09	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	38.5	35.2	57.5	30.2	20.0	57.9	49.7	49.8	56.0	44.6	49.0
Incr Delay (d2), s/veh	3.9	5.4	4.8	626.6	0.1	0.1	0.8	5.7	6.3	157.4	3.2	320.7
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	4.4	17.8	11.4	48.1	10.9	5.2	3.6	9.2	9.3	21.5	11.2	51.2
LnGrp Delay(d),s/veh	63.5	43.8	40.0	684.1	30.4	20.1	58.7	55.4	56.1	213.4	47.8	369.7
LnGrp LOS	E	D	D	F	C	C	E	E	E	F	D	F
Approach Vol, veh/h		1494			1569			708			1691	
Approach Delay, s/veh		44.5			256.3			56.6			213.0	
Approach LOS		D			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	53.0	25.0	32.0	15.9	59.1	17.0	40.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	39.0	20.0	34.0	22.0	34.0	20.0	34.0				
Max Q Clear Time (g_c+I1), s	19.0	36.5	22.0	20.1	10.7	24.4	9.4	36.0				
Green Ext Time (p_c), s	0.0	2.1	0.0	3.7	0.1	5.6	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			159.1									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	126	975	449	653	1600	288	247	744	137	307	786	652
Future Volume (veh/h)	126	975	449	653	1600	288	247	744	137	307	786	652
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	126	975	449	653	1600	288	247	744	137	307	786	652
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	1180	528	228	1335	741	313	769	142	202	992	444
Arrive On Green	0.09	0.33	0.33	0.13	0.38	0.38	0.09	0.26	0.26	0.11	0.28	0.28
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2986	550	1774	3539	1583
Grp Volume(v), veh/h	126	975	449	653	1600	288	247	441	440	307	786	652
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1766	1774	1770	1583
Q Serve(g_s), s	9.2	33.5	34.8	17.0	49.8	15.6	9.3	32.5	32.5	15.0	27.1	37.0
Cycle Q Clear(g_c), s	9.2	33.5	34.8	17.0	49.8	15.6	9.3	32.5	32.5	15.0	27.1	37.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	151	1180	528	228	1335	741	313	456	455	202	992	444
V/C Ratio(X)	0.84	0.83	0.85	2.86	1.20	0.39	0.79	0.97	0.97	1.52	0.79	1.47
Avail Cap(c_a), veh/h	296	1180	528	228	1335	741	391	456	455	202	992	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.09	0.09	0.09	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	40.5	40.9	57.5	41.1	22.8	58.8	48.4	48.5	58.5	43.9	47.5
Incr Delay (d2), s/veh	3.9	5.7	13.6	837.2	90.2	0.1	6.0	32.1	32.2	258.9	4.9	223.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	17.3	17.2	61.4	41.0	6.8	4.7	20.0	20.0	21.8	13.9	43.7
LnGrp Delay(d),s/veh	63.4	46.2	54.6	894.7	131.3	23.0	64.7	80.5	80.7	317.4	48.8	270.6
LnGrp LOS	E	D	D	F	F	C	E	F	F	F	D	F
Approach Vol, veh/h		1550			2541			1128			1745	
Approach Delay, s/veh		50.0			315.2			77.1			178.9	
Approach LOS		D			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	50.0	20.0	40.0	16.2	55.8	17.0	43.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	44.0	15.0	34.0	22.0	39.0	15.0	34.0				
Max Q Clear Time (g_c+I1), s	19.0	36.8	17.0	34.5	11.2	51.8	11.3	39.0				
Green Ext Time (p_c), s	0.0	5.5	0.0	0.0	0.1	0.0	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				183.5								
HCM 2010 LOS				F								

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

04/19/2019


























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑↑		↘↘	↑↑↑	↗	↘	↗	↗↗	↘	↗↗		
Traffic Volume (vph)	105	304	935	644	567	58	1135	210	869	20	43	33	
Future Volume (vph)	105	304	935	644	567	58	1135	210	869	20	43	33	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0		
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91		
Frt	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		
Satd. Flow (prot)	1770	4510		3433	5085	1583	1681	1711	2787	1610	3171		
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		
Satd. Flow (perm)	1770	4510		3433	5085	1583	1681	1711	2787	1610	3171		
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)	105	304	935	644	567	58	1135	210	869	20	43	33	
RTOR Reduction (vph)	0	450	0	0	0	41	0	0	277	0	31	0	
Lane Group Flow (vph)	105	789	0	644	567	17	670	675	592	18	47	0	
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA		
Protected Phases	5	2		1	6		8	8	1	4	4		
Permitted Phases						6			8				
Actuated Green, G (s)	12.7	30.8		21.0	39.1	39.1	47.6	47.6	68.6	9.6	9.6		
Effective Green, g (s)	12.7	30.8		21.0	39.1	39.1	47.6	47.6	68.6	9.6	9.6		
Actuated g/C Ratio	0.10	0.23		0.16	0.30	0.30	0.36	0.36	0.52	0.07	0.07		
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0		
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	170	1052		546	1506	468	606	616	1448	117	230		
v/s Ratio Prot	0.06	c0.17		c0.19	0.11		c0.40	0.39	0.07	0.01	c0.01		
v/s Ratio Perm						0.01			0.15				
v/c Ratio	0.62	1.13dr		1.18	0.38	0.04	1.11	1.10	0.41	0.15	0.21		
Uniform Delay, d1	57.3	47.0		55.5	36.8	33.1	42.2	42.2	19.3	57.4	57.6		
Progression Factor	0.86	1.47		0.56	0.81	1.00	0.70	0.70	0.33	1.00	1.00		
Incremental Delay, d2	4.4	4.7		97.5	0.7	0.1	61.7	57.8	0.1	0.6	0.4		
Delay (s)	53.7	74.0		128.8	30.5	33.2	91.0	87.2	6.5	58.0	58.1		
Level of Service	D	E		F	C	C	F	F	A	E	E		
Approach Delay (s)		72.4			80.6			56.7			58.0		
Approach LOS		E			F			E			E		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			67.1									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.94										
Actuated Cycle Length (s)			132.0									Sum of lost time (s)	23.0
Intersection Capacity Utilization			103.2%									ICU Level of Service	G
Analysis Period (min)			15										
dr Defacto Right Lane. Recode with 1 though lane as a right lane.													
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

























04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	862	1472	1163	689	30	974	98	895	115	241	190
Future Volume (vph)	60	862	1472	1163	689	30	974	98	895	115	241	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4604		3433	5085	1583	1681	1700	2787	1610	3168	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4604		3433	5085	1583	1681	1700	2787	1610	3168	
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)	60	862	1472	1163	689	30	974	98	895	115	241	190
RTOR Reduction (vph)	0	234	0	0	0	19	0	0	333	0	113	0
Lane Group Flow (vph)	60	2100	0	1163	689	11	536	536	562	103	330	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	8.6	36.5		21.0	48.9	48.9	31.5	31.5	52.5	20.0	20.0	
Effective Green, g (s)	8.6	36.5		21.0	48.9	48.9	31.5	31.5	52.5	20.0	20.0	
Actuated g/C Ratio	0.07	0.28		0.16	0.37	0.37	0.24	0.24	0.40	0.15	0.15	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	115	1273		546	1883	586	401	405	1108	243	480	
v/s Ratio Prot	0.03	c0.46		c0.34	0.14		c0.32	0.32	0.08	0.06	c0.10	
v/s Ratio Perm						0.01			0.12			
v/c Ratio	0.52	2.19dr		2.13	0.37	0.02	1.34	1.32	0.51	0.42	0.69	
Uniform Delay, d1	59.7	47.8		55.5	30.3	26.3	50.2	50.2	30.0	50.8	53.0	
Progression Factor	1.00	0.71		1.23	0.59	1.00	0.77	0.77	0.75	1.00	1.00	
Incremental Delay, d2	1.3	294.8		513.8	0.5	0.1	160.4	154.6	0.2	1.2	4.1	
Delay (s)	61.1	328.6		581.9	18.2	26.4	199.2	193.4	22.6	52.0	57.1	
Level of Service	E	F		F	B	C	F	F	C	D	E	
Approach Delay (s)		321.9			366.7			117.2			56.1	
Approach LOS		F			F			F			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			253.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.48									
Actuated Cycle Length (s)			132.0				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			142.4%				ICU Level of Service			H		
Analysis Period (min)			15									
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												



























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	536	712	84	595	24	584	135	113	58	141	0
Future Volume (veh/h)	0	536	712	84	595	24	584	135	113	58	141	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	536	712	84	595	24	584	135	113	58	141	0
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	1848	1090	115	2212	990	574	313	266	166	176	150
Arrive On Green	0.00	0.87	0.87	0.07	0.62	0.62	0.17	0.17	0.17	0.09	0.09	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	0	536	712	84	595	24	584	135	113	58	141	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	3.4	6.6	6.1	10.0	0.8	22.0	8.6	8.4	4.0	9.8	0.0
Cycle Q Clear(g_c), s	0.0	3.4	6.6	6.1	10.0	0.8	22.0	8.6	8.4	4.0	9.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1	1848	1090	115	2212	990	574	313	266	166	176	150
V/C Ratio(X)	0.00	0.29	0.65	0.73	0.27	0.02	1.02	0.43	0.42	0.35	0.80	0.00
Avail Cap(c_a), veh/h	255	1848	1090	215	2212	990	574	607	516	242	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	4.3	0.6	60.6	11.2	9.4	55.0	49.3	49.2	56.1	58.5	0.0
Incr Delay (d2), s/veh	0.0	0.3	2.3	3.3	0.3	0.0	42.2	0.9	1.1	0.5	8.0	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	0.0	1.7	2.4	3.1	5.0	0.3	13.8	4.5	3.8	2.0	5.4	0.0
LnGrp Delay(d),s/veh	0.0	4.6	3.0	63.8	11.5	9.5	97.2	50.2	50.3	56.5	66.6	0.0
LnGrp LOS		A	A	E	B	A	F	D	D	E	E	
Approach Vol, veh/h		1248			703			832			199	
Approach Delay, s/veh		3.6			17.6			83.2			63.6	
Approach LOS		A			B			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	73.9	27.0	17.5	0.0	87.5	17.3	27.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	16.0	35.0	22.0	39.0	19.0	32.0	18.0	43.0				
Max Q Clear Time (g_c+I1), s	8.1	8.6	24.0	11.8	0.0	12.0	6.0	10.6				
Green Ext Time (p_c), s	0.0	12.5	0.0	0.8	0.0	5.9	0.0	1.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.1									
HCM 2010 LOS			C									























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	936	928	170	841	21	1036	20	108	30	31	0
Future Volume (veh/h)	0	936	928	170	841	21	1036	20	108	30	31	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	936	928	170	841	21	1036	20	108	30	31	0
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	1784	1098	175	2266	1014	652	326	277	126	105	90
Arrive On Green	0.00	1.00	1.00	0.10	0.64	0.64	0.19	0.18	0.18	0.07	0.06	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	0	936	928	170	841	21	1036	20	108	30	31	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	0.0	66.5	12.6	14.8	0.6	25.0	1.2	8.0	2.1	2.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	66.5	12.6	14.8	0.6	25.0	1.2	8.0	2.1	2.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1	1784	1098	175	2266	1014	652	326	277	126	105	90
V/C Ratio(X)	0.00	0.52	0.85	0.97	0.37	0.02	1.59	0.06	0.39	0.24	0.29	0.00
Avail Cap(c_a), veh/h	215	1784	1098	175	2266	1014	652	607	516	282	550	468
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.46	0.46	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	7.2	59.3	11.2	8.7	53.5	45.4	48.2	58.0	59.7	0.0
Incr Delay (d2), s/veh	0.0	0.5	3.9	59.7	0.5	0.0	272.5	0.1	0.9	0.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	31.7	9.1	7.3	0.3	36.5	0.6	3.5	1.0	1.1	0.0
LnGrp Delay(d),s/veh	0.0	0.5	11.1	119.0	11.7	8.7	326.0	45.5	49.1	58.3	61.3	0.0
LnGrp LOS		A	B	F	B	A	F	D	D	E	E	
Approach Vol, veh/h		1864			1032			1164			61	
Approach Delay, s/veh		5.8			29.3			295.5			59.8	
Approach LOS		A			C			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	71.5	30.0	12.5	0.0	89.5	14.3	28.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	35.0	25.0	39.0	16.0	32.0	21.0	43.0				
Max Q Clear Time (g_c+I1), s	14.6	68.5	27.0	4.1	0.0	16.8	4.1	10.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	7.3	0.0	0.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			94.3									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd

