

**Melon Property Multi-Family (152 Apartments)
County of Imperial/City of Holtville (NE Corner Melon/Alamo)
March 27, 2017**

Draft Traffic Impact Analysis

Prepared for:

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Job #1702

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1.0 Introduction

The purpose of this study is to analyze potential traffic impacts associated with the proposed Melon Property Multi-Family project of 152 apartments. Please note, the number of proposed apartments was reduced after completion of this traffic study based on 168 apartments. Therefore, this traffic study based on 168 apartments is a conservative analysis for the refined project of 152 apartments. The project is located within the County of Imperial adjacent to the City of Holtville. As part of the project, the applicant is proposing to annex the project site into the City of Holtville. The site is approximately 8.19 acres and is situated on the northeast corner of Melon Road and Alamo Road bordering the City of Holtville northwestern city limits. The project location is shown in **Figure 1**. A site plan is included in **Figure 2**.

This report describes the existing roadway network in the vicinity of the project site. It includes a review of the existing and proposed traffic activities for weekday peak AM and PM periods and daily traffic conditions. The format of this study includes the following chapters:

- 1.0 Introduction
- 2.0 Study Methodology
- 3.0 Existing Conditions
- 4.0 Project Description
- 5.0 Cumulative Projects
- 6.0 Near-Term 2019 Conditions
- 7.0 Near-Term Year 2019 + Project Conditions
- 8.0 Near-Term Year 2019 + Project + Cumulative Conditions
- 9.0 Horizon Year 2030 Conditions
- 10.0 Horizon Year 2030 + Project Conditions
- 11.0 Conclusions and Recommendations
- 12.0 References

Figure 1: Project Location

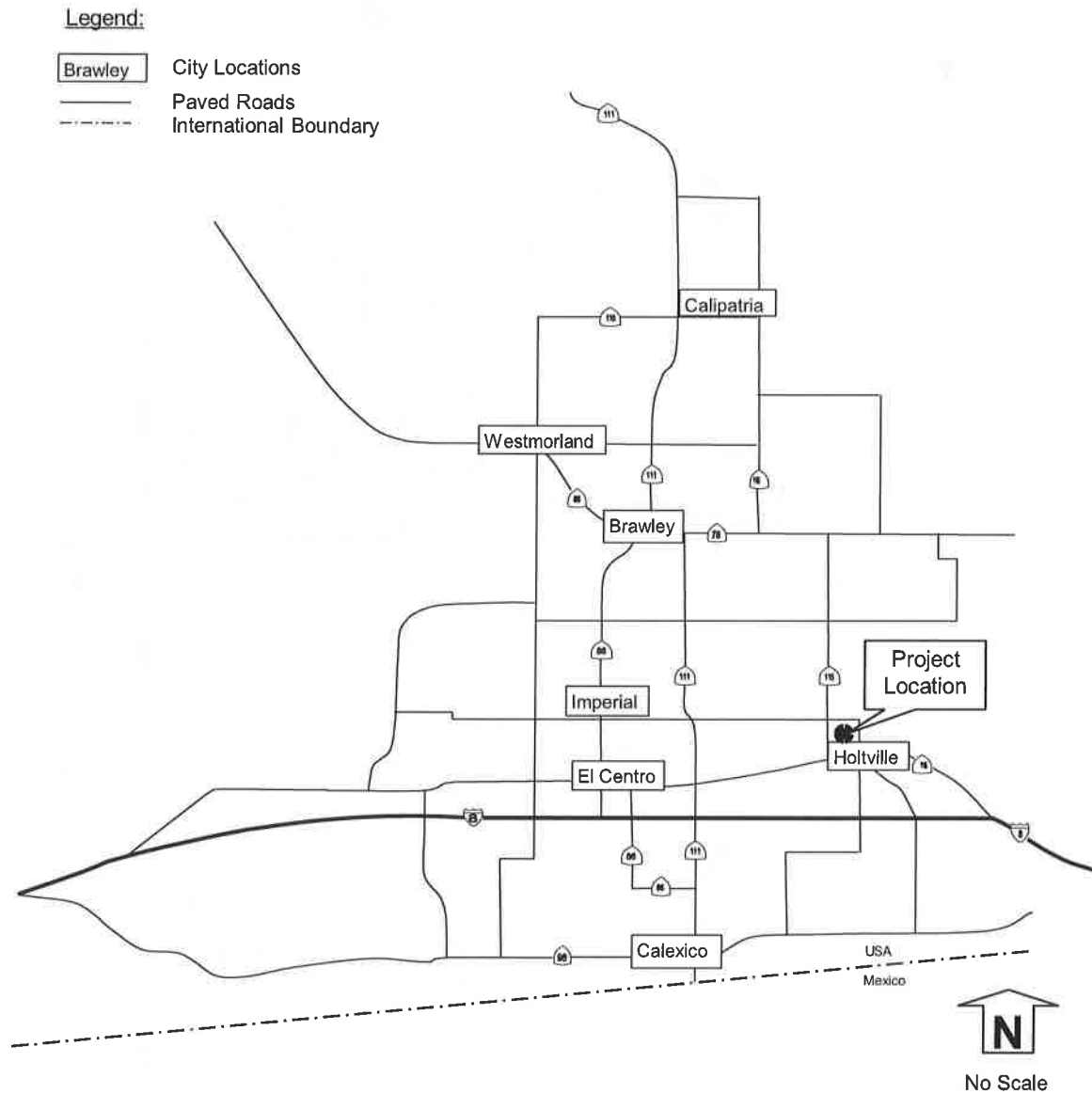
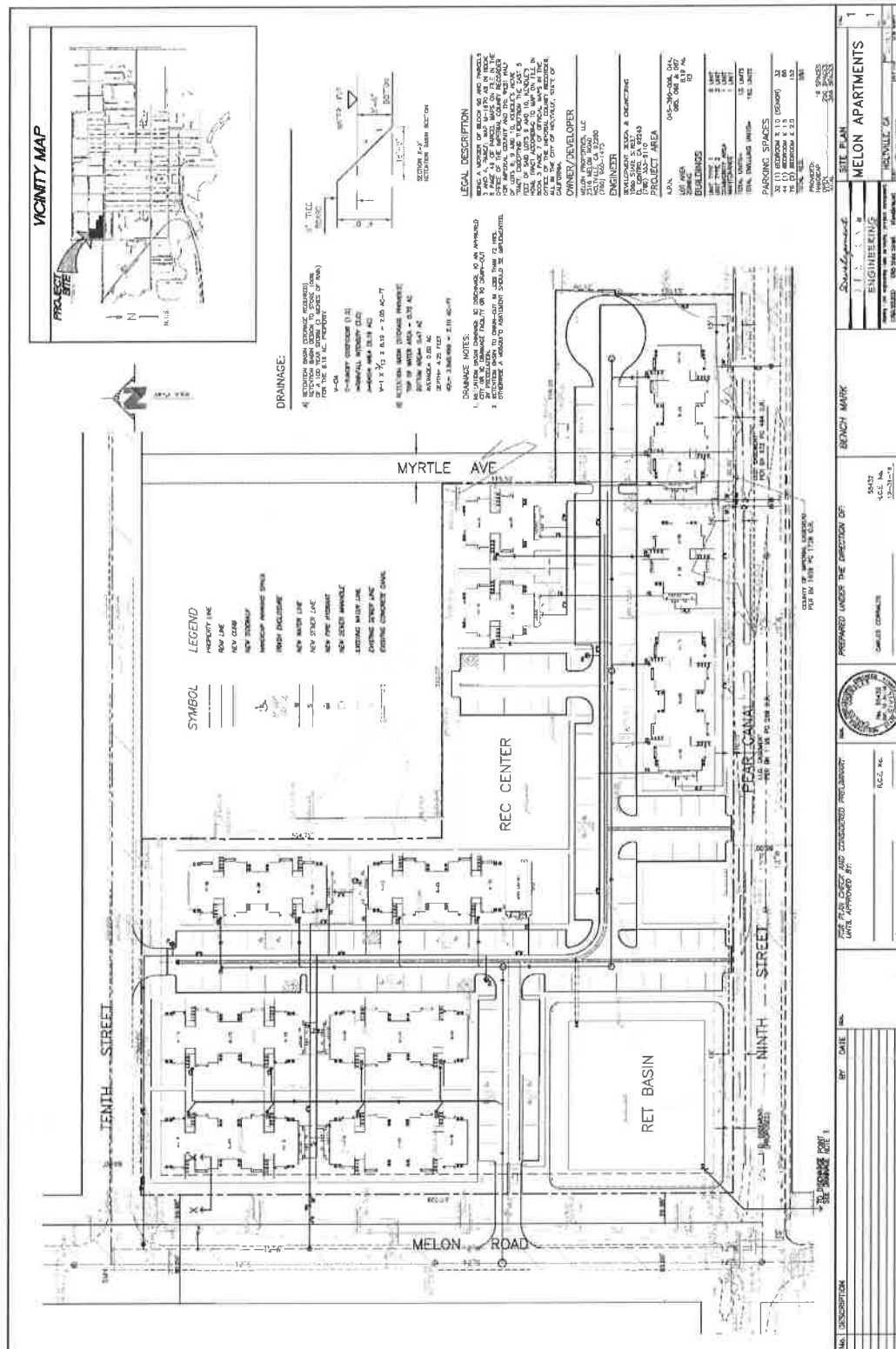


Figure 2: Site Plan



Source: Development Design & Engineering

2.0 Traffic Analysis Methodology and Significance Criteria

The parameters by which this traffic study was prepared included the determination of what intersections and roadways are to be analyzed, the scenarios to be analyzed and the methods required for analysis. The criteria for each of these parameters are included herein.

2.1 Study Area Criteria

The project study area was determined based on coordination with City of Holtville and County of Imperial staff. The following intersections were analyzed as part of this study:

- 1) Melon Rd/Thiesen Rd (11th St)
- 2) Melon Rd/Underwood Rd (10th St)
- 3) Olive Rd/Underwood Rd (10th St)
- 4) State Route 115/Alamo Rd
- 5) Melon Rd/Alamo Rd (9th St)
- 6) Olive Rd/Alamo Rd (9th St)
- 7) Melon Rd/8th St
- 8) State Route 115/Zenos Rd
- 9) Melon Rd/Zenos Rd (6th St)

And, the roadway segment of Alamo Road (9th St) west of Olive Road.

2.2 Scenario Criteria

The number of scenarios to be analyzed is based on the methodology outlined in the County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007. Excerpts from the *Traffic Study and Report Policy* showing the scenario criteria are included in **Appendix A**. Based on the aforementioned methodology source the following scenarios were analyzed:

- 1) Existing 2017 Conditions
- 2) Near-Term Year 2019 Conditions
- 3) Near-Term Year 2019 + Project Conditions
- 4) Near-Term Year 2019 + Project + Cumulative Conditions
- 5) Horizon Year 2030 Conditions
- 6) Horizon Year 2030 + Project Conditions

2.3 Traffic Analysis Criteria

In the traffic analyses prepared for this study, the *2010 Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria were employed. The operating conditions of the study intersections are measured using the HCM LOS designations ranging from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. The individual LOS criteria for each roadway component are described below.

2.3.1 Intersections

The study intersections were analyzed based on the **operational analysis** outlined in the 2010 HCM. This process defines LOS in terms of **average control delay** per vehicle, which is measured in seconds. LOS at the intersections were calculated using the computer software program Synchro 8.0 (Trafficware Corporation). The HCM LOS for the range of delay by seconds for un-signalized intersections is described in **Table 1**.

TABLE 1: INTERSECTION LEVEL OF SERVICE DEFINITIONS (HCM 2010)

Level of Service	Un-Signalized (TWSC and AWSC) Control Delay (seconds/vehicle)
A	0-10
B	> 10-15
C	> 15-25
D	> 25-35
E	> 35-50
F	> 50

TWSC: Two Way Stop Control. AWSC: All Way Stop Control. Source: Highway Capacity Manual 2010 (exhibit 19-1 for two way stop control, and exhibit 20-2 for all way stop control).

As noted on page 5 of Caltrans' *Guide for the Preparation of Traffic Impact Studies*, December 2002, the accepted methodology by Caltrans for un-signalized intersections is the most current edition of the HCM (excerpt included in **Appendix B**). Therefore, the two study intersections on State Route 115 were analyzed using the most current edition of the HCM. Additionally, the Caltrans truck percentage usage on SR-115 was reviewed and applied to the HCM calculations (Caltrans data included in **Appendix C**). Caltrans documented a 10.1% truck usage; however, to be conservative, a 15% truck usage was applied to northbound and southbound through movements on SR-115. For the remaining movements and remaining study intersections, a 5% truck usage was applied. The Synchro HCM default is set at 2% for truck usage.

2.3.2 Roadway Segments

The roadway segment was analyzed based on the functional classification of the roadway using the *City of Holtville General Plan* street classification capacity lookup table (copy included in **Appendix D**). The roadway segment capacity and LOS standards used to analyze roadway segments are summarized in **Table 2**.

TABLE 2: ROADWAY SEGMENT DAILY CAPACITY AND LOS (CITY OF HOLTVILLE)

Circulation Element Road Classification	NUMBER OF LANES	LOS A	LOS B	LOS C	LOS D	LOS E
Freeway	4	<30,000	<40,000	<50,000	<60,000	<70,000
Principal Arterial	4	<14,800	<24,700	<29,600	<33,400	<37,000
Secondary Arterial	4	<13,700	<22,800	<27,400	<30,800	<34,200
Two Lane Arterial (Primary or Secondary)	2	<2,000	<4,500	<7,700	<11,800	<17,500
Collector	2	<1,900	<4,100	<7,100	<10,900	<16,200
Residential Street	2	*	*	<1,500	*	*
Residential or Cul-de-Sac Loop Street	2	*	*	<200	*	*

Source: *City of Holtville General Plan* August, 2003. Notes: *Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.



2.4 Significance Criteria

The significance criteria for determining traffic impacts are based on the City of Holtville and County of Imperial standards. For Caltrans facilities, the *Caltrans' Guide for the Preparation of Traffic Impact Studies*, December 2002 does not provide specific traffic impact thresholds; therefore, the County and City significance criteria are applied to Caltrans' facilities.

The City of Holtville General Plan states "The performance of streets and roadways is typically measured by comparing the level of service to document standards for the type of street based on classification, number of lanes, and width. Imperial County has developed standards for roadway capacity that are applicable to conditions in the City of Holtville." An excerpt from the City of Holtville General Plan is included in Appendix D.

The Imperial County Planning & Development Services Department level of service standard are outlined on page 55 of the *Circulation and Scenic Highways Element* dated January 29, 2008, which states "The County's goal for an acceptable traffic service standard on an Average Daily Traffic (ADT) basis and during AM and PM peak periods for all County-Maintained Roads shall be LOS C for all street segment links and intersections." An excerpt from the *Circulation and Scenic Highways Element* is included in **Appendix E**. The current practice of determining direct or cumulative impacts is defined by the significance criteria outlined in **Table 3**, which was obtained from several EIRs for projects located in Imperial County. Copies of traffic significance criteria from other EIRs are included in **Appendix F**.

TABLE 3: SIGNIFICANCE CRITERIA

Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
Intersections			
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	NA	Direct
LOS D	LOS D and adds 2.0 seconds or more of delay	LOS D or worse	Cumulative
LOS D	LOS E or F	NA	Direct
LOS E	LOS F	NA	Direct
LOS F	LOS F and delay increases by ≥ 10.0 seconds	LOS F	Direct
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
Any LOS	Project does not degrade LOS but adds 2.0 to 9.9 seconds of delay	LOS E or worse	Cumulative
Segments			
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and $v/c > 0.02$	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	NA	Direct (1)
LOS D	LOS D and $v/c > 0.02$	LOS D or worse	Cumulative
LOS D	LOS E or F	NA	Direct
LOS E	LOS F	NA	Direct
LOS F	LOS F and v/c increases by > 0.09	LOS F	Direct
Any LOS	LOS E or worse & v/c 0.02 to 0.09	LOS E or worse	Cumulative
Any LOS	LOS E or worse and $v/c < 0.02$	Any LOS	None

Notes: LOS: Level of Service. (1) Exception: post-project segment operation is LOS D and intersections along segment are LOS D or better resulting in no significant impact. NA: Not Applicable.

3.0 Existing Conditions

This section describes the study area street system, peak hour intersection volumes, daily roadway volumes, and existing LOS.

3.1 Existing Street System

The existing roadway system and classifications are described below. The classifications are based on the *City of Holtville General Plan*, August, 2003 – excerpts included in Appendix D.

Alamo Road (9th Street) between Melon Road and Olive Road has a classification of Arterial in the *City of Holtville General Plan*. This roadway is currently constructed as a 2 lane un-divided roadway within approximately 32 feet of pavement with parking generally allowed on the south side of the roadway. A 25 Miles per Hour sign is posted on the north side just west of Olive Road. A capacity of 17,500 ADT at LOS E was applied to this segment based on existing conditions of 2 travel lanes (per *General Plan Roadway Performance Standards*) and to be consistent with roadway capacities listed in the *City of Holtville Service Area Plan/Municipal Service Review*, August 2014 (excerpts included in **Appendix G**). The *Service Area Plan/Municipal Service Review* has a limited number of segments listed with the closest one being Thiesen Rd (11th St) West of Melon Road with a capacity of 17,500 ADT at LOS E for a two lane Arterial roadway. The study area of Alamo Road also has two lanes; thereby, supporting use of 17,500 ADT at LOS E capacity. The existing roadway conditions are shown in **Figure 3**.

3.2 Existing Traffic Volumes and LOS Analyses

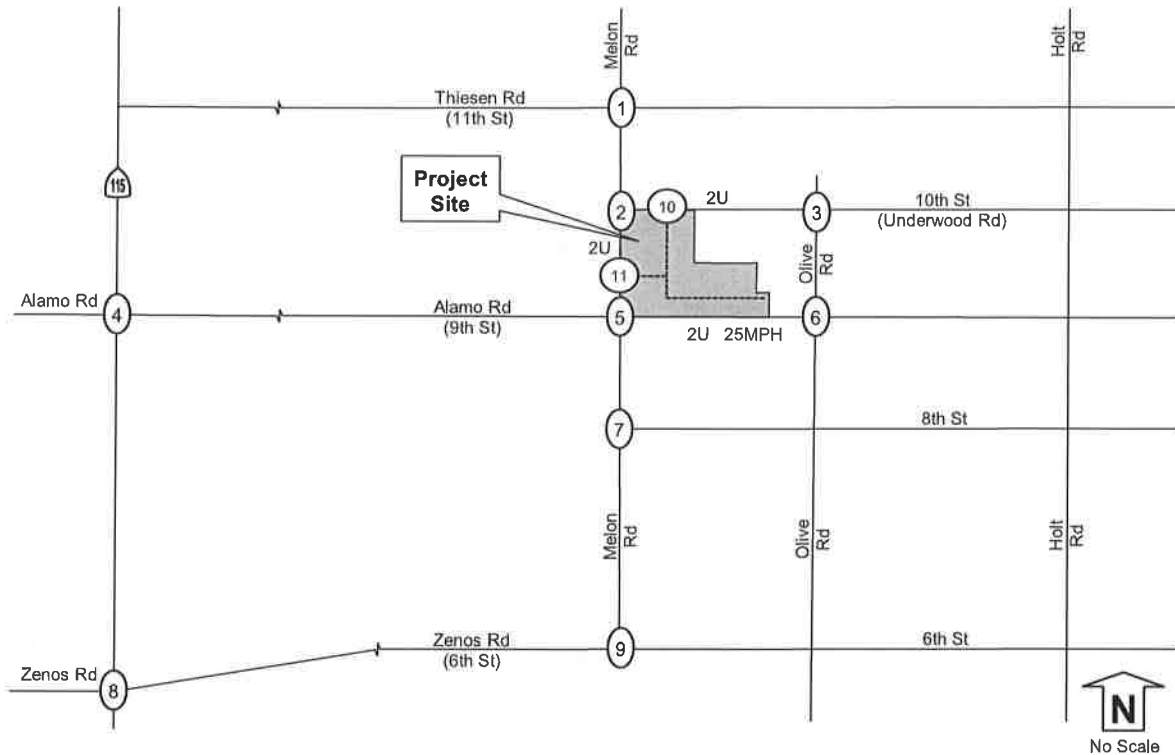
Existing AM and PM peak hour intersection volumes (with count dates) were collected for this study:

- 1) Melon Rd/Thiesen Rd [11th St] (Thursday 2/2/2017)
- 2) Melon Rd/Underwood Rd [10th St] (Thursday 2/2/2017)
- 3) Olive Rd/Underwood Rd [10th St] (Thursday 2/2/2017)
- 4) State Route 115/Alamo Rd (Thursday 2/2/2017)
- 5) Melon Rd/Alamo Rd [9th St] (Thursday 2/2/2017)
- 6) Olive Rd/Alamo Rd [9th St] (Thursday 2/2/2017)
- 7) Melon Rd/8th St (Thursday 2/2/2017)
- 8) State Route 115/Zenos Rd (Thursday 2/2/2017)
- 9) Melon Rd/Zenos Rd [6th St] (Thursday 2/2/2017)

And, the roadway segment of Alamo Road from Melon Road to Olive Road (Thursday 2/2/2017).

Existing AM, PM, and daily volumes are shown on **Figure 4**. Count data are included in **Appendix H**. The intersection and segment LOS are shown in **Tables 4 and 5** respectively. Intersections LOS calculations are included in **Appendix I**.

Figure 3: Existing Roadway Conditions

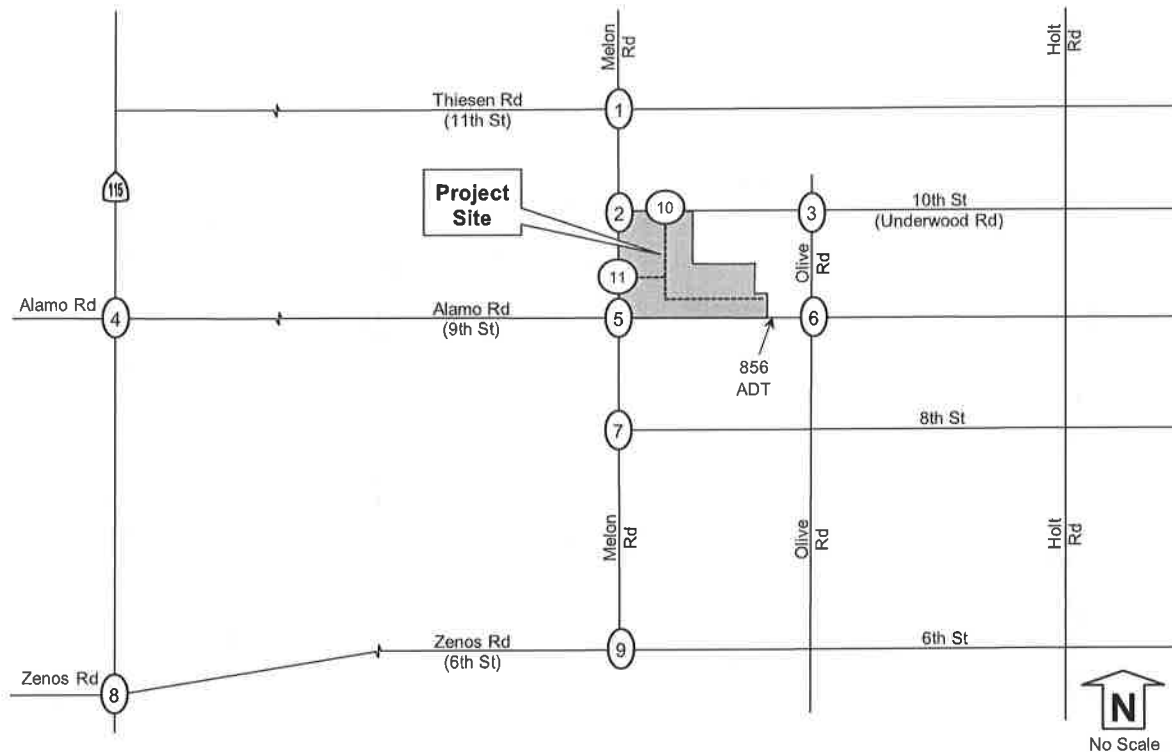


Thiesen Rd (11th St) Melon Rd	Underwood Rd (10 St) Melon Rd	Underwood Rd (10 St) Olive Rd
Alamo Rd State Route 115	Alamo Rd (9th St) Melon Rd	Alamo Rd (9th St) Olive Rd
8th St Melon Rd	Zenos Rd State Route 115	Zenos Rd (6th St) Melon Rd
Underwood Rd (10th St) Project Access	Project Access Melon Rd	LEGEND - Stop Sign - Thru Lane - Left Turn Lane - Right Turn Lane - Combination Left-Thru-Right Lane - Combination Left-Thru Lane - Combination Thru-Right Lane - Combination Left-Right Lane 2U Two Lane Undivided Roadway

Dashed movements are proposed as part of project

Dashed movements are proposed as part of project

Figure 4: Existing Volumes



Melon Rd Thiesen Rd (11th St) Intersection 1 AM: 1 (1), 3 (1), 0 (0) PM: 2 (6), 7 (8), 10 (8)	Melon Rd Underwood Rd (10th St) Intersection 2 AM: 20 (8), 0 (3) PM: 17 (16), 4 (3)	Olive Rd Underwood Rd (10th St) Intersection 3 AM: 2 (0), 3 (0), 0 (0) PM: 1 (8), 3 (3), 0 (3)
State Route 115 Alamo Rd (9th St) Intersection 4 AM: 2 (2), 85 (159), 16 (18) PM: 3 (12), 4 (2), 3 (2)	Melon Rd Alamo Rd (9th St) Intersection 5 AM: 18 (9), 3 (3), 7 (0) PM: 12 (30), 24 (28), 10 (23)	Olive Rd Alamo Rd (9th St) Intersection 6 AM: 4 (4), 10 (3), 4 (2) PM: 1 (1), 17 (39), 4 (5)
Melon Rd 8th St Intersection 7 AM: 32 (31), 18 (6), 13 (8) PM: 25 (39), 7 (13), 17 (10)	State Route 115 Zenos Rd Intersection 8 AM: 103 (148), 21 (23), 21 (23) PM: 3 (1), 1 (1), 97 (84)	Melon Rd Zenos Rd (6th St) Intersection 9 AM: 20 (20), 34 (28), 30 (30) PM: 15 (25), 63 (60), 60 (58)
Project Access 10th St (Underwood Rd) Intersection 10 AM: 4 (6), 0 (0), 8 (10) PM: 0 (0), 0 (0), 0 (0)	Melon Rd Project Access Intersection 11 AM: 27 (15), 0 (0), 0 (0) PM: 21 (9), 0 (0), 0 (0)	LEGEND XX AM hour volumes at intersections (YY) PM hour volumes at intersections an empty bracket () represents a 0 volume # Intersection Reference Number to LOS Tables — Existing Roadways --- Proposed Project Roadways

TABLE 4: EXISTING INTERSECTION LOS

Intersection & (Control) ¹	Movement	Peak Hour	Existing	
			Delay ²	LOS ³
1) Melon Rd at Thiesen Rd/11th (U)	EB	AM	8.9	A
	WB	PM	9.3	A
	EB	AM	8.9	A
	WB	PM	9.0	A
2) Melon Rd at Underwood Rd/10th (U)	WB	AM	8.7	A
	WB	PM	8.7	A
3) Olive Rd at Underwood Rd/10th (U)	NB	AM	8.6	A
	SB	PM	9.0	A
	NB	AM	8.6	A
	SB	PM	0.0	A
4) SR-115 at Alamo Rd/9th (U)	EB	AM	10.3	B
	WB	PM	10.8	B
	EB	AM	11.4	B
	WB	PM	11.0	B
5) Melon Rd at Alamo Rd/9th (U)	All	AM	7.4	A
	All	PM	7.3	A
6) Olive Rd at Alamo Rd/9th (U)	NB	AM	9.6	A
	SB	PM	11.1	B
	NB	AM	9.1	A
	SB	PM	9.7	A
7) Melon Rd at 8th St (U)	WB	AM	9.9	A
	WB	PM	9.3	A
8) SR-115 at Zenos Rd/6th (U)	EB	AM	10.4	B
	WB	PM	10.9	B
	EB	AM	11.8	B
	WB	PM	11.6	B
9) Melon Rd at Zenos Rd/6th (U)	SB	AM	10.3	B
	SB	PM	9.9	A
10) Underwood St/10th at Project Access (U)	NB	AM	Does Not Exist	Not Applicable
	NB	PM	Does Not Exist	Not Applicable
11) Melon Rd at Project Access (U)	WB	AM	Does Not Exist	Not Applicable
	WB	PM	Does Not Exist	Not Applicable

Notes: 1) Intersection Control - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds.

3) LOS: Level of Service. EB: Eastbound, WB Westbound, etc. All: combined LOS for all approaches.

TABLE 5: EXISTING SEGMENT LOS

Segment	Classification (as built)	Existing				
		Daily Volume	# of lanes	LOS E Capacity	V/C	LOS
<u>Alamo Road (9th Street)</u>						
Melon Rd to Olive Rd	Arterial (2U)	856	2	17,500	0.05	A

Notes: Classification based on City of Holtville General Plan. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under existing year 2017 conditions, the study intersections and segment were calculated to operate at LOS B or better.

4.0 Project Description

The multi-family project of 152 apartments is proposed on the northeast corner of Melon Road and Alamo Road adjacent to the City of Holtville. The apartment mix is proposed with 32 senior apartments and 120 non-age restricted apartments. Please note, the number of proposed apartments was reduced after completion of this traffic study based on 168 non-age restricted apartments. Therefore, this traffic study based on 168 apartments is a conservative analysis for the refined project of 152 apartments. The project can be further refined without redoing this traffic study provided the unit count does not exceed 168 apartments.

Project access is proposed from two driveways, a main driveway on Melon Road and a secondary driveway on Underwood Rd (10th St). The site is approximately 8.19 acres. The project site is currently vacant land. The project is anticipated to be completed by year 2019.

4.1 Project Trip Generation

The 9th Edition of the Institute of Transportation Engineers (ITE) Trip Generation, 2012 and the San Diego Association of Governments (SANDAG), 2002 trip generation rates were reviewed for applicability to the proposed project. Trip rates for both sources are included in **Appendix J**. ITE documents a rate of 6.59 daily trips per unit while SANDAG has 6.0 daily trips per unit. The higher and more conservative ITE rate was used for this analysis.

Using the ITE 9th Edition Trip Generation, the project with 32 senior apartments and 120 apartments is calculated to generate 901 daily trips with 62 AM peak hour trips (14 inbound and 48 outbound) and 77 PM peak hour trips (49 inbound and 28 outbound). As previously noted, the original project with 168 apartments is calculated to generate 1,107 daily trips with 77 AM peak hour trips (16 inbound and 61 outbound) and 97 PM peak hour trips (63 inbound and 34 outbound). This results in a conservative analysis of 206 additional daily trips, 15 additional AM peak hour trips, and 20 additional PM peak hour trips. The proposed project, original project, and overestimated project traffic is shown in **Table 6**.

TABLE 6: PROJECT TRIP GENERATION

ITE Land Use Code 221 & 252	Trip Rate	Size & Units	ADT	AM Peak Hour				PM Peak Hour					
				Rate	Split	IN	OUT	Rate	Split	IN	OUT		
<u>Refined Project:</u>													
Senior Adjult Housing Attached	3.44 /Unit	32 Units	110	0.20 /Unit	0.34	0.66	2	4	0.25 /Unit	0.54	0.46	4	4
Low-Rise Apts (1-2 floors)	6.59 /Unit	<u>120</u> Units	<u>791</u>	0.46 /Unit	0.21	0.79	<u>12</u>	<u>44</u>	0.58 /Unit	0.65	0.35	<u>45</u>	<u>24</u>
		152 Units	901				14	48				49	28
<u>Traffic Study Based On:</u>													
Low-Rise Apts (1-2 floors)	6.59 /Unit	168 Units	1,107	0.46 /Unit	0.21	0.79	16	61	0.58 /Unit	0.65	0.35	63	34
Additional Traffic Analyzed:			206				2	13				14	6

Source: ITE 9th Edition Trip Generation, 2012. ADT=Average Daily Traffic; Split % inbound and outbound. Rounding may result ± 1 to above #s.

The construction phase will include site preparation, deliveries, and construction of structures and site features. Some large construction equipment would be required during construction. A majority of the construction traffic will be from construction workers. The concentration of

construction workers and deliveries is not anticipated to exceed the final apartment project trip generation; however, there may be some temporary periods during the construction phase may have slightly higher volumes than the final project trip generation.

4.2 Project Trip Distribution and Assignment

The project distribution is based on trip attractions within or near the City of Holtville (retail, services, schools, and jobs), and regional attractors such as major employers and regional shopping areas. The State of California Employment Development Department (EDD) data was reviewed for the major employers in Imperial County as shown in **Table 7**.

TABLE 7: STATE OF CALIFORNIA EDD LISTING OF MAJOR EMPLOYERS IN IMPERIAL COUNTY

Employer Name	Location	Industry
8 A Packing LLC	El Centro	Labor Organizations
Allstar Seed Co	El Centro	Seeds & Bulbs-Wholesale
Calipatria State Prison	Calipatria	Government Offices-State
Centinela State Prison	Imperial	Government Offices-State
Central Union High School	El Centro	Schools
Clinicas De Salud Del Pueblo	Brawley	Clinics
El Centro Naval Air Facility	El Centro	Federal Government-National Security
El Centro Regional Medical Ctr	El Centro	Hospitals
Imperial County Bhvrl Health	El Centro	Government Offices-County
Imperial County Coroner	El Centro	Government Offices-County
Imperial County Office-Educ	El Centro	Schools
Imperial County Sheriff	El Centro	Government Offices-County
Imperial Date Gardens	Winterhaven	Nurserymen
Imperial Irrigation District	El Centro	Distribution Services
Imperial Irrigation District	Imperial	Distribution Services
JJALL Lc	Calexico	Labor Contractors
Paradise Casino	Winterhaven	Casinos
Pioneers Memorial Healthcare	Brawley	Hospitals
Spreckels Sugar Co Inc	Brawley	Sugar Refiners (mfrs)
United States Gypsum Co	El Centro	Gypsum & Gypsum Products (mfrs)
US Border Patrol	El Centro	Government Offices-US
Vulcan-Bn Geothermal Power	Calipatria	Power Plants
Walmart Supercenter	Brawley	Department Stores
Walmart Supercenter	El Centro	Department Stores
Walmart Supercenter	Calexico	Department Stores

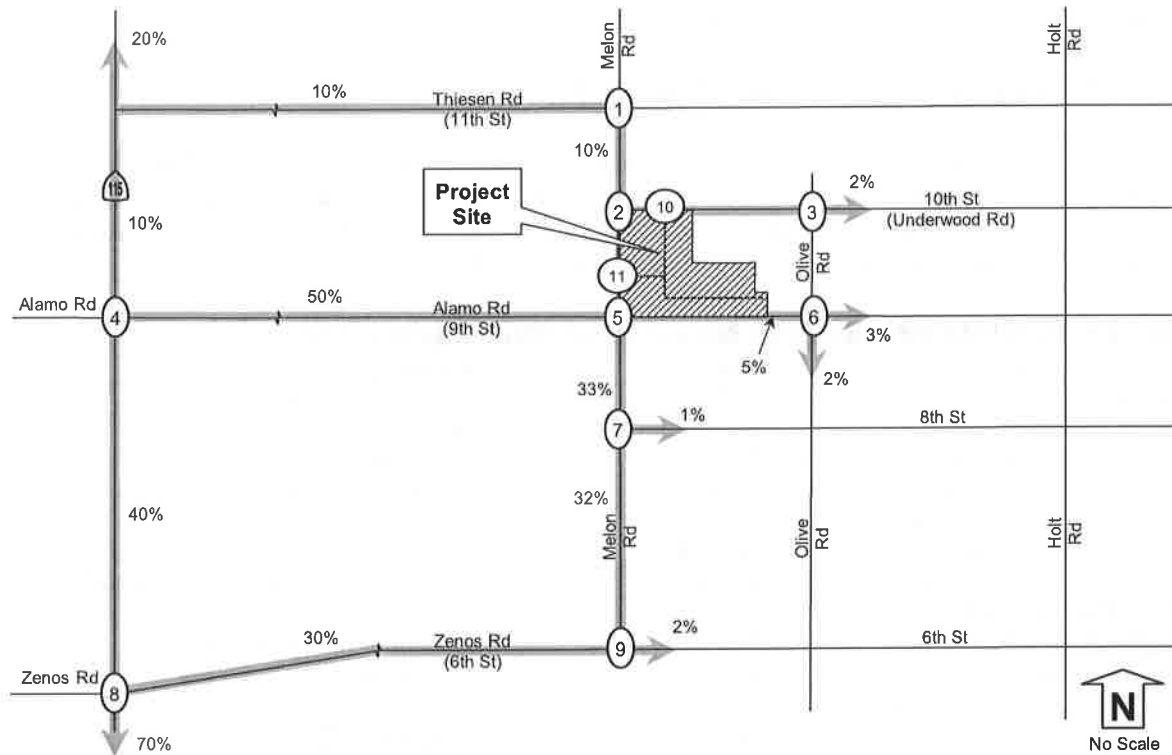
Source: State of California Employment Development Department

A distribution split of 10% local and 90% regional was based on a field review of businesses in and around the City of Holtville, and the above listing of major employer locations in Imperial County from the State of California EDD. The 10% local and 90% regional distribution split was applied to each study intersection based on travel patterns to and from the project driveways as shown in **Figure 5**. The project trip assignment is shown in **Figure 6**.

4.3 Project On-Site Parking

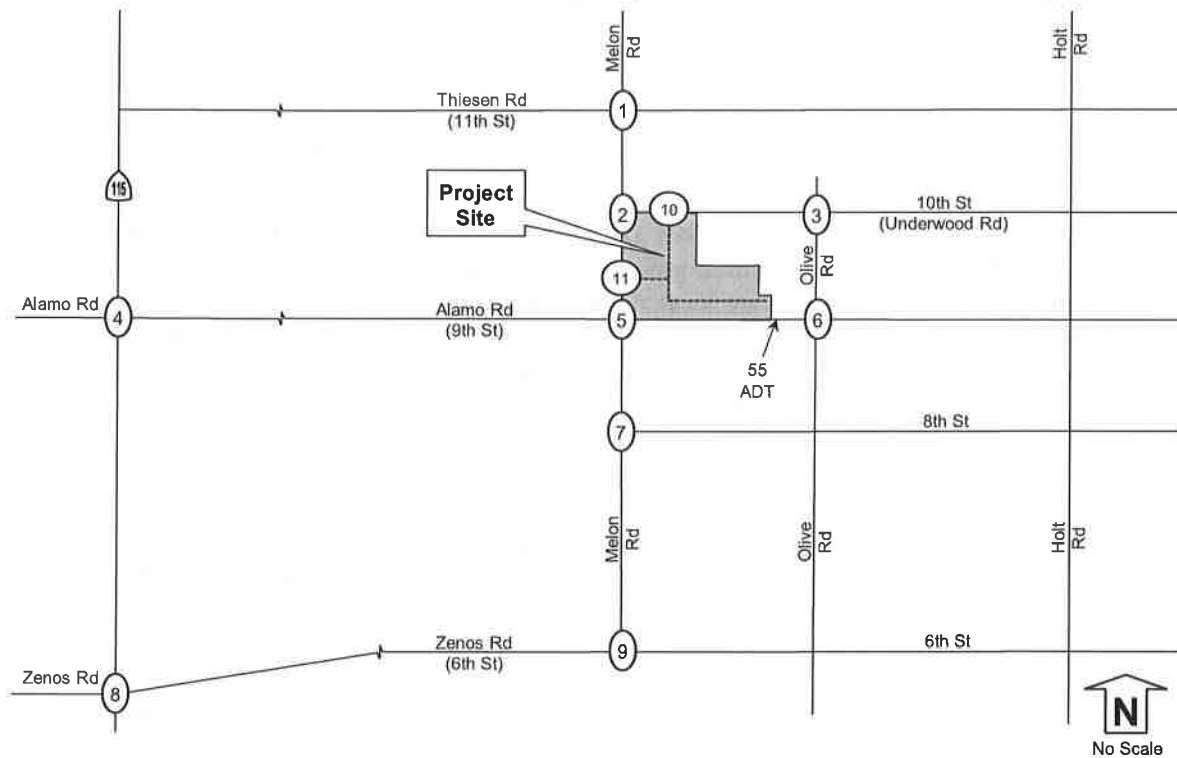
The project is proposed with a total of 266 on-site parking spaces, to which 16 are to be designed to meet the Americans with Disabilities Act (ADA) requirements.

