

Appendix

- A) MODEL CALIBRATION REPORT
- B) LAND USE FORECASTS MEMORANDUM
- C) LAND USE BY TAZ
- D) SIGNAL WARRANTS
- E) LEVEL OF SERVICE WORKSHEETS

Appendix A

MODEL CALIBRATION REPORT

2015 South County Circulation Study and Traffic Impact Fee Update

Existing Conditions Model
Calibration Report

Prepared for:

County of San Luis Obispo



Prepared by:



**2015 South County Circulation Study and Traffic Impact Fee Update
Existing Conditions Model Calibration Report**

Prepared for:

**County of San Luis Obispo
County Government Center, Room 2016
San Luis Obispo, CA 93408**

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Introduction

San Luis Obispo County has retained Omni-Means to update the South County/Nipomo Travel Demand Model, the Circulation Plan, the Capital Improvement Program, and the Traffic Impact Fee. This report has been prepared in order to document the methodology, processes, and supporting technical documentation for the South County Travel Demand Model (TDM) development and update process, and calibration of the *2015 Existing Conditions* TDM. The existing traffic flow conditions were simulated in the South County/Nipomo Travel Demand Model. The Model will be used to forecast future travel within the South County/Nipomo area and then determine the future circulation improvements to support the capacity needs identified.

Calibration of 2015 Existing Conditions South County Traffic Forecast Model

This report presents the methodology, processes, and supporting technical documentation for the South County Travel Demand Model (TDM) development/update process and calibration of the *2015 Existing Conditions* TDM.

Travel Demand Model Development

This section presents the supporting technical documentation for the South County TDM development process. The procedure is outlined below:

1. Collect parcel data and aggregate areas into Traffic Analysis Zones (TAZ)
2. Model the traffic network
3. Create the four-step modeling process
4. Calibrate the base year model
5. Forecast build-out year travel demand (incomplete)

Land Use Data

Travel demand models simulate travel demand by first estimating trips generated in zones within the study area. The number and type of trips generated and attracted between areas depend on land use. The County Assessor's parcel database provides land use data in terms of zoning and development type (e.g. housing, commercial development, public uses). The land uses were further simplified into housing unit and employment estimates, which are consistent with the US Census. The existing land uses within the County are summarized in Table 1.