04/19/2019





























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	598	965	62	612	1457	80	0	806	283	21	1347	638
Future Volume (veh/h)	598	965	62	612	1457	80	0	806	283	21	1347	638
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	598	965	62	612	1457	80	0	806	283	21	1347	638
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	870	56	600	879	48	1	1182	368	287	2234	1710
Arrive On Green	0.17	0.26	0.26	0.17	0.26	0.26	0.00	0.23	0.23	0.16	0.44	0.44
Sat Flow, veh/h	3442	3377	217	3442	3413	187	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	598	506	521	612	753	784	0	806	283	21	1347	638
Grp Sat Flow(s),veh/h/ln	1721	1770	1824	1721	1770	1830	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	22.9	34.0	34.0	23.0	34.0	34.0	0.0	19.1	14.7	1.3	26.7	15.1
Cycle Q Clear(g_c), s	22.9	34.0	34.0	23.0	34.0	34.0	0.0	19.1	14.7	1.3	26.7	15.1
Prop In Lane	1.00		0.12	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	456	470	600	456	471	1	1182	368	287	2234	1710
V/C Ratio(X)	1.00	1.11	1.11	1.02	1.65	1.66	0.00	0.68	0.77	0.07	0.60	0.37
Avail Cap(c_a), veh/h	600	456	470	600	456	471	161	1580	492	287	2234	1710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.00	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	49.0	49.0	54.5	49.0	49.0	0.0	46.2	20.9	47.0	28.2	12.8
Incr Delay (d2), s/veh	10.4	52.6	52.5	42.0	303.4	307.5	0.0	2.2	10.2	0.0	1.2	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	11.7	23.2	24.0	14.4	55.0	57.4	0.0	9.2	8.9	0.7	12.7	5.9
LnGrp Delay(d),s/veh	64.8	101.6	101.5	96.5	352.4	356.5	0.0	48.4	31.1	47.0	29.4	13.4
LnGrp LOS	E	F	F	F	F	F		D	C	D	C	B
Approach Vol, veh/h		1625			2149			1089			2006	
Approach Delay, s/veh		88.0			281.0			43.9			24.5	
Approach LOS		F			F			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	64.0	28.0	40.0	27.3	36.7	28.0	40.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	34.0	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	0.0	28.7	24.9	36.0	3.3	21.1	25.0	36.0				
Green Ext Time (p_c), s	0.0	10.6	0.0	0.0	0.0	9.6	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			122.9									
HCM 2010 LOS			F									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd























04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			  			 	
Traffic Volume (veh/h)	860	1660	1	580	1268	68	4	1690	991	105	1253	604
Future Volume (veh/h)	860	1660	1	580	1268	68	4	1690	991	105	1253	604
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	860	1660	1	580	1268	68	4	1690	991	105	1253	604
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	962	1	600	880	47	22	1580	492	932	4225	2801
Arrive On Green	0.17	0.27	0.27	0.17	0.26	0.26	0.01	0.31	0.31	0.53	0.83	0.83
Sat Flow, veh/h	3442	3630	2	3442	3417	183	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	860	809	852	580	656	680	4	1690	991	105	1253	604
Grp Sat Flow(s),veh/h/ln	1721	1770	1862	1721	1770	1830	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	23.0	35.0	35.0	22.1	34.0	34.0	0.3	41.0	41.0	3.9	7.3	1.8
Cycle Q Clear(g_c), s	23.0	35.0	35.0	22.1	34.0	34.0	0.3	41.0	41.0	3.9	7.3	1.8
Prop In Lane	1.00		0.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	469	494	600	456	471	22	1580	492	932	4225	2801
V/C Ratio(X)	1.43	1.72	1.72	0.97	1.44	1.44	0.18	1.07	2.02	0.11	0.30	0.22
Avail Cap(c_a), veh/h	600	469	494	600	456	471	161	1580	492	932	4225	2801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.62	0.62	0.62	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	48.5	48.5	54.1	49.0	49.0	64.5	45.5	110.6	15.8	2.5	7.7
Incr Delay (d2), s/veh	196.2	326.9	327.0	28.4	209.7	210.9	0.9	40.0	461.2	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.3	59.7	62.8	12.8	43.1	44.8	0.1	25.0	100.3	1.9	3.4	1.8
LnGrp Delay(d),s/veh	250.7	375.4	375.5	82.5	258.7	259.9	65.4	85.5	571.9	15.8	2.7	7.8
LnGrp LOS	F	F	F	F	F	F	E	F	F	B	A	A
Approach Vol, veh/h		2521			1916			2685			1962	
Approach Delay, s/veh		332.9			205.8			265.0			5.0	
Approach LOS		F			F			F			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	117.4	29.0	40.0	77.1	47.0	28.0	41.0				
Change Period (Y+Rc), s	5.0	6.0	6.0	* 6	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	* 34	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	2.3	9.3	25.0	36.0	5.9	43.0	24.1	37.0				
Green Ext Time (p_c), s	0.0	21.7	0.0	0.0	0.1	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			215.2									
HCM 2010 LOS			F									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/19/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	3	41	185	13	63	115	1031	47	27	1043	162
Future Volume (veh/h)	45	3	41	185	13	63	115	1031	47	27	1043	162
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	45	3	41	185	13	63	115	1031	47	27	1043	162
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	290	246	264	290	246	687	3369	153	84	1460	226
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.39	0.68	0.68	0.05	0.33	0.33
Sat Flow, veh/h	1318	1863	1583	1357	1863	1583	1774	4986	227	1774	4442	689
Grp Volume(v), veh/h	45	3	41	185	13	63	115	701	377	27	796	409
Grp Sat Flow(s),veh/h/ln	1318	1863	1583	1357	1863	1583	1774	1695	1823	1774	1695	1741
Q Serve(g_s), s	4.0	0.2	3.0	17.6	0.8	4.6	5.6	11.2	11.2	1.9	27.2	27.2
Cycle Q Clear(g_c), s	4.8	0.2	3.0	17.8	0.8	4.6	5.6	11.2	11.2	1.9	27.2	27.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.40
Lane Grp Cap(c), veh/h	252	290	246	264	290	246	687	2290	1231	84	1114	572
V/C Ratio(X)	0.18	0.01	0.17	0.70	0.04	0.26	0.17	0.31	0.31	0.32	0.71	0.72
Avail Cap(c_a), veh/h	426	536	456	443	536	456	687	2290	1231	269	1490	765
HCM Platoon Ratio	1.00	1.00	1.00	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	0.78	0.78	0.78
Uniform Delay (d), s/veh	49.4	47.1	48.3	54.7	47.4	49.0	26.5	8.8	8.8	60.8	38.9	38.9
Incr Delay (d2), s/veh	0.3	0.0	0.3	3.4	0.1	0.5	0.0	0.3	0.6	0.6	3.1	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.1	1.3	6.9	0.4	2.1	2.8	5.3	5.8	1.0	13.2	14.0
LnGrp Delay(d),s/veh	49.7	47.2	48.6	58.0	47.5	49.6	26.6	9.1	9.4	61.4	42.0	44.8
LnGrp LOS	D	D	D	E	D	D	C	A	A	E	D	D
Approach Vol, veh/h		89			261			1193			1232	
Approach Delay, s/veh		49.1			55.5			10.9			43.3	
Approach LOS		D			E			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	95.2		25.5	57.1	49.4		25.5				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	3.9	13.2		6.8	7.6	29.2		19.8				
Green Ext Time (p_c), s	0.0	14.5		0.3	0.1	14.1		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			30.7									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	13	117	149	7	119	61	1571	240	87	1616	56
Future Volume (veh/h)	201	13	117	149	7	119	61	1571	240	87	1616	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	201	13	117	149	7	119	61	1571	240	87	1616	56
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	339	288	276	339	288	504	2781	424	129	2046	71
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.28	0.62	0.62	0.07	0.41	0.41
Sat Flow, veh/h	1260	1863	1583	1255	1863	1583	1774	4455	679	1774	5047	175
Grp Volume(v), veh/h	201	13	117	149	7	119	61	1195	616	87	1085	587
Grp Sat Flow(s),veh/h/ln	1260	1863	1583	1255	1863	1583	1774	1695	1743	1774	1695	1832
Q Serve(g_s), s	20.6	0.8	8.6	14.7	0.4	8.8	3.4	27.0	27.1	6.3	37.0	37.0
Cycle Q Clear(g_c), s	21.0	0.8	8.6	15.4	0.4	8.8	3.4	27.0	27.1	6.3	37.0	37.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		0.10
Lane Grp Cap(c), veh/h	280	339	288	276	339	288	504	2117	1088	129	1374	742
V/C Ratio(X)	0.72	0.04	0.41	0.54	0.02	0.41	0.12	0.56	0.57	0.68	0.79	0.79
Avail Cap(c_a), veh/h	413	536	456	409	536	456	504	2117	1088	269	1490	805
HCM Platoon Ratio	1.00	1.00	1.00	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	0.09	0.09	0.09
Uniform Delay (d), s/veh	53.0	44.5	47.7	50.8	44.3	47.8	35.0	14.4	14.4	59.7	34.3	34.3
Incr Delay (d2), s/veh	3.5	0.0	0.9	1.6	0.0	0.9	0.0	1.1	2.1	0.2	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.4	3.8	5.2	0.2	3.9	1.6	12.9	13.7	3.1	17.4	18.9
LnGrp Delay(d),s/veh	56.4	44.5	48.6	52.5	44.4	48.7	35.1	15.5	16.6	59.9	34.8	35.2
LnGrp LOS	E	D	D	D	D	D	D	B	B	E	C	D
Approach Vol, veh/h		331			275			1872			1759	
Approach Delay, s/veh		53.2			50.6			16.5			36.1	
Approach LOS		D			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.6	88.4		29.0	43.5	59.5		29.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	8.3	29.1		23.0	5.4	39.0		17.4				
Green Ext Time (p_c), s	0.0	21.6		1.0	0.0	14.5		0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.7									
HCM 2010 LOS			C									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/19/2019

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑		↘	
Traffic Vol, veh/h	148	1196	1673	62	0	21
Future Vol, veh/h	148	1196	1673	62	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	148	1196	1673	62	0	21

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1735	0	-	0	2478 868
Stage 1	-	-	-	-	1704 -
Stage 2	-	-	-	-	774 -
Critical Hdwy	5.34	-	-	-	5.74 7.14
Critical Hdwy Stg 1	-	-	-	-	6.64 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	3.12	-	-	-	3.82 3.92
Pot Cap-1 Maneuver	170	-	-	-	51 254
Stage 1	-	-	-	-	88 -
Stage 2	-	-	-	-	377 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	170	-	-	-	7 254
Mov Cap-2 Maneuver	-	-	-	-	7 -
Stage 1	-	-	-	-	11 -
Stage 2	-	-	-	-	377 -

Approach	EB	WB	SB
HCM Control Delay, s	10.2	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	170	-	-	-	254
HCM Lane V/C Ratio	0.871	-	-	-	0.083
HCM Control Delay (s)	92.7	-	-	-	20.4
HCM Lane LOS	F	-	-	-	C
HCM 95th %tile Q(veh)	6.2	-	-	-	0.3

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/19/2019

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑		↘	
Traffic Vol, veh/h	80	2394	1824	29	0	82
Future Vol, veh/h	80	2394	1824	29	0	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	2394	1824	29	0	82













Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1853	0	0 2957 927
Stage 1	-	-	- 1839 -
Stage 2	-	-	- 1118 -
Critical Hdwy	5.34	-	- 5.74 7.14
Critical Hdwy Stg 1	-	-	- 6.64 -
Critical Hdwy Stg 2	-	-	- 6.04 -
Follow-up Hdwy	3.12	-	- 3.82 3.92
Pot Cap-1 Maneuver	148	-	- 28 232
Stage 1	-	-	- 72 -
Stage 2	-	-	- 247 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	148	-	- 13 232
Mov Cap-2 Maneuver	-	-	- 13 -
Stage 1	-	-	- 33 -
Stage 2	-	-	- 247 -

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	28.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	148	-	-	-	232
HCM Lane V/C Ratio	0.541	-	-	-	0.353
HCM Control Delay (s)	54.8	-	-	-	28.8
HCM Lane LOS	F	-	-	-	D
HCM 95th %tile Q(veh)	2.7	-	-	-	1.5













HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖		↗
Traffic Volume (veh/h)	0	1577	271	0	936	214	0	0	0	716	0	334
Future Volume (veh/h)	0	1577	271	0	936	214	0	0	0	716	0	334
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	1577	271	0	936	214				716	0	334
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	1544	691	0	1544	1295				677	0	605
Arrive On Green	0.00	0.44	0.44	0.00	0.44	0.44				0.38	0.00	0.38
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	1577	271	0	936	214				716	0	334
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	28.8	7.7	0.0	13.4	1.9				25.2	0.0	10.9
Cycle Q Clear(g_c), s	0.0	28.8	7.7	0.0	13.4	1.9				25.2	0.0	10.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1544	691	0	1544	1295				677	0	605
V/C Ratio(X)	0.00	1.02	0.39	0.00	0.61	0.17				1.06	0.00	0.55
Avail Cap(c_a), veh/h	0	1544	691	0	1544	1295				677	0	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.6	12.6	0.0	14.3	1.3				20.4	0.0	16.0
Incr Delay (d2), s/veh	0.0	28.4	1.7	0.0	1.8	0.3				50.6	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.0	3.6	0.0	6.9	2.6				21.8	0.0	4.9
LnGrp Delay(d),s/veh	0.0	47.0	14.3	0.0	16.0	1.5				71.0	0.0	17.1
LnGrp LOS		F	B		B	A				F		B
Approach Vol, veh/h		1848			1150						1050	
Approach Delay, s/veh		42.2			13.3						53.9	
Approach LOS		D			B						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		35.0		31.0		35.0						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		28.8		25.2		28.8						
Max Q Clear Time (g_c+I1), s		30.8		27.2		15.4						
Green Ext Time (p_c), s		0.0		0.0		7.3						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			37.0									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
 1: McBean Pkwy & I-5 SB Ramps