Figure 5: Project Distribution



Thiesen Rd (11th St) Melon Rd 10% 10% 1	Underwood Rd (10th St) Melon Rd 5% 5% 5% 2	Underwood Rd (10th St) Olive Rd 2% 2% 3
Alamo Rd State Route 115 10% 40% 4	Alamo Rd (9th St) Melon Rd 50% 33% 5% 5% 5	Alamo Rd (9th St) Olive Rd 3% 2% 3% 6
8th St Melon Rd 32% 1% 1% 7	Zenos Rd State Route 115 40% 30% 8	Zenos Rd (6th St) Melon Rd 30% 2% 2% 9
10th St (Underwood Rd) Project Access 5% 5% 2% 10	Project Access Melon Rd 5% 5% 88% 11	LEGEND Project Distribution X% Inbound Percentage X% Outbound Percentage # Intersection Reference Number to LOS Tables Existing Roadways Proposed Project Roadways

Figure 6: Project Assignment



Thiesen Rd (11th St) Melon Rd 2 (6) 1 6 (4)	Underwood Rd (10th St) Melon Rd 1 (3) 2 3 (2) 3	Underwood Rd (10th St) Olive Rd 1 () 3 0 (1)
Alamo Rd State Route 115 2 (6) 4 6 (3) 25 (14) 6 (26)	Alamo Rd (9th St) Melon Rd 31 (17) 20 (11) 3 (2) 1 (3) 8 (32) 5 (21) 5	Alamo Rd (9th St) Olive Rd 2 (1) 1 (1) 6 1 (2) 0 (1)
8th St Melon Rd 19 (11) 1 () 7 0 (1) 5 (20)	Zenos Rd State Route 115 25 (14) 8 18 (10) 6 (26) 5 (19) 5	Zenos Rd (6th St) Melon Rd 18 (10) 1 (1) 9 0 (1) 5 (19)
10th St (Underwood Rd) Project Access 1 (3) 3 (2) 10 0 (1) 1 ()	Project Access Melon Rd 1 (3) 3 (2) 54 (30) 14 (56) 11	LEGEND XX AM hour volumes at intersections (YY) PM hour volumes at intersections an empty bracket () represents a 0 volume # Intersection Reference Number to LOS Tables — Existing Roadways --- Proposed Project Roadways

5.0 Cumulative Projects (New Development)

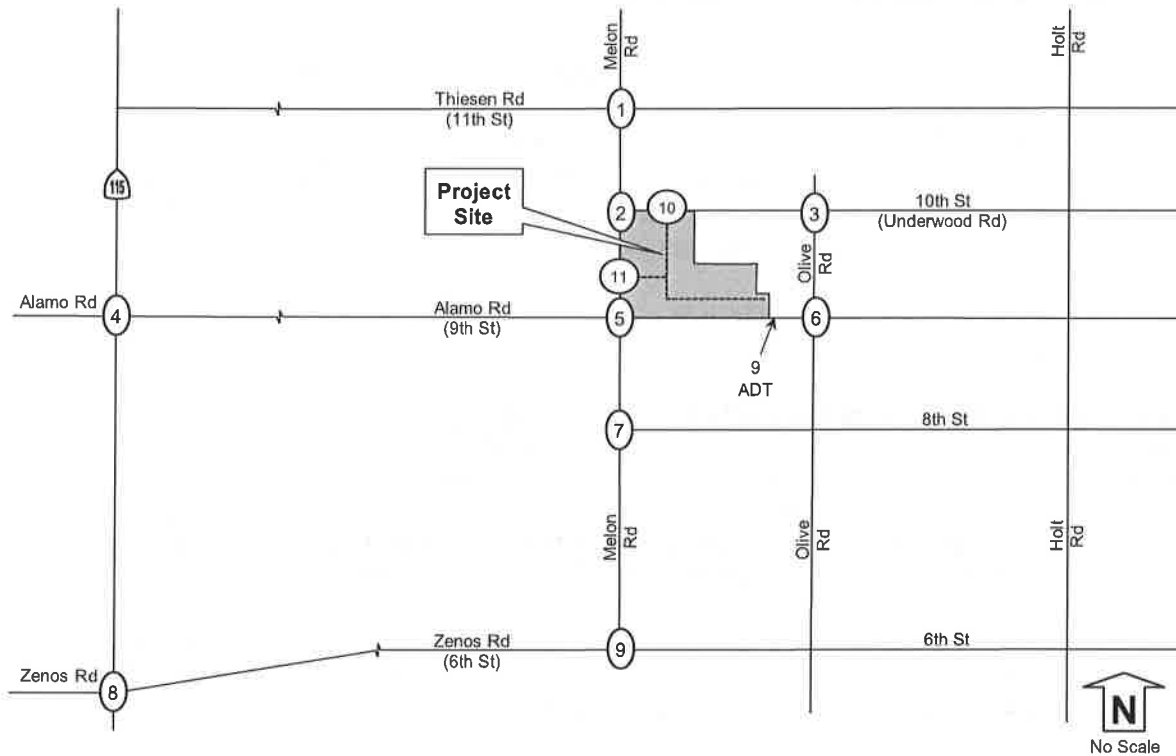
Information on cumulative projects was obtained from planning counter staff at the County of Imperial on February 9, 2017. Copies of County of Imperial maps showing planned cumulative projects are included in **Appendix K**. The list below describes the findings of cumulative projects:

- 1) *Geothermal Projects (Ormesa 1, Ormesa 1E, Ormesa 2, Gem 1, and Gem 2)* – expansion and improvements to existing geothermal power facilities located north of I-8 and east of the E. Highline Canal. These projects are located approximately 8 miles east of the project site (as a crow flies). No cumulative traffic is anticipated from these projects to be added the study area; however, to account for the possibility of some cumulative traffic that may be added, a growth factor was applied as described below.
- 2) *City of Holtville area* - a review of the City of Holtville web site for cumulative projects and a field review of the project study area resulted in no identified cumulative projects within the traffic study area; however, to account for the possibility of some cumulative traffic that may be added, a growth factor was applied as described below.

A growth factor of 0.5% per year (1% total to reach near-term year 2019 conditions) was multiplied against existing traffic for the study area intersections and segment to represent potential cumulative traffic. The volumes represented by a growth factor are relatively low due to being 1% of the background traffic, thus a cumulative 1 peak hour volumes is calculated from a background volume between 50 and 149 trips (i.e. 1% times 50 = 0.5 rounded up to 1). The growth volumes are most noticeable along SR-115 and Zenos Road. The cumulative project volumes represented by the 1% growth factor are shown in **Figure 7**.



Figure 7: Near-Term Cumulative Project (Growth Factor) Volumes



Melon Rd Thiesen Rd (11th St) 1	Melon Rd Underwood Rd (10th St) 2	Olive Rd Underwood Rd (10th St) 3
State Route 115 Alamo Rd 4	Melon Rd Alamo Rd (9th St) 5	Olive Rd Alamo Rd (9th St) 6
Melon Rd 8th St 7	State Route 115 Zenos Rd 8	Melon Rd Zenos Rd (6th St) 9
Project Access 10th St (Underwood Rd) 10	Melon Rd Project Access 11	LEGEND XX AM hour volumes at intersections (YY) PM hour volumes at intersections an empty bracket () represents a 0 volume # Intersection Reference Number to LOS Tables — Existing Roadways - - - Proposed Project Roadways

6.0 Near-Term Year 2019 Conditions

This section documents near-term year 2019 conditions when the project is anticipated to be completed. The year 2019 forecasted volumes are based on increasing the existing year 2017 volumes by an annual growth rate. Determination of the annual growth rate was based on a review of historical census growth data from 2000 to 2010 for the City of Holtville and the vehicular growth from existing to the year 2030 documented in the City of Holtville *Service Area Plan/Municipal Service Review* (volume data included in Appendix G).

The U.S. Census historical growth rate over a 10 year period from 2000 to 2010 is 5.8% in total and 0.6% per year as shown in **Table 8**.

TABLE 8: U.S. CENSUS HISTORICAL GROWTH RATE FOR CITY OF HOLTVILLE

Population Center	2000 Census Population	2010 Census Population	Percentage of Total
Holtville	5,612	5,939	5.8%
Average Growth Rate Per Year (10 years between 2010 and 2000) =			0.6%

Source: Population data from U.S. Census Bureau (<http://2010.census.gov/2010census>).

The City of Holtville *Service Area Plan/Municipal Service Review* lists eleven roadway segments with daily volumes for existing and year 2030 conditions. The average growth rate is 26.5% and the average growth rate per year is 1.7% as shown in **Table 9**.

TABLE 9: CITY OF HOLTVILLE SERVICE AREA PLAN GROWTH RATES

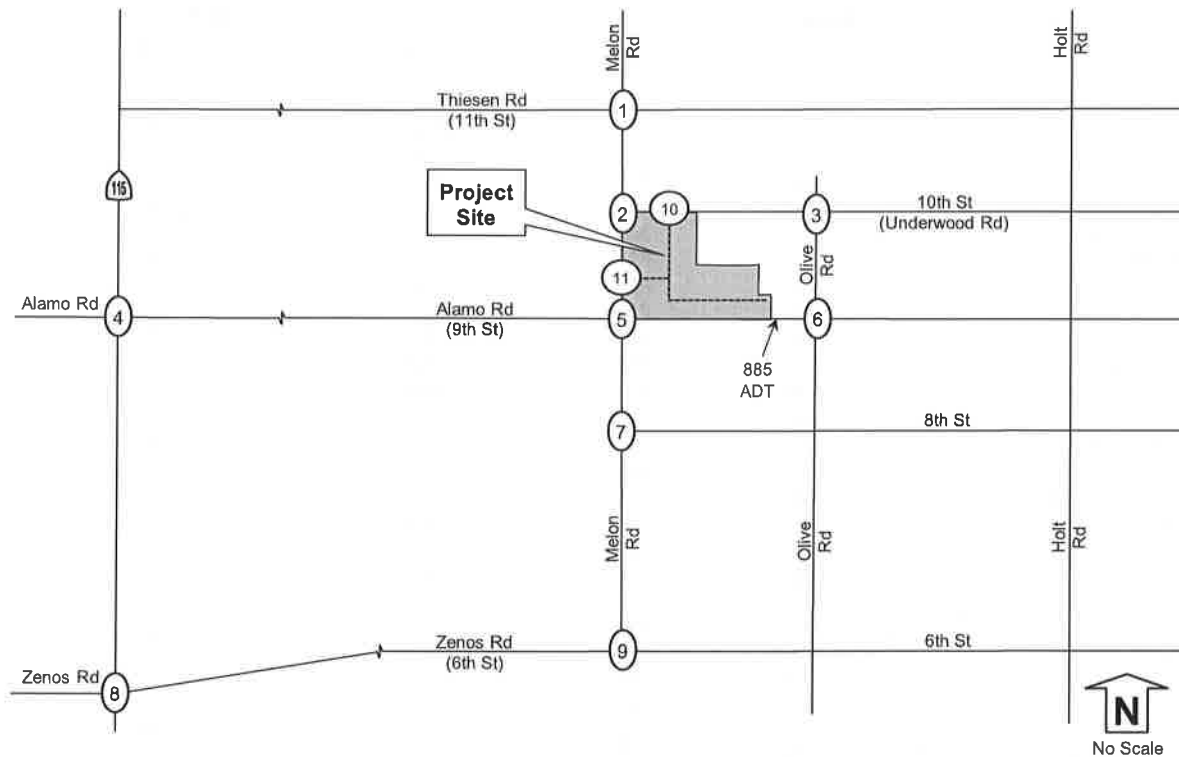
Roadway	Location	Existing ¹ ADT	2030 ² ADT	Growth %
SR 115 (Evan Hewes	West of Fourth	5,300	6,500	22.6%
Highway west of Fourth	Cedar to Holt	5,300	6,500	22.6%
Street, Fifth Street east of	Holt to Walnut	6,000	7,400	23.3%
Fourth Street)	Walnut to Grape	2,100	2,600	23.8%
	Grape to Towland	1,100	1,400	27.3%
Eleventh Street	West to Melon	300	400	33.3%
Ninteh Street	Walnut to Towland	400	500	25.0%
Bonds Corner Road	South of Fourth	1,000	1,300	30.0%
Orchard Road	South of Fourth	2,600	3,200	23.1%
Towland Road	SR 115 to 9th	300	400	33.3%
Holt Avenue	North of 11th	1,500	1,900	26.7%
			Average Growth Rate =	26.5%
			Average Growth Rate Per Year (16 yrs between 2030 and 2014) =	1.7%

Notes: 1) Existing taken as 2014 to match year of Service Area Plan report. 2) Year 2030 from Service Area Plan report dated 2014. ADT: Average Daily Traffic

For the purpose of this traffic study, the more conservative annual growth rate of **1.7 percent** was selected to forecast year 2019 traffic volumes. Year 2019 traffic data was factored up from existing year 2017 data through the application of a 1.7% growth rate per year or 3.4% total growth rate to represent year 2019 volumes that are shown in **Figure 8**. Intersection and segment LOS are shown in **Tables 10 and 11**. Intersection LOS calculations are included in **Appendix L**.



Figure 8: Near-Term Year 2019 Volumes



Thiesen Rd (11th St) Melon Rd Alamo Rd 8th St 10th St (Underwood Rd) Proposed Project Access	Underwood Rd (10th St) Alamo Rd (9th St) Zenos Rd Proposed Project Access	Underwood Rd (10th St) Alamo Rd (9th St) Zenos Rd (6th St) Melon Rd LEGEND XX AM hour volumes at intersections (YY) PM hour volumes at intersections an empty bracket () represents a 0 volume # Intersection Reference Number to LOS Tables Existing Roadways Proposed Project Roadways
1 (1) 0 (0) 0 (2) 6 (3) 2 (1) 2 (1) 7 (6) 10 (8) 3 (1) 88 (164) 17 (19) 4 (2) 113 (94) 8 (16) 33 (32) 19 (6) 13 (8) 18 (10) 26 (40) 7 (13) 4 (6) 8 (10)	21 (8) 0 (3) 4 (5) 4 (5) 6 (2) 19 (9) 3 (4) 7 (0) 44 (17) 11 (8) 10 (24) 14 (6) 7 (8) 3 (1) 107 (153) 22 (24) 22 (24) 4 (6) 47 (52) 1 (0) 3 (3) 2 (0) 100 (87) 32 (41) 28 (16) 22 (9)	2 (0) 3 (0) 0 (0) 1 (0) 4 (5) 8 (0) 1 (0) 3 (8) 0 (3) 2 (0) 7 (4) 4 (0) 10 (3) 4 (2) 4 (7) 43 (21) 53 (11) 6 (2) 5 (3) 33 (8) 21 (21) 35 (29) 31 (31) 62 (60) 16 (26) 65 (62)

TABLE 10: NEAR-TERM YEAR 2019 INTERSECTION LOS

Intersection & (Control) ¹	Movement	Peak Hour	Near-Term Year 2019	
			Delay ²	LOS ³
1) Melon Rd at Thiesen Rd/11th (U)	EB	AM	8.9	A
	WB	PM	9.3	A
	EB	AM	8.9	A
	WB	PM	9.0	A
2) Melon Rd at Underwood Rd/10th (U)	WB	AM	8.7	A
	WB	PM	8.7	A
3) Olive Rd at Underwood Rd/10th (U)	NB	AM	8.6	A
	SB	PM	9.0	A
	NB	AM	8.6	A
	SB	PM	0.0	A
4) SR-115 at Alamo Rd/9th (U)	EB	AM	10.3	B
	WB	PM	10.9	B
	EB	AM	11.5	B
	WB	PM	11.1	B
5) Melon Rd at Alamo Rd/9th (U)	All	AM	7.4	A
	All	PM	7.3	A
6) Olive Rd at Alamo Rd/9th (U)	NB	AM	9.6	A
	SB	PM	11.1	B
	NB	AM	9.1	A
	SB	PM	9.8	A
7) Melon Rd at 8th St (U)	WB	AM	10.0	B
	WB	PM	9.3	A
8) SR-115 at Zenos Rd/6th (U)	EB	AM	10.5	B
	WB	PM	11.0	B
	EB	AM	12.0	B
	WB	PM	11.8	B
9) Melon Rd at Zenos Rd/6th (U)	SB	AM	10.4	B
	SB	PM	9.9	A
10) Underwood St/10th at Project Access (U)	NB	AM	Does Not Exist	Not Applicable
	NB	PM	Does Not Exist	Not Applicable
11) Melon Rd at Project Access (U)	WB	AM	Does Not Exist	Not Applicable
	WB	PM	Does Not Exist	Not Applicable

Notes: 1) Intersection Control - (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds.

3) LOS: Level of Service. EB: Eastbound, WB Westbound, etc. All: combined LOS for all approaches.

TABLE 11: NEAR-TERM YEAR 2019 SEGMENT LOS

Segment	Classification (as built)	Near-Term Year 2019				
		Daily Volume	# of lanes	LOS E Capacity	V/C	LOS
Alamo Road (9th Street)						
Melon Rd to Olive Rd	Arterial (2U)	885	2	17,500	0.05	A

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under near-term year 2019 conditions, the study intersections and segment were calculated to operate at LOS B or better.

7.0 Near-Term Year 2019 + Project Conditions

This section documents the addition of project traffic onto near-term year 2019 conditions to represent opening year conditions. Year 2019 + project traffic volumes are shown in **Figure 9**. Intersection and segment LOS are shown in **Tables 12 and 13**. Intersection LOS calculations are included in **Appendix M**.

TABLE 12: NEAR-TERM YEAR 2019 + PROJECT INTERSECTION LOS

Intersection & (Control) ¹	Movement	Near-Term Year 2019		Near-Term Year 2019 + Project			
		Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Impact ⁵
1) Melon Rd at Thiesen Rd/11th (U)	EB	8.9	A	8.9	A	0.0	None
	WB	9.3	A	9.4	A	0.1	None
	EB	8.9	A	8.9	A	0.0	None
	WB	9.0	A	9.1	A	0.1	None
2) Melon Rd at Underwood Rd/10th (U)	WB	8.7	A	8.7	A	0.0	None
	WB	8.7	A	8.8	A	0.1	None
3) Olive Rd at Underwood Rd/10th (U)	NB	8.6	A	8.6	A	0.0	None
	SB	9.0	A	9.0	A	0.0	None
	NB	8.6	A	8.6	A	0.0	None
	SB	0.0	A	0.0	A	0.0	None
4) SR-115 at Alamo Rd/9th (U)	EB	10.3	B	10.4	B	0.1	None
	WB	10.9	B	11.3	B	0.4	None
	EB	11.5	B	11.9	B	0.4	None
	WB	11.1	B	11.7	B	0.6	None
5) Melon Rd at Alamo Rd/9th (U)	All	7.4	A	7.7	A	0.3	None
	All	7.3	A	7.7	A	0.4	None
6) Olive Rd at Alamo Rd/9th (U)	NB	9.6	A	9.7	A	0.1	None
	SB	11.1	B	11.2	B	0.1	None
	NB	9.1	A	9.2	A	0.1	None
	SB	9.8	A	9.8	A	0.0	None
7) Melon Rd at 8th St (U)	WB	10.0	B	10.3	B	0.3	None
	WB	9.3	A	9.4	A	0.1	None
8) SR-115 at Zenos Rd/6th (U)	EB	10.5	B	10.8	B	0.3	None
	WB	11.0	B	11.7	B	0.7	None
	EB	12.0	B	12.6	B	0.6	None
	WB	11.8	B	12.8	B	1.0	None
9) Melon Rd at Zenos Rd/6th (U)	SB	10.4	B	10.4	B	0.0	None
	SB	9.9	A	10.2	B	0.3	None
10) Underwood St/10th at Project Access (U)	NB	Does Not Exist	Not Applicable	8.6	A	Not Applicable	None
	NB	Does Not Exist	Not Applicable	8.7	A	Not Applicable	None
11) Melon Rd at Project Access (U)	WB	Does Not Exist	Not Applicable	9.1	A	Not Applicable	None
	WB	Does Not Exist	Not Applicable	9.0	A	Not Applicable	None

Notes: 1) Intersection Control - (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds.

3) LOS: Level of Service. EB: Eastbound, WB Westbound, etc. All: combined LOS for all approaches.

4) Delta is the increase in delay from project. 5) Type of impact: none, direct, or cumulative.

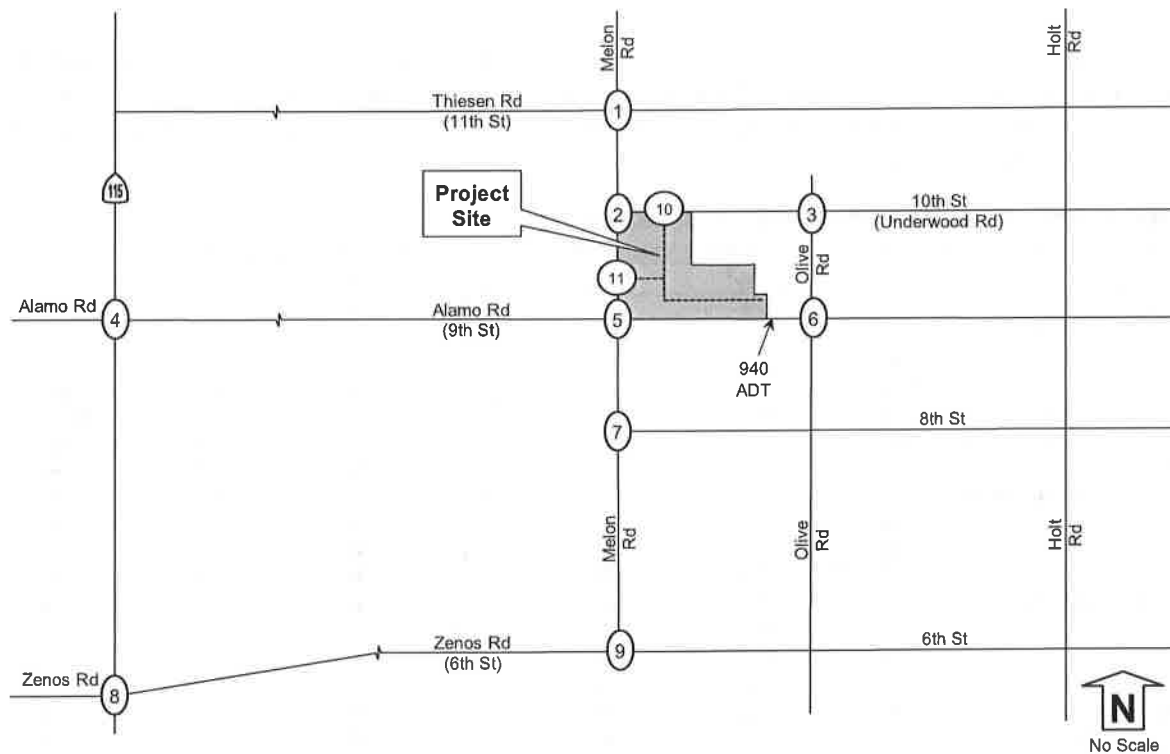
TABLE 13: NEAR-TERM YEAR 2019 + PROJECT SEGMENT LOS

Segment	Classification (as built)	Near-Term Year 2019				Project Daily Volume	Near-Term Year 2019 + Project					
		Daily Volume	LOS E Capacity	V/C	LOS		Daily Volume	LOS E Capacity	V/C	LOS	Change in V/C	Impact?
Alamo Road (9th Street)												
Melon Rd to Olive Rd	Arterial (2U)	885	17,500	0.05	A	55	940	17,500	0.05	A	0.00	None

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio. Impact? = type of impact (none, cumulative, or direct).

Under near-term year 2019 + project conditions, the study intersections and segment were calculated to operate at LOS B or better with no significant direct project impacts.

Figure 9: Near-Term Year 2019 + Project Volumes



Thiesen Rd (11th St) Melon Rd 1 (1) 2 (1) 7 (6) 12 (14) 16 (12) 5 (5) 1 (5) 0 (2) 6 (3) 2 (1)	Underwood Rd (10th St) Melon Rd 22 (11) 1 (6) 7 (7) 4 (5) 21 (19) 4 (3) 37 (19) 39 (20) 6 (6) 8 (35) 12 (31) 25 (29) 10 (24) 19 (27) 7 (8)	Underwood Rd (10th St) Olive Rd 2 (0) 3 (0) 0 (0) 1 (0) 4 (8) 0 (3) 2 (3) 0 (0) 7 (4) 1 (0) 4 (6) 8 (0)
Alamo Rd State Route 115 2 (2) 88 (164) 19 (25) 17 (9) 7 (6) 65 (27) 113 (94) 14 (42) 52 (43) 20 (6) 13 (9) 18 (10) 31 (60) 7 (13)	Alamo Rd (9th St) Melon Rd 37 (19) 39 (20) 6 (6) 8 (3) 44 (17) 11 (8) 10 (24) 19 (27) 7 (8) 3 (1) 132 (167) 22 (24) 22 (24) 4 (6) 65 (62) 106 (113) 37 (60)	Alamo Rd (9th St) Olive Rd 4 (0) 10 (3) 4 (2) 4 (7) 44 (23) 53 (11) 6 (3) 5 (3) 33 (8) 39 (31) 36 (30) 31 (32) 62 (60)
8th St Melon Rd 7 (13) 31 (60) 13 (9) 18 (10)	Zenos Rd State Route 115 1 (1) 3 (3) 2 (0) 106 (113) 37 (60) 22 (24) 4 (6) 65 (62)	Zenos Rd (6th St) Melon Rd 21 (45) 65 (62) 31 (32) 62 (60)
10th St (Underwood Rd) Project Access 4 (6) 1 (3) 3 (2) 8 (10) 0 (1)	Project Access Melon Rd 28 (16) 1 (3) 3 (2) 54 (30) 22 (9) 14 (56)	LEGEND XX AM hour volumes at intersections (YY) PM hour volumes at intersections an empty bracket () represents a 0 volume # Intersection Reference Number to LOS Tables Existing Roadways ----- Proposed Project Roadways



8.0 Near-Term Year 2019 + Project + Cumulative Conditions

This section documents the addition of cumulative traffic onto near-term year 2019 with project conditions. Year 2019 + project + cumulative traffic volumes are shown in **Figure 10**. Intersection and segment LOS are shown in **Tables 14 and 15**. Intersection LOS calculations are included in **Appendix N**.

TABLE 14: NEAR-TERM YEAR 2019 + PROJECT + CUMULATIVE INTERSECTION LOS

Intersection & (Control) ¹	Movement	Peak Hour	Near-Term Year 2019 + Project		Near-Term Year 2019 + Project + Cumulative			
			Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Impact ⁵
1) Melon Rd at Thiesen Rd/11th (U)	EB	AM	8.9	A	8.9	A	0.0	None
	WB	PM	9.4	A	9.4	A	0.0	None
	EB	AM	8.9	A	8.9	A	0.0	None
	WB	PM	9.1	A	9.1	A	0.0	None
2) Melon Rd at Underwood Rd/10th (U)	WB	AM	8.7	A	8.7	A	0.0	None
	WB	PM	8.8	A	8.8	A	0.0	None
3) Olive Rd at Underwood Rd/10th (U)	NB	AM	8.6	A	8.6	A	0.0	None
	SB	PM	9.0	A	9.0	A	0.0	None
	NB	AM	8.6	A	8.6	A	0.0	None
	SB	PM	0.0	A	0.0	A	0.0	None
4) SR-115 at Alamo Rd/9th (U)	EB	AM	10.4	B	10.4	B	0.0	None
	WB	PM	11.3	B	11.3	B	0.0	None
	EB	AM	11.9	B	11.9	B	0.0	None
	WB	PM	11.7	B	11.7	B	0.0	None
5) Melon Rd at Alamo Rd/9th (U)	All	AM	7.7	A	7.7	A	0.0	None
	All	PM	7.7	A	7.7	A	0.0	None
6) Olive Rd at Alamo Rd/9th (U)	NB	AM	9.7	A	9.7	A	0.0	None
	SB	PM	11.2	B	11.2	B	0.0	None
	NB	AM	9.2	A	9.2	A	0.0	None
	SB	PM	9.8	A	9.8	A	0.0	None
7) Melon Rd at 8th St (U)	WB	AM	10.3	B	10.3	B	0.0	None
	WB	PM	9.4	A	9.4	A	0.0	None
8) SR-115 at Zenos Rd/6th (U)	EB	AM	10.8	B	10.8	B	0.0	None
	WB	PM	11.7	B	11.7	B	0.0	None
	EB	AM	12.6	B	12.7	B	0.1	None
	WB	PM	12.8	B	12.8	B	0.0	None
9) Melon Rd at Zenos Rd/6th (U)	SB	AM	10.4	B	10.5	B	0.1	None
	SB	PM	10.2	B	10.2	B	0.0	None
10) Underwood St/10th at Project Access (U)	NB	AM	8.6	A	8.6	A	0.0	None
	NB	PM	8.7	A	8.7	A	0.0	None
11) Melon Rd at Project Access (U)	WB	AM	9.1	A	9.1	A	0.0	None
	WB	PM	9.0	A	9.0	A	0.0	None

Notes: 1) Intersection Control - (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds.

3) LOS: Level of Service. EB: Eastbound, WB Westbound, etc. All: combined LOS for all approaches.

4) Delta is the increase in delay from project. 5) Type of impact: none, direct, or cumulative.

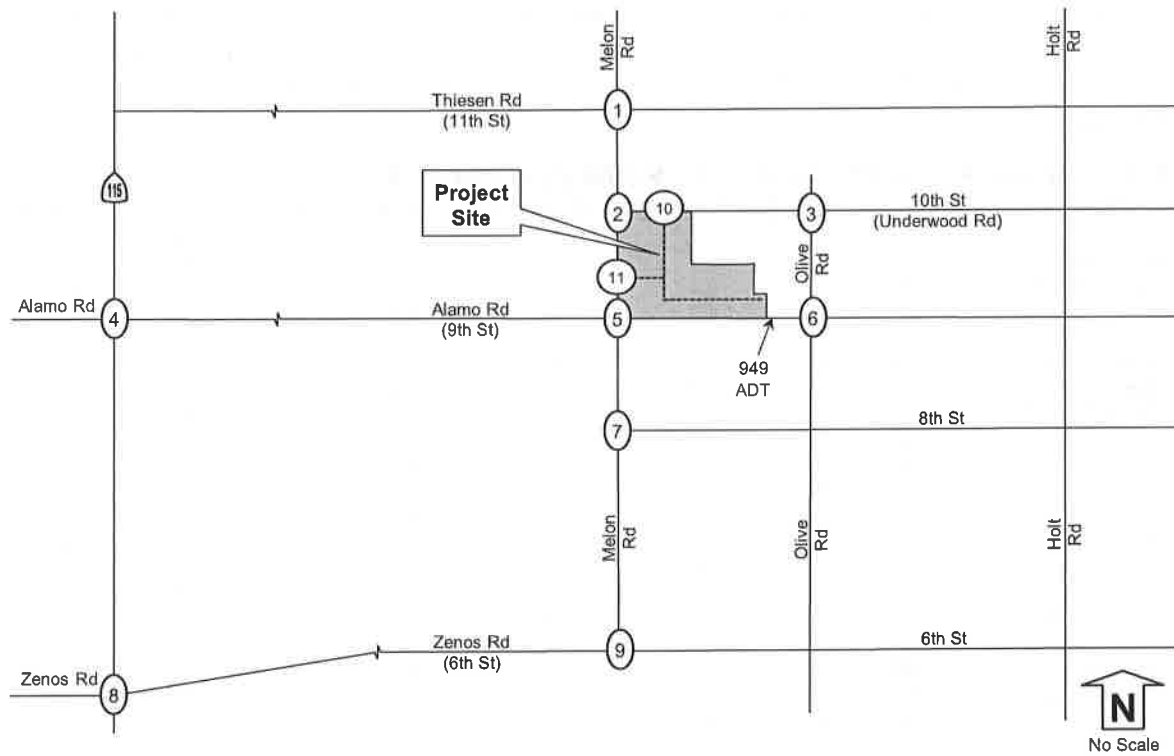
TABLE 15: NEAR-TERM YEAR 2019 + PROJECT + CUMULATIVE SEGMENT LOS

Segment	Classification (as built)	Near-Term Yr 2019 + Project				Cumulative Daily Volume	Near-Term Yr 2019 + Project + Cumulative					
		Daily Volume	LOS E Capacity	V/C	LOS		Daily Volume	LOS E Capacity	V/C	LOS	Change in V/C	Impact?
Alamo Road (9th Street)												
Melon Rd to Olive Rd	Arterial (2U)	940	17,500	0.05	A	9	949	17,500	0.05	A	0.001	None

Notes: Classification based on City of Holtville General Plan. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio. Impact? = type of impact (none, cumulative, or direct).

Under near-term year 2019 + project + cumulative conditions, the study intersections and segments were calculated to operate at LOS B or better with no cumulatively considerable impacts.

Figure 10: Near-Term Year 2019 + Project + Cumulative Volumes



Melon Rd Thiesen Rd (11th St) 1 (1) 0 (0) 0 (2) 6 (3) 2 (1) 2 (1) 7 (6) 12 (14) 16 (12) 5 (5) 1 (5)	Melon Rd Alamo Rd (9th St) 22 (11) 1 (6) 7 (7) 4 (5) 21 (19) 4 (3) 37 (19) 39 (20) 6 (6) 8 (35) 12 (31) 25 (29) 10 (24) 19 (27) 7 (8)	Olive Rd Underwood Rd (10th St) 2 (0) 3 (0) 0 (0) 1 (0) 4 (6) 8 (0) 1 (0) 4 (8) 0 (3) 2 (3) 0 (0) 7 (4)
State Route 115 Alamo Rd 3 (2) 4 (12) 3 (2) 114 (95) 14 (42) 89 (166) 19 (25) 17 (9) 7 (6) 65 (27)	Melon Rd Alamo Rd (9th St) 8 (35) 12 (31) 25 (29) 10 (24) 19 (27) 7 (8) 37 (19) 39 (20) 6 (6) 8 (35) 12 (31) 25 (29)	Olive Rd Alamo Rd (9th St) 1 (1) 20 (41) 5 (6) 6 (3) 5 (3) 33 (8) 4 (0) 10 (3) 4 (2) 4 (7) 44 (23) 54 (11)
Melon Rd 8th St 52 (43) 20 (6) 13 (9) 18 (10) 31 (60) 7 (13)	State Route 115 Zenos Rd 1 (0) 3 (3) 2 (0) 107 (114) 37 (60) 22 (24) 4 (6) 65 (63)	Melon Rd Zenos Rd (6th St) 21 (45) 66 (63) 39 (31) 36 (30) 31 (32) 63 (61)
Project Access 10th St (Underwood Rd) 4 (6) 1 (3) 8 (10) 0 (1)	Melon Rd Project Access 28 (16) 1 (3) 3 (2) 54 (30) 22 (9) 14 (56)	LEGEND XX AM hour volumes at intersections (YY) PM hour volumes at intersections an empty bracket () represents a 0 volume # Intersection Reference Number to LOS Tables — Existing Roadways - - - Proposed Project Roadways

9.0 Horizon Year 2030 Conditions

A horizon year of 2030 was selected to be consistent with the year 2030 analysis documented in the City of Holtville *Service Area Plan/Municipal Service Review*. As shown previously in Table 9, an overall average growth rate for the City area was calculated at 26.5% between existing and year 2030 conditions. Applying the noted 26.5% to existing volumes, year 2030 volumes are shown in Figure 11. Intersection and segment LOS are shown in Tables 16 and 17. Intersection LOS calculations are included in Appendix O.

TABLE 16: HORIZON YEAR 2030 INTERSECTION LOS

Intersection & (Control) ¹	Movement	Peak Hour	Horizon Year 2030	
			Delay ²	LOS ³
1) Melon Rd at Thiesen Rd/11th (U)	EB	AM	9.0	A
	WB	PM	9.4	A
	EB	AM	9.0	A
	WB	PM	9.0	A
2) Melon Rd at Underwood Rd/10th (U)	WB	AM	8.8	A
	WB	PM	8.8	A
3) Olive Rd at Underwood Rd/10th (U)	NB	AM	8.6	A
	SB	PM	9.0	A
	NB	AM	8.7	A
	SB	PM	0.0	A
4) SR-115 at Alamo Rd/9th (U)	EB	AM	10.8	B
	WB	PM	11.7	B
	EB	AM	12.3	B
	WB	PM	11.9	B
5) Melon Rd at Alamo Rd/9th (U)	All	AM	7.6	A
	All	PM	7.4	A
6) Olive Rd at Alamo Rd/9th (U)	NB	AM	10.0	B
	SB	PM	12.0	B
	NB	AM	9.3	A
	SB	PM	10.0	B
7) Melon Rd at 8th St (U)	WB	AM	10.4	B
	WB	PM	9.4	A
8) SR-115 at Zenos Rd/6th (U)	EB	AM	10.9	B
	WB	PM	11.8	B
	EB	AM	12.9	B
	WB	PM	13.1	B
9) Melon Rd at Zenos Rd/6th (U)	SB	AM	11.0	B
	SB	PM	10.3	B
10) Underwood St/10th at Project Access (U)	NB	AM	Does Not Exist	Not Applicable
	NB	PM	Does Not Exist	Not Applicable
11) Melon Rd at Project Access (U)	WB	AM	Does Not Exist	Not Applicable
	WB	PM	Does Not Exist	Not Applicable

Notes: 1) Intersection Control - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds.

3) LOS: Level of Service. EB: Eastbound, WB Westbound, etc. All: combined LOS for all approaches.

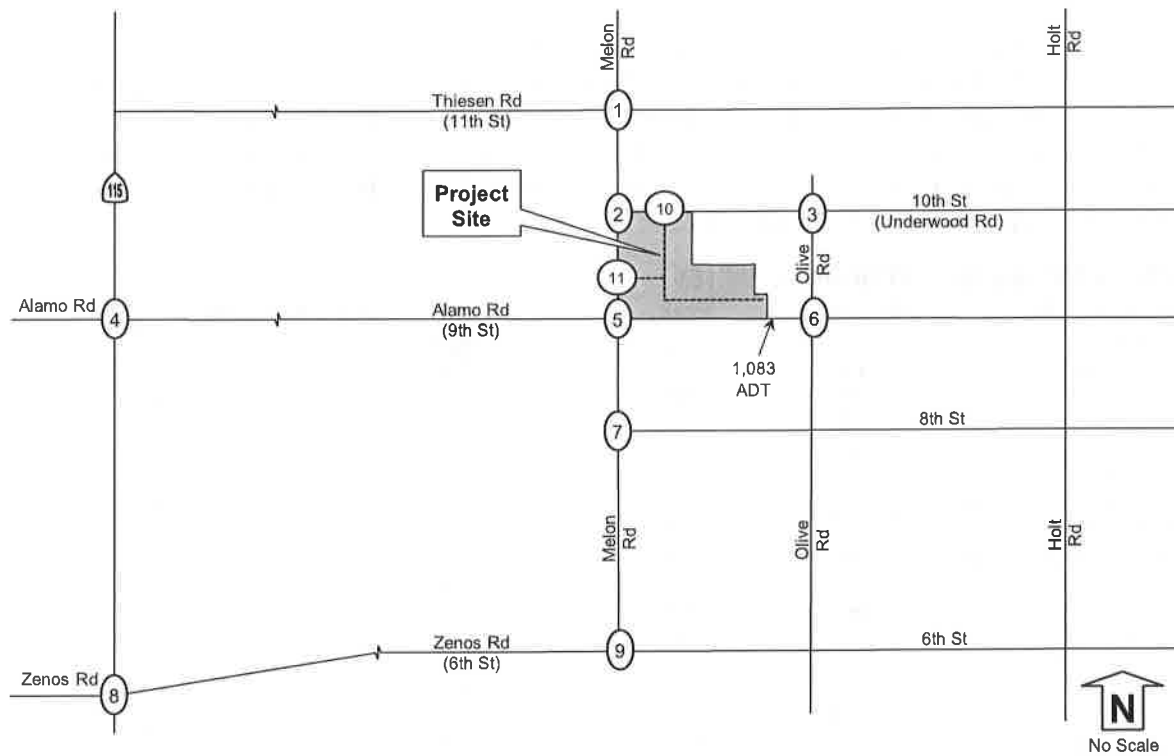
TABLE 17: HORIZON YEAR 2030 SEGMENT LOS

Segment	Classification (as built)	Horizon Year 2030			
		Daily Volume	LOS E Capacity	V/C	LOS
Alamo Road (9th Street)					
Melon Rd to Olive Rd	Arterial (2U)	1,083	17,500	0.06	A

Notes: Classification based on City of Holtville General Plan. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under horizon year 2030 conditions, the study intersections and segments were calculated to operate at LOS B or better.