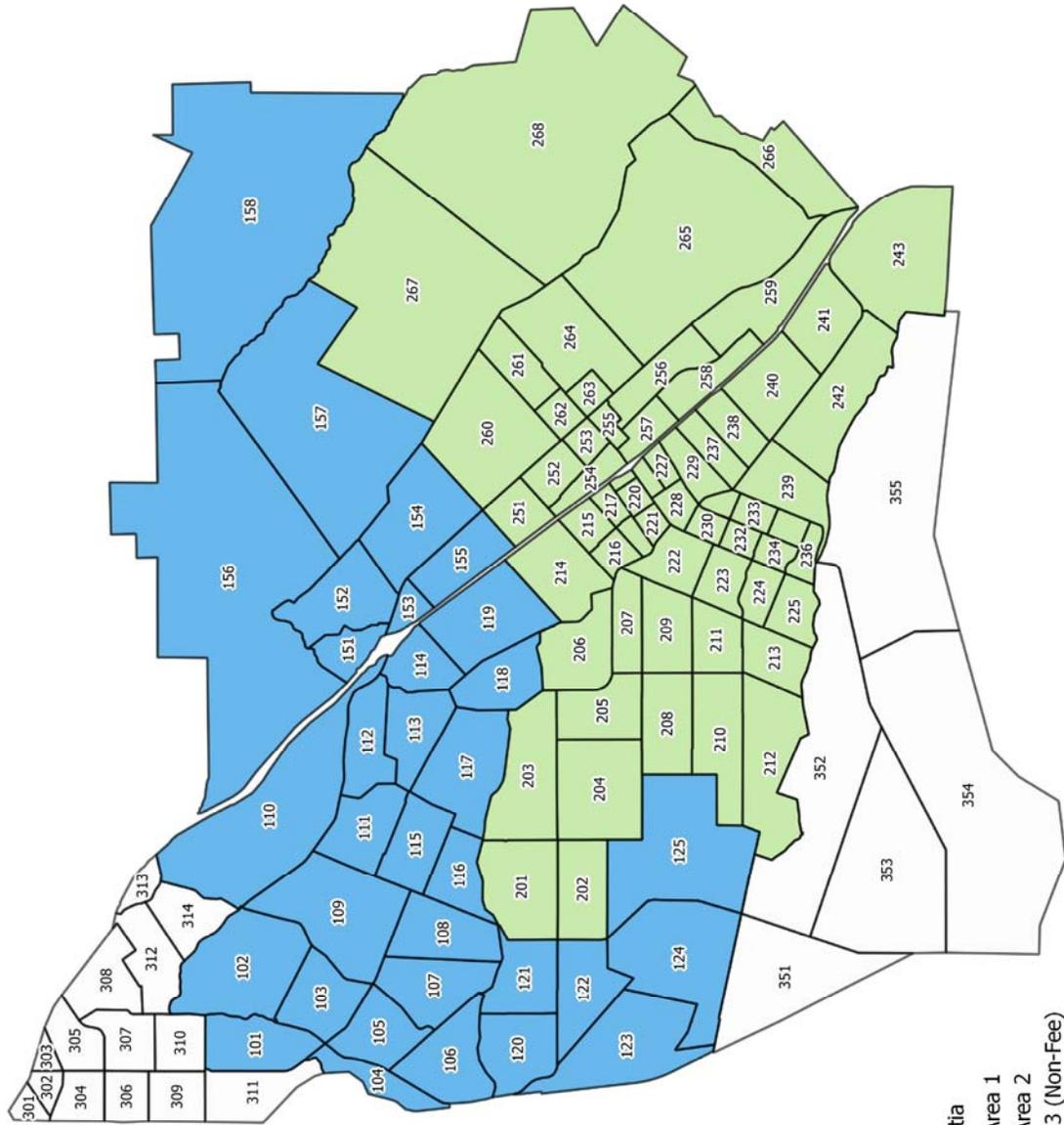
**TABLE 1:
EXISTING LAND USE**

Land Use	2015 Conditions				
	Area 1	Area 2	Fee Area	Area 3*	Total
Residential (dwelling units)					
Single Family	5,121	2,481	7,602	2,055	9,657
Multi Family	1,015	100	1,115	821	1,936
Mobile Home	317	316	633	564	1,197
Total Residential	6,453	2,897	9,350	3,440	12,790
Non-Residential (acres)					
Agriculture	1,232	2,240	3,472	4,608	8,080
Commercial/Retail	53	64	117	30	147
Golf	178	251	429	0	429
Industrial	23	21	44	9	53
Office	18	17	35	30	65
Storage + Warehouse	81	28	109	15	124
Total Non-Residential	1,585	2,620	4,205	4,693	8,897
Estimated Employment					
Retail	204	71	275	127	402
Service	558	282	839	645	1,484
Other	599	857	1,455	710	2,165
Total Employment	1,360	1,209	2,569	1,481	4,050

**Area 3 consists of parcels outside Nipomo Areas 1 & 2, in unincorporated San Luis Obispo County and Arroyo Grande, that are included in the South County TDM*

South County land uses are simplified into areas referred to as “Traffic Analysis Zones” (TAZs) for travel demand modeling purposes. Aggregating minute areas like parcels into larger zones decreases the computation intensity of the model and simplifies data processing. The TAZs are defined using real-world traffic boundaries, such as natural geographic barriers (e.g. rivers and creeks) and “man-made” barriers (e.g. major street right-of-ways and railroads).

Figure 1 presents the South County TAZ boundary map. A total of 113 TAZs were defined for the South County area. The TAZ boundaries are separated into three areas, as presented in Figure 1. Two of the three model areas are fee areas (Area 1 and Area 2), which will be used in the South County Circulation Study and Impact Fee Update.