04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Volume (veh/h)	0	1516	400	0	1814	537	0	0	0	742	0	360
Future Volume (veh/h)	0	1516	400	0	1814	537	0	0	0	742	0	360
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	0	1516	400	0	1814	537				742	0	360
Adj No. of Lanes	0	2	1	0	2	1				1	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	2	2				2	0	2
Cap, veh/h	0	1813	811	0	1813	1295				543	0	485
Arrive On Green	0.00	0.51	0.51	0.00	0.51	0.51				0.31	0.00	0.31
Sat Flow, veh/h	0	3632	1583	0	3632	1583				1774	0	1583
Grp Volume(v), veh/h	0	1516	400	0	1814	537				742	0	360
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1770	1583				1774	0	1583
Q Serve(g_s), s	0.0	24.1	10.9	0.0	33.8	6.2				20.2	0.0	13.5
Cycle Q Clear(g_c), s	0.0	24.1	10.9	0.0	33.8	6.2				20.2	0.0	13.5
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1813	811	0	1813	1295				543	0	485
V/C Ratio(X)	0.00	0.84	0.49	0.00	1.00	0.41				1.37	0.00	0.74
Avail Cap(c_a), veh/h	0	1813	811	0	1813	1295				543	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	10.5	0.0	16.1	1.7				22.9	0.0	20.6
Incr Delay (d2), s/veh	0.0	4.8	2.1	0.0	21.3	1.0				176.5	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.8	5.1	0.0	21.5	7.5				36.4	0.0	6.6
LnGrp Delay(d),s/veh	0.0	18.5	12.7	0.0	37.4	2.6				199.4	0.0	26.7
LnGrp LOS		B	B		F	A				F		C
Approach Vol, veh/h		1916			2351						1102	
Approach Delay, s/veh		17.3			29.5						143.0	
Approach LOS		B			C						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		40.0		26.0		40.0						
Change Period (Y+Rc), s		6.2		5.8		6.2						
Max Green Setting (Gmax), s		33.8		20.2		33.8						
Max Q Clear Time (g_c+I1), s		26.1		22.2		35.8						
Green Ext Time (p_c), s		6.6		0.0		0.0						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			48.4									
HCM 2010 LOS			D									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy













04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	1796	496	0	856	412	294	0	502	0	0	0
Future Volume (veh/h)	0	1796	496	0	856	412	294	0	502	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	1796	496	0	856	412	294	0	502			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2270	1015	0	2174	1015	765	0	619			
Arrive On Green	0.00	0.64	0.64	0.00	0.64	0.64	0.22	0.00	0.22			
Sat Flow, veh/h	0	3632	1583	0	3558	1583	3442	0	2787			
Grp Volume(v), veh/h	0	1796	496	0	856	412	294	0	502			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1583	1721	0	1393			
Q Serve(g_s), s	0.0	24.4	10.8	0.0	8.0	8.3	4.8	0.0	11.3			
Cycle Q Clear(g_c), s	0.0	24.4	10.8	0.0	8.0	8.3	4.8	0.0	11.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2270	1015	0	2174	1015	765	0	619			
V/C Ratio(X)	0.00	0.79	0.49	0.00	0.39	0.41	0.38	0.00	0.81			
Avail Cap(c_a), veh/h	0	2270	1015	0	2174	1015	980	0	794			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	8.6	6.2	0.0	5.7	5.7	21.8	0.0	24.3			
Incr Delay (d2), s/veh	0.0	2.9	1.7	0.0	0.5	1.2	0.2	0.0	4.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	12.6	5.2	0.0	3.8	3.9	2.3	0.0	4.7			
LnGrp Delay(d),s/veh	0.0	11.5	7.9	0.0	6.2	6.9	22.1	0.0	28.9			
LnGrp LOS		B	A		A	A	C		C			
Approach Vol, veh/h		2292			1268			796				
Approach Delay, s/veh		10.7			6.5			26.3				
Approach LOS		B			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		47.6				47.6		18.4				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		38.2				38.2		18.8				
Max Q Clear Time (g_c+I1), s		26.4				10.3		13.3				
Green Ext Time (p_c), s		11.5				19.5		1.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.3									
HCM 2010 LOS			B									

# HCM 2010 Signalized Intersection Summary

## 2: I-5 NB Ramps & McBean Pkwy






















04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑↑		↑↑			
Traffic Volume (veh/h)	0	1713	545	0	2016	638	334	0	447	0	0	0
Future Volume (veh/h)	0	1713	545	0	2016	638	334	0	447	0	0	0
Number	5	2	12	1	6	16	3	8	18			
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			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	0	1713	545	0	2016	638	334	0	447			
Adj No. of Lanes	0	2	1	0	3	0	2	0	2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2330	1042	0	2564	760	707	0	572			
Arrive On Green	0.00	0.66	0.66	0.00	0.66	0.66	0.21	0.00	0.21			
Sat Flow, veh/h	0	3632	1583	0	4063	1154	3442	0	2787			
Grp Volume(v), veh/h	0	1713	545	0	1737	917	334	0	447			
Grp Sat Flow(s),veh/h/ln	0	1770	1583	0	1695	1659	1721	0	1393			
Q Serve(g_s), s	0.0	21.2	11.8	0.0	23.7	27.9	5.6	0.0	10.0			
Cycle Q Clear(g_c), s	0.0	21.2	11.8	0.0	23.7	27.9	5.6	0.0	10.0			
Prop In Lane	0.00		1.00	0.00		0.70	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2330	1042	0	2232	1092	707	0	572			
V/C Ratio(X)	0.00	0.74	0.52	0.00	0.78	0.84	0.47	0.00	0.78			
Avail Cap(c_a), veh/h	0	2330	1042	0	2232	1092	980	0	794			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.5	5.9	0.0	7.9	8.6	23.1	0.0	24.8			
Incr Delay (d2), s/veh	0.0	2.1	1.9	0.0	2.8	7.8	0.4	0.0	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			
%ile BackOfQ(50%),veh/ln	0.0	10.7	5.5	0.0	11.7	14.8	2.7	0.0	4.1			
LnGrp Delay(d),s/veh	0.0	9.6	7.8	0.0	10.7	16.4	23.4	0.0	27.7			
LnGrp LOS		A	A		B	B	C		C			
Approach Vol, veh/h		2258			2654			781				
Approach Delay, s/veh		9.1			12.6			25.9				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		48.7				48.7		17.3				
Change Period (Y+Rc), s		5.3				5.3		3.7				
Max Green Setting (Gmax), s		38.2				38.2		18.8				
Max Q Clear Time (g_c+I1), s		23.2				29.9		12.0				
Green Ext Time (p_c), s		14.6				8.3		1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.1									
HCM 2010 LOS			B									



HCM 2010 Signalized Intersection Summary  
 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	571	1392	98	6	1092	357	134	129	32	71	26	65
Future Volume (veh/h)	571	1392	98	6	1092	357	134	129	32	71	26	65
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	571	1392	98	6	1092	357	134	129	32	71	26	65
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	562	3156	222	29	1314	430	159	263	63	137	136	617
Arrive On Green	0.32	0.65	0.65	0.02	0.35	0.35	0.09	0.09	0.09	0.08	0.07	0.07
Sat Flow, veh/h	1774	4851	342	1774	3794	1240	1774	2830	682	1774	1863	1583
Grp Volume(v), veh/h	571	973	517	6	976	473	134	79	82	71	26	65
Grp Sat Flow(s),veh/h/ln	1774	1695	1802	1774	1695	1644	1774	1770	1742	1774	1863	1583
Q Serve(g_s), s	41.8	18.6	18.6	0.4	34.9	34.9	9.8	5.6	5.9	5.1	1.7	0.0
Cycle Q Clear(g_c), s	41.8	18.6	18.6	0.4	34.9	34.9	9.8	5.6	5.9	5.1	1.7	0.0
Prop In Lane	1.00		0.19	1.00		0.75	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	562	2205	1173	29	1174	569	159	165	162	137	136	617
V/C Ratio(X)	1.02	0.44	0.44	0.21	0.83	0.83	0.84	0.48	0.50	0.52	0.19	0.11
Avail Cap(c_a), veh/h	562	2205	1173	148	1246	604	242	442	436	242	466	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.1	11.3	11.3	64.1	39.6	39.6	59.2	56.8	57.0	58.6	57.5	25.6
Incr Delay (d2), s/veh	42.0	0.6	1.2	1.3	6.9	13.2	6.7	1.5	1.6	1.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.0	8.8	9.6	0.2	17.4	17.9	5.1	2.8	2.9	2.5	0.9	1.5
LnGrp Delay(d),s/veh	87.1	11.9	12.5	65.3	46.5	52.8	65.9	58.3	58.6	59.7	58.2	25.7
LnGrp LOS	F	B	B	E	D	D	E	E	E	E	E	C
Approach Vol, veh/h		2061			1455			295			162	
Approach Delay, s/veh		32.9			48.6			61.8			45.8	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.2	91.4	17.8	15.6	47.3	51.2	15.2	18.3				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	2.4	20.6	11.8	3.7	43.8	36.9	7.1	7.9				
Green Ext Time (p_c), s	0.0	17.4	0.1	0.3	0.0	8.9	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.3									
HCM 2010 LOS			D									
<b>Notes</b>												






















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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 3: Tournament Rd/Rockwell Cyn Rd & McBean Pkwy

05/01/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	1515	270	75	1576	256	131	98	19	407	265	739
Future Volume (veh/h)	293	1515	270	75	1576	256	131	98	19	407	265	739
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	293	1515	270	75	1576	256	131	98	19	407	265	739
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	1798	319	138	1621	262	156	621	117	242	466	587
Arrive On Green	0.12	0.41	0.41	0.08	0.37	0.37	0.09	0.21	0.21	0.14	0.25	0.25
Sat Flow, veh/h	1774	4345	772	1774	4413	714	1774	2971	562	1774	1863	1583
Grp Volume(v), veh/h	293	1181	604	75	1210	622	131	57	60	407	265	739
Grp Sat Flow(s),veh/h/ln	1774	1695	1726	1774	1695	1737	1774	1770	1764	1774	1863	1583
Q Serve(g_s), s	15.9	41.4	41.6	5.4	46.3	46.6	9.6	3.5	3.7	18.0	16.4	33.0
Cycle Q Clear(g_c), s	15.9	41.4	41.6	5.4	46.3	46.6	9.6	3.5	3.7	18.0	16.4	33.0
Prop In Lane	1.00		0.45	1.00		0.41	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	214	1403	714	138	1246	638	156	370	369	242	466	587
V/C Ratio(X)	1.37	0.84	0.85	0.54	0.97	0.98	0.84	0.16	0.16	1.68	0.57	1.26
Avail Cap(c_a), veh/h	214	1403	714	148	1246	638	242	442	441	242	466	587
HCM Platoon Ratio	1.00	1.00	1.00	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	0.45	0.45	0.45	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.0	34.8	34.9	58.6	41.1	41.2	59.3	42.7	42.7	57.0	43.3	41.5
Incr Delay (d2), s/veh	193.2	6.3	11.8	1.4	19.4	30.1	4.1	0.1	0.1	324.4	1.6	130.1
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	19.3	20.6	22.1	2.7	25.0	27.6	4.9	1.7	1.8	30.6	8.7	37.2
LnGrp Delay(d),s/veh	251.3	41.1	46.6	60.0	60.5	71.2	63.4	42.8	42.8	381.4	44.9	171.7
LnGrp LOS	F	D	D	E	E	E	E	D	D	F	D	F
Approach Vol, veh/h		2078			1907			248			1411	
Approach Delay, s/veh		72.3			64.0			53.7			208.4	
Approach LOS		E			E			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	60.1	17.6	39.0	21.4	54.0	23.0	33.6				
Change Period (Y+Rc), s	5.0	5.5	6.0	* 6	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	11.0	48.5	18.0	* 33	11.0	* 49	18.0	33.0				
Max Q Clear Time (g_c+I1), s	7.4	43.6	11.6	35.0	17.9	48.6	20.0	5.7				
Green Ext Time (p_c), s	0.0	4.4	0.1	0.0	0.0	0.0	0.0	0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay	102.7											
HCM 2010 LOS	F											
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
4: McBean Pkwy & Valencia Blvd

