Figure 11: Horizon Year 2030 Volumes



Thiesen Rd (11th St) Melon Rd 3 (1) 9 (8) 13 (10) 1 (1) 4 (1) 0 (1) 13 (10) 6 (6) 1 (6)	Underwood Rd (10th St) Melon Rd 25 (10) 0 (4) 2 (2) 5 (6) 5 (6) 22 (20) 5 (4)	Underwood Rd (10th St) Olive Rd 3 (1) 4 (10) 0 (4) 3 (4) 0 (1) 9 (5) 1 (1) 5 (6) 10 (1)
Alamo Rd State Route 115 4 (3) 5 (15) 4 (3) 108 (201) 20 (23) 138 (115) 10 (19) 14 (8) 9 (8) 49 (16)	Alamo Rd (9th St) Melon Rd 8 (3) 23 (11) 4 (5) 9 (1) 54 (20) 14 (10) 13 (29) 18 (8) 9 (10)	Alamo Rd (9th St) Olive Rd 5 (1) 22 (49) 5 (6) 13 (4) 6 (4) 40 (10) 5 (9) 53 (25) 65 (14)
8th St Melon Rd 40 (39) 23 (8) 16 (10) 22 (13) 32 (49) 9 (16)	Zenos Rd State Route 115 1 (1) 4 (4) 3 (1) 130 (187) 27 (29) 27 (29) 5 (8) 57 (63) 123 (106) 39 (51)	Zenos Rd (6th St) Melon Rd 25 (25) 43 (35) 38 (38) 76 (73)
10th St (Underwood Rd) Project Access 5 (8) 0 (0) 10 (13) 0 (0)	Project Access Melon Rd 34 (19) 0 (0) 0 (0) 0 (0) 27 (11) 0 (0)	LEGEND XX AM hour volumes at intersections (YY) PM hour volumes at intersections an empty bracket () represents a 0 volume # Intersection Reference Number to LOS Tables — Existing Roadways - - - - Proposed Project Roadways



10.0 Horizon Year 2030 + Project Conditions

This section documents the addition of project traffic onto horizon year 2030 conditions. Year 2030 + project traffic volumes are shown in **Figure 12**. Intersection and segment LOS are shown in **Tables 18 and 19**. Intersection LOS calculations are included in **Appendix P**.

TABLE 18: HORIZON YEAR 2030 + PROJECT INTERSECTION LOS

Intersection & (Control) ¹	Movement	Horizon Year 2030		Horizon Year 2030 + Project			
		Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Impact ⁵
1) Melon Rd at Thiesen Rd/11th (U)	EB	9.0	A	9.0	A	0.0	None
	WB	9.4	A	9.5	A	0.1	None
	EB	9.0	A	9.0	A	0.0	None
	WB	9.0	A	9.1	A	0.1	None
2) Melon Rd at Underwood Rd/10th (U)	WB	8.8	A	8.8	A	0.0	None
	WB	8.8	A	8.8	A	0.0	None
3) Olive Rd at Underwood Rd/10th (U)	NB	8.6	A	8.6	A	0.0	None
	SB	9.0	A	9.0	A	0.0	None
	NB	8.7	A	8.7	A	0.0	None
	SB	0.0	A	0.0	A	0.0	None
4) SR-115 at Alamo Rd/9th (U)	EB	10.8	B	10.9	B	0.1	None
	WB	11.7	B	12.2	B	0.5	None
	EB	12.3	B	12.7	B	0.4	None
	WB	11.9	B	12.7	B	0.8	None
5) Melon Rd at Alamo Rd/9th (U)	All	7.6	A	7.9	A	0.3	None
	All	7.4	A	7.8	A	0.4	None
6) Olive Rd at Alamo Rd/9th (U)	NB	10.0	B	10.1	B	0.1	None
	SB	12.0	B	12.0	B	0.0	None
	NB	9.3	A	9.4	A	0.1	None
	SB	10.0	B	10.0	B	0.0	None
7) Melon Rd at 8th St (U)	WB	10.4	B	10.7	B	0.3	None
	WB	9.4	A	9.6	A	0.2	None
8) SR-115 at Zenos Rd/6th (U)	EB	10.9	B	11.2	B	0.3	None
	WB	11.8	B	12.7	B	0.9	None
	EB	12.9	B	13.6	B	0.7	None
	WB	13.1	B	14.4	B	1.3	None
9) Melon Rd at Zenos Rd/6th (U)	SB	11.0	B	11.1	B	0.1	None
	SB	10.3	B	10.6	B	0.3	None
10) Underwood St/10th at Project Access (U)	NB	Does Not Exist	Not Applicable	8.6	A	Not Applicable	None
	NB	Does Not Exist	Not Applicable	8.7	A	Not Applicable	None
11) Melon Rd at Project Access (U)	WB	Does Not Exist	Not Applicable	9.2	A	Not Applicable	None
	WB	Does Not Exist	Not Applicable	9.0	A	Not Applicable	None

Notes: 1) Intersection Control - (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds.

3) LOS: Level of Service. EB: Eastbound, WB Westbound, etc. All: combined LOS for all approaches.

4) Delta is the increase in delay from project. 5) Type of impact: none, direct, or cumulative.

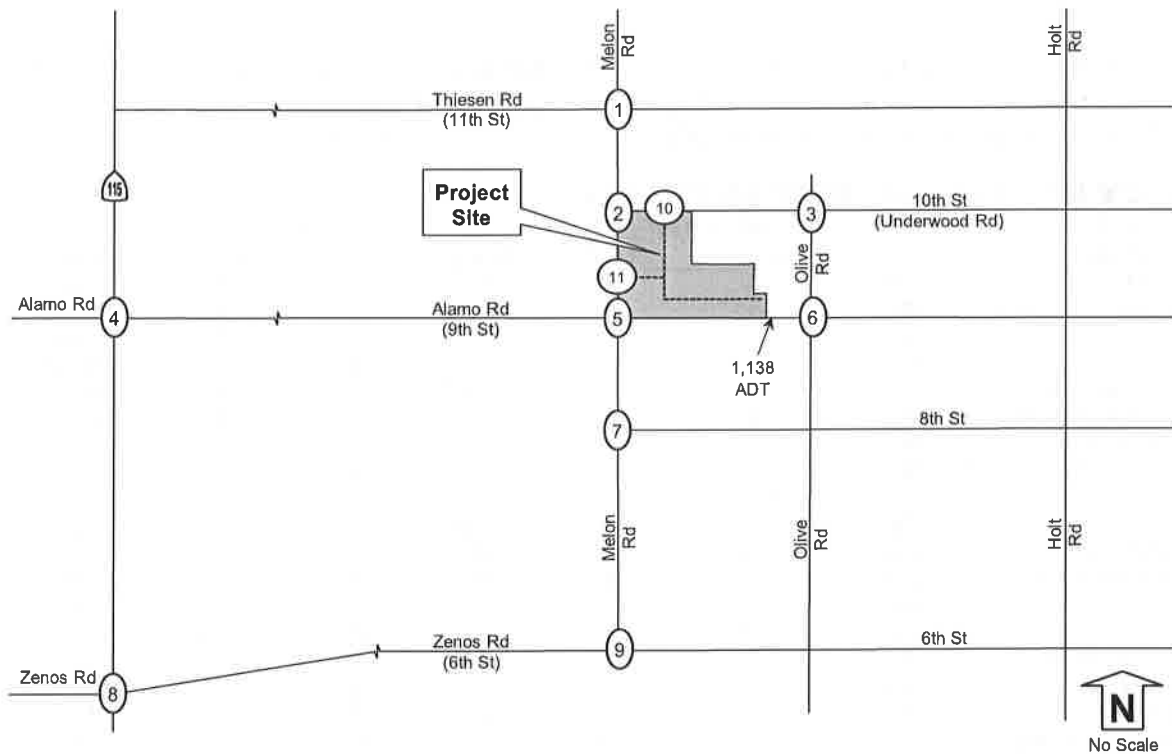
TABLE 19: HORIZON YEAR 2030 + PROJECT SEGMENT LOS

Daily	Classification (as built)	Horizon Year 2030				Project Daily Volume	Horizon Year 2050 + Project				
		Daily	LOS E	V/C	LOS		Daily	LOS E	V/C	LOS	Impact?
		Volume	Capacity				Volume	Capacity			
Alamo Road (9th Street)											
Melon Rd to Olive Rd	Arterial (2U)	1,083	17,500	0.06	A	55	1,138	17,500	0.07	A	None

Notes: Classification based on City of Holtville General Plan. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio. Impact? = type of impact (none, cumulative, or direct).

Under horizon year 2030 + project conditions, the study intersections and segment were calculated to operate at LOS B or better with no project impacts.

Figure 12: Horizon Year 2030 + Project Volumes



Thiesen Rd (11th St) Melon Rd 1 3 (1) 9 (8) 15 (16) 4 (1) 0 (3) 3 (1) 0 (3) 8 (4) 1 (1) 19 (14) 6 (6) 1 (6)			Underwood Rd (10th St) Melon Rd 2 26 (13) 1 (7) 8 (8) 5 (6) 25 (22) 5 (4) 39 (20) 43 (22) 7 (7) 8 (36) 15 (38) 30 (35) 13 (29) 23 (29) 9 (10)			Underwood Rd (10th St) Olive Rd 3 3 (0) 4 (0) 0 (0) 1 (0) 5 (10) 0 (4) 3 (4) 0 (0) 9 (5) 5 (3) 13 (4) 5 (3) 1 (1) 24 (50) 6 (7) 8 (4) 6 (4) 40 (10)		
Alamo Rd State Route 115 4 3 (3) 5 (15) 4 (3) 108 (201) 22 (29) 20 (11) 9 (8) 74 (30) 138 (115) 16 (45) 59 (50) 24 (8) 16 (11) 22 (13) 37 (69) 9 (16)			Alamo Rd (9th St) Melon Rd 5 39 (20) 43 (22) 7 (7) 10 (3) 54 (20) 14 (10) 13 (29) 23 (29) 9 (10) 1 (0) 4 (4) 0 (0) 129 (132) 44 (70) 27 (29) 5 (8) 75 (73)			Alamo Rd (9th St) Olive Rd 6 5 (9) 54 (27) 65 (14) 40 (10) 43 (35) 44 (36) 24 (51) 80 (76) 38 (39) 76 (73)		
8th St Melon Rd 7 59 (50) 24 (8) 16 (11) 22 (13) 37 (69) 9 (16)			Zenos Rd State Route 115 8 1 (0) 4 (4) 0 (0) 129 (132) 44 (70) 27 (29) 5 (8) 75 (73)			Zenos Rd (6th St) Melon Rd 9 43 (35) 44 (36) 24 (51) 80 (76) 38 (39) 76 (73)		
10th St (Underwood Rd) Project Access 10 5 (8) 1 (3) 3 (2) 10 (13) 0 (1) 1 (1) 1 (1)			Project Access Melon Rd 11 34 (19) 1 (3) 27 (11) 14 (56)			LEGEND XX AM hour volumes at intersections (YY) PM hour volumes at intersections an empty bracket () represents a 0 volume # Intersection Reference Number to LOS Tables — Existing Roadways --- Proposed Project Roadways		

11.0 Conclusions and Recommendations

The Multi-Family project with 152 apartments is proposed on the northeast corner of Melon Road and Alamo Road and is currently located within the County of Imperial. Please note, the number of proposed apartments was reduced after completion of this traffic study based on 168 apartments. Therefore, this traffic study based on 168 apartments is a conservative analysis for the refined project of 152 apartments. As part of the project, the applicant is proposing to annex the project site into the City of Holtville. The site is approximately 8.19 acres and is currently vacant land. Project access is proposed from two driveways, a main driveway on Melon Road and a secondary driveway on Underwood Rd (10th St).

Using the ITE 9th Edition Trip Generation, the project with 152 apartments is calculated to generate 901 daily trips with 62 AM peak hour trips (14 inbound and 48 outbound) and 77 PM peak hour trips (49 inbound and 28 outbound).

Nearby cumulative project were not identified; therefore, a growth factor of 0.5% per year (1% total to reach near term year 2019 conditions) was multiplied against existing traffic for the study area intersections and segment to represent potential cumulative traffic.

Six scenarios were analyzed, that accounted for existing, near-term, cumulative projects, and horizon year conditions. Operational findings by scenario are summarized below:

- 1) Under existing year 2017 conditions, the study intersections and segment were calculated to operate at LOS B or better.
- 2) Under near-term year 2019 conditions, the study intersections and segment were calculated to operate at LOS B or better.
- 3) Under near-term year 2019 + project conditions, the study intersections and segment were calculated to operate at LOS B or better with no significant direct project impacts.
- 4) Under near-term year 2019 + project + cumulative conditions, the study intersections and segments were calculated to operate at LOS B or better with no cumulatively considerable impacts.
- 5) Under horizon year 2030 conditions, the study intersections and segments were calculated to operate at LOS B or better.
- 6) Under horizon year 2030 + project conditions, the study intersections and segment were calculated to operate at LOS B or better with no project impacts.

No traffic impacts were calculated; therefore, mitigation measures are not required.

12.0 References

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

City of Holtville, August 2014 *Service Area Plan/Municipal Service Review*

City of Holtville, August 2003 *General Plan*

County of Imperial Department of Public Works. Dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007. *Traffic Study and Report Policy*.

Institute of Transportation Engineers, 1999. *Traffic Engineering Handbook, Fifth Edition*.

Imperial County Planning & Development Services Department. October 1, 2006. *Imperial County Circulation Element*.

Imperial County Planning & Development Services Department. January 29, 2008. *Circulation and Scenic Highways Element*.

Trafficware, 2011. Synchro 8.0 computer software.

Transportation Research Board National Research Council Washington, D.C. 2010. *Highway Capacity Manual 2010*. CD ROM.

Appendix A

Excerpts from Imperial County's Traffic Study and Report Policy

COUNTY OF IMPERIAL

DEPARTMENT OF PUBLIC WORKS

TRAFFIC STUDY AND REPORT POLICY

Date: March, 12, 2007

Revised June 29, 2007

APPROVALS:



WILLIAM S. BRUNET, P. E.
DIRECTOR OF PUBLIC WORKS
ROAD COMMISSIONER


JURG HEUBERGER
PLANNING DIRECTOR

necessary to develop a traffic report that determines whether the traffic study general criteria have been met.

In the case of significant development, it may be necessary to hold one or more scope of work meetings which would be attended by a ICPDS staff, the County Traffic Engineer or other County Advisory Staff, the individual who will be responsible for preparing the traffic study report and the Traffic and/or Civil Engineer responsible for the report and its recommendations. The individual preparing the traffic study should be familiar with the project site and the local conditions which may affect any final conclusions and recommendations.

Listed below are the basic criteria that will be used to make the determination for providing a complete traffic study as a part of the project review process. The criteria are not a complete or exhaustive list, but they are intended to define when such a report is to be prepared and to indicate the necessary components of the study report to be submitted.

1. General Criteria

- a. Any project that adds more than 8% of the total existing vehicle trips on the adjacent road system at full build-out of the project.
- b. Any project that generates more than 400 daily residential trip ends, 800 commercial or industrial trip ends or 200 peak hour trip ends, as determined by the average trip rates contained in the ITE Trip Generation Informational Report or the **Imperial County local exceptions in Section 2.**
- c. Any project that has the potential to degrade an existing road section, an existing signalized intersection, or an existing unsignalized intersection to below the existing level of service or to cause it to be lower than a level of service (LOS)

unit, unless it is for urban infill development, within one half mile of major retail and commercial development.

- b. Existing traffic on the adjacent road system and projected traffic on the adjacent road system, projected for a minimum of five (5) years, to project build-out, or both, depending on the project and the area; larger projects or high traffic generation may require future year build-out, currently Year 2030. Future CMP TIA reports would require additional traffic projection information.
- c. Traffic projections on the adjacent road system for both the project and "normal background growth" (demonstrated growth, as detailed in the general plan, or as agreed upon with County staff). Normally, traffic will be projected to Year 2030 or later for an updated future year condition.
- d. Traffic projections shall include the additional impact of undeveloped land or new development within an area surrounding the proposed development site (project) as agreed to by the County Director of Public Works, the County Planning Director and advisory staff.
- e. Projected impacts on intersections adjacent to or within the defined impact area of the project, using intersection capacity analysis - Highway Capacity Manual Operations Delay Method. Right turn-on-red volumes and changes in signal timing can be incorporated in a signalized intersection analysis, but any signal timing changes must be specifically identified in the study recommendations with additional cautions or impact conclusions identified if the timing changes are not

- m. Traffic counts, calculations, other basic information, and supporting data shall be included in an Appendix to the report or provided as a separate Technical Appendix. All actual traffic count data will be provided to the County in a useful summary form, digital and paper format, as specified by the County.

3. Analysis Methodology

The build-up method of traffic analysis will be followed, showing:

- a. Existing traffic;
- b. Existing traffic and normal background growth (rate and time to be agreed to by County staff);
- c. Existing traffic and normal background growth (see C. 3. b. above) and project build-out traffic;
- d. Existing traffic and normal background growth (see C. 3. b. above) and new development traffic (see C. 3. b. above);
- e. Existing traffic and 5 year normal background growth (see b. above) and new development (see b. above) and project build out, if longer than 5 years to build out of project.

If the study period to build-out is longer than 5 years, the future projection time period appropriate for a new development will be determined by the County staff. Significant projects may require a future projection time period of 20 years or General Plan build out. The future year is currently year 2030 as of the date of adopting this Policy. State Highway traffic projections will usually be carried to the year 2030 or to Caltrans current policy and procedures.

Appendix B

Excerpts from Caltrans' Guide for the Preparation of Traffic Impact Studies



**GUIDE FOR THE PREPARATION
OF
TRAFFIC IMPACT STUDIES**

**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

December 2002

D. Travel Forecasting (Transportation Modeling)

The local or regional traffic model should reflect the most current land use and planned improvements (i.e., where programming or funding is secured). When a general plan build-out model is not available, the closest forecast model year to build-out should be used. If a traffic model is not available, historical growth rates and current trends can be used to project future traffic volumes. The TIS should clearly describe any changes made in the model to accommodate the analysis of a proposed project.

V. TRAFFIC IMPACT ANALYSIS METHODOLOGIES

Typically, the traffic analysis methodologies for the facility types indicated below are used by Caltrans and will be accepted without prior consultation. When a State highway has saturated flows, the use of a micro-simulation model is encouraged for the analysis (please note however, the micro-simulation model must be calibrated and validated for reliable results). Other analysis methods may be accepted, however, consultation between the lead agency, Caltrans and those preparing the TIS is recommended to agree on the data necessary for the analysis.

- A. Freeway Segments – Highway Capacity Manual (HCM)*, operational analysis
- B. Weaving Areas – Caltrans Highway Design Manual (HDM)
- C. Ramps and Ramp Junctions – HCM*, operational analysis or Caltrans HDM, Caltrans Ramp Metering Guidelines (most recent edition)
- D. Multi-Lane Highways – HCM*, operational analysis
- E. Two-lane Highways – HCM*, operational analysis
- F. Signalized Intersections⁸ – HCM*, Highway Capacity Software**, operational analysis, TRAFFIXTM**, Synchro**, see footnote 8
- G. Unsignalized Intersections – HCM*, operational analysis, Caltrans Traffic Manual for signal warrants if a signal is being considered
- H. Transit – HCM*, operational analysis
- I. Pedestrians – HCM*
- J. Bicycles – HCM*
- K. Caltrans Criteria/Warrants – Caltrans Traffic Manual (stop signs, traffic signals, freeway lighting, conventional highway lighting, school crossings)
- L. Channelization – Caltrans guidelines for Reconstruction of Intersections, August 1985, Ichiro Fukutome

*The most current edition of the Highway Capacity Manual, Transportation Research Board, National Research Council, should be used.

****NOTE:** Caltrans does not officially advocate the use of any special software. However, consistency with the HCM is advocated in most but not all cases. The Caltrans local development review units utilize the software mentioned above. If different software or analytical techniques are used for the TIS then consultation between the lead agency, Caltrans and those preparing the TIS is recommended. Results that are significantly different than those produced with the analytical techniques above should be challenged.

⁸ The procedures in the Highway Capacity Manual "do not explicitly address operations of closely spaced signalized intersections. Under such conditions, several unique characteristics must be considered, including spill-back potential from the downstream intersection to the upstream intersection, effects of downstream queues on upstream saturation flow rate, and unusual platoon dispersion or compression between intersections. An example of such closely spaced operations is signalized ramp terminals at urban interchanges. Queue interactions between closely spaced intersections may seriously distort the procedures in" the HCM.

Appendix C

Caltrans' Truck Percentage on SR-115

2015 Daily Truck Traffic

RTE	DIST	CNTY	MILE	POST	L E G	DESCRIPTION	VEHICLE		TRUCK		TRUCK		TRUCK		AADT		TRUCK		AADT		TRUCK		AADT		EAL		YEAR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
							AADT	TOTAL	AADT	% TOT	TRUCK	AADT	TOTAL	TRUCK	AADT	TOTAL	%	TRUCK	AADT	TOTAL	%	TRUCK	AADT	TOTAL	%	TRUCK		AADT	TOTAL	%	TRUCK	AADT	TOTAL	%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

Appendix D

Excerpts from City of Holtville General Plan



Circulation Plan

The City is supported by a diverse circulation system with vehicular, pedestrian, and bicycle components. This section of the element establishes the Circulation Plan. The Plan summarizes the approach to ensure safe and convenient operation of the circulation system and identifies improvements required to accommodate traffic from planned development.

Vehicular transportation (automobiles and trucks) is presently the primary mode of travel and a Circulation Master Plan is established with hierarchical roadway designations, physical design standards for the roadway designations, and service standards. The Circulation Master Plan includes regional roadways and anticipated regional traffic levels. The use of alternative modes of transportation is promoted to reduce dependency on vehicular transportation.

The City has adopted a program to establish pedestrian and bicycle routes that will provide connections between public activity centers and residential neighborhoods and businesses. In addition, roadway segments are designed to promote pedestrian-friendly neighborhoods.

The Plan is based on issues, goals, and policies identified in the previous section. The Circulation Element Implementation Program, contained in the following section of this Element, is an extension of the Circulation Plan and contains specific programs to coordinate planned development with vehicular and non-vehicular circulation improvements.

Roadway System

Nearly all roadways in Holtville have two lanes. The exception is the segment of SR-115 from Grape Avenue to Orchard Road. The intersection of SR-115 and Holt Avenue is controlled by a four-way stop. All other intersections in Holtville are either uncontrolled or controlled by a two-way stop.

Roadways that comprise Holtville's roadway system are classified into the following categories:

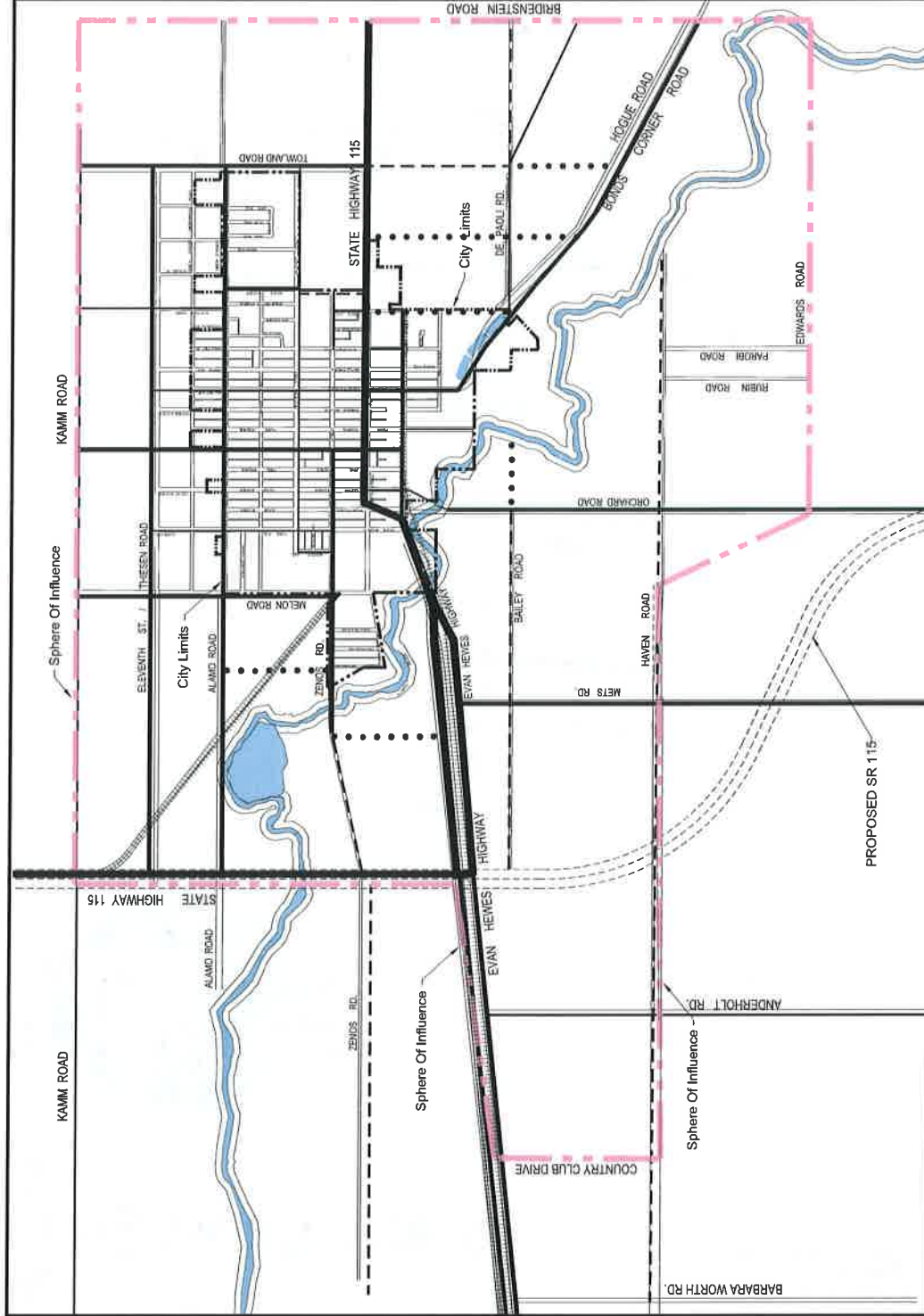
- **Arterial Streets:** Intended to move through traffic between major traffic generators.
- **Collector Streets:** Collect and distribute traffic between arterial streets and local streets.
- **Local Streets:** Provide direct access to individual properties by local traffic.

Figure C-1 depicts the current street classifications within the City and **Figure C-2** depicts cross sections for each of the classes of streets.

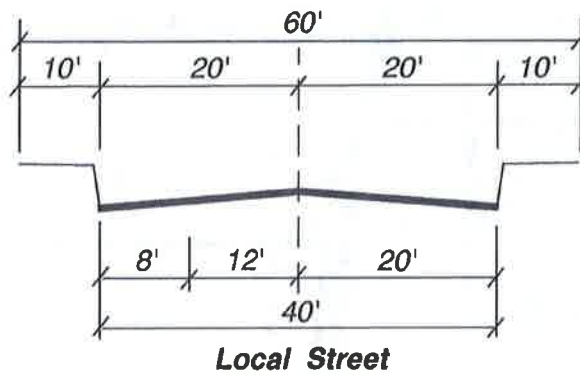
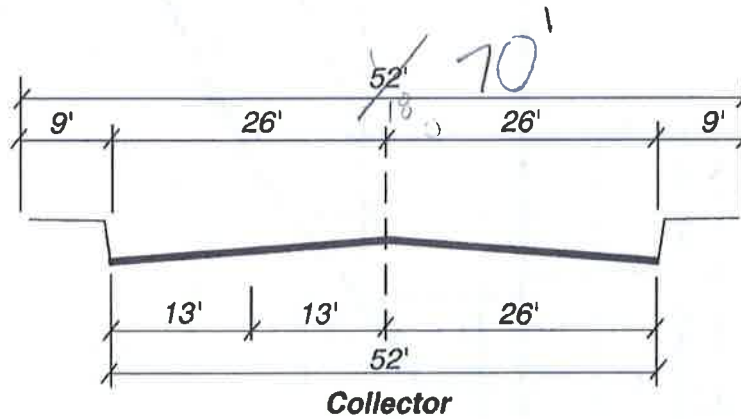
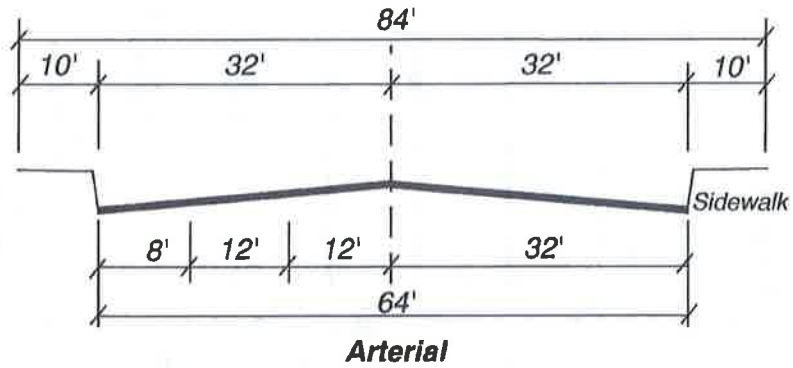


Legend

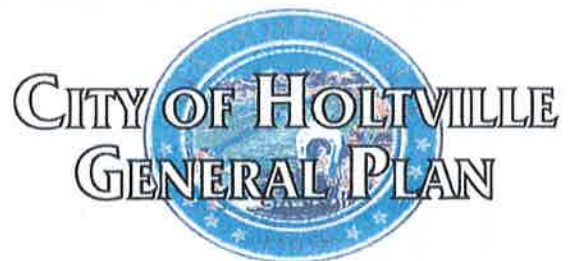
	Arterial (Proposed)
	Collector (Proposed)
	Arterial (Existing)
	Collector (Existing)
	Highway
	Proposed SR 115 Re-route
	Existing Sphere of Influence
	City Limits



C-1 STREET MASTER PLAN



Source: City of Holtville, 2003



C-2 STREET CROSS SECTION

Performance Criteria

The performance of streets and roadways is typically measured by comparing the level of traffic to documented standards for the type of street based on classification, number of lanes, and width. Imperial County has developed standards for roadway capacity that are applicable to conditions in the City of Holtville. These roadway performance standards are shown in **Table C-1**.

Table C-1
Roadway Performance Standards
Maximum Average Daily Traffic by Level of Service (LOS)

Roadway Classification	Number of Lanes	A	B	C	D	E
Freeway	4	30,000	40,000	50,000	60,000	70,000
Principal Arterial	4	14,800	24,700	29,600	33,400	37,000
Secondary Arterial	4	13,700	22,800	27,400	30,800	34,200
Two Lane Arterial (Primary or Secondary)	2	2,000	4,500	7,700	11,800	17,500
Collector	2	1,900	4,100	7,100	10,900	16,200
Residential Street	2	*	*	1,500	*	*
Residential or Cul-de-Sac Loop Street	2	*	*	200	*	*

*Note: Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of Service, normally apply to roads carrying through traffic between major trip generators and attractors.

Source: Imperial County

In traffic engineering methodology, roadway levels of service (LOS) are typically rated from LOS A to LOS F. LOS A indicates light traffic conditions, in which drivers have a great deal of freedom to maneuver and little interference from other drivers. LOS F indicates a situation where the traffic relying on a particular facility is beyond the capacity of the facility, with significant delays and queues. A minimum performance standard of LOS C is considered to be consistent with the roadway conditions in smaller cities and rural areas.

Future Roadway Conditions

Holtville's Service Area Plan states that all streets in the City are expected to meet or exceed LOS C performance standard in the Year 2020. Therefore, the street system is expected to be adequate for Year 2020 conditions.

While the overall street system is expected to meet existing transportation performance standards for Year 2020 conditions, the following street improvements were recommended in the Service Area Plan:

- Installation of a traffic signal (if warranted) at the intersection of SR-115 and Holt Avenue.
- Provision of new collector and local streets to serve new development.

While traffic conditions beyond the Year 2020 are difficult to foresee, the next major roadway improvement that is needed in the Holtville area is a new arterial roadway running south of and parallel to SR-115. This new arterial would ultimately run from Towland Road to Barbara Worth Road and would cross the Alamo River at a location south of all existing developed areas. A first phase of this new arterial could be constructed from Bonds Corner Road to Orchard Road, with extensions built as needed. Based on current population projections, this new arterial street would not be needed until the Year 2030.

In addition, Holtville's 5/10 Year Plan identified approximately 15 roadway segments that needed to be repaved or maintained in 2001. The City continues to implement and update the 5/10 Year Plan as necessary.

Safe Drop-Off and Pick-Up Zones

Perhaps the greatest source of congestion within Holtville is in the immediate vicinity of local schools in the early morning and afternoon hours. School children often have to compete with vehicles to cross streets in order to get to, or leave from school, putting them at an undesirable level of risk. The City has adopted a program to work with the Holtville Unified School District, the Police Department, and parents to identify ways to reduce the risk to school children and relieve traffic around local schools by designating Safe Drop-Off and Pick-Up Zones as well as other alternatives such as staggered class times so that the number of children arriving at school and awaiting pick-up at any given time is reduced.

Alternative Transportation

Promotion of alternative modes of transportation such as public transit, bicycling, and pedestrian circulation is a key component of the Circulation Plan. Use of alternative modes of transportation produces a number of benefits for the community including reduced traffic, less need for costly roadway improvement projects, and less impact to air quality.

Transit

The City of Holtville is not large or dense enough to warrant a fixed right-of-way intra-city transit system. Imperial County Transit offers inter-city bus service with regular stops in Holtville, including ADA Para-transit service that includes a lift equipped van to serve physically or mentally disabled residents. Additionally, taxi cabs do provide a limited amount of service to the City. While the City does not currently have an intra-city public transit system, this will become an important consideration as the City develops and a necessity when the City approaches buildout of the planning area. As Holtville grows, the City will continue to cooperate with local and regional agencies and organizations to provide efficient, affordable, and reliable transit.

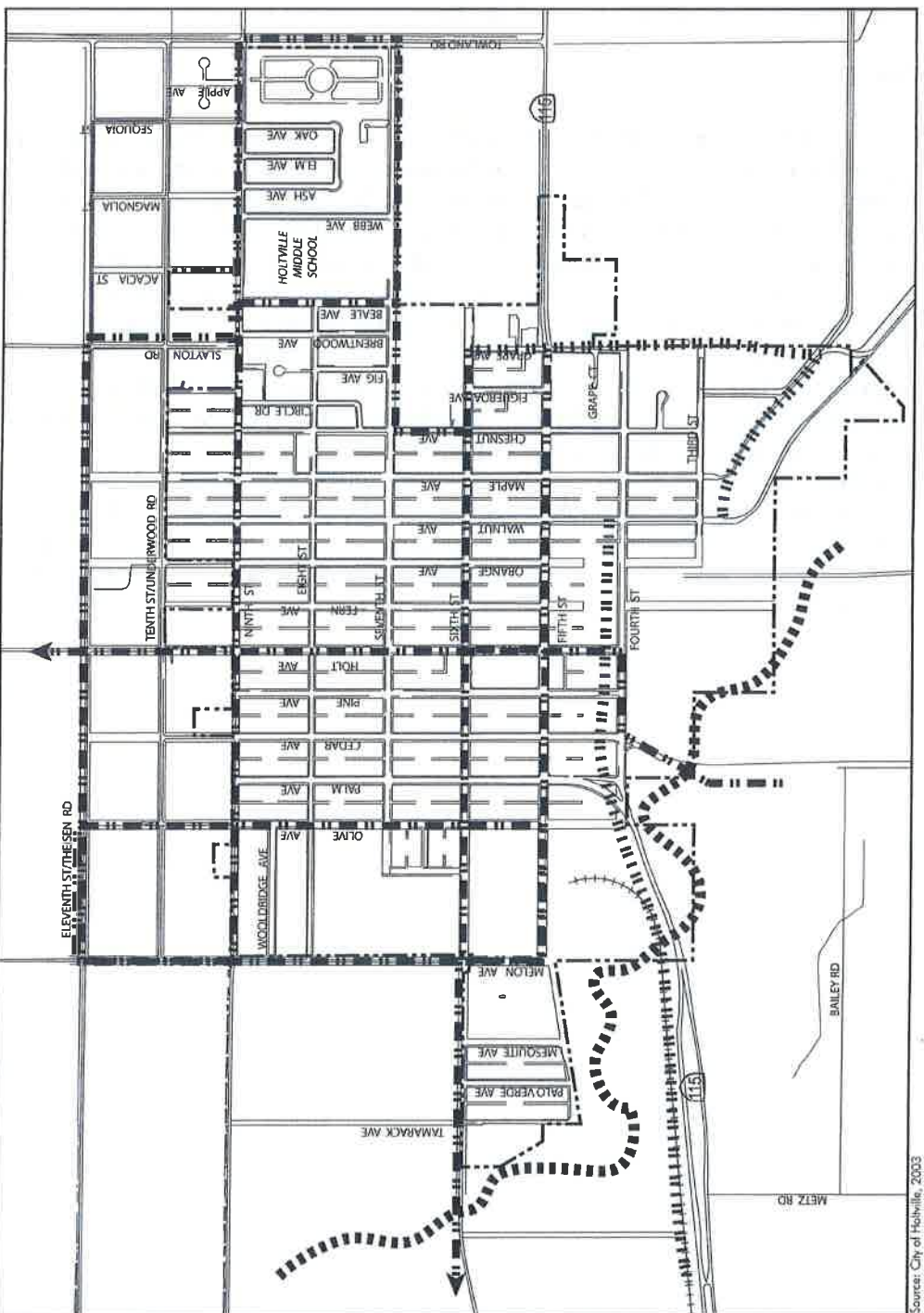


Pedestrian Circulation Network

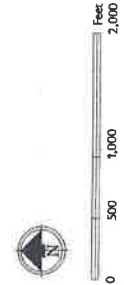
The pedestrian circulation network consists of sidewalks adjacent to City streets, as well as within parks. On some streets, pedestrian usage is limited because of automobile circulation. All new developments are required to provide adequate sidewalks or other pedestrian walkways to facilitate the movement of pedestrians around Holtville.

Bikeway System

Bicycle riding is another effective and desirable alternative form of transportation that may become more popular in the future. In the City, distances are reasonably short, and with the exception of the hot summer months, bicycling is a feasible mode of transportation and should be encouraged. In 2001, the City adopted a Bicycle Master Plan that establishes a system of designated bikeway paths within the planning area which are depicted in **Figure C-3**. The system consists of three different classes of bikeways. Class I bikeways are pathways that serve the exclusive use of bicycles and pedestrians, whereas a Class II bikeways are typically bike lanes established within the paved area of roadways through identifiable pavement striping or markings and signage. Class III bikeways are bike routes intended to provide continuity to the bikeway system. Bike routes are established along through routes not served by Class I or Class II bikeways, or to connect discontinuous segments of normal bike lanes. Class III bikeways are shared facilities, either with motor vehicles on the street or with pedestrians on sidewalks and therefore are not shown in **Figure C-3**. Holtville's Bicycle Master Plan is consistent with the Imperial County and El Centro Bicycle Master Plans and provides links to ensure continuity in the regional bicycle system. The City continues to update when necessary and implement the Bicycle Master Plan.