Legend
 TAZ_Laettita
 Fee Area 1
 Fee Area 2
 Area 3 (Non-Fee)

South County Circulation Study & Traffic Impact Fee Update

South County TAZ Boundary Map

Figure 1



Network Creation

Street networks handle the trips generated by land use. The travel demand model simulates a road's ability to handle travel demand based on facility type (e.g. freeway, highway, arterial, and collector), number of lanes, speed, and alignment. Figure 2 shows the Base Year network map, which reflects the existing South County roadway system.

Table 2 presents the road classification categories, the associated operating characteristics of each category, and examples of roads in each category.

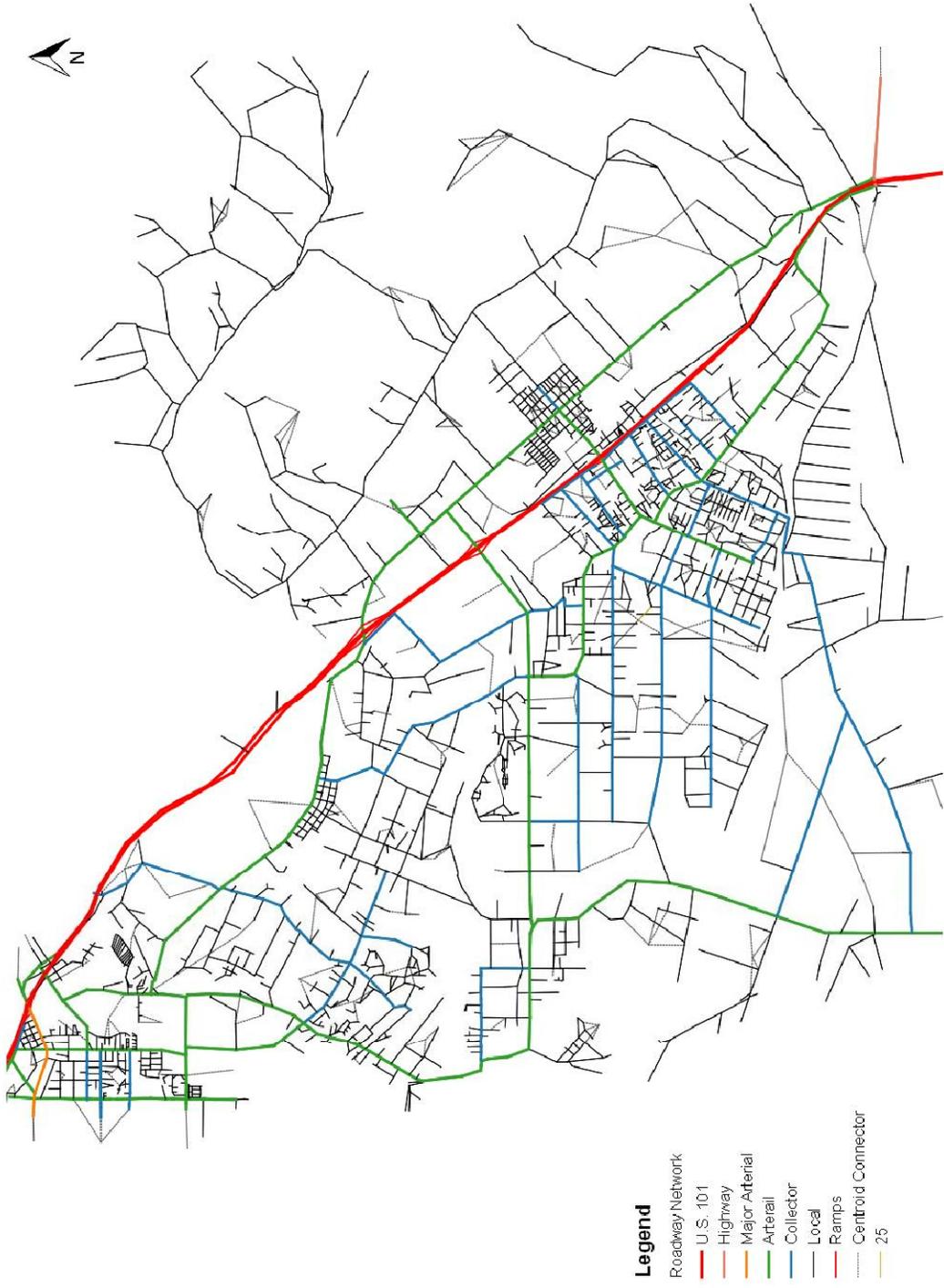
**TABLE 2:
ROADWAY CLASSIFICATION**

Classification	Capacity (Vehicles per Lane per Hour)	Free-Flow Speed (mph)	Example Roadway
Freeway	2000	65-70	US Highway 101
Highway	1000	45-55	Highway 1, State Route 166
Major Arterial	800	35-45	Tefft Street
Minor Arterial	700	35-45	Orchard Road, Los Berros Road
Collector	600	25-35	Osage Street, Division Street
Local	300	25-35	Mesa Road, Camino Caballo

Four-Step Modeling Process

The CUBE/Voyager (Citilabs) software suite was used for the current update to the South County Travel Demand Model. The prior version of the South County model also used CUBE. The travel demand model follows an industry-standard four-step procedure for modeling travel demand. The steps are as follows:

1. Trip Generation – Estimate the trips generated and attracted by individual Traffic Analysis Zones (TAZs)
2. Trip Distribution – Match trips that are generated and attracted between zones for varying trip purposes.
3. Mode Choice – Select a travel mode for a particular trip.
4. Assignment – Select a path for the chosen travel mode and trip.



South County Circulation Study & Traffic Impact Fee Update

Figure 2

South County Travel Demand Model Network Map



Trip Generation

Land uses generate a varying number of trips based on development type and development quantity. Trip producing land use groups include single-family and multi-family residential dwelling units. Trip attracting land use groups include retail, office, industrial and educational land uses. The land use quantities derived from the parcel database was converted into dwelling unit and employment estimates. These TAZ-level estimates were checked for consistency with the US Census and the regional model.