04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	443	1266	99	403	964	115	327	1192	418	67	685	973
Future Volume (veh/h)	443	1266	99	403	964	115	327	1192	418	67	685	973
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	443	1266	99	403	964	115	327	1192	418	67	685	973
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1492	656	412	1560	661	417	1555	1185	381	1502	1140
Arrive On Green	0.11	0.29	0.29	0.12	0.31	0.31	0.12	0.31	0.31	0.04	0.10	0.10
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	443	1266	99	403	964	115	327	1192	418	67	685	973
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	30.9	3.0	15.4	21.4	6.0	12.2	28.1	3.5	2.5	16.8	39.0
Cycle Q Clear(g_c), s	15.0	30.9	3.0	15.4	21.4	6.0	12.2	28.1	3.5	2.5	16.8	39.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1492	656	412	1560	661	417	1555	1185	381	1502	1140
V/C Ratio(X)	1.13	0.85	0.15	0.98	0.62	0.17	0.78	0.77	0.35	0.18	0.46	0.85
Avail Cap(c_a), veh/h	391	1560	678	412	1560	661	417	1555	1185	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.62	0.62	0.62	0.96	0.96	0.96	0.32	0.32	0.32
Uniform Delay (d), s/veh	58.5	43.9	9.9	57.9	39.1	24.1	56.3	41.5	10.6	57.7	49.5	44.4
Incr Delay (d2), s/veh	86.8	6.2	0.5	29.6	1.1	0.4	8.4	2.5	0.3	0.0	0.1	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	11.8	15.3	1.6	9.0	10.2	2.7	6.3	13.5	3.0	1.2	7.9	15.6
LnGrp Delay(d),s/veh	145.3	50.1	10.4	87.5	40.3	24.5	64.7	44.1	10.9	57.8	49.7	46.8
LnGrp LOS	F	D	B	F	D	C	E	D	B	E	D	D
Approach Vol, veh/h		1808			1482			1937			1725	
Approach Delay, s/veh		71.2			51.9			40.4			48.4	
Approach LOS		E			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	46.5	19.6	45.9	21.8	44.7	21.0	44.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	6.0	* 6	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	* 41	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	23.4	4.5	30.1	17.4	32.9	14.2	41.0				
Green Ext Time (p_c), s	0.0	9.1	0.1	7.2	0.0	5.8	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			52.8									
HCM 2010 LOS			D									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
4: McBean Pkwy & Valencia Blvd

























04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1068	1354	406	934	1150	238	247	1153	674	121	1299	1114
Future Volume (veh/h)	1068	1354	406	934	1150	238	247	1153	674	121	1299	1114
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1068	1354	406	934	1150	238	247	1153	674	121	1299	1114
Adj No. of Lanes	2	3	1	2	3	1	2	3	2	2	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1560	678	391	1560	675	417	1510	1144	412	1502	1140
Arrive On Green	0.11	0.31	0.31	0.11	0.31	0.31	0.12	0.30	0.30	0.04	0.10	0.10
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	2787	3442	5085	2787
Grp Volume(v), veh/h	1068	1354	406	934	1150	238	247	1153	674	121	1299	1114
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1393	1721	1695	1393
Q Serve(g_s), s	15.0	33.2	26.0	15.0	26.7	13.4	9.0	27.2	24.8	4.5	33.2	39.0
Cycle Q Clear(g_c), s	15.0	33.2	26.0	15.0	26.7	13.4	9.0	27.2	24.8	4.5	33.2	39.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	1560	678	391	1560	675	417	1510	1144	412	1502	1140
V/C Ratio(X)	2.73	0.87	0.60	2.39	0.74	0.35	0.59	0.76	0.59	0.29	0.86	0.98
Avail Cap(c_a), veh/h	391	1560	678	391	1560	675	417	1510	1144	417	1502	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.63	0.63	0.63	0.75	0.75	0.75	0.28	0.28	0.28
Uniform Delay (d), s/veh	58.5	43.2	29.0	58.5	41.0	25.5	54.9	42.2	30.3	58.0	57.0	47.2
Incr Delay (d2), s/veh	786.0	6.8	3.9	629.6	2.0	0.9	1.2	2.0	0.8	0.0	1.8	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	49.8	16.5	12.1	41.3	12.7	6.0	4.3	13.0	9.7	2.2	15.9	21.2
LnGrp Delay(d),s/veh	844.5	50.0	32.9	688.1	43.0	26.4	56.1	44.2	31.1	58.0	58.7	56.9
LnGrp LOS	F	D	C	F	D	C	E	D	C	E	E	E
Approach Vol, veh/h		2828			2322			2074			2534	
Approach Delay, s/veh		347.6			300.8			41.3			57.9	
Approach LOS		F			F			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	46.5	20.8	44.7	20.0	46.5	21.0	44.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.5	5.0	6.0	5.0	5.5				
Max Green Setting (Gmax), s	15.0	40.5	16.0	39.0	15.0	40.5	16.0	39.0				
Max Q Clear Time (g_c+I1), s	17.0	28.7	6.5	29.2	17.0	35.2	11.0	41.0				
Green Ext Time (p_c), s	0.0	8.4	0.1	8.2	0.0	4.6	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			196.1									
HCM 2010 LOS			F									

# HCM 2010 Signalized Intersection Summary

## 5: Magic Mtn Pkwy & McBean Pkwy

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	612	1367	212	23	1000	566	282	1268	28	536	1724	798
Future Volume (veh/h)	612	1367	212	23	1000	566	282	1268	28	536	1724	798
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	612	1367	212	23	1000	566	282	1268	0	536	1724	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	705	1211	542	193	1271	588	417	2010	497	417	2010	497
Arrive On Green	0.14	0.34	0.34	0.06	0.25	0.25	0.04	0.10	0.00	0.12	0.31	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	612	1367	212	23	1000	566	282	1268	0	536	1724	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	15.8	45.2	13.4	0.8	24.2	26.4	10.7	25.1	0.0	16.0	33.3	0.0
Cycle Q Clear(g_c), s	15.8	45.2	13.4	0.8	24.2	26.4	10.7	25.1	0.0	16.0	33.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	705	1211	542	193	1271	588	417	2010	497	417	2010	497
V/C Ratio(X)	0.87	1.13	0.39	0.12	0.79	0.96	0.68	0.63	0.00	1.28	0.86	0.00
Avail Cap(c_a), veh/h	910	1211	542	391	1310	600	417	2010	497	417	2010	497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	0.44	0.44	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.5	43.4	33.0	59.2	46.2	16.8	60.8	51.8	0.0	58.0	42.5	0.0
Incr Delay (d2), s/veh	6.1	68.8	0.8	0.0	0.3	5.1	1.6	0.7	0.0	145.3	5.0	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	7.7	33.6	6.0	0.4	11.4	12.2	5.2	11.2	0.0	16.0	15.4	0.0
LnGrp Delay(d),s/veh	61.6	112.2	33.8	59.2	46.5	21.9	62.4	52.5	0.0	203.3	47.5	0.0
LnGrp LOS	E	F	C	E	D	C	E	D		F	D	
Approach Vol, veh/h		2191			1589			1550			2260	
Approach Delay, s/veh		90.5			38.0			54.3			84.5	
Approach LOS		F			D			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	51.2	21.0	47.4	24.6	39.0	21.0	47.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	2.8	47.2	12.7	35.3	17.8	28.4	18.0	27.1				
Green Ext Time (p_c), s	0.0	0.0	0.2	0.6	0.8	4.6	0.0	6.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			70.3									
HCM 2010 LOS			E									
<b>Notes</b>												



\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

# HCM 2010 Signalized Intersection Summary

## 5: Magic Mtn Pkwy & McBean Pkwy

04/19/2019






























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	652	1785	487	191	1428	691	518	2002	175	372	1768	300
Future Volume (veh/h)	652	1785	487	191	1428	691	518	2002	175	372	1768	300
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	652	1785	487	191	1428	691	518	2002	0	372	1768	0
Adj No. of Lanes	3	2	1	2	3	1	2	4	1	2	4	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	795	1153	516	339	1310	600	417	1845	456	417	1845	456
Arrive On Green	0.16	0.33	0.33	0.10	0.26	0.26	0.24	0.58	0.00	0.12	0.29	0.00
Sat Flow, veh/h	5003	3539	1583	3442	5085	1583	3442	6408	1583	3442	6408	1583
Grp Volume(v), veh/h	652	1785	487	191	1428	691	518	2002	0	372	1768	0
Grp Sat Flow(s),veh/h/ln	1668	1770	1583	1721	1695	1583	1721	1602	1583	1721	1602	1583
Q Serve(g_s), s	16.6	43.0	39.5	7.0	34.0	27.3	16.0	38.0	0.0	14.1	35.8	0.0
Cycle Q Clear(g_c), s	16.6	43.0	39.5	7.0	34.0	27.3	16.0	38.0	0.0	14.1	35.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	795	1153	516	339	1310	600	417	1845	456	417	1845	456
V/C Ratio(X)	0.82	1.55	0.94	0.56	1.09	1.15	1.24	1.08	0.00	0.89	0.96	0.00
Avail Cap(c_a), veh/h	910	1153	516	391	1310	600	417	1845	456	417	1845	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	0.09	0.09	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.7	44.5	43.3	56.8	49.0	16.7	50.0	28.0	0.0	57.1	46.2	0.0
Incr Delay (d2), s/veh	4.7	251.0	26.6	0.0	42.0	70.5	110.7	39.3	0.0	20.1	13.1	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	8.0	61.2	21.1	3.3	21.0	23.5	13.9	21.4	0.0	7.8	17.5	0.0
LnGrp Delay(d),s/veh	58.3	295.5	70.0	56.9	91.0	87.1	160.7	67.3	0.0	77.3	59.4	0.0
LnGrp LOS	E	F	E	E	F	F	F	F		E	E	
Approach Vol, veh/h		2924			2310			2520			2140	
Approach Delay, s/veh		205.1			87.0			86.5			62.5	
Approach LOS		F			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	49.0	21.0	44.0	27.0	40.0	21.0	44.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	15.0	43.0	16.0	36.0	24.0	* 34	16.0	36.0				
Max Q Clear Time (g_c+I1), s	9.0	45.0	18.0	37.8	18.6	36.0	16.1	40.0				
Green Ext Time (p_c), s	0.2	0.0	0.0	0.0	0.8	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			116.5									
HCM 2010 LOS			F									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd

04/19/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 			 	
Traffic Volume (veh/h)	387	1017	137	144	806	82	205	296	91	139	267	587
Future Volume (veh/h)	387	1017	137	144	806	82	205	296	91	139	267	587
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	387	1017	137	144	806	82	205	296	91	139	267	587
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	443	1231	166	338	1582	160	215	988	442	164	885	600
Arrive On Green	0.13	0.27	0.27	0.19	0.34	0.34	0.12	0.28	0.28	0.09	0.25	0.25
Sat Flow, veh/h	3442	4536	610	1774	4694	475	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	387	760	394	144	581	307	205	296	91	139	267	587
Grp Sat Flow(s),veh/h/ln	1721	1695	1755	1774	1695	1779	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	14.6	27.8	27.9	9.4	18.1	18.3	15.2	8.7	3.6	10.2	8.1	33.0
Cycle Q Clear(g_c), s	14.6	27.8	27.9	9.4	18.1	18.3	15.2	8.7	3.6	10.2	8.1	33.0
Prop In Lane	1.00		0.35	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	443	920	476	338	1143	600	215	988	442	164	885	600
V/C Ratio(X)	0.87	0.83	0.83	0.43	0.51	0.51	0.95	0.30	0.21	0.85	0.30	0.98
Avail Cap(c_a), veh/h	600	989	512	338	1143	600	215	988	442	215	885	600
HCM Platoon Ratio	1.00	1.00	1.00	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	0.97	0.97	0.97	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	56.4	45.2	45.2	47.0	35.0	35.1	57.6	37.4	13.7	59.0	40.2	40.5
Incr Delay (d2), s/veh	8.4	8.4	15.2	0.3	1.6	3.0	47.7	0.3	0.4	16.3	0.3	30.1
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	7.5	14.0	15.5	4.7	8.7	9.5	10.3	4.3	2.4	5.8	4.0	26.1
LnGrp Delay(d),s/veh	64.9	53.5	60.4	47.4	36.6	38.1	105.4	37.7	14.1	75.4	40.5	70.6
LnGrp LOS	E	D	E	D	D	D	F	D	B	E	D	E
Approach Vol, veh/h		1541			1032			592			993	
Approach Delay, s/veh		58.1			38.5			57.5			63.2	
Approach LOS		E			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	50.0	17.2	42.8	30.7	41.3	21.0	39.0				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.5	* 5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	38.5	16.0	33.0	23.0	* 39	16.0	33.0				
Max Q Clear Time (g_c+I1), s	16.6	20.3	12.2	10.7	11.4	29.9	17.2	35.0				
Green Ext Time (p_c), s	0.4	8.1	0.1	3.3	0.1	6.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			54.4									
HCM 2010 LOS			D									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.  
User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary  
6: Lyons Ave & Wiley Cyn Rd




