- Legend**
- Routes to Imperial County Bike Master Plan
 - Class I Bicycle Path
 - Class II Bicycle Path
 - Hiking Trail
 - City Boundary



C-3 BICYCLE SYSTEM

Appendix E

Excerpts from Imperial County's Circulation and Scenic Highways Element

CIRCULATION AND SCENIC HIGHWAYS ELEMENT

**Prepared by:
Imperial County Planning & Development Services Department
801 Main Street
El Centro, CA 92243**

in collaboration with the

**Imperial County Public Works Department
155 South 11th Street
El Centro, CA 92243**

**WILLIAM S. BRUNET, P.E.
Director of Public Works**

**JURG HEUBERGER, AICP
Planning & Development Services Director**

**Approved by:
Board of Supervisors
January 29, 2008**

The County Director of Public Works shall review these transition areas and provide guidance in achieving this policy.

c. New or enlarged Roads:

Local Roads

The County shall require all new developments to provide for local roads to serve the direct access needs of abutting property. These streets should be designed with a discontinuous pattern to discourage through traffic. They generally should not intersect with arterial street classifications. Typical design features include two travel lanes with parking on both sides of the street. Local roads include loop streets and cul-de-sacs.

Regional Roads (Roads beyond the actual development project)

The County shall require that all new developments participate in the improvement of regional roads that may be impacted by the proposed development. The extent to which a project impacts regional roads is generally determined by a traffic study. In some cases however the County may have predetermined improvement requirements for certain road segments or road intersections. The new developments will be required to either make certain regional improvements or in the alternative contribute a "fair share" towards the cost of such improvements.

d. Level of Service Standards

As the County continues to grow, transportation demand management and systems management will be necessary to preserve and increase available roadway "capacity". Level of Service (LOS) standards are used to assess the performance of a street or highway system and the capacity of a roadway.

An important goal when planning the transportation system is to maintain acceptable levels of service along the federal and state highways and the local roadway network. To accomplish this, the California Department of Transportation (Caltrans), Imperial County and local agencies adopt minimum levels of service to determine future infrastructure needs.

Imperial County must provide and maintain a highway system with adequate capacity and acceptable levels of service to accommodate projected travel demands associated with the projected population growth within the Land Use Element. This can be accomplished by establishing minimum service levels for the designated street and conventional state highway system. Strategies that result in improvements to the transportation system, coupled with local job creation, will allow County residents to have access to a wide range of job opportunities within reasonable commute times.

The County's goal for an acceptable traffic service standard on an ADT basis and during AM and PM peak periods for all County-Maintained Roads shall be LOS C for all street segment links and intersections. These service values are defined by the 1985 or 2000 edition of the *Highway Capacity Manual* or any subsequent edition thereof. This policy shall acknowledge that the aforementioned level of service standards may not be obtainable on some existing facilities where abutting development precludes acquisition of additional right-of-way needed for changes in facility classification.

In order to achieve the level of service goals in the previous policy, the County shall develop and institute a long-range funding program in which new land development shall bear the major burden of the associated costs and improvement requirements.

e. Design Standards

The County shall adopt design standards for all streets in accordance with their functional classifications and recognized design guidelines. In developing these standards, the County shall consider the design standards of Caltrans and the American Association of State and Highway Transportation Officials (AASHTO). All streets within the County shall be designed in accordance with the adopted County of Imperial Design Standards. Typical cross sections and design criteria for the various street classifications are shown as an attachment to this document.

f. Private Streets

The County may permit construction of private streets within individual development projects (gated community). providing the following are addressed:

- They are designed geometrically and structurally to meet County standards.
- Only project occupants are served (gated community).
- Emergency vehicle access requirements are satisfied.
- The streets do not provide a direct through route between public streets.
- The Homeowners Associations and/or property owners provide an acceptable program for financing regular street maintenance.
- If the private street is permitted with a waiver of any of the above standards, any future requests to make the private street a public street shall require that all adjacent property owners provide and pay for all improvements and right of way required to bring the street to current public street or road standards. This includes road width, right of way widths and structural section. In no circumstance shall the County pay for any costs to upgrade a private street to public street standards if the above-mentioned requirements were waived at the request of the original developer or subdivider.

Appendix F

Traffic Impact Significance Criteria from Imperial area EIRs

4.6.2 Impact Significance Criteria

Significance Criteria

The significance criteria summarized in Table 4.6-2 by Linscott, Law and Greenspan Engineers is based upon the City of El Centro and the County of Imperial's goal for intersections and roadway segments to operate at LOS C or better. In general, a degradation in LOS from LOS C or better to LOS D or worse is considered a significant direct impact. A cumulative impact can occur if the intersection or segment LOS is already operating below City/County standards and the project increases the delay by more than 2 seconds or the v/c ratio by more than 0.02.

Table 4.6-2 Significance Criteria			
INTERSECTIONS			
Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
LOS ¹ C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	-	Direct
LOS D	LOS E or F	-	Direct
LOS E	LOS F	-	Direct
Any LOS	Project does not degrade LOS and adds > 2.0 seconds of delay	LOS E or worse	Cumulative
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
SEGMENTS			
Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	-	Direct ²
LOS D	LOS E or F	-	Direct
LOS E	LOS F	-	Direct
Any LOS	LOS E or worse and v/c ³ > 0.02	LOS E or worse	Cumulative
Any LOS	LOS E or worse and v/c ³ < 0.02	Any LOS	None

Source: Linscott, Law & Greenspan, Engineers (July 2004)

Notes:

1. LOS: Level of Service
2. Exception: post-project segment operation is D and intersections along segment are D or better, no significant impact.
3. V/C: Volume to Capacity Ratio

In addition the project would have a significant impact if:

- It would substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

5.0 SIGNIFICANCE CRITERIA

TABLE 5.1
SIGNIFICANCE CRITERIA

Intersections			
Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and project adds < 2.0 seconds of delay	LOS D or worse	None
LOS C or better	LOS C or better and project adds > 2.0 seconds of delay	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	LOS D or worse	Direct
LOS D	LOS D and project adds < 2.0 seconds of delay	LOS D or worse	None
LOS D	LOS D and project adds > 2.0 seconds of delay	LOS D or worse	Cumulative
LOS D	LOS E or F	LOS E or F	Direct
LOS E	LOS E and project adds < 2.0 seconds of delay	LOS E or F	None
LOS E	LOS E and project adds > 2.0 seconds of delay	LOS E or F	Cumulative
LOS E	LOS F	LOS F	Direct
LOS F	Project add < 2.0 seconds of delay	LOS F	None
LOS F	Project adds 2.0 to 9.9 seconds of delay	LOS F	Cumulative
LOS F	Project adds 10.0 or more seconds of delay	LOS F	Direct
Segments			
Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS or better and project increases V/C by < 0.02	LOS D or worse	None
LOS C or better	LOS C or better and project increase V/C by > 0.02	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	LOS D or worse	Direct ¹
LOS D	LOS D and project increases V/C by < 0.02	LOS D or worse	None
LOS D	LOS D and project increases V/C by > 0.02	LOS D or worse	Cumulative
LOS D	LOS E or F	LOS E or F	Direct
LOS E	LOS E and project increases V/C by < 0.02	LOS E or F	None
LOS E	LOS E and project increases V/C by > 0.02	LOS E or F	Cumulative
LOS E	LOS F	LOS F	Direct
LOS F	Project increases V/C by < 0.02	LOS F	None
LOS F	Project increases V/C by > 0.02 and < 0.09	LOS F	Cumulative
LOS F	Project increases V/C by > 0.09	LOS F	Direct

Notes: LOS = Level of Service; V/C = Volume to Capacity Ratio; ¹ Exception: If Existing + Project segment operation is LOS D and intersections along segment are LOS D or better, then there is no significant impact.

In addition to the above listed projects, the Lerno/Verhaegen project was recently submitted and is currently starting the CEQA process. This project is listed for information purposes but cannot be analyzed in cumulative terms. The following is a brief description based on the limited information available for this project.

Lerno-Verhaegen Specific Plan is proposed to be a mixed-use development of 2,708 dwelling units. The project consists of 680 acres on the west side of the City of El Centro. The project includes a zone change, Tentative Map, an amendment of the City's General Plan and an annexation.

Individual traffic assignments were completed for each cumulative project. Figure 2-7 depicts the total cumulative project traffic volumes in the area. Figure 2-8 shows the existing + project + cumulative projects traffic volumes for the vicinity. Appendix D of this Mitigated Negative Declaration contains the individual cumulative project traffic assignments.

Significance Criteria

The significance criteria summarized in Table 2-7 by Linscott, Law and Greenspan, engineers is based upon the County of Imperial's goal for intersections and roadway segments to operate at LOS C or better. Intersections or segments operating at LOS D, E or F are unacceptable and therefore constitute a significant impact.

Table 2-7 – Significance Criteria			
INTERSECTIONS			
Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
LOS ¹ C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	-	Direct
LOS D	LOS E or F	-	Direct
LOS E	LOS F	-	Direct
Any LOS	Project does not degrade LOS and adds > 2.0 seconds of delay	LOS E or worse	Cumulative
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
SEGMENTS			
Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	-	Direct ²
LOS D	LOS E or F	-	Direct
LOS E	LOS F	-	Direct
Any LOS	LOS E or worse and v/c ³ > 0.02	LOS E or worse	Cumulative
Any LOS	LOS E or worse and v/c ³ < 0.02	Any LOS	None

Source: LL&G, July 2004.

Notes:

1. LOS: Level of Service
2. Exception: post-project segment operation is D and intersections along segment are D or better, no significant impact.
3. V/C: Volume to Capacity Ratio

**TABLE 5-1
SIGNIFICANCE CRITERIA**

INTERSECTIONS			
Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
LOS ^a C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	—	Direct
LOS D	LOS D and adds 2.0 seconds or more of delay	LOS D or worse	Cumulative
LOS D	LOS E or F	—	Direct
LOS E	LOS F	—	Direct
LOS F	LOS F and delay increases by ≥ 10.0 seconds	LOS F	Direct
Any LOS	Project does not degrade LOS and adds 2.0 to 9.9 seconds of delay	LOS E or worse	Cumulative
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
SEGMENTS			
Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and $v/c^b > 0.02$	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	—	Direct
LOS D	LOS D and $v/c > 0.02$	LOS D or worse	Cumulative
LOS D	LOS E or F	—	Direct
LOS E	LOS F	—	Direct
LOS F	LOS F and v/c increases by > 0.09	LOS F	Direct
Any LOS	LOS E or worse and v/c 0.02 to 0.09	LOS E or worse	Cumulative
Any LOS	LOS E or worse and $v/c < 0.02$	Any LOS	None

Source: Linscott, Law & Greenspan, Engineers

Footnotes:

a. Level of Service

b. Volume to Capacity Ratio

Appendix G

Excerpts from City of Holtville Service Area Plan/Municipal Service Review

City of Holtville

DRAFT

Service Area Plan/Municipal Service Review

August 2014



Prepared for



Prepared by



4.5 TRANSPORTATION FACILITIES

4.5.1 Facility Planning and Adequacy Analysis

Performance Standard

The City of Holtville General Plan Circulation Element includes a classification of streets into the following categories:

- Arterial Streets: Intended to move through traffic between major traffic generators.
- Collector Streets: Collect and distribute traffic between arterial streets and local streets.
- Local Streets: Provide direct access to property by local traffic.
-

Figure 4.5-1 depicts current street classifications within the City and Figure 4.5-2 depicts cross sections for each of the classes of streets described above.

The performance of streets and roadways is typically measured by comparing the level of traffic to documented standards for the type of street based on classification, number of lanes, and width. Imperial County has developed standards for roadway capacity that are applicable to conditions in the City of Holtville. These roadway performance standards are shown in Table 4.5-1.

Table 4.5-1						
Roadway Performance Standards						
Maximum Average Daily Traffic by Level of Service						
Roadway Classification	Number of Lanes	A	B	C	D	E
Freeway	4	30,000	40,000	50,000	60,000	70,000
Prime Arterial w/median	6	22,200	37,000	44,600	50,000	57,000
Major Arterial w/median	4	14,800	24,700	29,600	33,400	37,000
Secondary Arterial	4	13,700	22,800	27,400	30,800	34,200
2 lane Arterial	2	2,000	4,500	7,700	11,800	17,500
Collector	2	1,900	4,100	7,100	10,900	16,200
Residential Street	2	*	*	1,500	*	*
Residential or Cul-de-Sac Loop Street	2	*	*	200	*	*

Note: Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of Service normally apply to roads carrying through traffic between major trip generators and attractors.
Source: Imperial County.

In traditional traffic engineering methodology, roadway levels of service (LOS) are typically rated from LOS A to LOS F. The City of Holtville has adopted a minimum performance standard of LOS C in its General Plan. However, many jurisdictions have started using a different performance standard known as Complete Streets. Complete Streets is a transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation. Modes of transportation include pedestrians, bicycles, cars, trucks, busses and emergency vehicles.

Inventory of Existing Facilities/Personnel

Nearly all roadways in Holtville have two lanes. The exception is the segment of SR 115 from Grape Avenue to Orchard Road. The intersection of SR 115 and Holt Avenue is controlled by a four-way stop. All other intersections in Holtville are either uncontrolled or controlled by a two-way stop.

Figure 4.5-2 depicts existing average daily traffic counts. Based on the street performance standards identified in Table 4.5-1, it is possible to calculate existing levels of service wherever existing traffic counts are available. The results are shown in Table 4.5-2. Currently, all streets in Holtville are considered to operate at LOS B or better. Therefore, the existing street system is considered to be adequate.

Table 4.5-2				
Roadway Performance Evaluation – Existing				
Roadway	Location	Average Daily Traffic	Capacity	Level of Service
SR 115 (Evan Hewes Highway west of Fourth Street, Fifth Street east of Fourth Street)	West of Fourth	5,300	34,200	A
	Cedar to Holt	5,300	34,200	A
	Holt to Walnut	6,000	34,200	A
	Walnut to Grape	2,100	17,200	A
	Grape to Towland	1,100	17,500	A
Eleventh Street	West of Melon	300	17,500	A
Ninth Street	Walnut to Towland	400	16,200	A
Bonds Corner Road	South of Fourth	1,000	17,500	A
Orchard Road	South of Fourth	2,600	17,500	A
Towland Road	SR 115 to 9th	300	17,500	A
Holt Avenue	North of 11th	1,500	17,500	A

The City's streets are maintained primarily by a Streets Maintenance Worker III, with the assistance of a Field Supervisor.

Inventory of Approved Facilities/Personnel

No additional transportation facilities or personnel have been approved at this time as existing facilities are adequate to serve projected Year 2030 growth.

Year 2030 Demand for Facilities/Personnel

Average daily traffic forecasts for the Year 2030 are shown in Figure 4.5-4. Table 4.5-3 shows capacity analysis conducted for City streets in the Year 2030. All streets in Holtville are expected to meet or exceed the LOS C performance standard in the Year 2030. Therefore, the street system is expected to be adequate for Year 2030 conditions.

Table 4.5-3				
Roadway Performance Evaluation - Year 2030				
Roadway	Location	Average Daily Traffic*	Capacity	Level of Service
SR 115 (Evan Hewes Highway west of Fourth Street, Fifth Street east of Fourth Street)	West of Fourth	6,500	34,200	A
	Cedar to Holt	6,500	34,200	A
	Holt to Walnut	7,400	34,200	A
	Walnut to Grape	2,600	17,500	A
	Grape to Towland	1,400	17,500	A
Eleventh Street	West of Melon	400	17,500	A
Ninth Street	Walnut to Towland	500	16,200	A
Bonds Corner Road	South of Fourth	1,300	17,500	A
Orchard Road	South of Fourth	3,200	17,500	B
Towland Road	SR 115 to 9th	400	17,500	A
Holt Avenue	North of 11th	1,900	17,500	B

* Average Daily Traffic is anticipated to increase in approximate proportion with population growth. SCAG estimates that population growth will increase by an average of 23% between 2014 and 2030.

While the overall street system is expected to meet existing transportation performance standards for Year 2030 conditions, the following street improvements are recommended:

- Improve Fern Street south of 4th Street.
- Construct bridge across Alamo River at Fern Street.

It is difficult to predict where and when new streets will be needed to be improved to serve Year 2030 conditions.

SR 115 will be realigned to line up with State Route 7 (SR-7) and by pass the City of Holtville. SR-7 connects with the Calexico East Port of Entry (POE) between the United States and Mexico. This alignment would have a limited number of traversing points allowed for major arterials. To meet the demand in 2030, it is estimated that one position will need to be added to current staffing levels: Maintenance Worker III (1).

4.5.2 Phasing

No major circulation improvements are currently needed. New local streets should be provided to serve new development as it occurs.

Appendix H

Count Data

THURSDAY - FEBUARY 2ND, 2017

CITY: HOLTVILLE

PROJECT: PTD17-0203-01

9TH W-O OLIVE

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB	
00:00			0	1	12:00			12	12	
00:15			0	0	12:15			11	8	
00:30			1	0	12:30			15	2	
00:45			0	1	12:45			8	46	
01:00			1	0	13:00			9	8	
01:15			0	3	13:15			6	8	
01:30			0	1	13:30			6	7	
01:45			0	1	13:45			5	26	
02:00			0	0	14:00			4	6	
02:15			0	0	14:15			8	7	
02:30			1	1	14:30			9	6	
02:45			0	1	14:45			4	25	
03:00			0	1	15:00			10	9	
03:15			2	0	15:15			17	15	
03:30			1	0	15:30			6	13	
03:45			0	3	15:45			7	40	
04:00			0	1	16:00			8	8	
04:15			1	0	16:15			10	8	
04:30			0	3	16:30			12	3	
04:45			1	2	16:45			9	39	
05:00			0	5	17:00			6	5	
05:15			2	9	17:15			11	4	
05:30			4	3	17:30			8	9	
05:45			2	8	17:45			12	37	
06:00			1	7	18:00			9	6	
06:15			0	6	18:15			8	4	
06:30			2	7	18:30			9	7	
06:45			1	4	18:45			4	30	
07:00			3	6	19:00			6	5	
07:15			1	12	19:15			7	0	
07:30			9	19	19:30			5	10	
07:45			9	22	19:45			2	20	
08:00			7	15	20:00			3	2	
08:15			2	6	20:15			3	4	
08:30			3	5	20:30			4	4	
08:45			4	16	20:45			0	10	
09:00			6	2	21:00			3	2	
09:15			4	7	21:15			5	0	
09:30			2	8	21:30			1	6	
09:45			3	15	21:45			1	10	
10:00			4	3	22:00			1	0	
10:15			5	5	22:15			3	2	
10:30			6	1	22:30			2	3	
10:45			5	20	22:45			0	6	
11:00			5	4	23:00			0	0	
11:15			6	6	23:15			0	0	
11:30			8	12	23:30			0	0	
11:45			9	28	23:45			0	0	
Total Vol.			121	197	318	289			249	538

		Daily Totals		
NB	SB	EB	WB	Combined
		410	446	856

AM				PM			
Split %	38.1%	61.9%	37.1%	53.7%	46.3%	62.9%	
Peak Hour	11:45	07:15	07:15	12:00	15:00	15:00	
Volume	47	54	80	46	48	88	
P.H.F.	0.78	0.71	0.71	0.77	0.80	0.69	

INTERSECTION TURNING MOVEMENT COUNTS

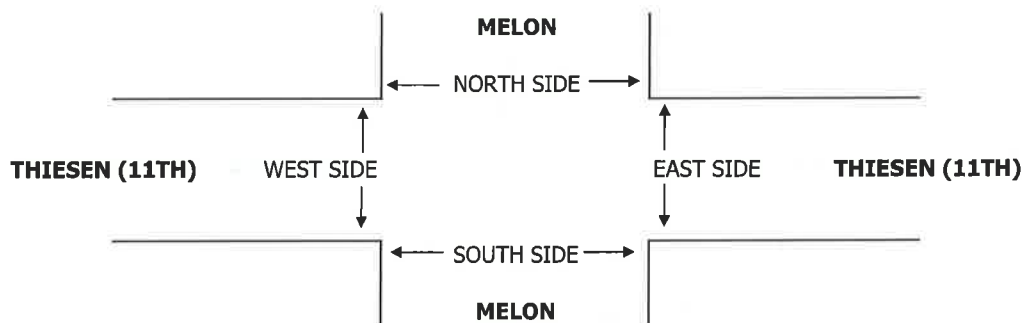
PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 2/2/17 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	HOLTVILLE MELON THIESEN (11TH)	PROJECT #: LOCATION #: CONTROL:	PTD17-0203-01 1 2-WAY STOP (NS)
-----------------------------	---	--------------------------------------	---------------------------------------	---------------------------------------

NOTES:	AM PM MD QTHR QTHR	◀ W S ▶ E
--------	--------------------------------	-----------------

	NORTHBOUND MELON			SOUTHBOUND MELON			EASTBOUND THIESEN (11TH)			WESTBOUND THIESEN (11TH)			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0	1	0	0	1	0	

AM	7:00 AM	0	1	0	0	0	0	0	2	1	0	2	0	6
	7:15 AM	0	3	0	0	0	0	0	0	0	0	2	0	5
	7:30 AM	4	3	0	0	0	1	0	0	2	0	2	0	12
	7:45 AM	1	3	1	0	1	0	0	0	3	1	0	0	10
	8:00 AM	3	4	1	0	2	0	1	1	1	1	1	0	15
	8:15 AM	1	1	0	0	0	0	0	1	4	0	0	0	7
	8:30 AM	3	0	0	0	1	0	1	4	0	1	4	0	14
	8:45 AM	3	0	0	0	0	1	0	1	5	0	1	0	11
	VOLUMES	15	15	2	0	4	2	2	9	16	3	12	0	80
	APPROACH %	47%	47%	6%	0%	67%	33%	7%	33%	59%	20%	80%	0%	
APP/DEPART	32	/	17	6	/	23	27	/	11	15	/	29	0	
BEGIN PEAK HR	8:00 AM													
VOLUMES	10	5	1	0	3	1	2	7	10	2	6	0	47	
APPROACH %	63%	31%	6%	0%	75%	25%	11%	37%	53%	25%	75%	0%		
PEAK HR FACTOR	0.500			0.500			0.792			0.400			0.783	
APP/DEPART	16	/	7	4	/	15	19	/	8	8	/	17	0	
PM	4:00 PM	5	2	1	0	1	0	0	0	4	0	0	0	13
	4:15 PM	2	1	4	0	0	0	0	1	1	0	0	0	9
	4:30 PM	1	1	0	0	0	0	1	2	0	1	0	2	8
	4:45 PM	0	1	0	0	0	0	0	3	3	0	3	0	10
	5:00 PM	0	1	1	0	2	0	0	1	4	0	3	0	12
	5:15 PM	0	0	0	0	1	0	0	2	0	1	1	0	5
	5:30 PM	2	0	0	0	1	0	0	1	0	2	4	0	10
	5:45 PM	3	0	0	0	1	0	0	1	2	0	1	0	8
	VOLUMES	13	6	6	0	6	0	1	11	14	4	12	2	75
	APPROACH %	52%	24%	24%	0%	100%	0%	4%	42%	54%	22%	67%	11%	
	APP/DEPART	25	/	9	6	/	24	26	/	17	18	/	25	0
	BEGIN PEAK HR	4:00 PM												
	VOLUMES	8	5	5	0	1	0	1	6	8	1	3	2	40
APPROACH %	44%	28%	28%	0%	100%	0%	7%	40%	53%	17%	50%	33%		
PEAK HR FACTOR	0.563			0.250			0.625			0.500			0.769	
APP/DEPART	18	/	8	1	/	10	15	/	11	6	/	11	0	



INTERSECTION TURNING MOVEMENT COUNTS

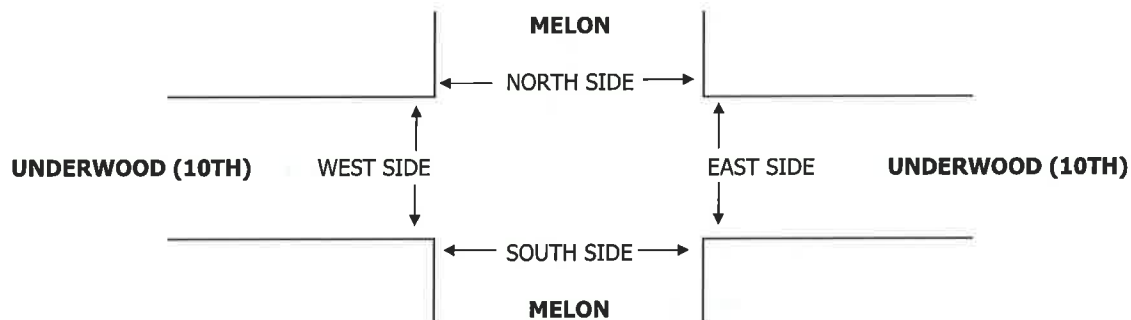
PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 2/2/17 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	HOLTVILLE MELON UNDERWOOD (10TH)	PROJECT #: LOCATION #: CONTROL:	PTD17-0203-01 2 2-WAY STOP (EW)
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NOTES:	AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E
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	NORTHBOUND MELON			SOUTHBOUND MELON			EASTBOUND UNDERWOOD (10TH)			WESTBOUND UNDERWOOD (10TH)			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL

AM	7:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	7:15 AM	0	1	0	0	0	0	0	0	0	1	0	1	3
	7:30 AM	0	3	1	0	4	0	0	0	0	1	0	3	12
	7:45 AM	0	7	1	0	7	0	0	0	0	1	0	0	16
	8:00 AM	0	4	0	0	4	0	0	0	0	0	0	1	9
	8:15 AM	0	3	2	0	5	0	0	0	0	2	0	0	12
	8:30 AM	0	2	0	0	1	0	0	0	0	2	0	1	6
	8:45 AM	0	4	0	1	5	0	0	0	0	1	0	0	11
	VOLUMES	0	25	4	1	27	0	0	0	0	8	0	6	71
	APPROACH %	0%	86%	14%	4%	96%	0%	0%	0%	0%	57%	0%	43%	
APP/DEPART	29	/	31	28	/	35	0	/	5	14	/	0	0	
BEGIN PEAK HR	7:30 AM													
VOLUMES	0	17	4	0	20	0	0	0	0	4	0	4	49	
APPROACH %	0%	81%	19%	0%	100%	0%	0%	0%	0%	50%	0%	50%		
PEAK HR FACTOR	0.656			0.714			0.000			0.500			0.766	
APP/DEPART	21	/	21	20	/	24	0	/	4	8	/	0	0	
PM	4:00 PM	0	8	1	0	1	0	0	0	0	3	0	1	14
	4:15 PM	0	5	0	1	1	0	0	0	0	2	0	4	13
	4:30 PM	0	1	1	0	2	0	0	0	0	0	0	0	4
	4:45 PM	0	2	1	2	4	0	0	0	0	0	0	0	9
	5:00 PM	0	2	2	1	4	0	0	0	0	1	0	0	10
	5:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
	5:30 PM	0	0	0	0	1	0	0	0	0	0	0	2	3
	5:45 PM	0	3	0	0	3	0	0	0	0	0	0	1	7
	VOLUMES	0	21	5	4	18	0	0	0	0	6	0	8	62
	APPROACH %	0%	81%	19%	18%	82%	0%	0%	0%	0%	43%	0%	57%	
	APP/DEPART	26	/	29	22	/	24	0	/	9	14	/	0	0
	BEGIN PEAK HR	4:00 PM												
	VOLUMES	0	16	3	3	8	0	0	0	0	5	0	5	40
APPROACH %	0%	84%	16%	27%	73%	0%	0%	0%	0%	50%	0%	50%		
PEAK HR FACTOR	0.528			0.458			0.000			0.417			0.714	
APP/DEPART	19	/	21	11	/	13	0	/	6	10	/	0	0	



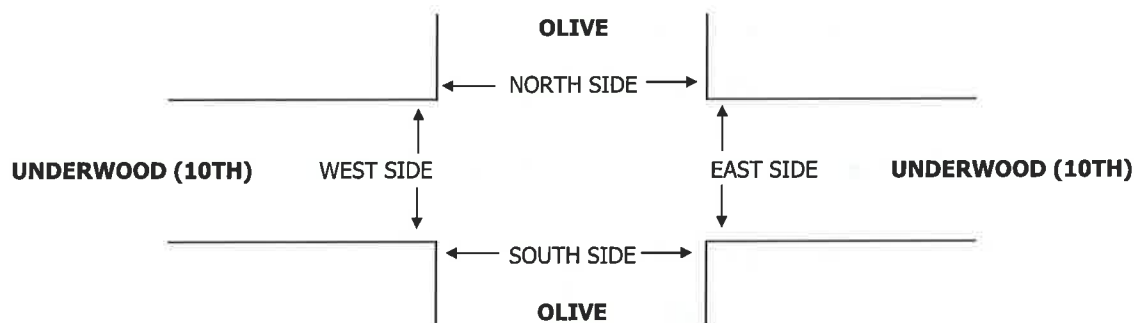
INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 2/2/17 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	HOLTVILLE OLIVE UNDERWOOD (10TH)	PROJECT #: LOCATION #: CONTROL:	PTD17-0203-01 3 2-WAY STOP (NS)
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NOTES:	AM PM MD OTHER OTHER	◀ W S ▶ E
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		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
		OLIVE			OLIVE			UNDERWOOD (10TH)			UNDERWOOD (10TH)			
LANES:		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
		0	1	0	0	1	0	0	1	0	0	1	0	
AM	7:00 AM	0	2	1	0	1	0	0	0	0	0	0	0	4
	7:15 AM	0	0	1	0	0	0	0	0	0	0	2	0	3
	7:30 AM	2	0	3	0	0	0	0	0	0	2	1	0	8
	7:45 AM	0	0	2	0	2	0	1	1	0	4	1	0	11
	8:00 AM	0	0	1	0	0	0	0	0	0	1	2	0	4
	8:15 AM	0	0	1	0	1	2	0	2	0	1	0	1	8
	8:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	3
	8:45 AM	0	1	0	0	0	0	0	0	0	2	1	0	4
	VOLUMES	2	3	9	0	4	2	1	3	0	10	10	1	45
	APPROACH %	14%	21%	64%	0%	67%	33%	25%	75%	0%	48%	48%	5%	
APP/DEPART	14	/	5	6	/	14	4	/	12	21	/	14	0	
BEGIN PEAK HR	7:30 AM													
VOLUMES	2	0	7	0	3	2	1	3	0	8	4	1	31	
APPROACH %	22%	0%	78%	0%	60%	40%	25%	75%	0%	62%	31%	8%		
PEAK HR FACTOR	0.450			0.417			0.500			0.650			0.705	
APP/DEPART	9	/	2	5	/	11	4	/	10	13	/	8	0	
PM	4:00 PM	0	0	0	0	0	0	0	1	0	0	5	0	6
	4:15 PM	2	0	2	0	0	0	0	0	1	0	4	0	9
	4:30 PM	0	0	1	0	0	0	0	3	0	0	0	0	4
	4:45 PM	0	0	0	0	0	0	0	2	2	0	0	0	4
	5:00 PM	1	0	1	0	0	0	0	3	0	0	1	0	6
	5:15 PM	0	0	1	0	0	0	0	0	0	1	1	0	3
	5:30 PM	0	0	2	0	0	0	0	0	0	0	2	0	4
	5:45 PM	2	0	2	0	0	0	0	0	0	3	0	0	7
	VOLUMES	5	0	9	0	0	0	0	9	3	4	13	0	43
	APPROACH %	36%	0%	64%	0%	0%	0%	0%	75%	25%	24%	76%	0%	
	APP/DEPART	14	/	0	0	/	7	12	/	18	17	/	18	0
	BEGIN PEAK HR	4:15 PM												
VOLUMES	3	0	4	0	0	0	0	8	3	0	5	0	23	
APPROACH %	43%	0%	57%	0%	0%	0%	0%	73%	27%	0%	100%	0%		
PEAK HR FACTOR	0.438			0.000			0.688			0.250			0.639	
APP/DEPART	7	/	0	0	/	3	11	/	12	5	/	8	0	



INTERSECTION TURNING MOVEMENT COUNTS

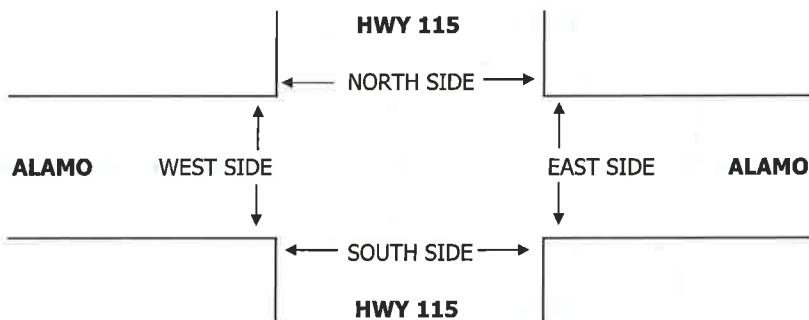
PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 2/2/17 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	HOLTVILLE HWY 115 ALAMO	PROJECT #: LOCATION #: CONTROL:	PTD17-0203-01 4
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NOTES:	AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E
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	NORTHBOUND HWY 115			SOUTHBOUND HWY 115			EASTBOUND ALAMO			WESTBOUND ALAMO			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL

AM	7:00 AM	1	19	2	2	15	0	0	2	3	2	1	3	50
	7:15 AM	0	17	2	1	20	0	3	1	1	9	1	8	63
	7:30 AM	1	27	3	2	16	0	1	2	1	15	2	5	75
	7:45 AM	0	29	2	8	27	0	0	1	1	9	1	2	80
	8:00 AM	0	21	1	5	13	1	2	1	0	8	4	1	57
	8:15 AM	0	32	2	1	29	1	0	0	1	7	0	3	76
	8:30 AM	0	20	3	2	28	0	1	0	0	9	2	0	65
	8:45 AM	0	20	3	0	19	1	0	2	1	3	1	2	52
	VOLUMES	2	185	18	21	167	3	7	9	8	62	12	24	518
	APPROACH %	1%	90%	9%	11%	87%	2%	29%	38%	33%	63%	12%	24%	
	APP/DEPART	205	/	216	191	/	237	24	/	48	98	/	17	0
PM	BEGIN PEAK HR	7:30 AM												
	VOLUMES	1	109	8	16	85	2	3	4	3	39	7	11	288
	APPROACH %	1%	92%	7%	16%	83%	2%	30%	40%	30%	68%	12%	19%	
	PEAK HR FACTOR		0.868			0.736			0.625			0.648		0.900
	APP/DEPART	118	/	123	103	/	127	10	/	28	57	/	10	0
	4:00 PM	0	23	4	5	49	1	0	0	1	3	1	3	90
	4:15 PM	2	26	2	2	42	1	1	4	1	5	2	0	88
	4:30 PM	0	22	6	5	33	0	0	4	0	4	2	2	78
	4:45 PM	2	20	3	6	35	0	1	4	0	1	1	1	74
	5:00 PM	0	23	9	4	35	0	0	0	0	5	1	2	79
	5:15 PM	0	25	9	10	26	1	0	1	2	7	0	2	83
	5:30 PM	2	23	3	4	27	1	0	1	0	8	2	1	72
	5:45 PM	1	17	4	9	22	0	0	1	1	3	0	0	58
	VOLUMES	7	179	40	45	269	4	2	15	5	36	9	11	622
	APPROACH %	3%	79%	18%	14%	85%	1%	9%	68%	23%	64%	16%	20%	
	APP/DEPART	226	/	192	318	/	310	22	/	100	56	/	20	0
	BEGIN PEAK HR	4:00 PM												
	VOLUMES	4	91	15	18	159	2	2	12	2	13	6	6	330
	APPROACH %	4%	83%	14%	10%	89%	1%	13%	75%	13%	52%	24%	24%	
	PEAK HR FACTOR		0.917			0.814			0.667			0.781		0.917
	APP/DEPART	110	/	99	179	/	174	16	/	45	25	/	12	0



INTERSECTION TURNING MOVEMENT COUNTS

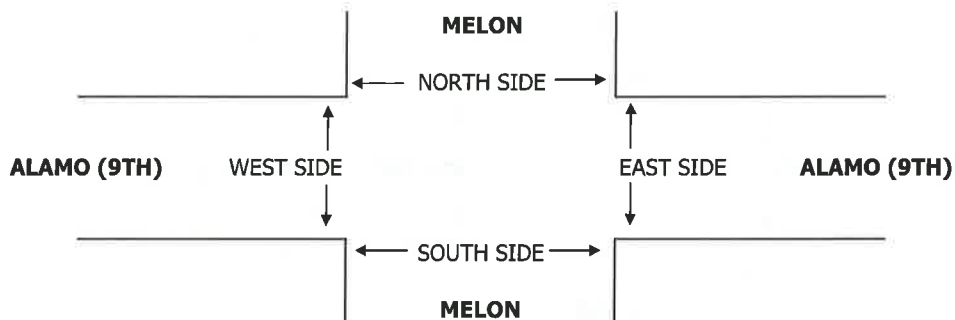
PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 2/2/17 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	HOLTVILLE MELON ALAMO (9TH)	PROJECT #: LOCATION #: CONTROL:	PTD17-0203-01 5 4-WAY STOP
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NOTES:	AM PM MD OTHER OTHER	◀ W S ▶	▲ N E ▶
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	NORTHBOUND MELON			SOUTHBOUND MELON			EASTBOUND ALAMO (9TH)			WESTBOUND ALAMO (9TH)			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL

AM	7:00 AM	1	1	0	0	3	0	0	3	5	1	5	0	19
	7:15 AM	5	1	1	0	0	1	0	0	0	1	13	0	22
	7:30 AM	2	2	0	1	1	1	0	3	7	1	17	2	37
	7:45 AM	3	8	2	0	7	1	0	4	15	3	8	0	51
	8:00 AM	0	3	4	2	10	3	0	5	2	6	5	5	45
	8:15 AM	1	3	0	0	2	3	0	2	2	0	6	1	20
	8:30 AM	3	2	0	1	3	2	0	1	4	0	4	0	20
	8:45 AM	5	3	1	0	4	1	2	2	2	1	1	0	22
	VOLUMES	20	23	8	4	30	12	2	20	37	13	59	8	236
	APPROACH %	39%	45%	16%	9%	65%	26%	3%	34%	63%	16%	74%	10%	
PM	APP/DEPART	51	/	33	46	/	80	59	/	32	80	/	91	0
	BEGIN PEAK HR	7:15 AM												
	VOLUMES	10	14	7	3	18	6	0	12	24	11	43	7	155
	APPROACH %	32%	45%	23%	11%	67%	22%	0%	33%	67%	18%	70%	11%	
	PEAK HR FACTOR	0.596			0.450			0.474			0.763			0.760
	APP/DEPART	31	/	21	27	/	53	36	/	22	61	/	59	0
	4:00 PM	0	5	1	0	5	3	3	4	3	2	4	2	32
	4:15 PM	6	3	3	0	0	4	4	7	3	1	2	2	35
	4:30 PM	3	1	4	1	0	2	0	10	4	1	2	0	28
	4:45 PM	3	3	3	0	3	0	0	8	7	1	2	0	30
PM	5:00 PM	6	3	1	1	3	1	1	4	5	1	2	0	28
	5:15 PM	6	0	3	1	2	1	1	10	9	3	2	0	38
	5:30 PM	8	1	2	0	3	0	0	6	9	2	8	0	39
	5:45 PM	3	2	2	2	1	0	1	10	5	2	4	0	32
	VOLUMES	35	18	19	5	17	11	10	59	45	13	26	4	262
	APPROACH %	49%	25%	26%	15%	52%	33%	9%	52%	39%	30%	60%	9%	
	APP/DEPART	72	/	32	33	/	75	114	/	83	43	/	72	0
	BEGIN PEAK HR	5:00 PM												
	VOLUMES	23	6	8	4	9	2	3	30	28	8	16	0	137
	APPROACH %	62%	16%	22%	27%	60%	13%	5%	49%	46%	33%	67%	0%	
	PEAK HR FACTOR	0.841			0.750			0.763			0.600			0.878
	APP/DEPART	37	/	9	15	/	45	61	/	42	24	/	41	0

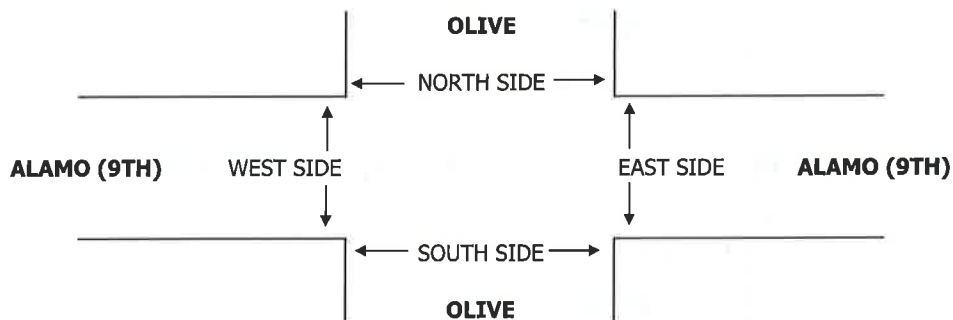


INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 2/2/17 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	HOLTVILLE OLIVE ALAMO (9TH)	PROJECT #: LOCATION #: CONTROL:	PTD17-0203-01 6 2-WAY STOP (NS)
NOTES:			AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E ▼

	NORTHBOUND OLIVE			SOUTHBOUND OLIVE			EASTBOUND ALAMO (9TH)			WESTBOUND ALAMO (9TH)			TOTAL
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	
7:00 AM	1	2	4	0	1	0	0	2	1	4	5	1	21
7:15 AM	2	0	2	0	1	0	0	1	0	5	9	1	21
7:30 AM	3	2	7	3	1	1	1	3	3	7	14	1	46
7:45 AM	0	3	17	1	7	1	0	7	1	28	8	1	74
8:00 AM	1	0	6	0	1	2	0	6	0	11	11	1	39
8:15 AM	1	2	0	0	1	1	1	2	0	1	3	0	12
8:30 AM	0	0	1	1	0	0	1	2	0	1	5	0	11
8:45 AM	0	0	1	1	1	0	0	4	0	0	2	2	11
VOLUMES	8	9	38	6	13	5	3	27	5	57	57	7	235
APPROACH %	15%	16%	69%	25%	54%	21%	9%	77%	14%	47%	47%	6%	
APP/DEPART	55	/	19	24	/	75	35	/	71	121	/	70	0
BEGIN PEAK HR	7:15 AM												
VOLUMES	6	5	32	4	10	4	1	17	4	51	42	4	180
APPROACH %	14%	12%	74%	22%	56%	22%	5%	77%	18%	53%	43%	4%	
PEAK HR FACTOR	0.538			0.500			0.688			0.655			0.608
APP/DEPART	43	/	10	18	/	65	22	/	53	97	/	52	0
4:00 PM	0	1	2	0	0	0	0	7	1	1	8	1	21
4:15 PM	1	1	0	0	1	0	0	8	2	1	5	1	20
4:30 PM	1	1	3	0	1	0	0	15	1	6	2	3	33
4:45 PM	0	0	3	2	1	0	1	9	1	3	5	2	27
5:00 PM	1	1	3	1	0	0	0	4	0	4	4	1	19
5:15 PM	0	1	2	1	0	0	5	9	0	0	3	0	21
5:30 PM	0	0	2	0	0	0	1	8	0	0	8	0	19
5:45 PM	0	2	1	1	0	1	0	11	0	3	6	0	25
VOLUMES	3	7	16	5	3	1	7	71	5	18	41	8	185
APPROACH %	12%	27%	62%	56%	33%	11%	8%	86%	6%	27%	61%	12%	
APP/DEPART	26	/	22	9	/	26	83	/	92	67	/	45	0
BEGIN PEAK HR	4:00 PM												
VOLUMES	2	3	8	2	3	0	1	39	5	11	20	7	101
APPROACH %	15%	23%	62%	40%	60%	0%	2%	87%	11%	29%	53%	18%	
PEAK HR FACTOR	0.650			0.417			0.703			0.864			0.765
APP/DEPART	13	/	11	5	/	19	45	/	49	38	/	22	0



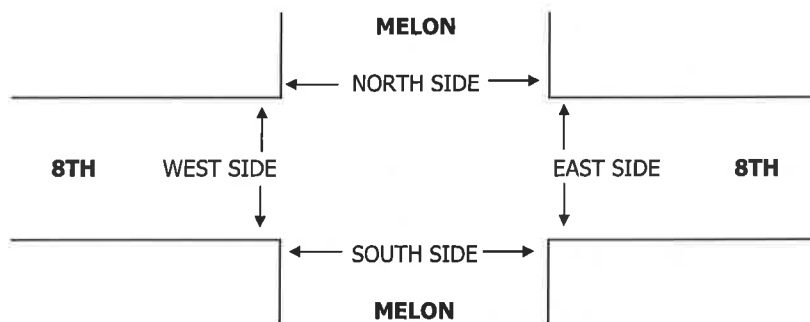
INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 2/2/17 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	HOLTVILLE MELON 8TH	PROJECT #: LOCATION #: CONTROL:	PTD17-0203-01 7 1-WAY STOP (WB)
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NOTES:	AM PM MD OTHER ◀ W S E ▶
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	NORTHBOUND MELON			SOUTHBOUND MELON			EASTBOUND 8TH			WESTBOUND 8TH			
LANES:	NL X	NT 1	NR 0	SL 0	ST 1	SR X	EL X	ET X	ER X	WL 0.5	WT X	WR 0.5	TOTAL
AM	7:00 AM		1	2	1	6				2		1	13
	7:15 AM		4	0	2	4				2		0	12
	7:30 AM		3	3	3	8				1		4	22
	7:45 AM		9	4	10	14				11		6	54
	8:00 AM		8	0	2	7				4		3	24
	8:15 AM		5	0	3	3				1		0	12
	8:30 AM		3	0	2	7				1		0	13
	8:45 AM		5	0	1	5				1		0	12
	VOLUMES	0	38	9	24	54	0	0	0	23	0	14	162
	APPROACH %	0%	81%	19%	31%	69%	0%	0%	0%	62%	0%	38%	
PM	APP/DEPART	47	/	52	78	/	77	0	/	33	37	/	0
	BEGIN PEAK HR	7:30 AM											
	VOLUMES	0	25	7	18	32	0	0	0	17	0	13	112
	APPROACH %	0%	78%	22%	36%	64%	0%	0%	0%	57%	0%	43%	
	PEAK HR FACTOR	0.615			0.521			0.000			0.441		
	APP/DEPART	32	/	38	50	/	49	0	/	25	30	/	0
	4:00 PM		7	0	1	2				0		0	10
	4:15 PM		11	0	0	8				2		0	21
	4:30 PM		13	1	1	4				4		4	27
	4:45 PM		7	4	2	8				3		1	25
PM	5:00 PM		9	6	0	9				2		1	27
	5:15 PM		10	2	3	10				1		2	28
	5:30 PM		5	1	0	11				3		1	21
	5:45 PM		10	2	1	7				2		1	23
	VOLUMES	0	72	16	8	59	0	0	0	17	0	10	182
	APPROACH %	0%	82%	18%	12%	88%	0%	0%	0%	63%	0%	37%	
	APP/DEPART	88	/	82	67	/	76	0	/	24	27	/	0
	BEGIN PEAK HR	4:30 PM											
	VOLUMES	0	39	13	6	31	0	0	0	10	0	8	107
	APPROACH %	0%	75%	25%	16%	84%	0%	0%	0%	56%	0%	44%	
PM	PEAK HR FACTOR	0.867			0.712			0.000			0.563		
	APP/DEPART	52	/	47	37	/	41	0	/	19	18	/	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

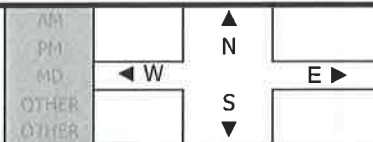
DATE:
2/2/17
THURSDAY

LOCATION:
NORTH & SOUTH:
EAST & WEST:

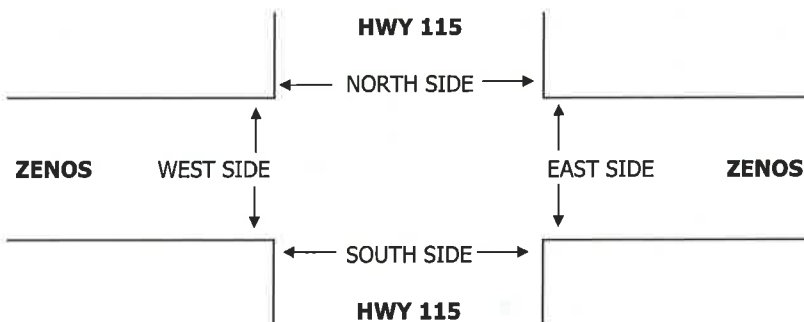
HOLTVILLE
HWY 115
ZENOS

PROJECT #: PTD17-0203-01
LOCATION #: 8
CONTROL:

NOTES:



		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		HWY 115			HWY 115			ZENOS			ZENOS			
LANES:		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
AM	7:00 AM	0	17	4	1	19	0	1	2	0	7	1	3	55
	7:15 AM	1	19	4	6	25	0	1	2	0	14	1	1	74
	7:30 AM	0	26	8	6	24	1	0	0	1	12	1	4	83
	7:45 AM	1	24	15	5	32	1	0	2	1	20	1	6	108
	8:00 AM	0	22	4	3	18	1	1	0	0	8	2	4	63
	8:15 AM	0	25	4	7	29	0	0	1	0	5	0	7	78
	8:30 AM	0	17	2	6	29	2	0	2	1	11	2	5	77
	8:45 AM	0	21	2	3	18	0	0	0	0	3	1	3	51
	VOLUMES	2	171	43	37	194	5	3	9	3	80	9	33	589
	APPROACH %	1%	79%	20%	16%	82%	2%	20%	60%	20%	66%	7%	27%	
APP/DEPART	216	/	207	236	/	277	15	/	89	122	/	16	0	
BEGIN PEAK HR	7:30 AM													
VOLUMES	1	97	31	21	103	3	1	3	2	45	4	21	332	
APPROACH %	1%	75%	24%	17%	81%	2%	17%	50%	33%	64%	6%	30%		
PEAK HR FACTOR	0.806			0.836			0.500			0.648			0.769	
APP/DEPART	129	/	119	127	/	150	6	/	55	70	/	8	0	
PM	4:00 PM	1	22	9	10	40	1	0	2	0	17	1	6	109
	4:15 PM	0	24	10	6	42	0	0	0	0	10	3	5	100
	4:30 PM	0	19	5	2	36	0	0	0	0	11	2	7	82
	4:45 PM	0	19	16	5	30	0	0	1	0	12	0	5	88
	5:00 PM	0	28	20	7	30	0	1	1	0	9	3	7	106
	5:15 PM	0	29	13	3	32	0	1	0	0	11	2	3	94
	5:30 PM	0	20	14	0	33	2	1	1	0	10	0	4	85
	5:45 PM	0	22	21	4	22	0	0	1	0	12	0	0	82
	VOLUMES	1	183	108	37	265	3	3	6	0	92	11	37	746
	APPROACH %	0%	63%	37%	12%	87%	1%	33%	67%	0%	66%	8%	26%	
APP/DEPART	292	/	223	305	/	357	9	/	151	140	/	15	0	
BEGIN PEAK HR	4:00 PM													
VOLUMES	1	84	40	23	148	1	0	3	0	50	6	23	379	
APPROACH %	1%	67%	32%	13%	86%	1%	0%	100%	0%	63%	8%	29%		
PEAK HR FACTOR	0.893			0.843			0.375			0.823			0.869	
APP/DEPART	125	/	107	172	/	198	3	/	66	79	/	8	0	



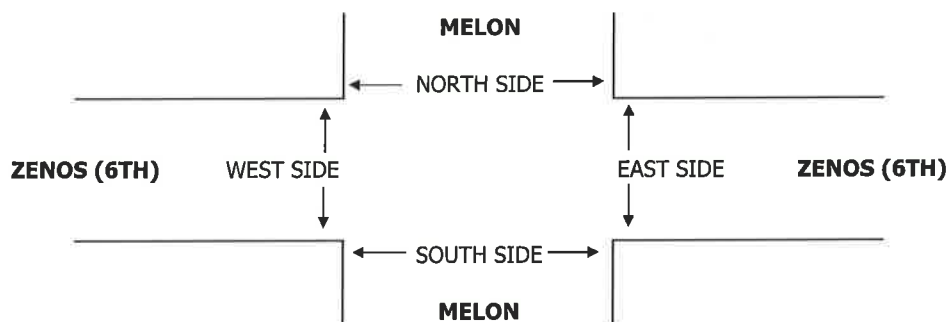
INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 2/2/17 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	HOLTVILLE MELON ZENOS (6TH)	PROJECT #: LOCATION #: CONTROL:	PTD17-0203-01 9 1-WAY STOP (SB)
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NOTES:	AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E ▼
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		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
		MELON			MELON			ZENOS (6TH)			ZENOS (6TH)			
LANES:		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
		X	X	X	0.5	X	0.5	0	1	X	X	1	0	
AM	7:00 AM				5		7	5	11			8	0	36
	7:15 AM				4		2	5	11			7	5	34
	7:30 AM				4		2	3	17			13	3	42
	7:45 AM				14		9	6	27			16	13	85
	8:00 AM				9		2	5	9			18	5	48
	8:15 AM				7		3	1	17			13	6	47
	8:30 AM				4		6	3	10			13	6	42
	8:45 AM				5		1	1	10			9	7	33
	VOLUMES	0	0	0	52	0	32	29	112	0	0	97	45	367
	APPROACH %	0%	0%	0%	62%	0%	38%	21%	79%	0%	0%	68%	32%	
APP/DEPART	0	/	74	84	/	0	141	/	164	142	/	129	0	
BEGIN PEAK HR	7:45 AM													
VOLUMES	0	0	0	34	0	20	15	63	0	0	60	30	222	
APPROACH %	0%	0%	0%	63%	0%	37%	19%	81%	0%	0%	67%	33%		
PEAK HR FACTOR	0.000			0.587			0.591			0.776			0.653	
APP/DEPART	0	/	45	54	/	0	78	/	97	90	/	80	0	
PM	4:00 PM				7		5	6	25			20	6	69
	4:15 PM				6		2	7	12			13	12	52
	4:30 PM				7		4	4	11			13	7	46
	4:45 PM				8		9	8	12			12	5	54
	5:00 PM				4		6	9	17			20	7	63
	5:15 PM				6		8	6	12			9	6	47
	5:30 PM				15		4	1	21			9	6	56
	5:45 PM				7		6	4	21			9	7	54
	VOLUMES	0	0	0	60	0	44	45	131	0	0	105	56	441
	APPROACH %	0%	0%	0%	58%	0%	42%	26%	74%	0%	0%	65%	35%	
APP/DEPART	0	/	101	104	/	0	176	/	191	161	/	149	0	
BEGIN PEAK HR	4:00 PM													
VOLUMES	0	0	0	28	0	20	25	60	0	0	58	30	221	
APPROACH %	0%	0%	0%	58%	0%	42%	29%	71%	0%	0%	66%	34%		
PEAK HR FACTOR	0.000			0.706			0.685			0.846			0.801	
APP/DEPART	0	/	55	48	/	0	85	/	88	88	/	78	0	



Appendix I

Existing Intersection LOS Calculations

AM Existing
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		6.7										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	7	10	2	6	0	10	5	1	0	3	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	3	9	13	3	8	0	13	6	1	0	4	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	51	47	14	58	48	17	10	0	0	13	0	0
Stage 1	9	9	-	38	38	-	-	-	-	-	-	-
Stage 2	42	38	-	20	10	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	941	839	1057	931	838	1053	1590	-	-	1586	-	-
Stage 1	1004	882	-	970	857	-	-	-	-	-	-	-
Stage 2	965	857	-	991	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	921	825	1048	899	824	1044	1583	-	-	1579	-	-
Mov Cap-2 Maneuver	921	825	-	899	824	-	-	-	-	-	-	-
Stage 1	992	878	-	958	847	-	-	-	-	-	-	-
Stage 2	945	847	-	965	877	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.9			9.3			4.6			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1583	-	-	941	842	1579	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.026	0.012	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.9	9.3	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

AM Existing
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	4	4	17	4	0	20
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	5	5	22	5	0	26
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	56	35	0	0	33	0
Stage 1	30	-	-	-	-	-
Stage 2	26	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	944	1029	-	-	1560	-
Stage 1	985	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	936	1020	-	-	1554	-
Mov Cap-2 Maneuver	936	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.7		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 976	1554	-		
HCM Lane V/C Ratio	-	- 0.011	-	-		
HCM Control Delay (s)	-	- 8.7	0	-		
HCM Lane LOS	-	- A	A	-		
HCM 95th %tile Q(veh)	-	- 0	0	-		

AM Existing
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	3	0	8	4	1	2	0	7	0	3	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	4	0	11	6	1	3	0	10	0	4	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	9	0	0	50	47	14	51	46	16
Stage 1	-	-	-	-	-	-	12	12	-	34	34	-
Stage 2	-	-	-	-	-	-	38	35	-	17	12	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1587	-	-	1591	-	-	942	839	1057	941	840	1055
Stage 1	-	-	-	-	-	-	1001	880	-	974	861	-
Stage 2	-	-	-	-	-	-	970	860	-	995	880	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1580	-	-	1584	-	-	922	825	1048	919	826	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	922	825	-	919	826	-
Stage 1	-	-	-	-	-	-	996	875	-	969	851	-
Stage 2	-	-	-	-	-	-	952	850	-	980	875	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.8			4.5			8.6			9		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1017	1580	-	-	1584	-	-	902				
HCM Lane V/C Ratio	0.013	0.001	-	-	0.007	-	-	0.008				
HCM Control Delay (s)	8.6	7.3	0	-	7.3	0	-	9				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0				

AM Existing
4: SR-115 & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	4	3	39	7	11	1	109	8	16	85	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	3	4	3	43	8	12	1	121	9	18	94	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	279	273	106	273	270	136	102	0	0	135	0	0
Stage 1	136	136	-	133	133	-	-	-	-	-	-	-
Stage 2	143	137	-	140	137	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	667	629	940	673	631	905	1471	-	-	1431	-	-
Stage 1	860	778	-	863	781	-	-	-	-	-	-	-
Stage 2	853	777	-	856	777	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	639	615	932	654	617	897	1465	-	-	1425	-	-
Mov Cap-2 Maneuver	639	615	-	654	617	-	-	-	-	-	-	-
Stage 1	856	765	-	859	777	-	-	-	-	-	-	-
Stage 2	829	773	-	833	764	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.3			10.8			0.1			1.2		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1465	-	-	694	685	1425	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.016	0.092	0.012	-	-				
HCM Control Delay (s)	7.5	0	-	10.3	10.8	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-				

AM Existing
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection												
Intersection Delay, s/veh	7.4											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	0	12	24	0	11	43	7	0	10	14	7
Peak Hour Factor	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	0	16	32	0	14	57	9	0	13	18	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7	7.6	7.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	0%	18%	11%
Vol Thru, %	45%	33%	70%	67%
Vol Right, %	23%	67%	11%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	36	61	27
LT Vol	10	0	11	3
Through Vol	14	12	43	18
RT Vol	7	24	7	6
Lane Flow Rate	41	47	80	36
Geometry Grp	1	1	1	1
Degree of Util (X)	0.047	0.05	0.092	0.041
Departure Headway (Hd)	4.162	3.778	4.121	4.125
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	853	939	865	859
Service Time	2.226	1.836	2.167	2.191
HCM Lane V/C Ratio	0.048	0.05	0.092	0.042
HCM Control Delay	7.4	7	7.6	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.3	0.1

AM Existing
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	3	18	6
Peak Hour Factor	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	4	24	8
Number of Lanes	0	0	1	0

Approach

SB

Opposing Approach

NB

Opposing Lanes

1

Conflicting Approach Left

WB

Conflicting Lanes Left

1

Conflicting Approach Right

EB

Conflicting Lanes Right

1

HCM Control Delay

7.4

HCM LOS

A

Lane

AM Existing
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	17	4	51	42	4	6	5	32	4	10	4
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	28	7	85	70	7	10	8	53	7	17	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	82	0	0	40	0	0	300	292	42	319	291	83
Stage 1	-	-	-	-	-	-	40	40	-	248	248	-
Stage 2	-	-	-	-	-	-	260	252	-	71	43	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1497	-	-	1550	-	-	646	614	1020	628	614	968
Stage 1	-	-	-	-	-	-	967	856	-	749	696	-
Stage 2	-	-	-	-	-	-	738	693	-	931	853	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1491	-	-	1544	-	-	594	573	1012	557	573	960
Mov Cap-2 Maneuver	-	-	-	-	-	-	594	573	-	557	573	-
Stage 1	-	-	-	-	-	-	962	852	-	745	653	-
Stage 2	-	-	-	-	-	-	670	650	-	869	849	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.9			9.6			11.1		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	852	1491	-	-	1544	-	-	625				
HCM Lane V/C Ratio	0.084	0.001	-	-	0.055	-	-	0.048				
HCM Control Delay (s)	9.6	7.4	0	-	7.5	0	-	11.1				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.2				

AM Existing
7: Melon Rd & 8th St

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	17	13	25	7	18	32
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	33	25	49	14	35	63
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	214	106	0	0	88	0
Stage 1	81	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	768	940	-	-	1489	-
Stage 1	935	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	718	901	-	-	1458	-
Mov Cap-2 Maneuver	718	-	-	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.9	0		2.7		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 787	1458	-		
HCM Lane V/C Ratio	-	- 0.075	0.024	-		
HCM Control Delay (s)	-	- 9.9	7.5	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.2	0.1	-		

AM Existing
8: SR-115 & Zenos Rd (6th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	3	2	45	4	21	1	97	31	21	103	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	1	3	2	49	4	23	1	105	34	23	112	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	307	310	124	296	295	132	120	0	0	144	0	0
Stage 1	164	164	-	129	129	-	-	-	-	-	-	-
Stage 2	143	146	-	167	166	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	640	600	919	650	611	909	1449	-	-	1420	-	-
Stage 1	831	757	-	868	784	-	-	-	-	-	-	-
Stage 2	853	770	-	828	755	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	607	584	911	632	595	901	1443	-	-	1414	-	-
Mov Cap-2 Maneuver	607	584	-	632	595	-	-	-	-	-	-	-
Stage 1	827	741	-	864	780	-	-	-	-	-	-	-
Stage 2	822	766	-	805	739	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.4			10.9			0.1			1.3		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1443	-	-	668	691	1414	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.01	0.11	0.016	-	-				
HCM Control Delay (s)	7.5	0	-	10.4	10.9	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-				

AM Existing
9: Zenos Rd (6th St) & Melon Rd

HCM 2010 TWSC

Intersection							
Int Delay, s/veh	3						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Vol, veh/h	15	63	60	30	34	20	
Conflicting Peds, #/hr	5	0	0	5	5	5	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	0	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	65	65	65	65	65	65	
Heavy Vehicles, %	5	5	5	5	5	5	
Mvmt Flow	23	97	92	46	52	31	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	143	0	-	0	263	125	
Stage 1	-	-	-	-	120	-	
Stage 2	-	-	-	-	143	-	
Critical Hdwy	4.15	-	-	-	6.45	6.25	
Critical Hdwy Stg 1	-	-	-	-	5.45	-	
Critical Hdwy Stg 2	-	-	-	-	5.45	-	
Follow-up Hdwy	2.245	-	-	-	3.545	3.345	
Pot Cap-1 Maneuver	1421	-	-	-	720	918	
Stage 1	-	-	-	-	898	-	
Stage 2	-	-	-	-	877	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1415	-	-	-	702	910	
Mov Cap-2 Maneuver	-	-	-	-	702	-	
Stage 1	-	-	-	-	894	-	
Stage 2	-	-	-	-	858	-	
Approach	EB		WB		SB		
HCM Control Delay, s	1.5		0		10.3		
HCM LOS					B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	1415	-	-	-	767		
HCM Lane V/C Ratio	0.016	-	-	-	0.108		
HCM Control Delay (s)	7.6	0	-	-	10.3		
HCM Lane LOS	A	A	-	-	B		
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4		

PM Existing
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	6	8	1	3	2	8	5	5	0	1	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	8	11	1	4	3	11	7	7	0	1	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	45	45	11	52	42	20	6	0	0	18	0	0
Stage 1	6	6	-	36	36	-	-	-	-	-	-	-
Stage 2	39	39	-	16	6	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	949	841	1061	940	844	1049	1595	-	-	1579	-	-
Stage 1	1008	885	-	972	859	-	-	-	-	-	-	-
Stage 2	968	857	-	996	885	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	930	828	1052	911	831	1040	1588	-	-	1572	-	-
Mov Cap-2 Maneuver	930	828	-	911	831	-	-	-	-	-	-	-
Stage 1	997	881	-	961	849	-	-	-	-	-	-	-
Stage 2	950	847	-	973	881	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.9			9			3.2			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1588	-	-	942	905	1572	-	-				
HCM Lane V/C Ratio	0.007	-	-	0.021	0.009	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.9	9	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

PM Existing
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	5	16	3	3	8
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	7	7	23	4	4	11
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	50	35	0	0	32	0
Stage 1	30	-	-	-	-	-
Stage 2	20	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	952	1029	-	-	1561	-
Stage 1	985	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	941	1020	-	-	1554	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	988	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.7		0		2	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 979	1554	-		
HCM Lane V/C Ratio	-	- 0.014	0.003	-		
HCM Control Delay (s)	-	- 8.7	7.3	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0	0	-		

PM Existing
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		2.6										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	8	3	0	5	0	3	0	4	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	63	63	63	63	63	63	63	63	63
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	13	5	0	8	0	5	0	6	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	13	0	0	22	0	0	33	33	25	36	35	18
Stage 1	-	-	-	-	-	-	20	20	-	13	13	-
Stage 2	-	-	-	-	-	-	13	13	-	23	22	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1586	-	-	1574	-	-	967	854	1043	962	852	1052
Stage 1	-	-	-	-	-	-	991	873	-	1000	879	-
Stage 2	-	-	-	-	-	-	1000	879	-	987	871	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1579	-	-	1567	-	-	959	847	1034	948	845	1043
Mov Cap-2 Maneuver	-	-	-	-	-	-	959	847	-	948	845	-
Stage 1	-	-	-	-	-	-	987	869	-	996	875	-
Stage 2	-	-	-	-	-	-	996	875	-	977	867	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			8.6			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1000	1579	-	-	1567	-	-	-				
HCM Lane V/C Ratio	0.011	-	-	-	-	-	-	-				
HCM Control Delay (s)	8.6	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-				

PM Existing
4: SR-115 & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	12	2	13	6	6	4	91	15	18	159	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	2	13	2	14	7	7	4	100	16	20	175	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	349	350	186	350	343	118	182	0	0	121	0	0
Stage 1	220	220	-	122	122	-	-	-	-	-	-	-
Stage 2	129	130	-	228	221	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	600	569	849	599	575	926	1375	-	-	1448	-	-
Stage 1	776	716	-	875	789	-	-	-	-	-	-	-
Stage 2	868	783	-	768	715	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	577	554	842	574	560	918	1369	-	-	1442	-	-
Mov Cap-2 Maneuver	577	554	-	574	560	-	-	-	-	-	-	-
Stage 1	770	702	-	869	783	-	-	-	-	-	-	-
Stage 2	848	777	-	737	701	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	11.4			11			0.3			0.8		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1369	-	-	582	627	1442	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.03	0.044	0.014	-	-				
HCM Control Delay (s)	7.6	0	-	11.4	11	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

PM Existing
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection												
Intersection Delay, s/veh	7.3											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	3	30	28	0	8	16	0	0	23	6	8
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	3	34	32	0	9	18	0	0	26	7	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.2	7.4	7.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	5%	33%	27%
Vol Thru, %	16%	49%	67%	60%
Vol Right, %	22%	46%	0%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	61	24	15
LT Vol	23	3	8	4
Through Vol	6	30	16	9
RT Vol	8	28	0	2
Lane Flow Rate	43	70	28	17
Geometry Grp	1	1	1	1
Degree of Util (X)	0.049	0.075	0.032	0.02
Departure Headway (Hd)	4.162	3.844	4.208	4.161
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	857	928	847	855
Service Time	2.205	1.881	2.251	2.21
HCM Lane V/C Ratio	0.05	0.075	0.033	0.02
HCM Control Delay	7.4	7.2	7.4	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.1	0.1

PM Existing
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	9	2
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	5	10	2
Number of Lanes	0	0	1	0

Approach SB

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

Lane

PM Existing
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	39	5	11	20	7	2	3	8	2	3	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	51	7	14	26	9	3	4	11	3	4	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	41	0	0	63	0	0	129	131	65	134	131	41
Stage 1	-	-	-	-	-	-	62	62	-	65	65	-
Stage 2	-	-	-	-	-	-	67	69	-	69	66	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1549	-	-	1521	-	-	837	754	991	831	754	1022
Stage 1	-	-	-	-	-	-	942	837	-	938	835	-
Stage 2	-	-	-	-	-	-	936	832	-	934	834	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1543	-	-	1515	-	-	820	740	983	806	740	1014
Mov Cap-2 Maneuver	-	-	-	-	-	-	820	740	-	806	740	-
Stage 1	-	-	-	-	-	-	937	833	-	933	824	-
Stage 2	-	-	-	-	-	-	919	821	-	915	830	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			2.1			9.1			9.7		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	888	1543	-	-	1515	-	-	765				
HCM Lane V/C Ratio	0.019	0.001	-	-	0.01	-	-	0.009				
HCM Control Delay (s)	9.1	7.3	0	-	7.4	0	-	9.7				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

PM Existing
7: Melon Rd & 8th St

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	10	8	39	13	6	31
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	11	8	41	14	6	33
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	118	98	0	0	80	0
Stage 1	73	-	-	-	-	-
Stage 2	45	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	871	950	-	-	1499	-
Stage 1	942	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	832	911	-	-	1468	-
Mov Cap-2 Maneuver	832	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	946	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	9.3		0		1.2	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 865	1468	-		
HCM Lane V/C Ratio	-	- 0.022	0.004	-		
HCM Control Delay (s)	-	- 9.3	7.5	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

PM Existing
8: SR-115 & Zenos Rd (6th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	3	0	50	6	23	1	84	40	23	148	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	0	3	0	58	7	27	1	98	47	27	172	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	376	383	183	361	360	131	178	0	0	149	0	0
Stage 1	231	231	-	128	128	-	-	-	-	-	-	-
Stage 2	145	152	-	233	232	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	576	546	852	589	562	911	1380	-	-	1414	-	-
Stage 1	765	708	-	869	784	-	-	-	-	-	-	-
Stage 2	851	766	-	763	707	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	540	530	845	571	545	903	1374	-	-	1408	-	-
Mov Cap-2 Maneuver	540	530	-	571	545	-	-	-	-	-	-	-
Stage 1	761	690	-	865	780	-	-	-	-	-	-	-
Stage 2	814	762	-	740	689	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	11.8			11.6			0.1			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1374	-	-	530	637	1408	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.007	0.144	0.019	-	-				
HCM Control Delay (s)	7.6	0	-	11.8	11.6	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-				

PM Existing
9: Zenos Rd (6th St) & Melon Rd

HCM 2010 TWSC

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	25	60	58	30	28	20
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	31	75	72	38	35	25

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	115	0	234
Stage 1	-	-	96
Stage 2	-	-	138
Critical Hdwy	4.15	-	6.45
Critical Hdwy Stg 1	-	-	5.45
Critical Hdwy Stg 2	-	-	5.45
Follow-up Hdwy	2.245	-	3.545
Pot Cap-1 Maneuver	1455	-	748
Stage 1	-	-	920
Stage 2	-	-	881
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1449	-	725
Mov Cap-2 Maneuver	-	-	725
Stage 1	-	-	916
Stage 2	-	-	858

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1449	-	-	-	801
HCM Lane V/C Ratio	0.022	-	-	-	0.075
HCM Control Delay (s)	7.5	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Appendix J

ITE and SANDAG Trip Rates

Low-Rise Apartment (221)

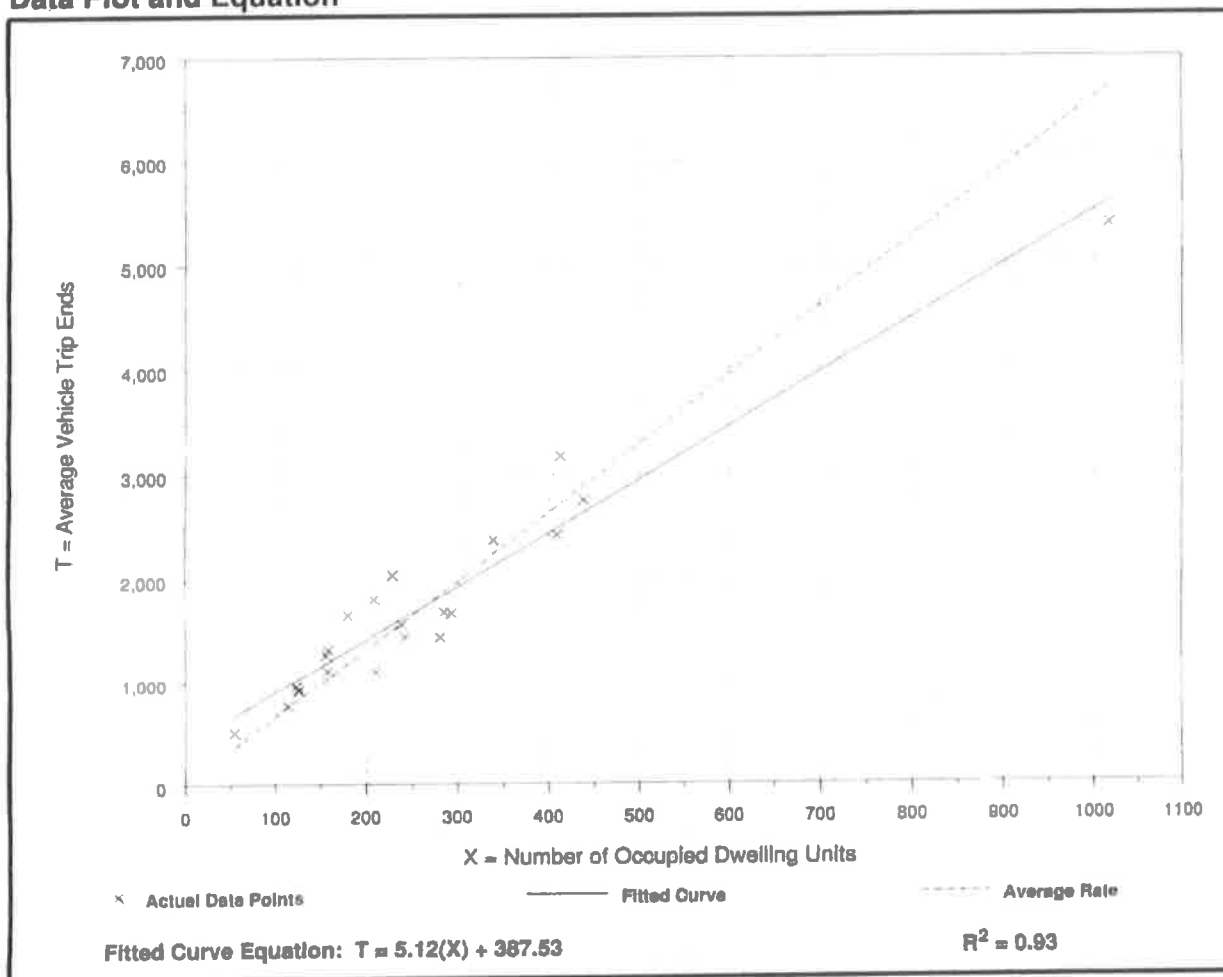
Average Vehicle Trip Ends vs: Occupied Dwelling Units
On a: Weekday

Number of Studies: 22
Avg. Num. of Occupied Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.59	5.10 - 9.24	2.84

Data Plot and Equation



Low-Rise Apartment (221)

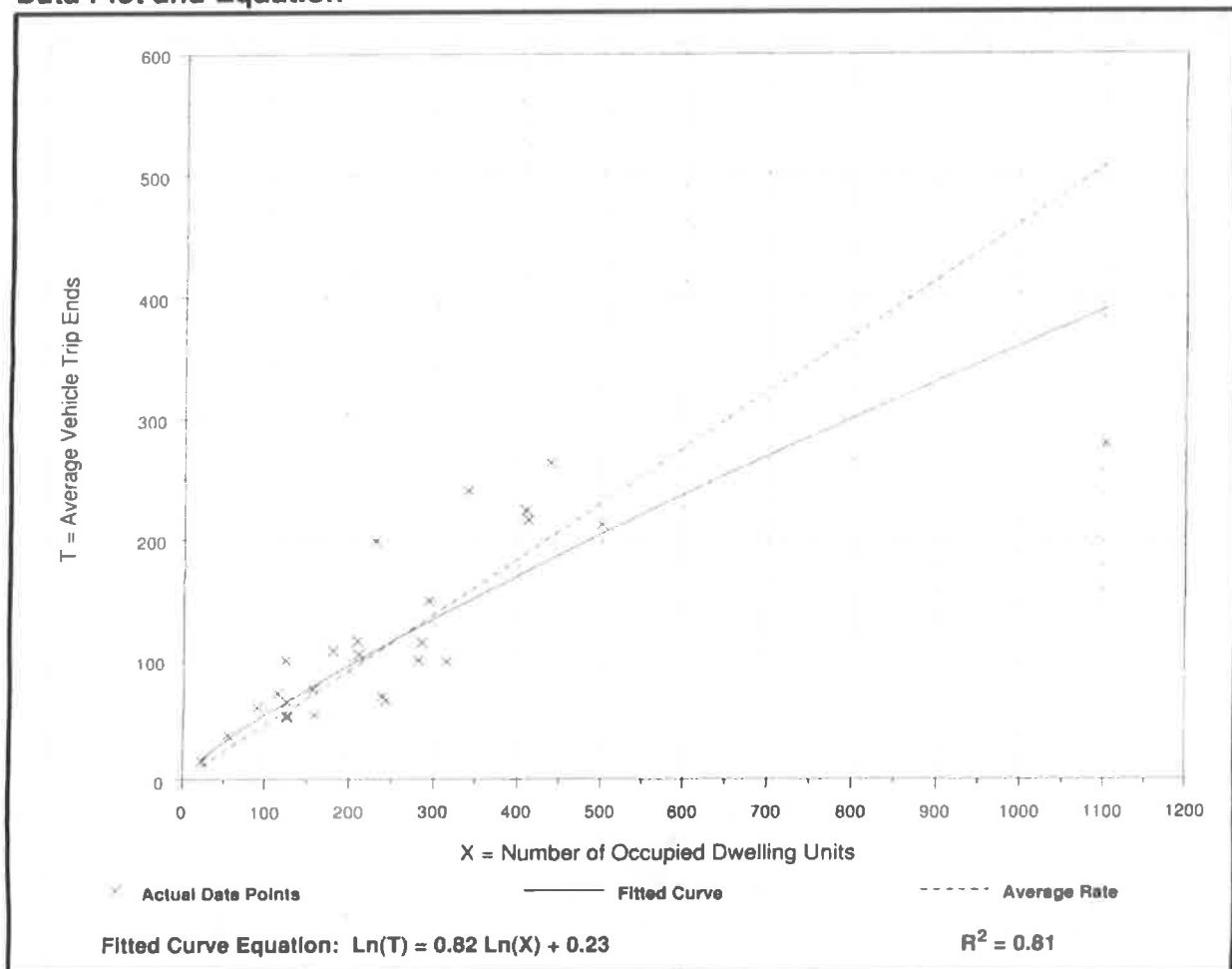
Average Vehicle Trip Ends vs: Occupied Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 27
 Avg. Num. of Occupied Dwelling Units: 257
 Directional Distribution: 21% entering, 79% exiting

Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.25 - 0.86	0.70

Data Plot and Equation



Low-Rise Apartment (221)