04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	613	1199	20	130	1256	181	313	331	141	166	704	651
Future Volume (veh/h)	613	1199	20	130	1256	181	313	331	141	166	704	651
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	613	1199	20	130	1256	181	313	331	141	166	704	651
Adj No. of Lanes	2	3	0	1	3	0	1	2	1	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	1780	30	160	1174	169	269	1040	465	191	885	672
Arrive On Green	0.17	0.35	0.35	0.09	0.26	0.26	0.15	0.29	0.29	0.11	0.25	0.25
Sat Flow, veh/h	3442	5152	86	1774	4491	647	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	613	789	430	130	948	489	313	331	141	166	704	651
Grp Sat Flow(s),veh/h/ln	1721	1695	1848	1774	1695	1749	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	23.0	26.2	26.2	9.5	34.5	34.5	20.0	9.6	9.1	12.2	24.6	33.0
Cycle Q Clear(g_c), s	23.0	26.2	26.2	9.5	34.5	34.5	20.0	9.6	9.1	12.2	24.6	33.0
Prop In Lane	1.00		0.05	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	1171	638	160	886	457	269	1040	465	191	885	672
V/C Ratio(X)	1.02	0.67	0.67	0.81	1.07	1.07	1.16	0.32	0.30	0.87	0.80	0.97
Avail Cap(c_a), veh/h	600	1171	638	309	886	457	269	1040	465	269	885	672
HCM Platoon Ratio	1.00	1.00	1.00	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	0.57	0.57	0.57	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	54.5	36.9	36.9	59.0	48.7	48.8	56.0	36.3	36.1	58.0	46.3	37.2
Incr Delay (d2), s/veh	42.5	3.1	5.6	2.2	44.1	52.1	106.8	0.3	0.6	12.8	4.7	24.7
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	14.4	12.8	14.4	4.8	21.5	23.2	17.8	4.7	4.1	6.6	12.6	27.8
LnGrp Delay(d),s/veh	97.0	40.0	42.5	61.1	92.8	100.9	162.8	36.6	36.8	70.8	51.1	61.9
LnGrp LOS	F	D	D	E	F	F	F	D	D	E	D	E
Approach Vol, veh/h		1832			1567			785			1521	
Approach Delay, s/veh		59.6			92.7			87.0			57.8	
Approach LOS		E			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.0	40.0	19.2	44.8	16.9	51.1	25.0	39.0				
Change Period (Y+Rc), s	5.0	5.5	5.0	6.0	5.0	5.5	5.0	6.0				
Max Green Setting (Gmax), s	23.0	34.5	20.0	33.0	23.0	34.5	20.0	33.0				
Max Q Clear Time (g_c+I1), s	25.0	36.5	14.2	11.6	11.5	28.2	22.0	35.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	3.9	0.1	4.7	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				72.0								
HCM 2010 LOS				E								

# HCM 2010 Signalized Intersection Summary




















## 7: Wiley Cyn Rd & Tournament Rd

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	61	26	64	13	9	45	114	525	52	54	861	45
Future Volume (veh/h)	61	26	64	13	9	45	114	525	52	54	861	45
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	61	26	64	13	9	45	114	525	52	54	861	45
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	40	77	122	74	187	139	2285	226	104	2337	122
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.70	0.70	0.06	0.68	0.68
Sat Flow, veh/h	543	343	652	668	628	1583	1774	3254	321	1774	3422	179
Grp Volume(v), veh/h	151	0	0	22	0	45	114	285	292	54	445	461
Grp Sat Flow(s),veh/h/ln	1538	0	0	1297	0	1583	1774	1770	1806	1774	1770	1831
Q Serve(g_s), s	10.9	0.0	0.0	0.0	0.0	3.4	8.4	7.5	7.6	3.9	14.1	14.1
Cycle Q Clear(g_c), s	12.6	0.0	0.0	1.4	0.0	3.4	8.4	7.5	7.6	3.9	14.1	14.1
Prop In Lane	0.40		0.42	0.59		1.00	1.00		0.18	1.00		0.10
Lane Grp Cap(c), veh/h	220	0	0	196	0	187	139	1243	1268	104	1208	1250
V/C Ratio(X)	0.69	0.00	0.00	0.11	0.00	0.24	0.82	0.23	0.23	0.52	0.37	0.37
Avail Cap(c_a), veh/h	534	0	0	505	0	516	376	1243	1268	202	1208	1250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.99	0.84	0.84	0.84	0.83	0.83	0.83
Uniform Delay (d), s/veh	56.8	0.0	0.0	52.0	0.0	52.9	59.9	7.0	7.0	60.3	8.9	8.9
Incr Delay (d2), s/veh	3.8	0.0	0.0	0.2	0.0	0.7	3.9	0.4	0.4	1.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	0.0	0.7	0.0	1.5	4.2	3.8	3.9	2.0	7.0	7.3
LnGrp Delay(d),s/veh	60.6	0.0	0.0	52.2	0.0	53.5	63.8	7.3	7.3	61.5	9.6	9.6
LnGrp LOS	E			D		D	E	A	A	E	A	A
Approach Vol, veh/h		151			67			691			960	
Approach Delay, s/veh		60.6			53.1			16.7			12.5	
Approach LOS		E			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	98.7		20.6	15.3	96.1		20.6				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	5.9	9.6		5.4	10.4	16.1		14.6				
Green Ext Time (p_c), s	0.0	6.3		0.2	0.1	10.0		0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				19.4								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary  
7: Wiley Cyn Rd & Tournament Rd

04/19/2019

























												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	79	19	74	81	67	344	99	930	54	69	1020	32
Future Volume (veh/h)	79	19	74	81	67	344	99	930	54	69	1020	32
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	79	19	74	81	67	344	99	930	54	69	1020	32
Adj No. of Lanes	0	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	36	86	189	145	379	122	1961	114	111	1998	63
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.07	0.58	0.58	0.06	0.57	0.57
Sat Flow, veh/h	322	151	358	613	605	1583	1774	3400	197	1774	3503	110
Grp Volume(v), veh/h	172	0	0	148	0	344	99	484	500	69	515	537
Grp Sat Flow(s),veh/h/ln	831	0	0	1217	0	1583	1774	1770	1828	1774	1770	1843
Q Serve(g_s), s	14.5	0.0	0.0	0.0	0.0	27.9	7.3	21.0	21.0	5.0	23.3	23.3
Cycle Q Clear(g_c), s	28.3	0.0	0.0	13.8	0.0	27.9	7.3	21.0	21.0	5.0	23.3	23.3
Prop In Lane	0.46		0.43	0.55		1.00	1.00		0.11	1.00		0.06
Lane Grp Cap(c), veh/h	239	0	0	334	0	379	122	1021	1054	111	1010	1052
V/C Ratio(X)	0.72	0.00	0.00	0.44	0.00	0.91	0.81	0.47	0.47	0.62	0.51	0.51
Avail Cap(c_a), veh/h	346	0	0	464	0	516	376	1021	1054	202	1010	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	0.00	0.00	0.63	0.00	0.63	0.59	0.59	0.59	0.66	0.66	0.66
Uniform Delay (d), s/veh	52.1	0.0	0.0	43.1	0.0	48.8	60.6	16.3	16.3	60.3	17.2	17.2
Incr Delay (d2), s/veh	4.1	0.0	0.0	0.6	0.0	11.1	2.8	0.9	0.9	1.4	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	6.4	0.0	0.0	4.7	0.0	13.3	3.7	10.5	10.8	2.5	11.6	12.1
LnGrp Delay(d),s/veh	56.2	0.0	0.0	43.6	0.0	59.9	63.4	17.2	17.2	61.7	18.4	18.4
LnGrp LOS	E			D		E	E	B	B	E	B	B
Approach Vol, veh/h		172			492			1083			1121	
Approach Delay, s/veh		56.2			55.0			21.4			21.0	
Approach LOS		E			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.3	82.1		36.6	14.1	81.3		36.6				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	58.0		43.0	28.0	45.0		43.0				
Max Q Clear Time (g_c+I1), s	7.0	23.0		29.9	9.3	25.3		30.3				
Green Ext Time (p_c), s	0.0	12.0		1.7	0.1	9.9		0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				29.1								
HCM 2010 LOS				C								



# HCM 2010 Signalized Intersection Summary

## 8: Valley St/Orchard Village Rd & Lyons Ave

























05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	1051	8	126	746	430	13	169	132	340	124	71
Future Volume (veh/h)	91	1051	8	126	746	430	13	169	132	340	124	71
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	91	1051	8	126	746	430	13	169	132	340	124	71
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	1938	867	150	2806	1056	188	332	148	396	198	169
Arrive On Green	0.08	0.55	0.55	0.08	0.55	0.55	0.11	0.09	0.09	0.12	0.11	0.11
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	91	1051	8	126	746	430	13	169	132	340	124	71
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	3.3	25.2	0.3	9.2	10.2	5.8	0.9	6.0	8.9	12.8	8.4	5.5
Cycle Q Clear(g_c), s	3.3	25.2	0.3	9.2	10.2	5.8	0.9	6.0	8.9	12.8	8.4	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	1938	867	150	2806	1056	188	332	148	396	198	169
V/C Ratio(X)	0.33	0.54	0.01	0.84	0.27	0.41	0.07	0.51	0.89	0.86	0.63	0.42
Avail Cap(c_a), veh/h	417	1938	867	175	2806	1056	282	1032	462	574	557	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	0.84	0.84	0.84	1.00	1.00	1.00	0.35	0.35	0.35
Uniform Delay (d), s/veh	57.3	19.2	13.6	59.5	15.5	2.9	53.1	56.9	39.7	57.3	56.4	55.2
Incr Delay (d2), s/veh	0.2	0.9	0.0	20.2	0.2	1.0	0.2	1.2	16.0	2.3	1.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	12.5	0.1	5.4	4.8	3.3	0.4	3.0	5.0	6.2	4.4	2.5
LnGrp Delay(d),s/veh	57.5	20.1	13.6	79.8	15.7	3.9	53.3	58.1	55.7	59.7	57.8	55.9
LnGrp LOS	E	C	B	E	B	A	D	E	E	E	E	E
Approach Vol, veh/h		1150			1302			314			535	
Approach Delay, s/veh		23.0			18.0			56.9			58.8	
Approach LOS		C			B			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.6	77.8	20.7	17.9	16.2	77.3	19.0	19.6				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	5.3	12.2	14.8	10.9	11.2	27.2	2.9	10.4				
Green Ext Time (p_c), s	0.1	11.1	0.4	1.5	0.0	6.9	0.0	1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			30.1									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 8: Valley St/Orchard Village Rd & Lyons Ave
























05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	948	16	191	1350	522	7	227	249	898	235	64
Future Volume (veh/h)	194	948	16	191	1350	522	7	227	249	898	235	64
Number	1	6	16	5	2	12	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	194	948	16	191	1350	522	7	227	249	898	235	64
Adj No. of Lanes	2	2	1	1	3	1	1	2	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1504	673	175	2239	961	188	533	239	574	401	341
Arrive On Green	0.08	0.43	0.43	0.03	0.15	0.15	0.11	0.15	0.15	0.17	0.22	0.22
Sat Flow, veh/h	3442	3539	1583	1774	5085	1583	1774	3539	1583	3442	1863	1583
Grp Volume(v), veh/h	194	948	16	191	1350	522	7	227	249	898	235	64
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1695	1583	1774	1770	1583	1721	1863	1583
Q Serve(g_s), s	7.2	27.8	0.8	13.0	32.8	11.1	0.5	7.7	15.7	22.0	15.0	4.4
Cycle Q Clear(g_c), s	7.2	27.8	0.8	13.0	32.8	11.1	0.5	7.7	15.7	22.0	15.0	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	1504	673	175	2239	961	188	533	239	574	401	341
V/C Ratio(X)	0.68	0.63	0.02	1.09	0.60	0.54	0.04	0.43	1.04	1.57	0.59	0.19
Avail Cap(c_a), veh/h	417	1504	673	175	2239	961	282	1032	462	574	557	474
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	0.73	0.73	0.73	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	58.8	29.8	22.0	63.9	45.6	10.9	53.0	50.9	35.0	55.0	46.5	42.4
Incr Delay (d2), s/veh	0.7	1.4	0.0	85.3	0.9	1.6	0.1	0.5	42.7	255.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	13.8	0.3	10.5	15.6	16.4	0.2	3.8	10.2	30.8	7.7	1.9
LnGrp Delay(d),s/veh	59.5	31.2	22.1	149.1	46.5	12.5	53.0	51.4	77.7	310.3	46.7	42.4
LnGrp LOS	E	C	C	F	D	B	D	D	F	F	D	D
Approach Vol, veh/h		1158			2063			483			1197	
Approach Delay, s/veh		35.8			47.4			65.0			244.2	
Approach LOS		D			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	63.1	27.5	25.4	18.0	61.1	19.0	33.9				
Change Period (Y+Rc), s	5.0	5.0	5.5	* 5.5	5.0	5.0	5.0	5.5				
Max Green Setting (Gmax), s	16.0	35.0	22.0	* 39	13.0	38.0	21.0	39.5				
Max Q Clear Time (g_c+I1), s	9.2	34.8	24.0	17.7	15.0	29.8	2.5	17.0				
Green Ext Time (p_c), s	0.2	0.2	0.0	2.2	0.0	5.2	0.0	1.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			94.4									
HCM 2010 LOS			F									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
























HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	119	1043	353	549	786	241	201	405	102	348	654	710
Future Volume (veh/h)	119	1043	353	549	786	241	201	405	102	348	654	710
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	119	1043	353	549	786	241	201	405	102	348	654	710
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	1260	564	228	1425	781	313	553	138	269	912	408
Arrive On Green	0.08	0.36	0.36	0.13	0.40	0.40	0.09	0.20	0.20	0.15	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2808	700	1774	3539	1583
Grp Volume(v), veh/h	119	1043	353	549	786	241	201	254	253	348	654	710
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1739	1774	1770	1583
Q Serve(g_s), s	8.7	35.5	24.4	17.0	22.5	12.0	7.4	17.7	18.1	20.0	22.2	34.0
Cycle Q Clear(g_c), s	8.7	35.5	24.4	17.0	22.5	12.0	7.4	17.7	18.1	20.0	22.2	34.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	146	1260	564	228	1425	781	313	348	342	269	912	408
V/C Ratio(X)	0.82	0.83	0.63	2.40	0.55	0.31	0.64	0.73	0.74	1.29	0.72	1.74
Avail Cap(c_a), veh/h	296	1260	564	228	1425	781	521	456	448	269	912	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)	0.93	0.93	0.93	0.09	0.09	0.09	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	38.8	35.2	57.5	30.3	20.0	57.9	49.7	49.8	56.0	44.6	49.0
Incr Delay (d2), s/veh	3.9	5.9	4.8	632.5	0.1	0.1	0.8	5.7	6.3	157.4	3.2	343.5
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	4.4	18.4	11.4	48.5	11.1	5.2	3.6	9.2	9.3	21.5	11.2	53.8
LnGrp Delay(d),s/veh	63.5	44.7	40.0	690.0	30.4	20.1	58.7	55.4	56.1	213.4	47.8	392.5
LnGrp LOS	E	D	D	F	C	C	E	E	E	F	D	F
Approach Vol, veh/h		1515			1576			708			1712	
Approach Delay, s/veh		45.1			258.6			56.6			224.4	
Approach LOS		D			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	53.0	25.0	32.0	15.9	59.1	17.0	40.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	39.0	20.0	34.0	22.0	34.0	20.0	34.0				
Max Q Clear Time (g_c+I1), s	19.0	37.5	22.0	20.1	10.7	24.5	9.4	36.0				
Green Ext Time (p_c), s	0.0	1.3	0.0	3.7	0.1	5.6	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			163.3									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	126	980	449	672	1619	289	247	744	137	307	786	656
Future Volume (veh/h)	126	980	449	672	1619	289	247	744	137	307	786	656
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	126	980	449	672	1619	289	247	744	137	307	786	656
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	1180	528	228	1335	741	313	769	142	202	992	444
Arrive On Green	0.09	0.33	0.33	0.13	0.38	0.38	0.09	0.26	0.26	0.11	0.28	0.28
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2986	550	1774	3539	1583
Grp Volume(v), veh/h	126	980	449	672	1619	289	247	441	440	307	786	656
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1766	1774	1770	1583
Q Serve(g_s), s	9.2	33.7	34.8	17.0	49.8	15.7	9.3	32.5	32.5	15.0	27.1	37.0
Cycle Q Clear(g_c), s	9.2	33.7	34.8	17.0	49.8	15.7	9.3	32.5	32.5	15.0	27.1	37.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	151	1180	528	228	1335	741	313	456	455	202	992	444
V/C Ratio(X)	0.84	0.83	0.85	2.94	1.21	0.39	0.79	0.97	0.97	1.52	0.79	1.48
Avail Cap(c_a), veh/h	296	1180	528	228	1335	741	391	456	455	202	992	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.09	0.09	0.09	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	40.6	40.9	57.5	41.1	22.9	58.8	48.4	48.5	58.5	43.9	47.5
Incr Delay (d2), s/veh	3.9	5.8	13.6	874.6	96.6	0.1	6.0	32.1	32.2	258.9	4.9	227.0
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	4.7	17.4	17.2	63.8	42.2	6.9	4.7	20.0	20.0	21.8	13.9	44.1
LnGrp Delay(d),s/veh	63.4	46.4	54.5	932.1	137.7	23.0	64.7	80.5	80.7	317.4	48.8	274.5
LnGrp LOS	E	D	D	F	F	C	E	F	F	F	D	F
Approach Vol, veh/h		1555			2580			1128			1749	
Approach Delay, s/veh		50.1			331.8			77.1			180.6	
Approach LOS		D			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	50.0	20.0	40.0	16.2	55.8	17.0	43.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	44.0	15.0	34.0	22.0	39.0	15.0	34.0				
Max Q Clear Time (g_c+I1), s	19.0	36.8	17.0	34.5	11.2	51.8	11.3	39.0				
Green Ext Time (p_c), s	0.0	5.5	0.0	0.0	0.1	0.0	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				190.6								
HCM 2010 LOS				F								

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

04/19/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘↘	↑↑↑	↗	↘	↗	↗↗	↘	↑↑	
Traffic Volume (vph)	143	315	935	644	572	69	1135	254	869	23	51	44
Future Volume (vph)	143	315	935	644	572	69	1135	254	869	23	51	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4515		3433	5085	1583	1681	1715	2787	1610	3156	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4515		3433	5085	1583	1681	1715	2787	1610	3156	
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)	143	315	935	644	572	69	1135	254	869	23	51	44
RTOR Reduction (vph)	0	420	0	0	0	49	0	0	287	0	40	0
Lane Group Flow (vph)	143	830	0	644	572	20	692	697	582	21	57	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	14.6	32.8		21.0	39.2	39.2	43.2	43.2	64.2	12.0	12.0	
Effective Green, g (s)	14.6	32.8		21.0	39.2	39.2	43.2	43.2	64.2	12.0	12.0	
Actuated g/C Ratio	0.11	0.25		0.16	0.30	0.30	0.33	0.33	0.49	0.09	0.09	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	195	1121		546	1510	470	550	561	1355	146	286	
v/s Ratio Prot	0.08	c0.18		c0.19	0.11		c0.41	0.41	0.07	0.01	c0.02	
v/s Ratio Perm						0.01			0.14			
v/c Ratio	0.73	1.15dr		1.18	0.38	0.04	1.26	1.24	0.43	0.14	0.20	
Uniform Delay, d1	56.8	45.7		55.5	36.8	33.0	44.4	44.4	22.0	55.3	55.6	
Progression Factor	0.85	1.44		0.58	0.80	5.73	0.71	0.71	0.35	1.00	1.00	
Incremental Delay, d2	11.0	4.2		97.4	0.7	0.2	124.5	117.6	0.1	0.5	0.3	
Delay (s)	59.3	69.8		129.8	30.2	189.6	155.9	149.0	7.8	55.7	55.9	
Level of Service	E	E		F	C	F	F	F	A	E	E	
Approach Delay (s)		68.7			88.6			96.8			55.9	
Approach LOS		E			F			F			E	

### Intersection Summary

HCM 2000 Control Delay	86.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		































dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

























04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 				 	 	 	 
Traffic Volume (vph)	75	866	1472	1163	702	35	974	107	895	128	280	229
Future Volume (vph)	75	866	1472	1163	702	35	974	107	895	128	280	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.95	0.95	0.88	0.91	0.91	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4605		3433	5085	1583	1681	1701	2787	1610	3163	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4605		3433	5085	1583	1681	1701	2787	1610	3163	
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)	75	866	1472	1163	702	35	974	107	895	128	280	229
RTOR Reduction (vph)	0	232	0	0	0	22	0	0	326	0	121	0
Lane Group Flow (vph)	75	2106	0	1163	702	13	536	545	569	115	401	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	9.2	36.5		21.0	48.3	48.3	28.1	28.1	49.1	23.4	23.4	
Effective Green, g (s)	9.2	36.5		21.0	48.3	48.3	28.1	28.1	49.1	23.4	23.4	
Actuated g/C Ratio	0.07	0.28		0.16	0.37	0.37	0.21	0.21	0.37	0.18	0.18	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	
Vehicle Extension (s)	2.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	123	1273		546	1860	579	357	362	1036	285	560	
v/s Ratio Prot	0.04	c0.46		c0.34	0.14		0.32	c0.32	0.09	0.07	c0.13	
v/s Ratio Perm						0.01			0.12			
v/c Ratio	0.61	2.20dr		2.13	0.38	0.02	1.50	1.51	0.55	0.40	0.72	
Uniform Delay, d1	59.7	47.8		55.5	30.8	26.8	52.0	52.0	32.7	48.1	51.2	
Progression Factor	0.99	0.70		1.26	0.58	1.00	0.78	0.78	0.76	1.00	1.00	
Incremental Delay, d2	3.8	296.7		513.7	0.5	0.1	233.2	235.0	0.3	0.9	4.3	
Delay (s)	62.9	330.3		583.6	18.5	26.8	273.7	275.4	25.3	49.1	55.5	
Level of Service	E	F		F	B	C	F	F	C	D	E	
Approach Delay (s)		322.0			364.5			161.7			54.3	
Approach LOS		F			F			F			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			263.3				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.51									
Actuated Cycle Length (s)			132.0				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			144.6%				ICU Level of Service			H		
Analysis Period (min)			15									
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												



























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	537	713	84	598	24	589	135	113	58	141	0
Future Volume (veh/h)	0	537	713	84	598	24	589	135	113	58	141	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	537	713	84	598	24	589	135	113	58	141	0
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	1848	1090	115	2212	990	574	313	266	166	176	150
Arrive On Green	0.00	0.87	0.87	0.07	0.62	0.62	0.17	0.17	0.17	0.09	0.09	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	0	537	713	84	598	24	589	135	113	58	141	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	3.4	6.6	6.1	10.1	0.8	22.0	8.6	8.4	4.0	9.8	0.0
Cycle Q Clear(g_c), s	0.0	3.4	6.6	6.1	10.1	0.8	22.0	8.6	8.4	4.0	9.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1	1848	1090	115	2212	990	574	313	266	166	176	150
V/C Ratio(X)	0.00	0.29	0.65	0.73	0.27	0.02	1.03	0.43	0.42	0.35	0.80	0.00
Avail Cap(c_a), veh/h	255	1848	1090	215	2212	990	574	607	516	242	550	468
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	4.3	0.6	60.6	11.2	9.4	55.0	49.3	49.2	56.1	58.5	0.0
Incr Delay (d2), s/veh	0.0	0.3	2.3	3.3	0.3	0.0	44.6	0.9	1.1	0.5	8.0	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	0.0	1.7	2.4	3.1	5.0	0.3	14.0	4.5	3.8	2.0	5.4	0.0
LnGrp Delay(d),s/veh	0.0	4.6	3.0	63.8	11.5	9.5	99.6	50.2	50.3	56.5	66.6	0.0
LnGrp LOS		A	A	E	B	A	F	D	D	E	E	
Approach Vol, veh/h		1250			706			837			199	
Approach Delay, s/veh		3.6			17.6			85.0			63.6	
Approach LOS		A			B			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	73.9	27.0	17.5	0.0	87.5	17.3	27.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	16.0	35.0	22.0	39.0	19.0	32.0	18.0	43.0				
Max Q Clear Time (g_c+I1), s	8.1	8.6	24.0	11.8	0.0	12.1	6.0	10.6				
Green Ext Time (p_c), s	0.0	12.5	0.0	0.8	0.0	6.0	0.0	1.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.7									
HCM 2010 LOS			C									























HCM 2010 Signalized Intersection Summary  
 11: Lyons Ave & Newhall Ave

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	939	932	170	842	21	1036	20	108	30	31	0
Future Volume (veh/h)	0	939	932	170	842	21	1036	20	108	30	31	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	0	939	932	170	842	21	1036	20	108	30	31	0
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	1784	1098	175	2266	1014	652	326	277	126	105	90
Arrive On Green	0.00	1.00	1.00	0.10	0.64	0.64	0.19	0.18	0.18	0.07	0.06	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	0	939	932	170	842	21	1036	20	108	30	31	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	0.0	66.5	12.6	14.8	0.6	25.0	1.2	8.0	2.1	2.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	66.5	12.6	14.8	0.6	25.0	1.2	8.0	2.1	2.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1	1784	1098	175	2266	1014	652	326	277	126	105	90
V/C Ratio(X)	0.00	0.53	0.85	0.97	0.37	0.02	1.59	0.06	0.39	0.24	0.29	0.00
Avail Cap(c_a), veh/h	215	1784	1098	175	2266	1014	652	607	516	282	550	468
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.45	0.45	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	7.4	59.3	11.2	8.7	53.5	45.4	48.2	58.0	59.7	0.0
Incr Delay (d2), s/veh	0.0	0.5	3.9	59.7	0.5	0.0	272.5	0.1	0.9	0.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	32.3	9.1	7.4	0.3	36.5	0.6	3.5	1.0	1.1	0.0
LnGrp Delay(d),s/veh	0.0	0.5	11.3	119.0	11.7	8.7	326.0	45.5	49.1	58.3	61.3	0.0
LnGrp LOS		A	B	F	B	A	F	D	D	E	E	
Approach Vol, veh/h		1871			1033			1164			61	
Approach Delay, s/veh		5.9			29.3			295.5			59.8	
Approach LOS		A			C			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	71.5	30.0	12.5	0.0	89.5	14.3	28.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	35.0	25.0	39.0	16.0	32.0	21.0	43.0				
Max Q Clear Time (g_c+I1), s	14.6	68.5	27.0	4.1	0.0	16.8	4.1	10.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	7.3	0.0	0.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			94.2									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd























04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	598	965	62	615	1457	80	0	807	283	21	1356	638
Future Volume (veh/h)	598	965	62	615	1457	80	0	807	283	21	1356	638
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	598	965	62	615	1457	80	0	807	283	21	1356	638
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	870	56	600	879	48	1	1183	368	286	2234	1710
Arrive On Green	0.17	0.26	0.26	0.17	0.26	0.26	0.00	0.23	0.23	0.16	0.44	0.44
Sat Flow, veh/h	3442	3377	217	3442	3413	187	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	598	506	521	615	753	784	0	807	283	21	1356	638
Grp Sat Flow(s),veh/h/ln	1721	1770	1824	1721	1770	1830	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	22.9	34.0	34.0	23.0	34.0	34.0	0.0	19.1	14.6	1.3	26.9	15.1
Cycle Q Clear(g_c), s	22.9	34.0	34.0	23.0	34.0	34.0	0.0	19.1	14.6	1.3	26.9	15.1
Prop In Lane	1.00		0.12	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	456	470	600	456	471	1	1183	368	286	2234	1710
V/C Ratio(X)	1.00	1.11	1.11	1.03	1.65	1.66	0.00	0.68	0.77	0.07	0.61	0.37
Avail Cap(c_a), veh/h	600	456	470	600	456	471	161	1580	492	286	2234	1710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.00	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	49.0	49.0	54.5	49.0	49.0	0.0	46.2	20.9	47.0	28.3	12.8
Incr Delay (d2), s/veh	10.4	52.6	52.5	43.4	303.4	307.5	0.0	2.2	10.1	0.0	1.2	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	11.7	23.2	24.0	14.5	55.0	57.4	0.0	9.2	8.9	0.7	12.8	5.9
LnGrp Delay(d),s/veh	64.8	101.6	101.5	97.9	352.4	356.5	0.0	48.4	31.0	47.0	29.5	13.4
LnGrp LOS	E	F	F	F	F	F		D	C	D	C	B
Approach Vol, veh/h		1625			2152			1090			2015	
Approach Delay, s/veh		88.0			281.2			43.9			24.6	
Approach LOS		F			F			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	0.0	64.0	28.0	40.0	27.3	36.7	28.0	40.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	34.0	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	0.0	28.9	24.9	36.0	3.3	21.1	25.0	36.0				
Green Ext Time (p_c), s	0.0	10.4	0.0	0.0	0.0	9.6	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			122.9									
HCM 2010 LOS			F									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 12: Magic Mtn Pkwy & Valencia Blvd

04/19/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	860	1660	1	581	1268	68	4	1696	995	105	1255	604
Future Volume (veh/h)	860	1660	1	581	1268	68	4	1696	995	105	1255	604
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	860	1660	1	581	1268	68	4	1696	995	105	1255	604
Adj No. of Lanes	2	2	0	2	2	0	1	3	1	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	962	1	600	880	47	22	1580	492	932	4225	2801
Arrive On Green	0.17	0.27	0.27	0.17	0.26	0.26	0.01	0.31	0.31	0.53	0.83	0.83
Sat Flow, veh/h	3442	3630	2	3442	3417	183	1774	5085	1583	1774	5085	2787
Grp Volume(v), veh/h	860	809	852	581	656	680	4	1696	995	105	1255	604
Grp Sat Flow(s),veh/h/ln	1721	1770	1862	1721	1770	1830	1774	1695	1583	1774	1695	1393
Q Serve(g_s), s	23.0	35.0	35.0	22.1	34.0	34.0	0.3	41.0	41.0	3.9	7.3	1.8
Cycle Q Clear(g_c), s	23.0	35.0	35.0	22.1	34.0	34.0	0.3	41.0	41.0	3.9	7.3	1.8
Prop In Lane	1.00		0.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	469	494	600	456	471	22	1580	492	932	4225	2801
V/C Ratio(X)	1.43	1.72	1.72	0.97	1.44	1.44	0.18	1.07	2.02	0.11	0.30	0.22
Avail Cap(c_a), veh/h	600	469	494	600	456	471	161	1580	492	932	4225	2801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.62	0.62	0.62	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	48.5	48.5	54.1	49.0	49.0	64.5	45.5	110.6	15.8	2.5	7.7
Incr Delay (d2), s/veh	196.2	326.9	327.0	28.8	209.7	210.9	0.9	41.4	464.9	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.3	59.7	62.8	12.9	43.1	44.8	0.1	25.2	100.7	1.9	3.4	1.8
LnGrp Delay(d),s/veh	250.7	375.4	375.5	83.0	258.7	259.9	65.4	86.9	575.5	15.8	2.7	7.8
LnGrp LOS	F	F	F	F	F	F	E	F	F	B	A	A
Approach Vol, veh/h		2521			1917			2695			1964	
Approach Delay, s/veh		332.9			205.9			267.3			5.0	
Approach LOS		F			F			F			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	117.4	29.0	40.0	77.1	47.0	28.0	41.0				
Change Period (Y+Rc), s	5.0	6.0	6.0	* 6	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	23.0	* 34	12.0	* 41	23.0	34.0				
Max Q Clear Time (g_c+I1), s	2.3	9.3	25.0	36.0	5.9	43.0	24.1	37.0				
Green Ext Time (p_c), s	0.0	21.7	0.0	0.0	0.1	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			215.9									
HCM 2010 LOS			F									
<b>Notes</b>												

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\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/19/2019

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	3	46	185	14	63	126	1034	47	27	1054	182
Future Volume (veh/h)	48	3	46	185	14	63	126	1034	47	27	1054	182
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	48	3	46	185	14	63	126	1034	47	27	1054	182
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	291	247	264	291	247	673	3366	153	84	1466	253
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.38	0.67	0.67	0.05	0.34	0.34
Sat Flow, veh/h	1317	1863	1583	1351	1863	1583	1774	4987	226	1774	4367	753
Grp Volume(v), veh/h	48	3	46	185	14	63	126	703	378	27	818	418
Grp Sat Flow(s),veh/h/ln	1317	1863	1583	1351	1863	1583	1774	1695	1823	1774	1695	1730
Q Serve(g_s), s	4.2	0.2	3.3	17.7	0.8	4.6	6.3	11.2	11.2	1.9	27.9	27.9
Cycle Q Clear(g_c), s	5.1	0.2	3.3	17.9	0.8	4.6	6.3	11.2	11.2	1.9	27.9	27.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.44
Lane Grp Cap(c), veh/h	252	291	247	264	291	247	673	2288	1230	84	1138	581
V/C Ratio(X)	0.19	0.01	0.19	0.70	0.05	0.25	0.19	0.31	0.31	0.32	0.72	0.72
Avail Cap(c_a), veh/h	425	536	456	442	536	456	673	2288	1230	269	1490	760
HCM Platoon Ratio	1.00	1.00	1.00	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	0.78	0.78	0.78
Uniform Delay (d), s/veh	49.5	47.1	48.4	54.6	47.3	48.9	27.4	8.8	8.8	60.8	38.4	38.4
Incr Delay (d2), s/veh	0.4	0.0	0.4	3.4	0.1	0.5	0.0	0.3	0.6	0.6	3.1	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.1	1.5	6.9	0.4	2.1	3.1	5.3	5.9	1.0	13.6	14.3
LnGrp Delay(d),s/veh	49.9	47.1	48.8	58.0	47.4	49.5	27.4	9.1	9.4	61.4	41.5	44.3
LnGrp LOS	D	D	D	E	D	D	C	A	A	E	D	D
Approach Vol, veh/h		97			262			1207			1263	
Approach Delay, s/veh		49.3			55.4			11.1			42.8	
Approach LOS		D			E			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	95.1		25.6	56.1	50.3		25.6				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	3.9	13.2		7.1	8.3	29.9		19.9				
Green Ext Time (p_c), s	0.0	14.6		0.3	0.1	14.4		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			30.7									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



HCM 2010 Signalized Intersection Summary  
 13: Avenida Navarre & McBean Pkwy

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	221	16	130	149	7	119	65	1584	240	87	1621	61
Future Volume (veh/h)	221	16	130	149	7	119	65	1584	240	87	1621	61
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	221	16	130	149	7	119	65	1584	240	87	1621	61
Adj No. of Lanes	1	1	1	1	1	1	1	3	0	1	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	300	368	313	291	368	313	473	2714	410	129	2045	77
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.27	0.61	0.61	0.07	0.41	0.41
Sat Flow, veh/h	1260	1863	1583	1237	1863	1583	1774	4460	674	1774	5030	189
Grp Volume(v), veh/h	221	16	130	149	7	119	65	1203	621	87	1092	590
Grp Sat Flow(s),veh/h/ln	1260	1863	1583	1237	1863	1583	1774	1695	1744	1774	1695	1829
Q Serve(g_s), s	22.6	0.9	9.5	14.6	0.4	8.6	3.7	28.4	28.6	6.3	37.2	37.3
Cycle Q Clear(g_c), s	23.0	0.9	9.5	15.5	0.4	8.6	3.7	28.4	28.6	6.3	37.2	37.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		0.10
Lane Grp Cap(c), veh/h	300	368	313	291	368	313	473	2063	1061	129	1378	744
V/C Ratio(X)	0.74	0.04	0.42	0.51	0.02	0.38	0.14	0.58	0.59	0.68	0.79	0.79
Avail Cap(c_a), veh/h	413	536	456	402	536	456	473	2063	1061	269	1490	804
HCM Platoon Ratio	1.00	1.00	1.00	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	0.09	0.09	0.09
Uniform Delay (d), s/veh	51.9	42.8	46.3	49.1	42.6	45.9	36.8	15.7	15.7	59.7	34.3	34.3
Incr Delay (d2), s/veh	4.4	0.0	0.9	1.4	0.0	0.8	0.0	1.2	2.4	0.2	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.5	4.2	5.1	0.2	3.8	1.8	13.5	14.3	3.1	17.5	19.0
LnGrp Delay(d),s/veh	56.3	42.9	47.2	50.5	42.7	46.7	36.9	16.9	18.1	59.9	34.7	35.1
LnGrp LOS	E	D	D	D	D	D	D	B	B	E	C	D
Approach Vol, veh/h		367			275			1889			1769	
Approach Delay, s/veh		52.5			48.7			18.0			36.1	
Approach LOS		D			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.6	86.3		31.1	41.2	59.7		31.1				
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0	* 6		5.0				
Max Green Setting (Gmax), s	20.0	58.0		38.0	20.0	* 58		38.0				
Max Q Clear Time (g_c+I1), s	8.3	30.6		25.0	5.7	39.3		17.5				
Green Ext Time (p_c), s	0.0	20.9		1.1	0.0	14.4		0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			30.3									
HCM 2010 LOS			C									
<b>Notes</b>												

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/19/2019

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑		↘	
Traffic Vol, veh/h	148	1245	1689	62	0	21
Future Vol, veh/h	148	1245	1689	62	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	148	1245	1689	62	0	21

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1751	0	-	0	2514 876
Stage 1	-	-	-	-	1720 -
Stage 2	-	-	-	-	794 -
Critical Hdwy	5.34	-	-	-	5.74 7.14
Critical Hdwy Stg 1	-	-	-	-	6.64 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	3.12	-	-	-	3.82 3.92
Pot Cap-1 Maneuver	167	-	-	-	49 251
Stage 1	-	-	-	-	86 -
Stage 2	-	-	-	-	368 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	167	-	-	-	6 251
Mov Cap-2 Maneuver	-	-	-	-	6 -
Stage 1	-	-	-	-	10 -
Stage 2	-	-	-	-	368 -

Approach	EB	WB	SB
HCM Control Delay, s	10.3	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	167	-	-	-	251
HCM Lane V/C Ratio	0.886	-	-	-	0.084
HCM Control Delay (s)	97.1	-	-	-	20.6
HCM Lane LOS	F	-	-	-	C
HCM 95th %tile Q(veh)	6.4	-	-	-	0.3

HCM 2010 TWSC  
 14: McBean Pkwy & West Dwy

04/19/2019

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑		↘	
Traffic Vol, veh/h	80	2413	1876	29	0	82
Future Vol, veh/h	80	2413	1876	29	0	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	2413	1876	29	0	82
























Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1905	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	5.34	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	3.12	-	-
Pot Cap-1 Maneuver	140	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	140	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	30.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	140	-	-	-	223
HCM Lane V/C Ratio	0.571	-	-	-	0.368
HCM Control Delay (s)	60.4	-	-	-	30.2
HCM Lane LOS	F	-	-	-	D
HCM 95th %tile Q(veh)	2.9	-	-	-	1.6
























HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	119	1043	353	549	786	241	201	405	102	348	654	710
Future Volume (veh/h)	119	1043	353	549	786	241	201	405	102	348	654	710
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	119	1043	353	549	786	241	201	405	102	348	654	710
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	1260	564	228	1425	781	313	553	138	269	912	612
Arrive On Green	0.08	0.36	0.36	0.13	0.40	0.40	0.09	0.20	0.20	0.15	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2808	700	1774	3539	1583
Grp Volume(v), veh/h	119	1043	353	549	786	241	201	254	253	348	654	710
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1739	1774	1770	1583
Q Serve(g_s), s	8.7	35.5	24.4	17.0	22.5	12.0	7.4	17.7	18.1	20.0	22.2	34.0
Cycle Q Clear(g_c), s	8.7	35.5	24.4	17.0	22.5	12.0	7.4	17.7	18.1	20.0	22.2	34.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	146	1260	564	228	1425	781	313	348	342	269	912	612
V/C Ratio(X)	0.82	0.83	0.63	2.40	0.55	0.31	0.64	0.73	0.74	1.29	0.72	1.16
Avail Cap(c_a), veh/h	296	1260	564	228	1425	781	521	456	448	269	912	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	0.09	0.09	0.09	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	38.8	35.2	57.5	30.3	20.0	57.9	49.7	49.8	56.0	44.6	40.5
Incr Delay (d2), s/veh	3.9	5.9	4.8	632.5	0.1	0.1	0.8	5.7	6.3	157.4	3.2	89.5
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	4.4	18.4	11.4	48.5	11.1	5.2	3.6	9.2	9.3	21.5	11.2	37.5
LnGrp Delay(d),s/veh	63.5	44.7	40.0	690.0	30.4	20.1	58.7	55.4	56.1	213.4	47.8	130.0
LnGrp LOS	E	D	D	F	C	C	E	E	E	F	D	F
Approach Vol, veh/h		1515			1576			708			1712	
Approach Delay, s/veh		45.1			258.6			56.6			115.5	
Approach LOS		D			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	53.0	25.0	32.0	15.9	59.1	17.0	40.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	39.0	20.0	34.0	22.0	34.0	20.0	34.0				
Max Q Clear Time (g_c+I1), s	19.0	37.5	22.0	20.1	10.7	24.5	9.4	36.0				
Green Ext Time (p_c), s	0.0	1.3	0.0	3.7	0.1	5.6	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				129.5								
HCM 2010 LOS				F								

HCM 2010 Signalized Intersection Summary  
 9: Orchard Village Rd & Wiley Cyn Rd

























04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	126	980	449	672	1619	289	247	744	137	307	786	656
Future Volume (veh/h)	126	980	449	672	1619	289	247	744	137	307	786	656
Number	5	2	12	1	6	16	7	4	14	3	8	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	126	980	449	672	1619	289	247	744	137	307	786	656
Adj No. of Lanes	1	2	1	1	2	1	2	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	1180	528	228	1335	741	313	769	142	202	992	648
Arrive On Green	0.09	0.33	0.33	0.13	0.38	0.38	0.09	0.26	0.26	0.11	0.28	0.28
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	2986	550	1774	3539	1583
Grp Volume(v), veh/h	126	980	449	672	1619	289	247	441	440	307	786	656
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1766	1774	1770	1583
Q Serve(g_s), s	9.2	33.7	34.8	17.0	49.8	15.7	9.3	32.5	32.5	15.0	27.1	37.0
Cycle Q Clear(g_c), s	9.2	33.7	34.8	17.0	49.8	15.7	9.3	32.5	32.5	15.0	27.1	37.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	151	1180	528	228	1335	741	313	456	455	202	992	648
V/C Ratio(X)	0.84	0.83	0.85	2.94	1.21	0.39	0.79	0.97	0.97	1.52	0.79	1.01
Avail Cap(c_a), veh/h	296	1180	528	228	1335	741	391	456	455	202	992	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.09	0.09	0.09	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	40.6	40.9	57.5	41.1	22.9	58.8	48.4	48.5	58.5	43.9	39.0
Incr Delay (d2), s/veh	3.9	5.8	13.6	874.6	96.6	0.1	6.0	32.1	32.2	258.9	4.9	38.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	17.4	17.2	63.8	42.2	6.9	4.7	20.0	20.0	21.8	13.9	30.5
LnGrp Delay(d),s/veh	63.4	46.4	54.5	932.1	137.7	23.0	64.7	80.5	80.7	317.4	48.8	77.6
LnGrp LOS	E	D	D	F	F	C	E	F	F	F	D	F
Approach Vol, veh/h		1555			2580			1128			1749	
Approach Delay, s/veh		50.1			331.8			77.1			106.7	
Approach LOS		D			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	50.0	20.0	40.0	16.2	55.8	17.0	43.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	17.0	44.0	15.0	34.0	22.0	39.0	15.0	34.0				
Max Q Clear Time (g_c+I1), s	19.0	36.8	17.0	34.5	11.2	51.8	11.3	39.0				
Green Ext Time (p_c), s	0.0	5.5	0.0	0.0	0.1	0.0	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				172.2								
HCM 2010 LOS				F								

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

05/01/2019

























													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	143	315	935	644	572	69	1135	254	869	23	51	44	
Future Volume (vph)	143	315	935	644	572	69	1135	254	869	23	51	44	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.91	1.00	0.95	0.95	0.88	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	3539	1583	3433	5085	1583	1681	1715	2787	1770	3539	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	3539	1583	3433	5085	1583	1681	1715	2787	1770	3539	1583	
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)	143	315	935	644	572	69	1135	254	869	23	51	44	
RTOR Reduction (vph)	0	0	230	0	0	56	0	0	215	0	0	36	
Lane Group Flow (vph)	143	315	705	644	572	13	692	697	654	23	51	8	
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Split	NA	pm+ov	Split	NA	pm+ov	
Protected Phases	5	2	8	1	6		8	8	1	4	4	5	
Permitted Phases			2			6			8			4	
Actuated Green, G (s)	14.6	18.3	78.4	21.0	24.7	24.7	60.1	60.1	81.1	9.6	9.6	24.2	
Effective Green, g (s)	14.6	18.3	78.4	21.0	24.7	24.7	60.1	60.1	81.1	9.6	9.6	24.2	
Actuated g/C Ratio	0.11	0.14	0.59	0.16	0.19	0.19	0.46	0.46	0.61	0.07	0.07	0.18	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	
Vehicle Extension (s)	2.0	4.5	3.0	3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	2.0	
Lane Grp Cap (vph)	195	490	940	546	951	296	765	780	1712	128	257	290	
v/s Ratio Prot	0.08	0.09	c0.34	c0.19	0.11		c0.41	0.41	0.06	0.01	c0.01	0.00	
v/s Ratio Perm			0.10			0.01			0.17			0.00	
v/c Ratio	0.73	0.64	0.75	1.18	0.60	0.04	0.90	0.89	0.38	0.18	0.20	0.03	
Uniform Delay, d1	56.8	53.8	19.6	55.5	49.1	44.0	33.3	33.0	12.8	57.5	57.6	44.2	
Progression Factor	0.85	0.95	2.37	0.58	0.65	4.55	0.69	0.69	0.41	1.00	1.00	1.00	
Incremental Delay, d2	11.0	6.0	3.2	97.4	2.6	0.3	9.4	8.3	0.1	0.7	0.4	0.0	
Delay (s)	59.3	57.1	49.7	129.8	34.3	200.4	32.4	31.1	5.3	58.2	58.0	44.3	
Level of Service	E	E	D	F	C	F	C	C	A	E	E	D	
Approach Delay (s)		52.4			91.1			21.6			52.9		
Approach LOS		D			F			C			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			48.5									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.87										
Actuated Cycle Length (s)			132.0									Sum of lost time (s)	23.0
Intersection Capacity Utilization			100.4%									ICU Level of Service	G
Analysis Period (min)			15										

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 10: Orchard Village Rd & McBean Pkwy

05/01/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	866	1472	1163	702	35	974	107	895	128	280	229
Future Volume (vph)	75	866	1472	1163	702	35	974	107	895	128	280	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.91	1.00	0.95	0.95	0.88	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	5085	1583	1681	1701	2787	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	5085	1583	1681	1701	2787	1770	3539	1583
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)	75	866	1472	1163	702	35	974	107	895	128	280	229
RTOR Reduction (vph)	0	0	83	0	0	23	0	0	297	0	0	58
Lane Group Flow (vph)	75	866	1389	1163	702	12	536	545	598	128	280	171
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	5	2	8	1	6		8	8	1	4	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.2	35.8	71.5	21.0	45.6	45.6	35.7	35.7	56.7	16.5	16.5	27.7
Effective Green, g (s)	11.2	35.8	71.5	21.0	45.6	45.6	35.7	35.7	56.7	16.5	16.5	27.7
Actuated g/C Ratio	0.08	0.27	0.54	0.16	0.35	0.35	0.27	0.27	0.43	0.12	0.12	0.21
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0
Vehicle Extension (s)	2.0	4.5	3.0	3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	2.0
Lane Grp Cap (vph)	150	959	857	546	1756	546	454	460	1197	221	442	332
v/s Ratio Prot	0.04	0.24	c0.44	c0.34	0.14		0.32	0.32	0.08	0.07	c0.08	0.04
v/s Ratio Perm			0.44			0.01			0.14			0.06
v/c Ratio	0.50	0.90	1.62	2.13	0.40	0.02	1.18	1.18	0.50	0.58	0.63	0.51
Uniform Delay, d1	57.7	46.4	30.2	55.5	32.8	28.5	48.1	48.1	27.4	54.5	54.9	46.2
Progression Factor	0.99	0.74	1.76	1.26	0.59	1.00	0.81	0.81	0.83	1.00	1.00	1.00
Incremental Delay, d2	0.6	9.3	282.6	513.7	0.6	0.1	94.5	96.0	0.2	3.7	3.0	0.6
Delay (s)	57.9	43.5	336.0	583.6	19.9	28.6	133.4	134.9	22.8	58.1	57.8	46.7
Level of Service	E	D	F	F	B	C	F	F	C	E	E	D
Approach Delay (s)		222.4			365.1			83.7			53.9	
Approach LOS		F			F			F			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			206.5				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.57									
Actuated Cycle Length (s)			132.0				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			148.5%				ICU Level of Service			H		
Analysis Period (min)			15									

c Critical Lane Group



## APPENDIX C

### APPROVED MASTER PLAN DEVELOPMENT AGREEMENT

**EXHIBIT "F"**  
**EIR Traffic Mitigation Improvements**

1. **Prior to Issuance of the Certificate of Occupancy for MOB1.** The following traffic mitigations set forth in the EIR must be completed by Developer prior to the issuance by the City of a Certificate of Occupancy for MOB1:

(a) **McBean Parkway at Magic Mountain (Intersection #45):** Add a third through lane to the westbound direction (by re-striping the lanes) and add right-turn overlap phasing for the westbound right-turn movement (by signal modification).

(b) **Orchard Village Road at Wiley Canyon Road (Intersection #54):** Add a separate northbound right-turn lane with right-turn overlap phasing (within existing right-of-way between Wiley Canyon Road and the Santa Clara River South Fork Bridge).

(c) **Orchard Village Road at McBean Parkway (Intersection #55):** Widen the southbound approach at the main driveway into the Campus Property to allow for a left-turn lane and a second through lane.

2. **Prior to Issuance of the Certificate of Occupancy for either the Inpatient Building or MOB2.** The following traffic mitigations set forth in the EIR must be completed by Developer prior to the issuance by the City of a Certificate of Occupancy for either the Inpatient Building or MOB2:

(a) **McBean Parkway at Magic Mountain Parkway (Intersection #45):** Add a third through lane for eastbound direction (by re-striping the lanes).

(b) **Orchard Village Road at McBean Parkway (Intersection #55):** Add a separate westbound right-turn lane for access to the Campus Property and a separate southbound right-turn lane at the main driveway to the Campus Property.

(c) **Valencia Boulevard at Magic Mountain Parkway (Intersection #57):** Add a second westbound left-turn lane by removing the existing right-turn lane (by re-striping the westbound approach as a mirror image of the existing eastbound approach).

3. **Prior to Issuance of Building Permit for MOB3.** Satisfy the requirements of EIR mitigation measures TR7 and TR8.

4. **Prior to Issuance of Certificate of Occupancy for MOB3.** The following mitigations set forth in the EIR must be completed prior to issuance by the City of a Certificate of Occupancy for MOB3:

(a) **Orchard Village Road at McBean Parkway (Intersection #55):** Restripe the hospital driveway to reconfigure the first through lane to be a shared left turn/through lane.