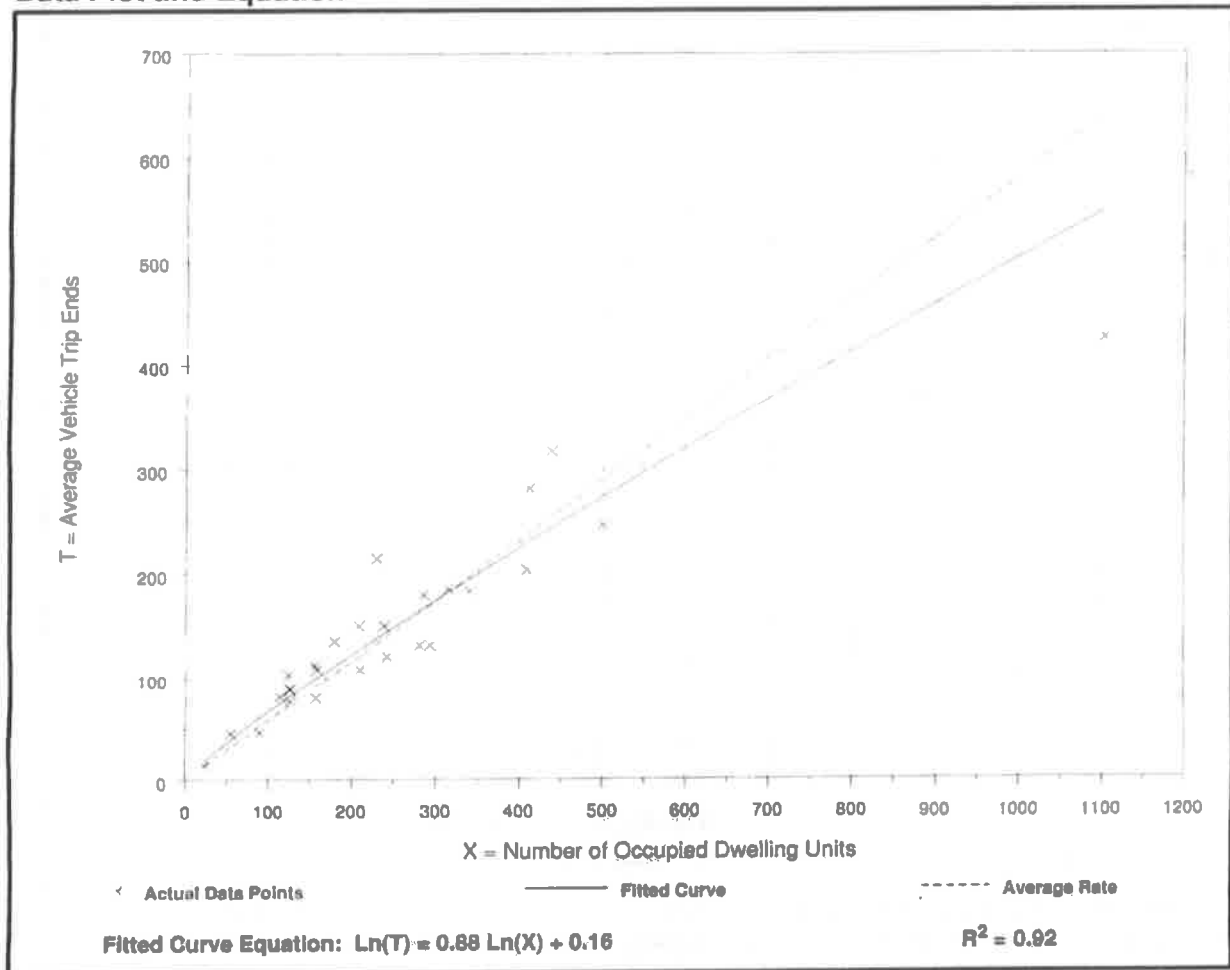
Average Vehicle Trip Ends vs: Occupied Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 27
 Avg. Num. of Occupied Dwelling Units: 257
 Directional Distribution: 65% entering, 35% exiting

Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.58	0.38 - 0.93	0.77

Data Plot and Equation



Senior Adult Housing - Attached (252)

Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

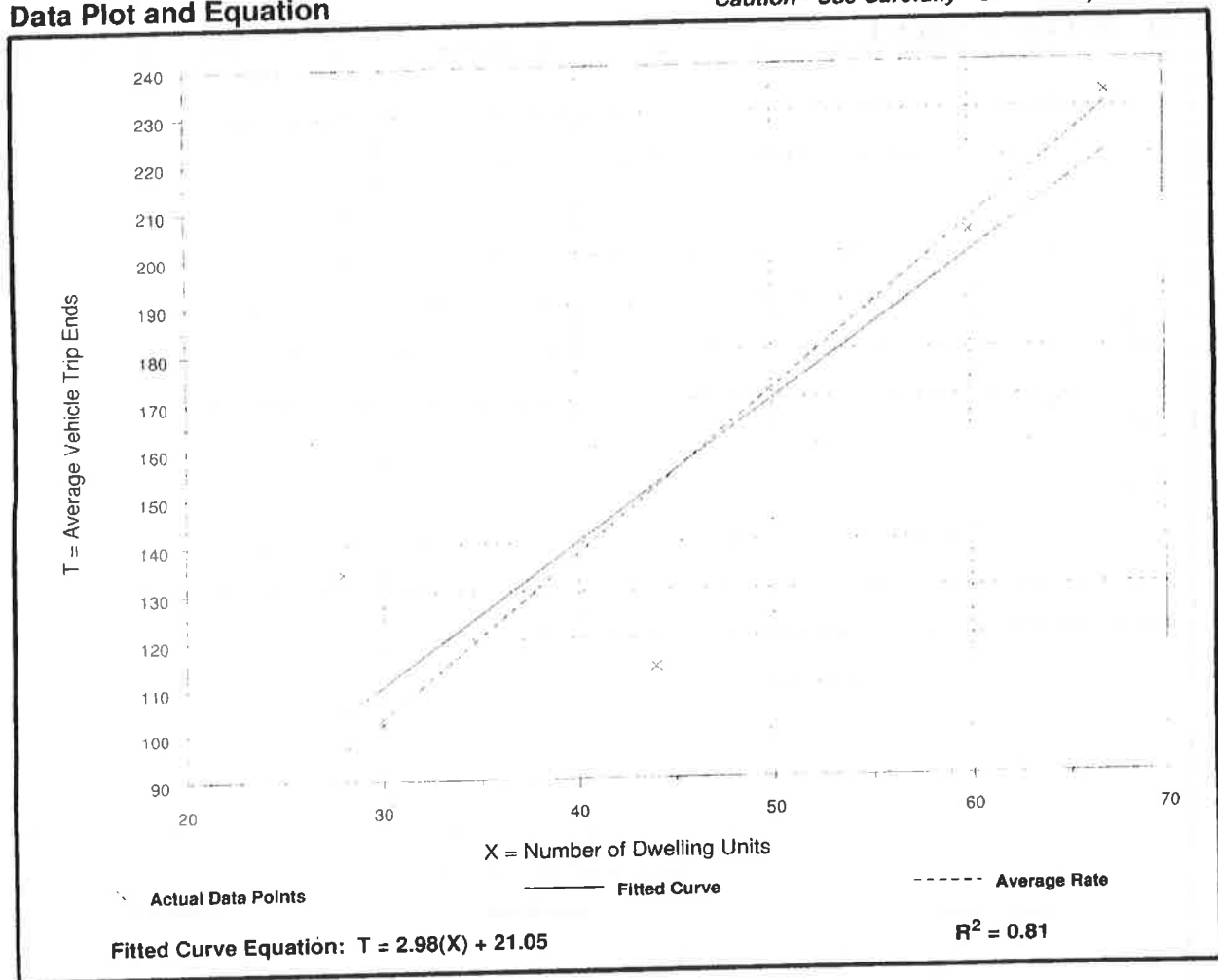
Number of Studies: 5
Avg. Number of Dwelling Units: 46
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates		Standard Deviation
3.44	2.59	4.79	1.93

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



Senior Adult Housing - Attached (252)

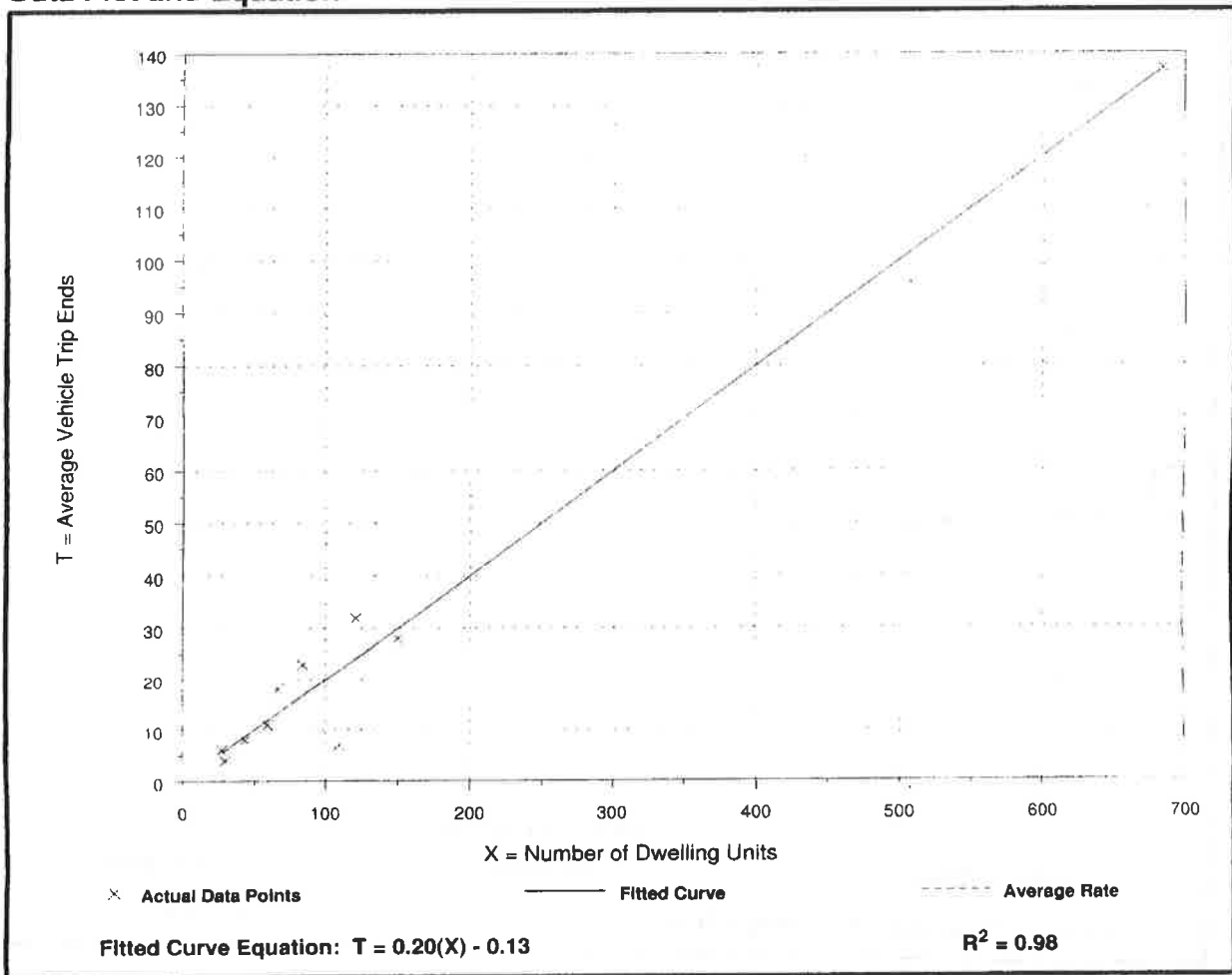
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 10
 Avg. Number of Dwelling Units: 138
 Directional Distribution: 34% entering, 66% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.20	0.06 - 0.27	0.45

Data Plot and Equation



Senior Adult Housing - Attached (252)

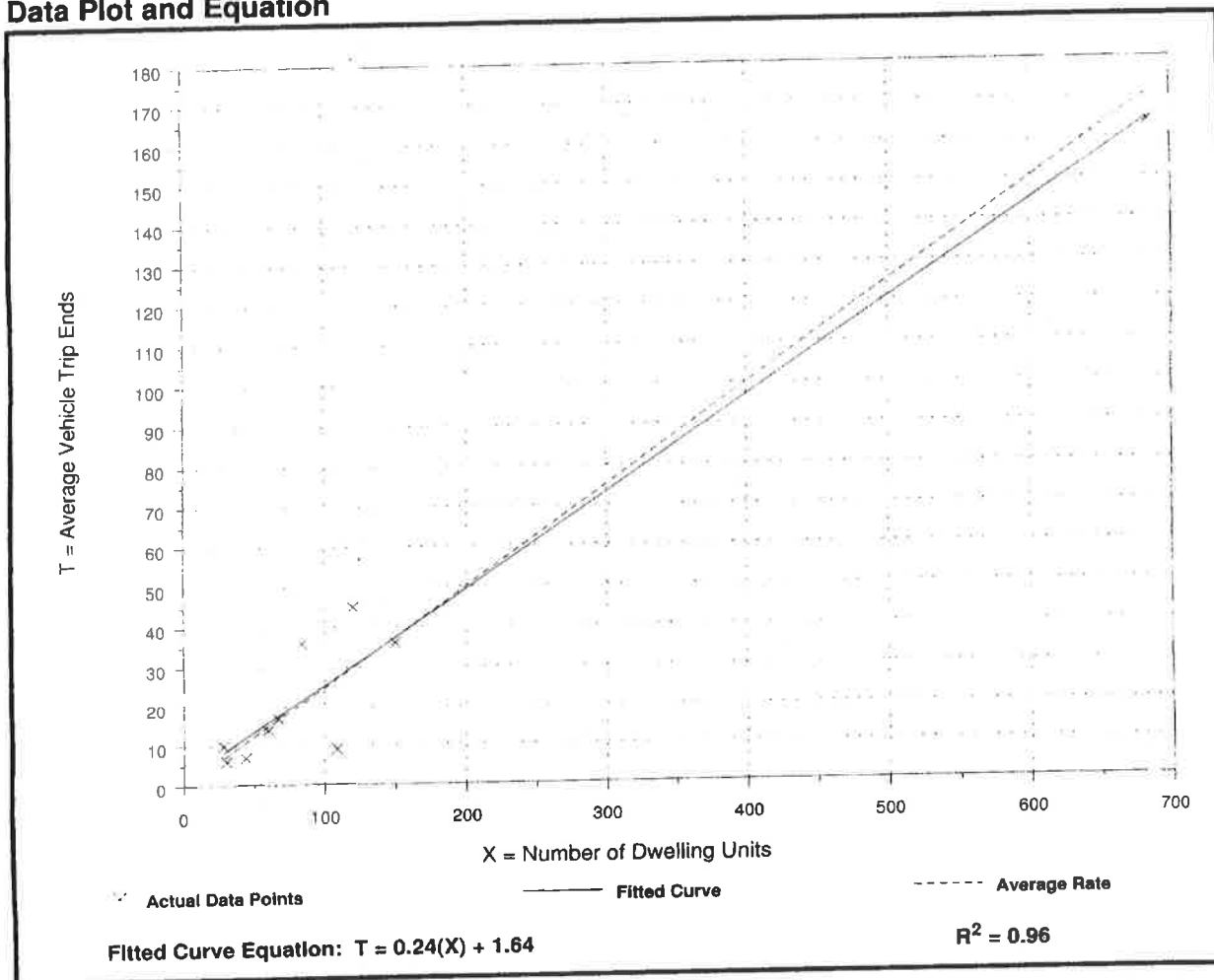
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 10
 Avg. Number of Dwelling Units: 138
 Directional Distribution: 54% entering, 46% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.25	0.08 - 0.43	0.50

Data Plot and Equation



BRIEF GUIDE OF VEHICULAR TRAFFIC GENERATION RATES FOR THE SAN DIEGO REGION



APRIL 2002

NOTE: This listing only represents a of average, or estimated, traffic generation "driveway" rates and some very general trip data for land uses (emphasis on acreage and building square footage) in the San Diego region. These rates (both local and national) are subject to change as future documentation becomes available, or as regional sources are updated. For more specific information regarding traffic data and trip rates, please refer to the San Diego Traffic Generators manual.

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY]*	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M. Between 3:00-6:30 P.M.	TRIP LENGTH (Miles)*
AGRICULTURE (Open Space)	[80:18:2]	2/acre**		10.8
AIRPORT	[78:20:2]			12.5
Commercial		60/acre, 100/flight, 70/1000 sq. ft. **	5% (6.4)	
General Aviation		6/acre, 2/flight, 6/based aircraft**	9% (7.3)	
Heliports		100/acre**	15% (5.5)	
AUTOMOBILE*				
Car Wash				
Automatic		900/site, 600/acre**	4% (5.5)	
Self-serve		100/wash stall**	4% (5.5)	
Gasoline	[21:51:28]			2.8
with/Food Mart		160/vehicle fueling space**	7% (5.5)	
with/Food Mart & Car Wash		155/vehicle fueling space**	8% (5.5)	
Older Service Station Design		150/vehicle fueling space, 900/station**	7% (5.5)	
Sales (Dealer & Repair)		50/1000 sq. ft., 300/acre, 60/service stall**	9% (7.3)	
Auto Repair Center		20/1000 sq. ft., 400/acre, 20/service stall**	8% (7.3)	
Auto Parts Sales		60/1000 sq. ft. **	4% (6.4)	
Quick Lube		40/service stall**	7% (6.4)	
Tire Store		25/1000 sq. ft., 30/service stall**	7% (6.4)	
CEMETERY		5/acre*		
CHURCH (or Synagogue)	[64:25:11]	9/1000 sq. ft., 30/acre** (quadruple rates for Sunday, or days of assembly)	5% (6.4)	5.1
COMMERCIAL/RETAIL*				
Super Regional Shopping Center (More than 80 acres, more than 800,000 sq. ft., w/usually 3+ major stores)		35/1000 sq. ft., 400/acre*	4% (7.3)	
Regional Shopping Center (40-80 acres, 400,000-800,000 sq. ft., w/usually 2+ major stores)	[54:35:11]	50/1000 sq. ft., 500/acre*	4% (7.3)	5.2
Community Shopping Center (15-40 acres, 125,000-400,000 sq. ft., w/usually 1 major store, detached restaurant(s), grocery and drugstore)	[47:31:22]	80/1000 sq. ft., 700/acre**	4% (6.4)	3.6
Neighborhood Shopping Center (Less than 15 acres, less than 125,000 sq. ft., w/usually grocery & drugstore, cleaners, beauty & barber shop, & fast food services)		120/1000 sq. ft., 1200/acre**	4% (6.4)	
Commercial Shops	[45:40:15]			4.3
Specialty Retail/Strip Commercial		40/1000 sq. ft., 400/acre*	3% (6.4)	
Electronics Superstore		50/1000 sq. ft.**	10% (5.5)	
Factory Outlet		40/1000 sq. ft.**	3% (7.3)	
Supermarket		150/1000 sq. ft., 2000/acre**	4% (7.3)	
Drugstore		90/1000 sq. ft.**	4% (6.4)	
Convenience Market (15-16 hours)		500/1000 sq. ft.**	8% (5.5)	
Convenience Market (24 hours)		700/1000 sq. ft.**	9% (5.5)	
Convenience Market (w/gasoline pumps)		850/1000 sq. ft., 550/vehicle fueling space**	6% (5.5)	
Discount Club		60/1000 sq. ft., 600/acre**	1% (7.3)	
Discount Store		60/1000 sq. ft., 600/acre**	3% (6.4)	
Furniture Store		6/1000 sq. ft., 100/acre**	4% (7.3)	
Lumber Store		30/1000 sq. ft., 150/acre**	7% (6.4)	
Home Improvement Superstore		40/1000 sq. ft.**	1% (6.4)	
Hardware/Paint Store		60/1000 sq. ft., 600/acre**	2% (6.4)	
Garden Nursery		40/1000 sq. ft., 90/acre**	3% (6.4)	
Mixed Use: Commercial (w/supermarket)/Residential		110/1000 sq. ft., 2000/acre* (commercial only) 5/dwelling unit, 200/acre* (residential only)	3% (6.4) 9% (3.7)	13% (5.5) 13% (6.4)
EDUCATION				
University (4 years)	[91:9:0]	2.4/student, 100 acre*	10% (8.2)	8.9
Junior College (2 years)	[92:7:1]	1.2/student, 24/1000 sq. ft., 120/acre**	12% (8.2)	9.0
High School	[75:19:6]	1.3/student, 15/1000 sq. ft., 60/acre**	20% (7.3)	4.8
Middle/Junior High	[63:25:12]	1.4/student, 12/1000 sq. ft., 50/acre**	30% (6.4)	5.0
Elementary	[57:25:10]	1.6/student, 14/1000 sq. ft., 90/acre**	32% (6.4)	3.4
Day Care	[28:58:14]	5/child, 80/1000 sq. ft.**	17% (5.5)	3.7
FINANCIAL*	[35:42:23]			3.4
Bank (Walk-In only)		150/1000 sq. ft., 1000/acre**	4% (7.3)	
with Drive-Through		200/1000 sq. ft., 1500/acre*	3% (6.4)	
Drive-Through only		250 (125 one-way)/lane*	3% (5.5)	
Savings & Loan		60/1000 sq. ft., 600/acre**	2% (6.4)	
Drive-Through only		100 (50 one-way)/lane**	4% (5.5)	
HOSPITAL	[73:25:2]			8.3
General		20/bed, 25/1000 sq. ft., 250/acre*	8% (7.3)	
Convalescent/Nursing		3/bed**	7% (6.4)	
INDUSTRIAL				
Industrial/Business Park (commercial included)	[79:19:2]	16/1000 sq. ft., 200/acre**	12% (8.2)	9.0
Industrial Park (no commercial)		8/1000 sq. ft., 90/acre**	11% (9.1)	
Industrial Plant (multiple shifts)	[92:5:3]	10/1000 sq. ft., 120/acre*	14% (8.2)	
Manufacturing/Assembly		4/1000 sq. ft., 50/acre**	19% (9.1)	
Warehousing		5/1000 sq. ft., 60/acre**	13% (7.3)	
Storage		2/1000 sq. ft., 0.2/vault, 30/acre*	8% (5.5)	
Science Research & Development		8/1000 sq. ft., 80/acre*	16% (9.1)	
Landfill & Recycling Center		6/acre	11% (5.5)	

(OVER)

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista and County of San Diego

ADVISORY/LIAISON MEMBERS: California Department of Transportation, County Water Authority, U.S. Department of Defense, S.D. Unified Port District and Tijuana/Baja California

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY] ⁶	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio)		TRIP LENGTH (Miles) ¹
			Between 6:00-9:30 A.M.	Between 3:00-6:30 P.M.	
LIBRARY	[44:44:12]	50/1000 sq. ft., 400/acre* *	2% (7:3)	10% (5:5)	3.9
LODGING	[58:38:4]				7.6
Hotel (w/convention facilities/restaurant)		10/occupied room, 300/acre	8% (6:4)	8% (6:4)	
Motel		9/occupied room, 200/acre*	8% (4:6)	9% (6:4)	
Resort Hotel		8/occupied room, 100/acre*	9% (6:4)	7% (4:6)	
Business Hotel		7/occupied room* *	8% (4:6)	9% (6:4)	
MILITARY	[82:16:2]	2.5/military & civilian personnel*	9% (9:1)	10% (2:8)	11.2
OFFICE					
Standard Commercial Office (less than 100,000 sq. ft.)	[77:19:4]	20/1000 sq. ft., 300/acre*	14% (9:1)	13% (2:8)	8.8
Large (High-Rise) Commercial Office (more than 100,000 sq. ft., 6+ stories)	[82:15:3]	17/1000 sq. ft., 600/acre*	13% (9:1)	14% (2:8)	10.0
Office Park (400,000+ sq. ft.)		12/1000 sq. ft., 200/acre* * *	13% (9:1)	13% (2:8)	
Single Tenant Office		14/1000 sq. ft., 180/acre*	15% (9:1)	15% (2:8)	8.8
Corporate Headquarters		7/1000 sq. ft., 110/acre*	17% (9:1)	16% (1:9)	
Government (Civic Center)	[50:34:16]	30/1000 sq. ft.* *	9% (9:1)	12% (3:7)	6.0
Post Office					
Central/Walk-In Only		90/1000 sq. ft.* *	5%	7%	
Community (not including mail drop lane)		200/1000 sq. ft., 1300/acre*	6% (6:4)	9% (5:5)	
Community (w/mail drop lane)		300/1000 sq. ft., 2000/acre*	7% (5:5)	10% (5:5)	
Mail Drop Lane only		1500 (750 one-way)/lane*	7% (5:5)	12% (5:5)	
Department of Motor Vehicles		180/1000 sq. ft., 900/acre* *	6% (6:4)	10% (4:6)	
Medical-Dental	[60:30:10]	50/1000 sq. ft., 500/acre*	6% (8:2)	11% (3:7)	6.4
PARKS	[66:28:6]				5.4
City (developed w/meeting rooms and sports facilities)		50/acre*	4%	8%	
Regional (developed)		20/acre*	13% (5:5)	9% (5:5)	
Neighborhood/County (undeveloped)		5/acre (add for specific sport uses), 6/picnic site* * *			
State (average 1000 acres)		1/acre, 10/picnic site* *			
Amusement (Theme)		80/acre, 130/acre (summer only)* *		8% (6:4)	
San Diego Zoo		115/acre*			
Sea World		80/acre*			
RECREATION	[52:39:9]				6.3
Beach, Ocean or Bay		600/1000 ft. shoreline, 60/acre*			
Beach, Lake (fresh water)		50/1000 ft. shoreline, 5/acre*			
Bowling Center		30/1000 sq. ft., 300/acre, 30/lane* *	7% (7:3)	11% (4:6)	
Campground		4/campsite* *	4%	8%	
Golf Course		7/acre, 40/hole, 700/course* * *	7% (8:2)	9% (3:7)	
Driving Range only		70/acre, 14/tee box*	3% (7:3)	9% (5:5)	
Marinas		4/berth, 20/acre* * *	3% (3:7)	7% (6:4)	
Multi-purpose (miniature golf, video arcade, batting cage, etc.)		90/acre	2%	6%	
Racquetball/Health Club		30/1000 sq. ft., 300/acre, 40/court*	4% (6:4)	9% (6:4)	
Tennis Courts		16/acre, 30/court* *	5%	11% (5:5)	
Sports Facilities					
Outdoor Stadium		50/acre, 0.2/seat*			
Indoor Arena		30/acre, 0.1/seat*			
Racetrack		40/acre, 0.6/seat*			
Theaters (multiplex w/mall/line)	[66:17:17]	80/1000 sq. ft., 1.8/seat, 360/screen*	13%	8% (6:4)	6.1
RESIDENTIAL	[86:11:3]				7.9
Estate, Urban or Rural (average 1-2 DU/acre)		12/dwelling unit* *	8% (3:7)	10% (7:3)	
Single Family Detached (average 3-6 DU/acre)		10/dwelling unit* *	8% (3:7)	10% (7:3)	
Condominium (or any multi-family 6-20 DU/acre)		8/dwelling unit* *	8% (2:8)	10% (7:3)	
Apartment (or any multi-family units more than 20 DU/acre)		6/dwelling unit* *	8% (2:8)	9% (7:3)	
Military Housing (off-base, multi-family) (less than 6 DU/acre)		8/dwelling unit	7% (3:7)	9% (6:4)	
(6-20 DU/acre)		6/dwelling unit	7% (3:7)	9% (6:4)	
Mobile Home					
Family		5/dwelling unit, 40/acre*	8% (3:7)	11% (6:4)	
Adults Only		3/dwelling unit, 20/acre*	9% (3:7)	10% (6:4)	
Retirement Community		4/dwelling unit* *	5% (4:6)	7% (6:4)	
Congregate Care Facility		2.5/dwelling unit* *	4% (6:4)	8% (5:5)	
RESTAURANT ⁵	[51:37:12]				4.7
Quality		100/1000 sq. ft., 3/seat, 500/acre* * *	7% (6:4)	8% (7:3)	
Sit-down, high turnover		160/1000 sq. ft., 6/seat, 1000/acre* * *	8% (5:5)	8% (6:4)	
Fast Food (w/drive-through)		650/1000 sq. ft., 20/seat, 3000/acre* * *	7% (5:5)	7% (5:5)	
Fast Food (without drive-through)		700/1000 sq. ft.* *	5% (6:4)	7% (5:5)	
Delicatessen (7am-4pm)		150/1000 sq. ft., 11/seat*	9% (6:4)	3% (3:7)	
TRANSPORTATION					
Bus Depot		25/1000 sq. ft.* *			
Truck Terminal		10/1000 sq. ft., 7/bay, 80/acre* *	9% (4:6)	8% (5:5)	
Waterport/Marine Terminal		170/berth, 12/acre* *			
Transit Station (Light Rail w/parking)		300/acre, 2 ^{1/2} /parking space (4/occupied)* *	14% (7:3)	15% (3:7)	
Park & Ride Lots		400/acre (600/paved acre), 5/parking space (8/occupied)* * *	14% (7:3)	15% (3:7)	

* Primary source:

* Other sources:

, Trip Generation Rates (other agencies and publications), various SANDAG & CALTRANS studies, reports and estimates

** Trip category percentage ratios are daily from local household surveys, often cannot be applied to very specific land uses, and do not include non-resident drivers

(draft SANDAG, revised November, 1990).

PRIMARY - one trip directly between origin and primary destination.

DIVERTED - linked trip (having one or more stops along the way to a primary destination) whose distance compared to direct distance ≥ 1 mile.

PASS-BY - undiverted or diverted < 1 mile.

¹ Trip lengths are average weighted for all trips to and from general land use site. (All trips system-wide average length = 6.9 miles)

² Fitted curve equation: $\ln(T) = 0.502 \ln(x) + 6.945$ } T = total trips, x = 1,000 sq. ft.

³ Fitted curve equation: $\ln(T) = 0.756 \ln(x) + 3.950$ }

⁴ Fitted curve equation: $1 = -2.169 \ln(d) + 12.85$ } l = trips/DU, d = density (DU/acre), DU = dwelling unit

* Suggested PASS-BY (undiverted or diverted < 1 mile) percentages for trip rate reductions only

during P.M. peak period (based on combination of local data review and other sources**)

COMMERCIAL/RETAIL

Regional Shopping Center	20%
Community	30%
Neighborhood	40%
Specialty Retail/Strip Commercial (other)	10%
Supermarket	40%
Convenience Market	50%
Discount Club/Store	30%

FINANCIAL

Bank	25%
------	-----

AUTOMOBILE

Gasoline Station	50%
------------------	-----

RESTAURANT

Quality	10%
Sit-down high turnover	20%
Fast Food	40%

* Trip Reductions - In order to help promote regional "smart growth" policies, and acknowledge San Diego's expanding mass transit system, consider vehicle trip rate reductions (with proper documentation and necessary adjustments for peak periods). The following are some examples:

[1] A 5% daily trip reduction for land uses with transit access or near transit stations accessible within 1/4 mile

[2] Up to 10% daily trip reduction for mixed-use developments where residential and commercial retail are combined (demonstrate mode split of walking trips to replace vehicular trips)

Appendix K

Imperial County Cumulative Project Maps

Appendix L

Year 2019 Intersection LOS Calculations

AM Year 2019
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	7	10	2	6	0	10	5	1	0	3	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	3	9	13	3	8	0	13	6	1	0	4	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	51	47	14	58	48	17	10	0	0	13	0	0
Stage 1	9	9	-	38	38	-	-	-	-	-	-	-
Stage 2	42	38	-	20	10	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	941	839	1057	931	838	1053	1590	-	-	1586	-	-
Stage 1	1004	882	-	970	857	-	-	-	-	-	-	-
Stage 2	965	857	-	991	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	921	825	1048	899	824	1044	1583	-	-	1579	-	-
Mov Cap-2 Maneuver	921	825	-	899	824	-	-	-	-	-	-	-
Stage 1	992	878	-	958	847	-	-	-	-	-	-	-
Stage 2	945	847	-	965	877	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.9			9.3			4.6			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1583	-	-	941	842	1579	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.026	0.012	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.9	9.3	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

AM Year 2019
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	4	4	18	4	0	21
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	5	5	24	5	0	28
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	59	36	0	0	34	0
Stage 1	31	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	940	1028	-	-	1558	-
Stage 1	984	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	932	1019	-	-	1552	-
Mov Cap-2 Maneuver	932	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.7		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 974	1552	-		
HCM Lane V/C Ratio	-	- 0.011	-	-		
HCM Control Delay (s)	-	- 8.7	0	-		
HCM Lane LOS	-	- A	A	-		
HCM 95th %tile Q(veh)	-	- 0	0	-		

AM Year 2019
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	3	0	8	4	1	2	0	7	0	3	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	4	0	11	6	1	3	0	10	0	4	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	9	0	0	50	47	14	51	46	16
Stage 1	-	-	-	-	-	-	12	12	-	34	34	-
Stage 2	-	-	-	-	-	-	38	35	-	17	12	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1587	-	-	1591	-	-	942	839	1057	941	840	1055
Stage 1	-	-	-	-	-	-	1001	880	-	974	861	-
Stage 2	-	-	-	-	-	-	970	860	-	995	880	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1580	-	-	1584	-	-	922	825	1048	919	826	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	922	825	-	919	826	-
Stage 1	-	-	-	-	-	-	996	875	-	969	851	-
Stage 2	-	-	-	-	-	-	952	850	-	980	875	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.8			4.5			8.6			9		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1017	1580	-	-	1584	-	-	902				
HCM Lane V/C Ratio	0.013	0.001	-	-	0.007	-	-	0.008				
HCM Control Delay (s)	8.6	7.3	0	-	7.3	0	-	9				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0				

AM Year 2019
4: SR-115 & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	4	3	40	7	11	1	113	8	17	88	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	3	4	3	44	8	12	1	126	9	19	98	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	289	284	109	283	280	140	105	0	0	139	0	0
Stage 1	142	142	-	137	137	-	-	-	-	-	-	-
Stage 2	147	142	-	146	143	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	657	620	937	663	623	900	1468	-	-	1426	-	-
Stage 1	854	774	-	859	777	-	-	-	-	-	-	-
Stage 2	849	774	-	850	773	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	629	606	929	644	609	893	1462	-	-	1420	-	-
Mov Cap-2 Maneuver	629	606	-	644	609	-	-	-	-	-	-	-
Stage 1	850	760	-	855	773	-	-	-	-	-	-	-
Stage 2	825	770	-	827	759	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.3			10.9			0.1			1.2		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1462	-	-	685	675	1420	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.016	0.095	0.013	-	-				
HCM Control Delay (s)	7.5	0	-	10.3	10.9	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-				

AM Year 2019
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection												
Intersection Delay, s/veh	7.4											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	0	12	25	0	11	44	7	0	10	14	7
Peak Hour Factor	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	0	16	33	0	14	58	9	0	13	18	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7	7.6	7.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	0%	18%	11%
Vol Thru, %	45%	32%	71%	68%
Vol Right, %	23%	68%	11%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	37	62	28
LT Vol	10	0	11	3
Through Vol	14	12	44	19
RT Vol	7	25	7	6
Lane Flow Rate	41	49	82	37
Geometry Grp	1	1	1	1
Degree of Util (X)	0.047	0.051	0.093	0.042
Departure Headway (Hd)	4.168	3.776	4.124	4.135
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	851	940	865	858
Service Time	2.231	1.833	2.17	2.199
HCM Lane V/C Ratio	0.048	0.052	0.095	0.043
HCM Control Delay	7.4	7	7.6	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.3	0.1

Intersection				
Intersection Delay, s/veh				
Intersection LOS				
Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	3	19	6
Peak Hour Factor	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	4	25	8
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		7.4		
HCM LOS		A		
Lane				

AM Year 2019
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	18	4	53	43	4	6	5	33	4	10	4
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	30	7	88	72	7	10	8	55	7	17	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	83	0	0	42	0	0	310	302	43	330	302	85
Stage 1	-	-	-	-	-	-	42	42	-	257	257	-
Stage 2	-	-	-	-	-	-	268	260	-	73	45	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1495	-	-	1548	-	-	637	606	1019	618	606	966
Stage 1	-	-	-	-	-	-	965	854	-	741	689	-
Stage 2	-	-	-	-	-	-	731	687	-	929	852	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1489	-	-	1542	-	-	585	564	1011	546	564	958
Mov Cap-2 Maneuver	-	-	-	-	-	-	585	564	-	546	564	-
Stage 1	-	-	-	-	-	-	960	850	-	737	645	-
Stage 2	-	-	-	-	-	-	662	643	-	865	848	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			4			9.6			11.1		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	850	1489	-	-	1542	-	-	616				
HCM Lane V/C Ratio	0.086	0.001	-	-	0.057	-	-	0.049				
HCM Control Delay (s)	9.6	7.4	0	-	7.5	0	-	11.1				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.2				

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	18	13	26	7	19	33
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	35	25	51	14	37	65
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	222	108	0	0	90	0
Stage 1	83	-	-	-	-	-
Stage 2	139	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	760	938	-	-	1486	-
Stage 1	933	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	710	899	-	-	1455	-
Mov Cap-2 Maneuver	710	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	10		0		2.8	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 779	1455	-		
HCM Lane V/C Ratio	-	- 0.078	0.026	-		
HCM Control Delay (s)	-	- 10	7.5	0		
HCM Lane LOS	-	- B	A	A		
HCM 95th %tile Q(veh)	-	- 0.3	0.1	-		

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	3	2	47	4	22	1	100	32	22	107	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	1	3	2	51	4	24	1	109	35	24	116	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	318	322	128	306	305	136	125	0	0	148	0	0
Stage 1	171	171	-	133	133	-	-	-	-	-	-	-
Stage 2	147	151	-	173	172	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	629	590	914	641	603	905	1443	-	-	1415	-	-
Stage 1	824	752	-	863	781	-	-	-	-	-	-	-
Stage 2	849	767	-	822	751	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	595	574	906	622	587	897	1437	-	-	1409	-	-
Mov Cap-2 Maneuver	595	574	-	622	587	-	-	-	-	-	-	-
Stage 1	820	735	-	859	777	-	-	-	-	-	-	-
Stage 2	818	763	-	798	734	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.5			11			0.1			1.3		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1437	-	-	658	683	1409	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.01	0.116	0.017	-	-				
HCM Control Delay (s)	7.5	0	-	10.5	11	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0.1	-	-				

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	16	65	62	31	35	21
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	25	100	95	48	54	32

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	148	0	273
Stage 1	-	-	124
Stage 2	-	-	149
Critical Hdwy	4.15	-	6.45
Critical Hdwy Stg 1	-	-	5.45
Critical Hdwy Stg 2	-	-	5.45
Follow-up Hdwy	2.245	-	3.545
Pot Cap-1 Maneuver	1415	-	710
Stage 1	-	-	894
Stage 2	-	-	871
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1409	-	691
Mov Cap-2 Maneuver	-	-	691
Stage 1	-	-	890
Stage 2	-	-	851

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1409	-	-	-	758
HCM Lane V/C Ratio	0.017	-	-	-	0.114
HCM Control Delay (s)	7.6	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

PM Year 2019
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	6	8	1	3	2	8	5	5	0	1	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	8	11	1	4	3	11	7	7	0	1	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	45	45	11	52	42	20	6	0	0	18	0	0
Stage 1	6	6	-	36	36	-	-	-	-	-	-	-
Stage 2	39	39	-	16	6	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	949	841	1061	940	844	1049	1595	-	-	1579	-	-
Stage 1	1008	885	-	972	859	-	-	-	-	-	-	-
Stage 2	968	857	-	996	885	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	930	828	1052	911	831	1040	1588	-	-	1572	-	-
Mov Cap-2 Maneuver	930	828	-	911	831	-	-	-	-	-	-	-
Stage 1	997	881	-	961	849	-	-	-	-	-	-	-
Stage 2	950	847	-	973	881	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.9			9			3.2			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1588	-	-	942	905	1572	-	-				
HCM Lane V/C Ratio	0.007	-	-	0.021	0.009	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.9	9	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection

Int Delay, s/veh 2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	5	17	3	3	8
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	7	7	24	4	4	11

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	51	36	0
Stage 1	31	-	-
Stage 2	20	-	-
Critical Hdwy	6.45	6.25	4.15
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	2.245
Pot Cap-1 Maneuver	950	1028	1560
Stage 1	984	-	-
Stage 2	995	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	939	1019	1554
Mov Cap-2 Maneuver	939	-	-
Stage 1	980	-	-
Stage 2	988	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 977	1554	-
HCM Lane V/C Ratio	-	- 0.014	0.003	-
HCM Control Delay (s)	-	- 8.7	7.3	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0	0	-

PM Year 2019

3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	8	3	0	5	0	3	0	4	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	63	63	63	63	63	63	63	63	63
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	13	5	0	8	0	5	0	6	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	13	0	0	22	0	0	33	33	25	36	35	18
Stage 1	-	-	-	-	-	-	20	20	-	13	13	-
Stage 2	-	-	-	-	-	-	13	13	-	23	22	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1586	-	-	1574	-	-	967	854	1043	962	852	1052
Stage 1	-	-	-	-	-	-	991	873	-	1000	879	-
Stage 2	-	-	-	-	-	-	1000	879	-	987	871	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1579	-	-	1567	-	-	959	847	1034	948	845	1043
Mov Cap-2 Maneuver	-	-	-	-	-	-	959	847	-	948	845	-
Stage 1	-	-	-	-	-	-	987	869	-	996	875	-
Stage 2	-	-	-	-	-	-	996	875	-	977	867	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			8.6			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1000	1579	-	-	1567	-	-	-				
HCM Lane V/C Ratio	0.011	-	-	-	-	-	-	-				
HCM Control Delay (s)	8.6	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-				

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	12	2	13	6	6	4	94	16	19	164	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	2	13	2	14	7	7	4	103	18	21	180	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	360	363	191	362	355	122	187	0	0	126	0	0
Stage 1	228	228	-	126	126	-	-	-	-	-	-	-
Stage 2	132	135	-	236	229	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	590	560	843	588	566	921	1369	-	-	1442	-	-
Stage 1	768	710	-	871	786	-	-	-	-	-	-	-
Stage 2	864	779	-	760	709	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	567	545	836	563	551	913	1363	-	-	1436	-	-
Mov Cap-2 Maneuver	567	545	-	563	551	-	-	-	-	-	-	-
Stage 1	763	696	-	865	780	-	-	-	-	-	-	-
Stage 2	844	773	-	729	695	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	11.5			11.1			0.3			0.8		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1363	-	-	573	616	1436	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.031	0.045	0.015	-	-				
HCM Control Delay (s)	7.7	0	-	11.5	11.1	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

PM Year 2019
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection												
Intersection Delay, s/veh	7.3											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	3	31	29	0	8	17	0	0	24	6	8
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	3	36	33	0	9	20	0	0	28	7	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.2	7.4	7.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	63%	5%	32%	27%
Vol Thru, %	16%	49%	68%	60%
Vol Right, %	21%	46%	0%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	63	25	15
LT Vol	24	3	8	4
Through Vol	6	31	17	9
RT Vol	8	29	0	2
Lane Flow Rate	44	72	29	17
Geometry Grp	1	1	1	1
Degree of Util (X)	0.051	0.077	0.034	0.02
Departure Headway (Hd)	4.173	3.846	4.209	4.168
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	854	928	847	854
Service Time	2.219	1.886	2.254	2.219
HCM Lane V/C Ratio	0.052	0.078	0.034	0.02
HCM Control Delay	7.4	7.2	7.4	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.1	0.1

Intersection				
Intersection Delay, s/veh				
Intersection LOS				
Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	9	2
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	5	10	2
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		7.3		
HCM LOS		A		
Lane				

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	40	5	11	21	7	2	3	8	2	3	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	53	7	14	28	9	3	4	11	3	4	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	42	0	0	64	0	0	132	135	66	137	133	42
Stage 1	-	-	-	-	-	-	64	64	-	66	66	-
Stage 2	-	-	-	-	-	-	68	71	-	71	67	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1548	-	-	1519	-	-	833	750	989	827	752	1020
Stage 1	-	-	-	-	-	-	939	836	-	937	834	-
Stage 2	-	-	-	-	-	-	935	830	-	931	833	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1542	-	-	1513	-	-	816	736	981	802	738	1012
Mov Cap-2 Maneuver	-	-	-	-	-	-	816	736	-	802	738	-
Stage 1	-	-	-	-	-	-	934	832	-	932	823	-
Stage 2	-	-	-	-	-	-	918	819	-	912	829	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			2.1			9.1			9.8		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	885	1542	-	-	1513	-	-	762				
HCM Lane V/C Ratio	0.019	0.001	-	-	0.01	-	-	0.009				
HCM Control Delay (s)	9.1	7.3	0	-	7.4	0	-	9.8				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Intersection

Int Delay, s/veh 2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	10	8	40	13	6	32
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	11	8	42	14	6	34

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	120	99	0 0 81 0
Stage 1	74	-	- - - -
Stage 2	46	-	- - - -
Critical Hdwy	6.45	6.25	- - 4.15 -
Critical Hdwy Stg 1	5.45	-	- - - -
Critical Hdwy Stg 2	5.45	-	- - - -
Follow-up Hdwy	3.545	3.345	- - 2.245 -
Pot Cap-1 Maneuver	868	949	- - 1498 -
Stage 1	941	-	- - - -
Stage 2	969	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	829	910	- - 1467 -
Mov Cap-2 Maneuver	829	-	- - - -
Stage 1	921	-	- - - -
Stage 2	945	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 863	1467	-
HCM Lane V/C Ratio	-	- 0.022	0.004	-
HCM Control Delay (s)	-	- 9.3	7.5	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

PM Year 2019
8: SR-115 & Zenos Rd (6th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	3	0	52	6	24	1	87	41	24	153	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	0	3	0	60	7	28	1	101	48	28	178	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	389	395	188	373	372	135	184	0	0	154	0	0
Stage 1	239	239	-	132	132	-	-	-	-	-	-	-
Stage 2	150	156	-	241	240	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	565	537	846	578	553	906	1373	-	-	1408	-	-
Stage 1	758	702	-	864	781	-	-	-	-	-	-	-
Stage 2	845	763	-	756	701	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	528	520	839	560	536	898	1367	-	-	1402	-	-
Mov Cap-2 Maneuver	528	520	-	560	536	-	-	-	-	-	-	-
Stage 1	754	684	-	860	777	-	-	-	-	-	-	-
Stage 2	807	759	-	733	683	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12			11.8			0.1			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1367	-	-	520	627	1402	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.007	0.152	0.02	-	-				
HCM Control Delay (s)	7.6	0	-	12	11.8	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-				

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	26	62	60	31	29	21
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	32	78	75	39	36	26
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	119	0	-	0	242	104
Stage 1	-	-	-	-	99	-
Stage 2	-	-	-	-	143	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1451	-	-	-	740	943
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	877	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1445	-	-	-	716	935
Mov Cap-2 Maneuver	-	-	-	-	716	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	852	-
Approach	EB		WB		SB	
HCM Control Delay, s	2.2		0		9.9	
HCM LOS					A	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1445	-	-	-	794	
HCM Lane V/C Ratio	0.022	-	-	-	0.079	
HCM Control Delay (s)	7.5	0	-	-	9.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	

Appendix M

Year 2019 + Project Intersection LOS Calculations

AM Year 2019 + Project
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	7	12	2	6	0	16	5	1	0	3	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	3	9	15	3	8	0	21	6	1	0	4	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	66	63	14	75	63	17	10	0	0	13	0	0
Stage 1	9	9	-	53	53	-	-	-	-	-	-	-
Stage 2	57	54	-	22	10	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	920	822	1057	908	822	1053	1590	-	-	1586	-	-
Stage 1	1004	882	-	952	845	-	-	-	-	-	-	-
Stage 2	947	844	-	989	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	897	805	1048	871	805	1044	1583	-	-	1579	-	-
Mov Cap-2 Maneuver	897	805	-	871	805	-	-	-	-	-	-	-
Stage 1	987	878	-	936	831	-	-	-	-	-	-	-
Stage 2	922	830	-	961	877	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.9			9.4			5.3			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1583	-	-	939	821	1579	-	-				
HCM Lane V/C Ratio	0.013	-	-	0.029	0.012	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.9	9.4	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

AM Year 2019 + Project
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	4	7	21	4	1	22
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	5	9	28	5	1	29
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	67	40	0	0	38	0
Stage 1	35	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	931	1023	-	-	1553	-
Stage 1	980	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	922	1014	-	-	1547	-
Mov Cap-2 Maneuver	922	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.7		0		0.3	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 978	1547	-		
HCM Lane V/C Ratio	-	- 0.015	0.001	-		
HCM Control Delay (s)	-	- 8.7	7.3	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0	0	-		

AM Year 2019 + Project
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	4	0	8	4	1	2	0	7	0	3	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	6	0	11	6	1	3	0	10	0	4	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	11	0	0	52	49	16	53	48	16
Stage 1	-	-	-	-	-	-	14	14	-	34	34	-
Stage 2	-	-	-	-	-	-	38	35	-	19	14	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1587	-	-	1589	-	-	940	837	1055	938	838	1055
Stage 1	-	-	-	-	-	-	998	878	-	974	861	-
Stage 2	-	-	-	-	-	-	970	860	-	992	878	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1580	-	-	1582	-	-	920	823	1046	916	824	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	920	823	-	916	824	-
Stage 1	-	-	-	-	-	-	993	873	-	969	851	-
Stage 2	-	-	-	-	-	-	952	850	-	977	873	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			4.5			8.6			9		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1015	1580	-	-	1582	-	-	900				
HCM Lane V/C Ratio	0.013	0.001	-	-	0.007	-	-	0.008				
HCM Control Delay (s)	8.6	7.3	0	-	7.3	0	-	9				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0				

AM Year 2019 + Project
4: SR-115 & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	4	3	65	7	17	1	113	14	19	88	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	3	4	3	72	8	19	1	126	16	21	98	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	300	294	109	291	288	143	105	0	0	146	0	0
Stage 1	146	146	-	141	141	-	-	-	-	-	-	-
Stage 2	154	148	-	150	147	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	646	612	937	655	617	897	1468	-	-	1418	-	-
Stage 1	850	770	-	855	774	-	-	-	-	-	-	-
Stage 2	841	769	-	845	770	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	613	597	929	635	601	890	1462	-	-	1412	-	-
Mov Cap-2 Maneuver	613	597	-	635	601	-	-	-	-	-	-	-
Stage 1	846	755	-	851	770	-	-	-	-	-	-	-
Stage 2	811	765	-	820	755	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.4			11.3			0.1			1.3		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1462	-	-	675	669	1412	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.016	0.148	0.015	-	-				
HCM Control Delay (s)	7.5	0	-	10.4	11.3	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0	-	-				

Intersection												
Intersection Delay, s/veh	7.7											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	8	12	25	0	11	44	8	0	10	19	7
Peak Hour Factor	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	11	16	33	0	14	58	11	0	13	25	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.4	7.8	7.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	18%	17%	7%
Vol Thru, %	53%	27%	70%	48%
Vol Right, %	19%	56%	13%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	45	63	82
LT Vol	10	8	11	6
Through Vol	19	12	44	39
RT Vol	7	25	8	37
Lane Flow Rate	47	59	83	108
Geometry Grp	1	1	1	1
Degree of Util (X)	0.056	0.066	0.098	0.12
Departure Headway (Hd)	4.256	4.021	4.259	4.012
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	828	876	830	880
Service Time	2.35	2.116	2.345	2.096
HCM Lane V/C Ratio	0.057	0.067	0.1	0.123
HCM Control Delay	7.6	7.4	7.8	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-ile Q	0.2	0.2	0.3	0.4

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	39	37
Peak Hour Factor	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	8	51	49
Number of Lanes	0	0	1	0

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

Lane

AM Year 2019 + Project
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		5.5										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	20	5	53	44	4	6	5	33	4	10	4
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	33	8	88	73	7	10	8	55	7	17	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	85	0	0	47	0	0	316	308	48	336	308	87
Stage 1	-	-	-	-	-	-	46	46	-	258	258	-
Stage 2	-	-	-	-	-	-	270	262	-	78	50	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1493	-	-	1541	-	-	631	601	1012	612	601	963
Stage 1	-	-	-	-	-	-	960	851	-	740	689	-
Stage 2	-	-	-	-	-	-	729	686	-	923	847	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1487	-	-	1535	-	-	579	560	1004	541	560	955
Mov Cap-2 Maneuver	-	-	-	-	-	-	579	560	-	541	560	-
Stage 1	-	-	-	-	-	-	955	847	-	736	645	-
Stage 2	-	-	-	-	-	-	660	642	-	859	843	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.9			9.7			11.2		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	844	1487	-	-	1535	-	-	611				
HCM Lane V/C Ratio	0.087	0.001	-	-	0.058	-	-	0.049				
HCM Control Delay (s)	9.7	7.4	0	-	7.5	0	-	11.2				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.2				

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	18	13	31	7	20	52
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	35	25	61	14	39	102
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	273	118	0	0	100	0
Stage 1	93	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	710	926	-	-	1474	-
Stage 1	923	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	661	888	-	-	1443	-
Mov Cap-2 Maneuver	661	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.3	0		2.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	740	1443	-	
HCM Lane V/C Ratio	-	-	0.082	0.027	-	
HCM Control Delay (s)	-	-	10.3	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-	

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	3	2	65	4	22	1	106	37	22	132	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	1	3	2	71	4	24	1	115	40	24	143	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	355	361	155	344	343	145	152	0	0	160	0	0
Stage 1	198	198	-	143	143	-	-	-	-	-	-	-
Stage 2	157	163	-	201	200	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	595	561	883	605	575	894	1411	-	-	1401	-	-
Stage 1	797	732	-	853	773	-	-	-	-	-	-	-
Stage 2	838	758	-	794	730	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	562	545	876	587	559	887	1405	-	-	1395	-	-
Mov Cap-2 Maneuver	562	545	-	587	559	-	-	-	-	-	-	-
Stage 1	793	715	-	849	769	-	-	-	-	-	-	-
Stage 2	807	754	-	770	713	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.8			11.7			0.1			1.1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1405	-	-	627	638	1395	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.01	0.155	0.017	-	-				
HCM Control Delay (s)	7.6	0	-	10.8	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-				

AM Year 2019 + Project
9: Zenos Rd (6th St) & Melon Rd

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	21	65	62	31	36	39
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	32	100	95	48	55	60
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	148	0	-	0	289	129
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	165	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1415	-	-	-	695	913
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	857	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1409	-	-	-	673	905
Mov Cap-2 Maneuver	-	-	-	-	673	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	833	-
Approach	EB		WB		SB	
HCM Control Delay, s	1.9		0		10.4	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1409	-	-	-	777	
HCM Lane V/C Ratio	0.023	-	-	-	0.149	
HCM Control Delay (s)	7.6	0	-	-	10.4	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	

AM Year 2019 + Project
10: Project Access & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	4	1	0	8	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	4	1	0	9	3	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	5	0	14	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	9	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1597	-	997	1069
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1597	-	997	1069
Mov Cap-2 Maneuver	-	-	-	-	997	-
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	1006	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1014	-	-	1597	-	
HCM Lane V/C Ratio	0.004	-	-	-	-	
HCM Control Delay (s)	8.6	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

AM Year 2019 + Project
11: Melon Rd & Project Access

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	54	3	22	14	1	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	59	3	24	15	1	30
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	65	32	0	0	39	0
Stage 1	32	-	-	-	-	-
Stage 2	33	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	933	1033	-	-	1552	-
Stage 1	983	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	932	1033	-	-	1552	-
Mov Cap-2 Maneuver	932	-	-	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		0.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	937	1552	-	
HCM Lane V/C Ratio	-	-	0.066	0.001	-	
HCM Control Delay (s)	-	-	9.1	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

PM Year 2019 + Project
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	6	14	1	3	2	12	5	5	0	1	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	8	18	1	4	3	16	7	7	0	1	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	56	56	11	65	52	20	6	0	0	18	0	0
Stage 1	6	6	-	46	46	-	-	-	-	-	-	-
Stage 2	50	50	-	19	6	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	934	829	1061	921	834	1049	1595	-	-	1579	-	-
Stage 1	1008	885	-	960	851	-	-	-	-	-	-	-
Stage 2	956	847	-	992	885	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	913	814	1052	884	819	1040	1588	-	-	1572	-	-
Mov Cap-2 Maneuver	913	814	-	884	819	-	-	-	-	-	-	-
Stage 1	994	881	-	946	839	-	-	-	-	-	-	-
Stage 2	936	835	-	962	881	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.8			9.1			4			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1588	-	-	964	893	1572	-	-				
HCM Lane V/C Ratio	0.01	-	-	0.029	0.009	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.8	9.1	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

PM Year 2019 + Project
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	7	19	3	6	11
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	7	10	27	4	8	15
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	66	39	0	0	36	0
Stage 1	34	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	932	1024	-	-	1556	-
Stage 1	981	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	920	1015	-	-	1550	-
Mov Cap-2 Maneuver	920	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.8		0		2.6	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 973	1550	-		
HCM Lane V/C Ratio	-	- 0.017	0.005	-		
HCM Control Delay (s)	-	- 8.8	7.3	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

PM Year 2019 + Project
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	8	3	0	6	0	3	0	4	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	63	63	63	63	63	63	63	63	63
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	13	5	0	10	0	5	0	6	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	15	0	0	22	0	0	35	35	25	38	37	20
Stage 1	-	-	-	-	-	-	20	20	-	15	15	-
Stage 2	-	-	-	-	-	-	15	15	-	23	22	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1583	-	-	1574	-	-	964	852	1043	959	849	1049
Stage 1	-	-	-	-	-	-	991	873	-	997	877	-
Stage 2	-	-	-	-	-	-	997	877	-	987	871	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1576	-	-	1567	-	-	956	845	1034	945	842	1040
Mov Cap-2 Maneuver	-	-	-	-	-	-	956	845	-	945	842	-
Stage 1	-	-	-	-	-	-	987	869	-	993	873	-
Stage 2	-	-	-	-	-	-	993	873	-	977	867	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			8.6			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	999	1576	-	-	1567	-	-	-				
HCM Lane V/C Ratio	0.011	-	-	-	-	-	-	-				
HCM Control Delay (s)	8.6	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-				

Intersection												
Int Delay, s/veh		2.3										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	12	2	27	6	9	4	94	42	25	164	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	2	13	2	30	7	10	4	103	46	27	180	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	389	404	191	389	382	136	187	0	0	154	0	0
Stage 1	241	241	-	140	140	-	-	-	-	-	-	-
Stage 2	148	163	-	249	242	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	565	531	843	565	546	905	1369	-	-	1408	-	-
Stage 1	756	701	-	856	775	-	-	-	-	-	-	-
Stage 2	848	758	-	748	700	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	539	514	836	538	528	897	1363	-	-	1402	-	-
Mov Cap-2 Maneuver	539	514	-	538	528	-	-	-	-	-	-	-
Stage 1	751	683	-	850	769	-	-	-	-	-	-	-
Stage 2	826	753	-	713	682	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	11.9			11.7			0.2			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1363	-	-	543	587	1402	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.032	0.079	0.02	-	-				
HCM Control Delay (s)	7.7	0	-	11.9	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.1	-	-				

Intersection												
Intersection Delay, s/veh	7.7											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	35	31	29	0	8	17	3	0	24	27	8
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	40	36	33	0	9	20	3	0	28	31	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

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

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	37%	29%	13%
Vol Thru, %	46%	33%	61%	44%
Vol Right, %	14%	31%	11%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	95	28	45
LT Vol	24	35	8	6
Through Vol	27	31	17	20
RT Vol	8	29	3	19
Lane Flow Rate	68	109	32	52
Geometry Grp	1	1	1	1
Degree of Util (X)	0.08	0.125	0.038	0.058
Departure Headway (Hd)	4.271	4.107	4.269	4.056
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	828	864	826	869
Service Time	2.354	2.177	2.358	2.147
HCM Lane V/C Ratio	0.082	0.126	0.039	0.06
HCM Control Delay	7.7	7.8	7.5	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	0.1	0.2

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	20	19
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	7	23	22
Number of Lanes	0	0	1	0

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

Lane

Intersection												
Int Delay, s/veh		2.5										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	41	6	11	23	7	3	3	8	2	3	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	54	8	14	30	9	4	4	11	3	4	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	44	0	0	67	0	0	137	139	68	142	138	45
Stage 1	-	-	-	-	-	-	66	66	-	69	69	-
Stage 2	-	-	-	-	-	-	71	73	-	73	69	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1545	-	-	1516	-	-	827	746	987	821	747	1016
Stage 1	-	-	-	-	-	-	937	834	-	934	832	-
Stage 2	-	-	-	-	-	-	931	828	-	929	832	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1539	-	-	1510	-	-	811	732	979	796	733	1008
Mov Cap-2 Maneuver	-	-	-	-	-	-	811	732	-	796	733	-
Stage 1	-	-	-	-	-	-	932	830	-	929	821	-
Stage 2	-	-	-	-	-	-	914	817	-	910	828	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			2			9.2			9.8		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	877	1539	-	-	1510	-	-	757				
HCM Lane V/C Ratio	0.021	0.001	-	-	0.01	-	-	0.009				
HCM Control Delay (s)	9.2	7.3	0	-	7.4	0	-	9.8				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	10	9	60	13	6	43
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	11	9	63	14	6	45
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	153	120	0	0	102	0
Stage 1	95	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	832	923	-	-	1471	-
Stage 1	921	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	795	885	-	-	1440	-
Mov Cap-2 Maneuver	795	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	9.4		0		0.9	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 835	1440	-		
HCM Lane V/C Ratio	-	- 0.024	0.004	-		
HCM Control Delay (s)	-	- 9.4	7.5	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

PM Year 2019 + Project
8: SR-115 & Zenos Rd (6th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	3	0	62	6	24	1	113	60	24	167	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	0	3	0	72	7	28	1	131	70	28	194	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	447	464	205	431	430	176	200	0	0	206	0	0
Stage 1	256	256	-	174	174	-	-	-	-	-	-	-
Stage 2	191	208	-	257	256	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	517	491	828	529	513	859	1354	-	-	1348	-	-
Stage 1	742	690	-	821	749	-	-	-	-	-	-	-
Stage 2	804	724	-	741	690	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	482	475	821	512	497	852	1348	-	-	1342	-	-
Mov Cap-2 Maneuver	482	475	-	512	497	-	-	-	-	-	-	-
Stage 1	738	671	-	817	745	-	-	-	-	-	-	-
Stage 2	766	720	-	717	671	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.6			12.8			0			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1348	-	-	475	570	1342	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.007	0.188	0.021	-	-				
HCM Control Delay (s)	7.7	0	-	12.6	12.8	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.1	-	-				

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	45	62	60	32	30	31
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	56	78	75	40	38	39
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	120	0	-	0	290	105
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	190	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1449	-	-	-	694	941
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	835	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1443	-	-	-	660	933
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	797	-
Approach	EB		WB		SB	
HCM Control Delay, s	3.2		0		10.2	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1443	-	-	-	775	
HCM Lane V/C Ratio	0.039	-	-	-	0.098	
HCM Control Delay (s)	7.6	0	-	-	10.2	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	

PM Year 2019 + Project
10: Project Access & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	6	3	1	10	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	7	3	1	11	2	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	10	0	21	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	13	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1590	-	988	1065
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	1002	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1590	-	987	1065
Mov Cap-2 Maneuver	-	-	-	-	987	-
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	1001	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.7		8.7	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	987	-	-	1590	-	
HCM Lane V/C Ratio	0.002	-	-	0.001	-	
HCM Control Delay (s)	8.7	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	30	2	9	56	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	33	2	10	61	3	17
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	64	40	0	0	71	0
Stage 1	40	-	-	-	-	-
Stage 2	24	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	934	1023	-	-	1510	-
Stage 1	975	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	932	1023	-	-	1510	-
Mov Cap-2 Maneuver	932	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		1.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 937	1510	-		
HCM Lane V/C Ratio	-	- 0.037	0.002	-		
HCM Control Delay (s)	-	- 9	7.4	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

Appendix N

Year 2019 + Project + Cumulative Intersection LOS Calculations

AM Year 2019 + Project + Cumulative
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	7	12	2	6	0	16	5	1	0	3	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	3	9	15	3	8	0	21	6	1	0	4	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	66	63	14	75	63	17	10	0	0	13	0	0
Stage 1	9	9	-	53	53	-	-	-	-	-	-	-
Stage 2	57	54	-	22	10	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	920	822	1057	908	822	1053	1590	-	-	1586	-	-
Stage 1	1004	882	-	952	845	-	-	-	-	-	-	-
Stage 2	947	844	-	989	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	897	805	1048	871	805	1044	1583	-	-	1579	-	-
Mov Cap-2 Maneuver	897	805	-	871	805	-	-	-	-	-	-	-
Stage 1	987	878	-	936	831	-	-	-	-	-	-	-
Stage 2	922	830	-	961	877	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.9			9.4			5.3			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1583	-	-	939	821	1579	-	-				
HCM Lane V/C Ratio	0.013	-	-	0.029	0.012	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.9	9.4	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

AM Year 2019 + Project + Cumulative
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	4	7	21	4	1	22
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	5	9	28	5	1	29

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	67	40	0
Stage 1	35	-	-
Stage 2	32	-	-
Critical Hdwy	6.45	6.25	4.15
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	2.245
Pot Cap-1 Maneuver	931	1023	1553
Stage 1	980	-	-
Stage 2	983	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	922	1014	1547
Mov Cap-2 Maneuver	922	-	-
Stage 1	976	-	-
Stage 2	978	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 978	1547	-
HCM Lane V/C Ratio	-	- 0.015	0.001	-
HCM Control Delay (s)	-	- 8.7	7.3	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0	0	-

AM Year 2019 + Project + Cumulative
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	4	0	8	4	1	2	0	7	0	3	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	6	0	11	6	1	3	0	10	0	4	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	11	0	0	52	49	16	53	48	16
Stage 1	-	-	-	-	-	-	14	14	-	34	34	-
Stage 2	-	-	-	-	-	-	38	35	-	19	14	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1587	-	-	1589	-	-	940	837	1055	938	838	1055
Stage 1	-	-	-	-	-	-	998	878	-	974	861	-
Stage 2	-	-	-	-	-	-	970	860	-	992	878	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1580	-	-	1582	-	-	920	823	1046	916	824	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	920	823	-	916	824	-
Stage 1	-	-	-	-	-	-	993	873	-	969	851	-
Stage 2	-	-	-	-	-	-	952	850	-	977	873	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			4.5			8.6			9		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1015	1580	-	-	1582	-	-	900				
HCM Lane V/C Ratio	0.013	0.001	-	-	0.007	-	-	0.008				
HCM Control Delay (s)	8.6	7.3	0	-	7.3	0	-	9				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0				

AM Year 2019 + Project + Cumulative
4: SR-115 & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		3.7										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	4	3	65	7	17	1	114	14	19	89	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	3	4	3	72	8	19	1	127	16	21	99	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	302	296	110	293	290	144	106	0	0	147	0	0
Stage 1	147	147	-	142	142	-	-	-	-	-	-	-
Stage 2	155	149	-	151	148	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	644	611	935	653	615	895	1467	-	-	1417	-	-
Stage 1	849	770	-	854	774	-	-	-	-	-	-	-
Stage 2	840	768	-	844	769	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	611	596	927	633	600	888	1461	-	-	1411	-	-
Mov Cap-2 Maneuver	611	596	-	633	600	-	-	-	-	-	-	-
Stage 1	845	755	-	850	770	-	-	-	-	-	-	-
Stage 2	810	764	-	819	754	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.4			11.3			0.1			1.3		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1461	-	-	673	667	1411	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.017	0.148	0.015	-	-				
HCM Control Delay (s)	7.5	0	-	10.4	11.3	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0	-	-				

AM Year 2019 + Project + Cumulative
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection												
Intersection Delay, s/veh	7.7											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	8	12	25	0	11	44	8	0	10	19	7
Peak Hour Factor	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	11	16	33	0	14	58	11	0	13	25	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.4	7.8	7.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	18%	17%	7%
Vol Thru, %	53%	27%	70%	48%
Vol Right, %	19%	56%	13%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	45	63	82
LT Vol	10	8	11	6
Through Vol	19	12	44	39
RT Vol	7	25	8	37
Lane Flow Rate	47	59	83	108
Geometry Grp	1	1	1	1
Degree of Util (X)	0.056	0.066	0.098	0.12
Departure Headway (Hd)	4.256	4.021	4.259	4.012
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	828	876	830	880
Service Time	2.35	2.116	2.345	2.096
HCM Lane V/C Ratio	0.057	0.067	0.1	0.123
HCM Control Delay	7.6	7.4	7.8	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-ile Q	0.2	0.2	0.3	0.4

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	39	37
Peak Hour Factor	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	8	51	49
Number of Lanes	0	0	1	0

Approach SB

Opposing Approach NB

Opposing Lanes 1

Conflicting Approach Left WB

Conflicting Lanes Left 1

Conflicting Approach Right EB

Conflicting Lanes Right 1

HCM Control Delay 7.7

HCM LOS A

Lane

AM Year 2019 + Project + Cumulative
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	20	5	54	44	4	6	5	33	4	10	4
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	33	8	90	73	7	10	8	55	7	17	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	85	0	0	47	0	0	319	311	48	340	312	87
Stage 1	-	-	-	-	-	-	46	46	-	262	262	-
Stage 2	-	-	-	-	-	-	273	265	-	78	50	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1493	-	-	1541	-	-	628	599	1012	608	598	963
Stage 1	-	-	-	-	-	-	960	851	-	736	686	-
Stage 2	-	-	-	-	-	-	726	684	-	923	847	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1487	-	-	1535	-	-	576	557	1004	537	556	955
Mov Cap-2 Maneuver	-	-	-	-	-	-	576	557	-	537	556	-
Stage 1	-	-	-	-	-	-	955	847	-	732	641	-
Stage 2	-	-	-	-	-	-	657	640	-	859	843	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			4			9.7			11.2		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	842	1487	-	-	1535	-	-	608				
HCM Lane V/C Ratio	0.087	0.001	-	-	0.059	-	-	0.049				
HCM Control Delay (s)	9.7	7.4	0	-	7.5	0	-	11.2				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.2				

AM Year 2019 + Project + Cumulative
7: Melon Rd & 8th St

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	18	13	31	7	20	52
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	35	25	61	14	39	102
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	273	118	0	0	100	0
Stage 1	93	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	710	926	-	-	1474	-
Stage 1	923	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	661	888	-	-	1443	-
Mov Cap-2 Maneuver	661	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.3	0		2.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	740	1443	-	
HCM Lane V/C Ratio	-	-	0.082	0.027	-	
HCM Control Delay (s)	-	-	10.3	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-	

AM Year 2019 + Project + Cumulative
8: SR-115 & Zenos Rd (6th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	3	2	65	4	22	1	107	37	22	133	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	1	3	2	71	4	24	1	116	40	24	145	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	357	363	156	346	345	146	153	0	0	162	0	0
Stage 1	199	199	-	144	144	-	-	-	-	-	-	-
Stage 2	158	164	-	202	201	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	593	560	882	603	573	893	1409	-	-	1399	-	-
Stage 1	796	731	-	852	772	-	-	-	-	-	-	-
Stage 2	837	757	-	793	729	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	560	544	875	585	557	886	1403	-	-	1393	-	-
Mov Cap-2 Maneuver	560	544	-	585	557	-	-	-	-	-	-	-
Stage 1	792	714	-	848	768	-	-	-	-	-	-	-
Stage 2	806	753	-	769	712	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.8			11.7			0.1			1.1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1403	-	-	626	636	1393	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.01	0.156	0.017	-	-				
HCM Control Delay (s)	7.6	0	-	10.8	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-				

AM Year 2019 + Project + Cumulative
9: Zenos Rd (6th St) & Melon Rd

HCM 2010 TWSC

Intersection							
Int Delay, s/veh	3.7						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Vol, veh/h	21	66	63	31	36	39	
Conflicting Peds, #/hr	5	0	0	5	5	5	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	0	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	65	65	65	65	65	65	
Heavy Vehicles, %	5	5	5	5	5	5	
Mvmt Flow	32	102	97	48	55	60	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	150	0	-	0	292	131	
Stage 1	-	-	-	-	126	-	
Stage 2	-	-	-	-	166	-	
Critical Hdwy	4.15	-	-	-	6.45	6.25	
Critical Hdwy Stg 1	-	-	-	-	5.45	-	
Critical Hdwy Stg 2	-	-	-	-	5.45	-	
Follow-up Hdwy	2.245	-	-	-	3.545	3.345	
Pot Cap-1 Maneuver	1413	-	-	-	693	911	
Stage 1	-	-	-	-	892	-	
Stage 2	-	-	-	-	856	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1407	-	-	-	671	903	
Mov Cap-2 Maneuver	-	-	-	-	671	-	
Stage 1	-	-	-	-	888	-	
Stage 2	-	-	-	-	832	-	
Approach	EB		WB		SB		
HCM Control Delay, s	1.8		0		10.5		
HCM LOS					B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	1407	-	-	-	774		
HCM Lane V/C Ratio	0.023	-	-	-	0.149		
HCM Control Delay (s)	7.6	0	-	-	10.5		
HCM Lane LOS	A	A	-	-	B		
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5		

AM Year 2019 + Project + Cumulative
10: Project Access & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	4	1	0	8	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	4	1	0	9	3	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	5	0	14	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	9	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1597	-	997	1069
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1597	-	997	1069
Mov Cap-2 Maneuver	-	-	-	-	997	-
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	1006	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1014	-	-	1597	-	
HCM Lane V/C Ratio	0.004	-	-	-	-	
HCM Control Delay (s)	8.6	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

AM Year 2019 + Project + Cumulative
11: Melon Rd & Project Access

HCM 2010 TWSC

Intersection

Int Delay, s/veh 4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	54	3	22	14	1	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	59	3	24	15	1	30

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	65	32	0
Stage 1	32	-	-
Stage 2	33	-	-
Critical Hdwy	6.45	6.25	4.15
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	2.245
Pot Cap-1 Maneuver	933	1033	1552
Stage 1	983	-	-
Stage 2	982	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	932	1033	1552
Mov Cap-2 Maneuver	932	-	-
Stage 1	983	-	-
Stage 2	981	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 937	1552	-
HCM Lane V/C Ratio	-	- 0.066	0.001	-
HCM Control Delay (s)	-	- 9.1	7.3	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0.2	0	-

PM Year 2019 + Project + Cumulative
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	6	14	1	3	2	12	5	5	0	1	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	8	18	1	4	3	16	7	7	0	1	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	56	56	11	65	52	20	6	0	0	18	0	0
Stage 1	6	6	-	46	46	-	-	-	-	-	-	-
Stage 2	50	50	-	19	6	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	934	829	1061	921	834	1049	1595	-	-	1579	-	-
Stage 1	1008	885	-	960	851	-	-	-	-	-	-	-
Stage 2	956	847	-	992	885	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	913	814	1052	884	819	1040	1588	-	-	1572	-	-
Mov Cap-2 Maneuver	913	814	-	884	819	-	-	-	-	-	-	-
Stage 1	994	881	-	946	839	-	-	-	-	-	-	-
Stage 2	936	835	-	962	881	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.8			9.1			4			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1588	-	-	964	893	1572	-	-				
HCM Lane V/C Ratio	0.01	-	-	0.029	0.009	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.8	9.1	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

PM Year 2019 + Project + Cumulative
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	7	19	3	6	11
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	7	10	27	4	8	15
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	66	39	0	0	36	0
Stage 1	34	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	932	1024	-	-	1556	-
Stage 1	981	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	920	1015	-	-	1550	-
Mov Cap-2 Maneuver	920	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.8		0		2.6	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 973	1550	-		
HCM Lane V/C Ratio	-	- 0.017	0.005	-		
HCM Control Delay (s)	-	- 8.8	7.3	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

PM Year 2019 + Project + Cumulative
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		2.5										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	8	3	0	6	0	3	0	4	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	63	63	63	63	63	63	63	63	63
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	13	5	0	10	0	5	0	6	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	15	0	0	22	0	0	35	35	25	38	37	20
Stage 1	-	-	-	-	-	-	20	20	-	15	15	-
Stage 2	-	-	-	-	-	-	15	15	-	23	22	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1583	-	-	1574	-	-	964	852	1043	959	849	1049
Stage 1	-	-	-	-	-	-	991	873	-	997	877	-
Stage 2	-	-	-	-	-	-	997	877	-	987	871	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1576	-	-	1567	-	-	956	845	1034	945	842	1040
Mov Cap-2 Maneuver	-	-	-	-	-	-	956	845	-	945	842	-
Stage 1	-	-	-	-	-	-	987	869	-	993	873	-
Stage 2	-	-	-	-	-	-	993	873	-	977	867	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			8.6			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	999	1576	-	-	1567	-	-	-				
HCM Lane V/C Ratio	0.011	-	-	-	-	-	-	-				
HCM Control Delay (s)	8.6	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-				

PM Year 2019 + Project + Cumulative
4: SR-115 & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	12	2	27	6	9	4	95	42	25	166	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	2	13	2	30	7	10	4	104	46	27	182	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	393	407	194	392	386	137	190	0	0	156	0	0
Stage 1	243	243	-	141	141	-	-	-	-	-	-	-
Stage 2	150	164	-	251	245	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	561	529	840	562	543	904	1366	-	-	1406	-	-
Stage 1	754	699	-	855	774	-	-	-	-	-	-	-
Stage 2	845	757	-	747	698	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	535	512	833	535	526	896	1360	-	-	1400	-	-
Mov Cap-2 Maneuver	535	512	-	535	526	-	-	-	-	-	-	-
Stage 1	749	681	-	849	768	-	-	-	-	-	-	-
Stage 2	823	752	-	712	680	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	11.9			11.7			0.2			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1360	-	-	541	584	1400	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.032	0.079	0.02	-	-				
HCM Control Delay (s)	7.7	0	-	11.9	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.1	-	-				

PM Year 2019 + Project + Cumulative
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection												
Intersection Delay, s/veh	7.7											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	35	31	29	0	8	17	3	0	24	27	8
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	40	36	33	0	9	20	3	0	28	31	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

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

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	37%	29%	13%
Vol Thru, %	46%	33%	61%	44%
Vol Right, %	14%	31%	11%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	95	28	45
LT Vol	24	35	8	6
Through Vol	27	31	17	20
RT Vol	8	29	3	19
Lane Flow Rate	68	109	32	52
Geometry Grp	1	1	1	1
Degree of Util (X)	0.08	0.125	0.038	0.058
Departure Headway (Hd)	4.271	4.107	4.269	4.056
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	828	864	826	869
Service Time	2.354	2.177	2.358	2.147
HCM Lane V/C Ratio	0.082	0.126	0.039	0.06
HCM Control Delay	7.7	7.8	7.5	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	0.1	0.2

Intersection				
Intersection Delay, s/veh				
Intersection LOS				
Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	20	19
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	7	23	22
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		7.4		
HCM LOS		A		
Lane				

PM Year 2019 + Project + Cumulative
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	41	6	11	23	7	3	3	8	2	3	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	54	8	14	30	9	4	4	11	3	4	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	44	0	0	67	0	0	137	139	68	142	138	45
Stage 1	-	-	-	-	-	-	66	66	-	69	69	-
Stage 2	-	-	-	-	-	-	71	73	-	73	69	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1545	-	-	1516	-	-	827	746	987	821	747	1016
Stage 1	-	-	-	-	-	-	937	834	-	934	832	-
Stage 2	-	-	-	-	-	-	931	828	-	929	832	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1539	-	-	1510	-	-	811	732	979	796	733	1008
Mov Cap-2 Maneuver	-	-	-	-	-	-	811	732	-	796	733	-
Stage 1	-	-	-	-	-	-	932	830	-	929	821	-
Stage 2	-	-	-	-	-	-	914	817	-	910	828	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			2			9.2			9.8		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	877	1539	-	-	1510	-	-	757				
HCM Lane V/C Ratio	0.021	0.001	-	-	0.01	-	-	0.009				
HCM Control Delay (s)	9.2	7.3	0	-	7.4	0	-	9.8				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	10	9	60	13	6	43
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	11	9	63	14	6	45

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	153	120	0 0 102 0
Stage 1	95	-	- - - -
Stage 2	58	-	- - - -
Critical Hdwy	6.45	6.25	- - 4.15 -
Critical Hdwy Stg 1	5.45	-	- - - -
Critical Hdwy Stg 2	5.45	-	- - - -
Follow-up Hdwy	3.545	3.345	- - 2.245 -
Pot Cap-1 Maneuver	832	923	- - 1471 -
Stage 1	921	-	- - - -
Stage 2	957	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	795	885	- - 1440 -
Mov Cap-2 Maneuver	795	-	- - - -
Stage 1	902	-	- - - -
Stage 2	933	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 835	1440	-
HCM Lane V/C Ratio	-	- 0.024	0.004	-
HCM Control Delay (s)	-	- 9.4	7.5	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

PM Year 2019 + Project + Cumulative
8: SR-115 & Zenos Rd (6th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		3.1										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	3	0	63	6	24	1	114	60	24	168	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	0	3	0	73	7	28	1	133	70	28	195	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	449	467	206	433	432	177	202	0	0	207	0	0
Stage 1	257	257	-	175	175	-	-	-	-	-	-	-
Stage 2	192	210	-	258	257	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	515	489	827	528	512	858	1352	-	-	1346	-	-
Stage 1	741	689	-	820	749	-	-	-	-	-	-	-
Stage 2	803	723	-	740	689	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	480	473	820	511	496	851	1346	-	-	1340	-	-
Mov Cap-2 Maneuver	480	473	-	511	496	-	-	-	-	-	-	-
Stage 1	737	670	-	816	745	-	-	-	-	-	-	-
Stage 2	765	719	-	716	670	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.7			12.8			0			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1346	-	-	473	569	1340	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.007	0.19	0.021	-	-				
HCM Control Delay (s)	7.7	0	-	12.7	12.8	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.1	-	-				

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	45	63	61	32	30	31
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	56	79	76	40	38	39
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	121	0	-	0	292	106
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	191	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1448	-	-	-	693	940
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	834	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1442	-	-	-	659	932
Mov Cap-2 Maneuver	-	-	-	-	659	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	796	-
Approach	EB		WB		SB	
HCM Control Delay, s	3.2		0		10.2	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1442	-	-	-	774	
HCM Lane V/C Ratio	0.039	-	-	-	0.099	
HCM Control Delay (s)	7.6	0	-	-	10.2	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	

PM Year 2019 + Project + Cumulative
10: Project Access & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection

Int Delay, s/veh 1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	6	3	1	10	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	7	3	1	11	2	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	21
Stage 1	-	-	8
Stage 2	-	-	13
Critical Hdwy	-	4.15	6.45
Critical Hdwy Stg 1	-	-	5.45
Critical Hdwy Stg 2	-	-	5.45
Follow-up Hdwy	-	2.245	3.545
Pot Cap-1 Maneuver	-	1590	988
Stage 1	-	-	1007
Stage 2	-	-	1002
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1590	987
Mov Cap-2 Maneuver	-	-	987
Stage 1	-	-	1007
Stage 2	-	-	1001

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	987	-	-	1590	-
HCM Lane V/C Ratio	0.002	-	-	0.001	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection

Int Delay, s/veh 2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	30	2	9	56	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	33	2	10	61	3	17

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	64	40	0 0 71 0
Stage 1	40	-	- - - -
Stage 2	24	-	- - - -
Critical Hdwy	6.45	6.25	- - 4.15 -
Critical Hdwy Stg 1	5.45	-	- - - -
Critical Hdwy Stg 2	5.45	-	- - - -
Follow-up Hdwy	3.545	3.345	- - 2.245 -
Pot Cap-1 Maneuver	934	1023	- - 1510 -
Stage 1	975	-	- - - -
Stage 2	991	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	932	1023	- - 1510 -
Mov Cap-2 Maneuver	932	-	- - - -
Stage 1	975	-	- - - -
Stage 2	989	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	9	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 937	1510	-
HCM Lane V/C Ratio	-	- 0.037	0.002	-
HCM Control Delay (s)	-	- 9	7.4	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

Appendix O

Year 2030 Intersection LOS Calculations

AM Year 2030
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		6.9										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	9	13	3	8	0	13	6	1	0	4	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	4	12	17	4	10	0	17	8	1	0	5	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	63	58	16	72	58	18	11	0	0	14	0	0
Stage 1	11	11	-	47	47	-	-	-	-	-	-	-
Stage 2	52	47	-	25	11	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	924	827	1055	912	827	1052	1589	-	-	1585	-	-
Stage 1	1002	880	-	959	850	-	-	-	-	-	-	-
Stage 2	953	850	-	985	880	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	900	811	1046	873	811	1043	1582	-	-	1578	-	-
Mov Cap-2 Maneuver	900	811	-	873	811	-	-	-	-	-	-	-
Stage 1	987	876	-	944	837	-	-	-	-	-	-	-
Stage 2	927	837	-	953	876	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9			9.4			4.7			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1582	-	-	931	827	1578	-	-				
HCM Lane V/C Ratio	0.011	-	-	0.034	0.017	-	-	-				
HCM Control Delay (s)	7.3	0	-	9	9.4	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

AM Year 2030
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	5	22	5	0	25
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	7	7	29	7	0	33
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	70	42	0	0	41	0
Stage 1	37	-	-	-	-	-
Stage 2	33	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	927	1020	-	-	1549	-
Stage 1	978	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	919	1012	-	-	1543	-
Mov Cap-2 Maneuver	919	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.8		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 963	1543	-		
HCM Lane V/C Ratio	-	- 0.014	-	-		
HCM Control Delay (s)	-	- 8.8	0	-		
HCM Lane LOS	-	- A	A	-		
HCM 95th %tile Q(veh)	-	- 0	0	-		

AM Year 2030
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		6.2										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	4	0	10	5	1	3	0	9	0	4	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	6	0	14	7	1	4	0	13	0	6	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	11	0	0	60	56	16	61	55	18
Stage 1	-	-	-	-	-	-	14	14	-	41	41	-
Stage 2	-	-	-	-	-	-	46	42	-	20	14	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1585	-	-	1589	-	-	928	829	1055	927	830	1052
Stage 1	-	-	-	-	-	-	998	878	-	966	855	-
Stage 2	-	-	-	-	-	-	960	854	-	991	878	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1578	-	-	1582	-	-	905	814	1046	901	815	1043
Mov Cap-2 Maneuver	-	-	-	-	-	-	905	814	-	901	815	-
Stage 1	-	-	-	-	-	-	993	873	-	961	844	-
Stage 2	-	-	-	-	-	-	937	843	-	974	873	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			4.6			8.6			9		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1007	1578	-	-	1582	-	-	899				
HCM Lane V/C Ratio	0.017	0.001	-	-	0.009	-	-	0.011				
HCM Control Delay (s)	8.6	7.3	0	-	7.3	0	-	9				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	5	4	49	9	14	1	138	10	20	108	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	4	6	4	54	10	16	1	153	11	22	120	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	350	343	132	342	339	169	128	0	0	169	0	0
Stage 1	171	171	-	166	166	-	-	-	-	-	-	-
Stage 2	179	172	-	176	173	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	599	575	909	606	578	867	1440	-	-	1390	-	-
Stage 1	824	752	-	829	755	-	-	-	-	-	-	-
Stage 2	816	751	-	819	750	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	567	560	901	585	563	860	1434	-	-	1384	-	-
Mov Cap-2 Maneuver	567	560	-	585	563	-	-	-	-	-	-	-
Stage 1	820	736	-	825	751	-	-	-	-	-	-	-
Stage 2	786	747	-	792	734	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.8			11.7			0.1			1.2		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1434	-	-	637	621	1384	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.023	0.129	0.016	-	-				
HCM Control Delay (s)	7.5	0	-	10.8	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0	-	-				

Intersection												
Intersection Delay, s/veh	7.6											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	0	15	30	0	14	54	9	0	13	18	9
Peak Hour Factor	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	0	20	39	0	18	71	12	0	17	24	12
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.2	7.8	7.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	0%	18%	11%
Vol Thru, %	45%	33%	70%	66%
Vol Right, %	23%	67%	12%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	45	77	35
LT Vol	13	0	14	4
Through Vol	18	15	54	23
RT Vol	9	30	9	8
Lane Flow Rate	53	59	101	46
Geometry Grp	1	1	1	1
Degree of Util (X)	0.062	0.063	0.117	0.054
Departure Headway (Hd)	4.229	3.834	4.169	4.19
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	836	921	852	843
Service Time	2.312	1.913	2.232	2.275
HCM Lane V/C Ratio	0.063	0.064	0.119	0.055
HCM Control Delay	7.6	7.2	7.8	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-ile Q	0.2	0.2	0.4	0.2

Intersection				
Intersection Delay, s/veh				
Intersection LOS				
Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	23	8
Peak Hour Factor	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	5	30	11
Number of Lanes	0	0	1	0
Approach				
		SB		
Opposing Approach	NB			
Opposing Lanes	1			
Conflicting Approach Left	WB			
Conflicting Lanes Left	1			
Conflicting Approach Right	EB			
Conflicting Lanes Right	1			
HCM Control Delay	7.5			
HCM LOS	A			
Lane				

AM Year 2030
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	22	5	65	53	5	8	6	40	5	13	5
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	37	8	108	88	8	13	10	67	8	22	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	102	0	0	50	0	0	378	367	51	402	367	103
Stage 1	-	-	-	-	-	-	49	49	-	314	314	-
Stage 2	-	-	-	-	-	-	329	318	-	88	53	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1471	-	-	1537	-	-	574	557	1009	553	557	944
Stage 1	-	-	-	-	-	-	957	848	-	690	651	-
Stage 2	-	-	-	-	-	-	678	648	-	912	845	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1465	-	-	1531	-	-	514	510	1001	475	510	936
Mov Cap-2 Maneuver	-	-	-	-	-	-	514	510	-	475	510	-
Stage 1	-	-	-	-	-	-	952	844	-	686	600	-
Stage 2	-	-	-	-	-	-	597	597	-	837	841	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			4			10			12		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	803	1465	-	-	1531	-	-	556				
HCM Lane V/C Ratio	0.112	0.001	-	-	0.071	-	-	0.069				
HCM Control Delay (s)	10	7.5	0	-	7.5	0	-	12				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	0.2				

Intersection						
Int Delay, s/veh	4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	22	16	32	9	23	40
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	43	31	63	18	45	78
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	266	122	0	0	105	0
Stage 1	97	-	-	-	-	-
Stage 2	169	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	717	921	-	-	1468	-
Stage 1	919	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	665	883	-	-	1437	-
Mov Cap-2 Maneuver	665	-	-	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	10.4		0		2.8	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 742	1437	-		
HCM Lane V/C Ratio	-	- 0.1	0.031	-		
HCM Control Delay (s)	-	- 10.4	7.6	0		
HCM Lane LOS	-	- B	A	A		
HCM 95th %tile Q(veh)	-	- 0.3	0.1	-		

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	4	3	57	5	27	1	123	39	27	130	4
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	1	4	3	62	5	29	1	134	42	29	141	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	386	390	153	373	371	165	151	0	0	181	0	0
Stage 1	207	207	-	162	162	-	-	-	-	-	-	-
Stage 2	179	183	-	211	209	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	567	541	885	578	554	872	1412	-	-	1376	-	-
Stage 1	788	725	-	833	758	-	-	-	-	-	-	-
Stage 2	816	743	-	784	724	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	529	524	878	557	536	865	1406	-	-	1370	-	-
Mov Cap-2 Maneuver	529	524	-	557	536	-	-	-	-	-	-	-
Stage 1	784	705	-	829	754	-	-	-	-	-	-	-
Stage 2	779	739	-	755	704	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.9			11.8			0			1.3		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1406	-	-	618	623	1370	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.014	0.155	0.021	-	-				
HCM Control Delay (s)	7.6	0	-	10.9	11.8	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-				

Intersection							
Int Delay, s/veh	3.2						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Vol, veh/h	19	80	76	38	43	25	
Conflicting Peds, #/hr	5	0	0	5	5	5	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	0	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	65	65	65	65	65	65	
Heavy Vehicles, %	5	5	5	5	5	5	
Mvmt Flow	29	123	117	58	66	38	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	180	0	-	0	333	156	
Stage 1	-	-	-	-	151	-	
Stage 2	-	-	-	-	182	-	
Critical Hdwy	4.15	-	-	-	6.45	6.25	
Critical Hdwy Stg 1	-	-	-	-	5.45	-	
Critical Hdwy Stg 2	-	-	-	-	5.45	-	
Follow-up Hdwy	2.245	-	-	-	3.545	3.345	
Pot Cap-1 Maneuver	1378	-	-	-	656	882	
Stage 1	-	-	-	-	870	-	
Stage 2	-	-	-	-	842	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1372	-	-	-	636	875	
Mov Cap-2 Maneuver	-	-	-	-	636	-	
Stage 1	-	-	-	-	866	-	
Stage 2	-	-	-	-	819	-	
Approach	EB		WB		SB		
HCM Control Delay, s	1.5		0		11		
HCM LOS					B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	1372	-	-	-	707		
HCM Lane V/C Ratio	0.021	-	-	-	0.148		
HCM Control Delay (s)	7.7	0	-	-	11		
HCM Lane LOS	A	A	-	-	B		
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5		

PM Year 2030
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		6.3										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	8	10	1	4	3	10	6	6	0	1	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	11	13	1	5	4	13	8	8	0	1	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	54	53	11	61	49	22	6	0	0	21	0	0
Stage 1	6	6	-	43	43	-	-	-	-	-	-	-
Stage 2	48	47	-	18	6	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	937	832	1061	927	837	1047	1595	-	-	1575	-	-
Stage 1	1008	885	-	964	853	-	-	-	-	-	-	-
Stage 2	958	850	-	994	885	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	916	818	1052	893	823	1038	1588	-	-	1568	-	-
Mov Cap-2 Maneuver	916	818	-	893	823	-	-	-	-	-	-	-
Stage 1	996	881	-	952	843	-	-	-	-	-	-	-
Stage 2	937	840	-	966	881	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9			9			3.3			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1588	-	-	932	902	1568	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.027	0.012	-	-	-				
HCM Control Delay (s)	7.3	0	-	9	9	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

PM Year 2030
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection

Int Delay, s/veh 2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	6	6	20	4	4	10
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	8	8	28	6	6	14

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	61	41	39
Stage 1	36	-	-
Stage 2	25	-	-
Critical Hdwy	6.45	6.25	4.15
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	2.245
Pot Cap-1 Maneuver	938	1022	1552
Stage 1	979	-	-
Stage 2	990	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	926	1014	1546
Mov Cap-2 Maneuver	926	-	-
Stage 1	975	-	-
Stage 2	982	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	968	1546	-
HCM Lane V/C Ratio	-	-	0.017	0.004	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	10	4	0	6	0	4	0	5	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	63	63	63	63	63	63	63	63	63
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	16	6	0	10	0	6	0	8	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	15	0	0	27	0	0	39	39	29	43	42	20
Stage 1	-	-	-	-	-	-	24	24	-	15	15	-
Stage 2	-	-	-	-	-	-	15	15	-	28	27	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1583	-	-	1568	-	-	958	847	1037	952	844	1049
Stage 1	-	-	-	-	-	-	986	869	-	997	877	-
Stage 2	-	-	-	-	-	-	997	877	-	981	867	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1576	-	-	1561	-	-	950	840	1028	937	837	1040
Mov Cap-2 Maneuver	-	-	-	-	-	-	950	840	-	937	837	-
Stage 1	-	-	-	-	-	-	982	865	-	993	873	-
Stage 2	-	-	-	-	-	-	993	873	-	969	863	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			8.7			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	992	1576	-	-	1561	-	-	-				
HCM Lane V/C Ratio	0.014	-	-	-	-	-	-	-				
HCM Control Delay (s)	8.7	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-				

PM Year 2030
4: SR-115 & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	15	3	16	8	8	5	115	19	23	201	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	3	16	3	18	9	9	5	126	21	25	221	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	440	441	233	441	433	147	229	0	0	152	0	0
Stage 1	278	278	-	153	153	-	-	-	-	-	-	-
Stage 2	162	163	-	288	280	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	522	506	799	521	511	892	1322	-	-	1411	-	-
Stage 1	722	675	-	842	765	-	-	-	-	-	-	-
Stage 2	833	758	-	713	674	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	496	490	792	492	495	885	1316	-	-	1405	-	-
Mov Cap-2 Maneuver	496	490	-	492	495	-	-	-	-	-	-	-
Stage 1	716	659	-	835	759	-	-	-	-	-	-	-
Stage 2	809	752	-	676	658	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.3			11.9			0.3			0.8		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1316	-	-	519	554	1405	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.044	0.063	0.018	-	-				
HCM Control Delay (s)	7.7	0	-	12.3	11.9	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-				

Intersection												
Intersection Delay, s/veh	7.4											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	4	38	35	0	10	20	0	0	29	8	10
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	5	44	40	0	11	23	0	0	33	9	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.3	7.5	7.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	5%	33%	26%
Vol Thru, %	17%	49%	67%	58%
Vol Right, %	21%	45%	0%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	77	30	19
LT Vol	29	4	10	5
Through Vol	8	38	20	11
RT Vol	10	35	0	3
Lane Flow Rate	54	89	34	22
Geometry Grp	1	1	1	1
Degree of Util (X)	0.063	0.095	0.041	0.025
Departure Headway (Hd)	4.212	3.88	4.251	4.199
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	844	918	837	845
Service Time	2.267	1.929	2.306	2.263
HCM Lane V/C Ratio	0.064	0.097	0.041	0.026
HCM Control Delay	7.6	7.3	7.5	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.3	0.1	0.1

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	5	11	3
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	6	13	3
Number of Lanes	0	0	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.4
HCM LOS	A

Lane

PM Year 2030
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	49	6	14	25	9	3	4	10	3	4	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	64	8	18	33	12	4	5	13	4	5	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	50	0	0	77	0	0	159	163	78	166	161	49
Stage 1	-	-	-	-	-	-	76	76	-	81	81	-
Stage 2	-	-	-	-	-	-	83	87	-	85	80	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1537	-	-	1503	-	-	800	724	974	792	726	1011
Stage 1	-	-	-	-	-	-	926	826	-	920	822	-
Stage 2	-	-	-	-	-	-	918	817	-	916	823	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1531	-	-	1497	-	-	781	709	966	763	711	1003
Mov Cap-2 Maneuver	-	-	-	-	-	-	781	709	-	763	711	-
Stage 1	-	-	-	-	-	-	921	822	-	915	809	-
Stage 2	-	-	-	-	-	-	897	804	-	893	819	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			2.2			9.3			10		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	857	1531	-	-	1497	-	-	732				
HCM Lane V/C Ratio	0.026	0.001	-	-	0.012	-	-	0.013				
HCM Control Delay (s)	9.3	7.4	0	-	7.4	0	-	10				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	13	10	49	16	8	39
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	14	11	52	17	8	41
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	143	110	0	0	93	0
Stage 1	85	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	843	935	-	-	1483	-
Stage 1	931	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	803	896	-	-	1452	-
Mov Cap-2 Maneuver	803	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	9.4		0		1.3	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 841	1452	-		
HCM Lane V/C Ratio	-	- 0.029	0.006	-		
HCM Control Delay (s)	-	- 9.4	7.5	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

Intersection												
Int Delay, s/veh		3.3										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	4	0	63	8	29	1	106	51	29	187	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	0	5	0	73	9	34	1	123	59	34	217	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	472	480	228	453	451	163	224	0	0	188	0	0
Stage 1	290	290	-	160	160	-	-	-	-	-	-	-
Stage 2	182	190	-	293	291	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	497	481	804	512	499	874	1327	-	-	1368	-	-
Stage 1	711	667	-	835	760	-	-	-	-	-	-	-
Stage 2	813	737	-	709	666	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	456	463	797	493	481	867	1321	-	-	1362	-	-
Mov Cap-2 Maneuver	456	463	-	493	481	-	-	-	-	-	-	-
Stage 1	707	646	-	831	756	-	-	-	-	-	-	-
Stage 2	768	733	-	681	645	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.9			13.1			0			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1321	-	-	463	562	1362	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.01	0.207	0.025	-	-				
HCM Control Delay (s)	7.7	0	-	12.9	13.1	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.8	0.1	-	-				

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	32	76	73	38	35	25
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	40	95	91	48	44	31

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	144	0	295
Stage 1	-	-	120
Stage 2	-	-	175
Critical Hdwy	4.15	-	6.45
Critical Hdwy Stg 1	-	-	5.45
Critical Hdwy Stg 2	-	-	5.45
Follow-up Hdwy	2.245	-	3.545
Pot Cap-1 Maneuver	1420	-	690
Stage 1	-	-	898
Stage 2	-	-	848
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1414	-	664
Mov Cap-2 Maneuver	-	-	664
Stage 1	-	-	894
Stage 2	-	-	819

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1414	-	-	-	748
HCM Lane V/C Ratio	0.028	-	-	-	0.1
HCM Control Delay (s)	7.6	0	-	-	10.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Appendix P

Year 2030 + Project Intersection LOS Calculations

AM Year 2030 + Project
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		7										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	9	15	3	8	0	19	6	1	0	4	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	4	12	19	4	10	0	24	8	1	0	5	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	78	74	16	88	73	18	11	0	0	14	0	0
Stage 1	11	11	-	62	62	-	-	-	-	-	-	-
Stage 2	67	63	-	26	11	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	904	811	1055	890	812	1052	1589	-	-	1585	-	-
Stage 1	1002	880	-	942	837	-	-	-	-	-	-	-
Stage 2	936	837	-	984	880	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	878	792	1046	847	793	1043	1582	-	-	1578	-	-
Mov Cap-2 Maneuver	878	792	-	847	793	-	-	-	-	-	-	-
Stage 1	983	876	-	924	821	-	-	-	-	-	-	-
Stage 2	907	821	-	949	876	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9			9.5			5.3			0		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1582	-	-	927	807	1578	-	-				
HCM Lane V/C Ratio	0.015	-	-	0.037	0.017	-	-	-				
HCM Control Delay (s)	7.3	0	-	9	9.5	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

AM Year 2030 + Project
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	8	25	5	1	26
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	7	11	33	7	1	34
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	78	46	0	0	44	0
Stage 1	41	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	917	1015	-	-	1545	-
Stage 1	974	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	908	1007	-	-	1539	-
Mov Cap-2 Maneuver	908	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.8		0		0.3	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 966	1539	-		
HCM Lane V/C Ratio	-	- 0.018	0.001	-		
HCM Control Delay (s)	-	- 8.8	7.3	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

AM Year 2030 + Project
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	5	0	10	5	1	3	0	9	0	4	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	7	0	14	7	1	4	0	13	0	6	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	12	0	0	61	57	17	62	56	18
Stage 1	-	-	-	-	-	-	15	15	-	41	41	-
Stage 2	-	-	-	-	-	-	46	42	-	21	15	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1585	-	-	1587	-	-	927	828	1053	926	829	1052
Stage 1	-	-	-	-	-	-	997	877	-	966	855	-
Stage 2	-	-	-	-	-	-	960	854	-	990	877	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1578	-	-	1580	-	-	904	813	1044	900	814	1043
Mov Cap-2 Maneuver	-	-	-	-	-	-	904	813	-	900	814	-
Stage 1	-	-	-	-	-	-	992	872	-	961	844	-
Stage 2	-	-	-	-	-	-	937	843	-	973	872	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.2			4.6			8.6			9		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1005	1578	-	-	1580	-	-	899				
HCM Lane V/C Ratio	0.017	0.001	-	-	0.009	-	-	0.011				
HCM Control Delay (s)	8.6	7.3	0	-	7.3	0	-	9				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

AM Year 2030 + Project
4: SR-115 & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	5	4	74	9	20	1	138	16	22	108	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	4	6	4	82	10	22	1	153	18	24	120	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	362	354	132	350	346	172	128	0	0	176	0	0
Stage 1	176	176	-	169	169	-	-	-	-	-	-	-
Stage 2	186	178	-	181	177	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	588	566	909	599	572	864	1440	-	-	1382	-	-
Stage 1	819	748	-	826	753	-	-	-	-	-	-	-
Stage 2	809	746	-	814	747	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	552	550	901	578	556	857	1434	-	-	1376	-	-
Mov Cap-2 Maneuver	552	550	-	578	556	-	-	-	-	-	-	-
Stage 1	815	731	-	822	749	-	-	-	-	-	-	-
Stage 2	773	742	-	785	730	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.9			12.2			0			1.3		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1434	-	-	626	615	1376	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.023	0.186	0.018	-	-				
HCM Control Delay (s)	7.5	0	-	10.9	12.2	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.7	0.1	-	-				

AM Year 2030 + Project
5: Melon Rd & Alamo Rd (9th St)

HCM 2010 AWSC

Intersection												
Intersection Delay, s/veh	7.9											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	8	15	30	0	14	54	10	0	13	23	9
Peak Hour Factor	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	11	20	39	0	18	71	13	0	17	30	12
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.6	8.1	7.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	15%	18%	8%
Vol Thru, %	51%	28%	69%	48%
Vol Right, %	20%	57%	13%	44%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	53	78	89
LT Vol	13	8	14	7
Through Vol	23	15	54	43
RT Vol	9	30	10	39
Lane Flow Rate	59	70	103	117
Geometry Grp	1	1	1	1
Degree of Util (X)	0.073	0.081	0.126	0.136
Departure Headway (Hd)	4.436	4.182	4.411	4.192
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	810	859	816	858
Service Time	2.448	2.195	2.423	2.204
HCM Lane V/C Ratio	0.073	0.081	0.126	0.136
HCM Control Delay	7.8	7.6	8.1	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.3	0.4	0.5

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	7	43	39
Peak Hour Factor	0.92	0.76	0.76	0.76
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	9	57	51
Number of Lanes	0	0	1	0

Approach SB

Opposing Approach NB

Opposing Lanes 1

Conflicting Approach Left WB

Conflicting Lanes Left 1

Conflicting Approach Right EB

Conflicting Lanes Right 1

HCM Control Delay 7.9

HCM LOS A

Lane

AM Year 2030 + Project
6: Olive Rd & Alamo Rd (9th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		5.7										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	24	6	65	54	5	8	6	40	5	13	5
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	40	10	108	90	8	13	10	67	8	22	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	55	0	0	384	373	55	408	374	104
Stage 1	-	-	-	-	-	-	53	53	-	316	316	-
Stage 2	-	-	-	-	-	-	331	320	-	92	58	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1470	-	-	1531	-	-	569	553	1003	548	552	943
Stage 1	-	-	-	-	-	-	952	845	-	689	650	-
Stage 2	-	-	-	-	-	-	676	647	-	908	841	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1464	-	-	1525	-	-	510	507	995	470	506	935
Mov Cap-2 Maneuver	-	-	-	-	-	-	510	507	-	470	506	-
Stage 1	-	-	-	-	-	-	947	841	-	685	599	-
Stage 2	-	-	-	-	-	-	595	596	-	833	837	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			4			10.1			12		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	797	1464	-	-	1525	-	-	552				
HCM Lane V/C Ratio	0.113	0.001	-	-	0.071	-	-	0.069				
HCM Control Delay (s)	10.1	7.5	0	-	7.5	0	-	12				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	0.2				

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	22	16	37	9	24	59
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	43	31	73	18	47	116
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	316	131	0	0	115	0
Stage 1	106	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	671	911	-	-	1455	-
Stage 1	911	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	621	873	-	-	1425	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	892	-	-	-	-	-
Stage 2	773	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	10.7		0		2.2	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 707	1425	-		
HCM Lane V/C Ratio	-	- 0.105	0.033	-		
HCM Control Delay (s)	-	- 10.7	7.6	0		
HCM Lane LOS	-	- B	A	A		
HCM 95th %tile Q(veh)	-	- 0.4	0.1	-		

AM Year 2030 + Project
8: SR-115 & Zenos Rd (6th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		3.5										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	4	3	75	5	27	1	129	44	27	155	4
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	1	4	3	82	5	29	1	140	48	29	168	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	423	429	181	409	408	174	178	0	0	193	0	0
Stage 1	234	234	-	171	171	-	-	-	-	-	-	-
Stage 2	189	195	-	238	237	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	536	514	854	548	528	862	1380	-	-	1362	-	-
Stage 1	762	706	-	824	752	-	-	-	-	-	-	-
Stage 2	806	734	-	759	703	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	499	497	847	528	511	855	1374	-	-	1356	-	-
Mov Cap-2 Maneuver	499	497	-	528	511	-	-	-	-	-	-	-
Stage 1	758	686	-	820	748	-	-	-	-	-	-	-
Stage 2	769	730	-	730	683	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	11.2			12.7			0			1.1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1374	-	-	588	583	1356	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.015	0.199	0.022	-	-				
HCM Control Delay (s)	7.6	0	-	11.2	12.7	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.1	-	-				

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	24	80	76	38	44	43
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	37	123	117	58	68	66
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	180	0	-	0	348	156
Stage 1	-	-	-	-	151	-
Stage 2	-	-	-	-	197	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1378	-	-	-	643	882
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	829	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1372	-	-	-	619	875
Mov Cap-2 Maneuver	-	-	-	-	619	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	802	-
Approach	EB		WB		SB	
HCM Control Delay, s	1.8		0		11.1	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1372	-	-	-	724	
HCM Lane V/C Ratio	0.027	-	-	-	0.185	
HCM Control Delay (s)	7.7	0	-	-	11.1	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	

AM Year 2030 + Project
10: Project Access & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	5	1	0	10	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	5	1	0	11	3	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	7	0	17	6
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1594	-	993	1068
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1004	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1594	-	993	1068
Mov Cap-2 Maneuver	-	-	-	-	993	-
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1004	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1011	-	-	1594	-	
HCM Lane V/C Ratio	0.004	-	-	-	-	
HCM Control Delay (s)	8.6	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	54	3	27	14	1	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	59	3	29	15	1	37
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	76	37	0	0	45	0
Stage 1	37	-	-	-	-	-
Stage 2	39	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	920	1027	-	-	1544	-
Stage 1	978	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	919	1027	-	-	1544	-
Mov Cap-2 Maneuver	919	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	9.2		0		0.2	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 924	1544	-		
HCM Lane V/C Ratio	-	- 0.067	0.001	-		
HCM Control Delay (s)	-	- 9.2	7.3	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.2	0	-		

PM Year 2030 + Project
1: Melon Rd & Thiesen Rd (11th St)

HCM 2010 TWSC

Intersection

Int Delay, s/veh 6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	8	16	1	4	3	14	6	6	0	1	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	11	21	1	5	4	18	8	8	0	1	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	64	64	11	76	60	22	6	0	0	21	0	0
Stage 1	6	6	-	54	54	-	-	-	-	-	-	-
Stage 2	58	58	-	22	6	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	923	821	1061	906	825	1047	1595	-	-	1575	-	-
Stage 1	1008	885	-	951	844	-	-	-	-	-	-	-
Stage 2	946	841	-	989	885	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	900	805	1052	864	809	1038	1588	-	-	1568	-	-
Mov Cap-2 Maneuver	900	805	-	864	809	-	-	-	-	-	-	-
Stage 1	993	881	-	937	831	-	-	-	-	-	-	-
Stage 2	922	828	-	954	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.1	3.9	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1588	-	-	952	890	1568	-	-
HCM Lane V/C Ratio	0.012	-	-	0.035	0.012	-	-	-
HCM Control Delay (s)	7.3	0	-	8.9	9.1	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

PM Year 2030 + Project
2: Melon Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	6	8	22	4	7	13
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	8	11	31	6	10	18
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	77	44	0	0	42	0
Stage 1	39	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	919	1018	-	-	1548	-
Stage 1	976	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	905	1010	-	-	1542	-
Mov Cap-2 Maneuver	905	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.8		0		2.6	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 962	1542	-		
HCM Lane V/C Ratio	-	- 0.02	0.006	-		
HCM Control Delay (s)	-	- 8.8	7.4	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		

PM Year 2030 + Project
3: Olive Rd & Underwood Rd (10th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh		2.6										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	10	4	0	7	0	4	0	5	0	0	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	63	63	63	63	63	63	63	63	63
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	16	6	0	11	0	6	0	8	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	16	0	0	27	0	0	40	40	29	44	43	21
Stage 1	-	-	-	-	-	-	24	24	-	16	16	-
Stage 2	-	-	-	-	-	-	16	16	-	28	27	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1582	-	-	1568	-	-	957	846	1037	951	843	1048
Stage 1	-	-	-	-	-	-	986	869	-	996	876	-
Stage 2	-	-	-	-	-	-	996	876	-	981	867	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1575	-	-	1561	-	-	949	839	1028	936	836	1039
Mov Cap-2 Maneuver	-	-	-	-	-	-	949	839	-	936	836	-
Stage 1	-	-	-	-	-	-	982	865	-	992	872	-
Stage 2	-	-	-	-	-	-	992	872	-	969	863	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			8.7			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	991	1575	-	-	1561	-	-	-				
HCM Lane V/C Ratio	0.014	-	-	-	-	-	-	-				
HCM Control Delay (s)	8.7	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-				

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	15	3	30	8	11	5	115	45	29	201	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	3	16	3	33	9	12	5	126	49	32	221	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	469	483	233	468	460	161	229	0	0	181	0	0
Stage 1	291	291	-	167	167	-	-	-	-	-	-	-
Stage 2	178	192	-	301	293	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	500	479	799	500	494	876	1322	-	-	1376	-	-
Stage 1	710	666	-	828	755	-	-	-	-	-	-	-
Stage 2	817	736	-	702	665	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	471	460	792	469	475	869	1316	-	-	1370	-	-
Mov Cap-2 Maneuver	471	460	-	469	475	-	-	-	-	-	-	-
Stage 1	704	645	-	821	749	-	-	-	-	-	-	-
Stage 2	790	730	-	660	644	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.7			12.7			0.2			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1316	-	-	491	524	1370	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.047	0.103	0.023	-	-				
HCM Control Delay (s)	7.7	0	-	12.7	12.7	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.1	-	-				

Intersection												
Intersection Delay, s/veh	7.8											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	36	38	35	0	10	20	3	0	29	29	10
Peak Hour Factor	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	41	44	40	0	11	23	3	0	33	33	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.9	7.6	7.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	33%	30%	14%
Vol Thru, %	43%	35%	61%	45%
Vol Right, %	15%	32%	9%	41%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	109	33	49
LT Vol	29	36	10	7
Through Vol	29	38	20	22
RT Vol	10	35	3	20
Lane Flow Rate	78	125	38	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.094	0.143	0.047	0.066
Departure Headway (Hd)	4.411	4.119	4.427	4.221
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	818	857	813	853
Service Time	2.411	2.21	2.431	2.223
HCM Lane V/C Ratio	0.095	0.146	0.047	0.066
HCM Control Delay	7.9	7.9	7.6	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.1	0.2

Intersection				
Intersection Delay, s/veh				
Intersection LOS				
Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	7	22	20
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	8	25	23
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach	NB			
Opposing Lanes	1			
Conflicting Approach Left	WB			
Conflicting Lanes Left	1			
Conflicting Approach Right	EB			
Conflicting Lanes Right	1			
HCM Control Delay	7.5			
HCM LOS	A			
Lane				

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	50	7	14	27	9	4	4	10	3	4	0
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	66	9	18	36	12	5	5	13	4	5	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	80	0	0	164	167	80	170	166	51
Stage 1	-	-	-	-	-	-	78	78	-	83	83	-
Stage 2	-	-	-	-	-	-	86	89	-	87	83	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1535	-	-	1499	-	-	794	720	972	787	721	1009
Stage 1	-	-	-	-	-	-	923	824	-	918	820	-
Stage 2	-	-	-	-	-	-	914	815	-	913	820	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1529	-	-	1493	-	-	775	705	964	758	706	1001
Mov Cap-2 Maneuver	-	-	-	-	-	-	775	705	-	758	706	-
Stage 1	-	-	-	-	-	-	918	820	-	913	807	-
Stage 2	-	-	-	-	-	-	893	802	-	890	816	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			2.1			9.4			10		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	849	1529	-	-	1493	-	-	727				
HCM Lane V/C Ratio	0.028	0.001	-	-	0.012	-	-	0.013				
HCM Control Delay (s)	9.4	7.4	0	-	7.4	0	-	10				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Intersection

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	13	11	69	16	8	50
Conflicting Peds, #/hr	25	25	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	14	12	73	17	8	53

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	175	131	0 0 114 0
Stage 1	106	-	- - - -
Stage 2	69	-	- - - -
Critical Hdwy	6.45	6.25	- - 4.15 -
Critical Hdwy Stg 1	5.45	-	- - - -
Critical Hdwy Stg 2	5.45	-	- - - -
Follow-up Hdwy	3.545	3.345	- - 2.245 -
Pot Cap-1 Maneuver	808	911	- - 1457 -
Stage 1	911	-	- - - -
Stage 2	946	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	770	873	- - 1427 -
Mov Cap-2 Maneuver	770	-	- - - -
Stage 1	892	-	- - - -
Stage 2	921	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 814	1427	-
HCM Lane V/C Ratio	-	- 0.031	0.006	-
HCM Control Delay (s)	-	- 9.6	7.5	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

PM Year 2030 + Project
8: SR-115 & Zenos Rd (6th St)

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	4	0	73	8	29	1	132	70	29	201	1
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	5	5	5	5	5	5	5	15	5	5	15	5
Mvmt Flow	0	5	0	85	9	34	1	153	81	34	234	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	530	549	244	511	509	204	240	0	0	240	0	0
Stage 1	307	307	-	202	202	-	-	-	-	-	-	-
Stage 2	223	242	-	309	307	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	455	439	787	468	463	829	1309	-	-	1309	-	-
Stage 1	696	656	-	793	729	-	-	-	-	-	-	-
Stage 2	773	700	-	695	656	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	416	422	780	449	445	822	1304	-	-	1304	-	-
Mov Cap-2 Maneuver	416	422	-	449	445	-	-	-	-	-	-	-
Stage 1	692	634	-	789	725	-	-	-	-	-	-	-
Stage 2	728	696	-	666	634	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	13.6			14.4			0			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1304	-	-	422	510	1304	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.011	0.251	0.026	-	-				
HCM Control Delay (s)	7.8	0	-	13.6	14.4	7.8	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	1	0.1	-	-				

PM Year 2030 + Project
9: Zenos Rd (6th St) & Melon Rd

HCM 2010 TWSC

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	51	76	73	39	36	35
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	64	95	91	49	45	44
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	145	0	-	0	344	126
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	223	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1419	-	-	-	646	916
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	807	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1413	-	-	-	610	908
Mov Cap-2 Maneuver	-	-	-	-	610	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	765	-
Approach	EB		WB		SB	
HCM Control Delay, s	3.1		0		10.6	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1413	-	-	-	728	
HCM Lane V/C Ratio	0.045	-	-	-	0.122	
HCM Control Delay (s)	7.7	0	-	-	10.6	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	

Intersection

Int Delay, s/veh 0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	8	3	1	13	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	9	3	1	14	2	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	26
Stage 1	-	-	10
Stage 2	-	-	16
Critical Hdwy	-	4.15	6.45
Critical Hdwy Stg 1	-	-	5.45
Critical Hdwy Stg 2	-	-	5.45
Follow-up Hdwy	-	2.245	3.545
Pot Cap-1 Maneuver	-	1587	982
Stage 1	-	-	1005
Stage 2	-	-	999
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1587	981
Mov Cap-2 Maneuver	-	-	981
Stage 1	-	-	1005
Stage 2	-	-	998

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	981	-	-	1587	-
HCM Lane V/C Ratio	0.002	-	-	0.001	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	30	2	11	56	3	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	33	2	12	61	3	21
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	69	42	0	0	73	0
Stage 1	42	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.245	-
Pot Cap-1 Maneuver	928	1020	-	-	1508	-
Stage 1	973	-	-	-	-	-
Stage 2	988	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	926	1020	-	-	1508	-
Mov Cap-2 Maneuver	926	-	-	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 931	1508	-		
HCM Lane V/C Ratio	-	- 0.037	0.002	-		
HCM Control Delay (s)	-	- 9	7.4	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.1	0	-		