Each trip purpose has a different trip generation rate for each land use. Trip generation rates for individual land uses were checked against traffic studies contained in the Institute of Transportation Engineers *Trip Generation, 9th Edition* manual.

Trip Distribution

The trips generated and attracted between land uses depend on trip purpose and network impedance. Modeled trips were sorted into five trip purpose categories.

1. Home-Based Work (HBW)
2. Home-Based Education (HBE)
3. Home-Based Shop (HBS)
4. Home-Based Other (HBO)
5. Other-Based Other (OBO)

The ability for one land use to satisfy the trip purpose of another land use leads to the creation of an origin-destination pairing (e.g. a trip from a residential area to an area containing retail development). The likelihood of such a pairing also depends on the travel time for such a trip to occur. Long travel times between zones, which are affected by congested roadways, decrease the likelihood of an origin-destination pairing and results in the model seeking another closer trip pairing opportunity.

Mode Choice

The South County travel demand model solely simulates automobile travel patterns. Transit service is not a major component of the vehicular traffic within South County and was not considered in the travel demand model process.

Trip Assignment

Trips between origin-destination pairs are assigned by the model using an equilibrium process. The multiple possible paths between zones are iteratively loaded until no one path provides an advantage over another. The volumes on each network link are then compared against real-world traffic counts to determine model correctness. The following section outlines the model calibration procedure.

Model Calibration

The previous section described the creation of a complete but “un-validated” base year model, i.e. the model may not accurately reflect real-world travel demand. Calibrating the model so that it reasonably reflects real world travel demand requires matching the model estimate on a set of links against traffic counts. The existing traffic counts are compared to model link outputs by their difference.

The associated percent model difference is then compared to an industry standard acceptable percent error target for each segment, by facility type, by screenlines, and by a system-wide correlation.

Table 3 presents the calibration for each selected facility used in the calibration process.

**TABLE 3:
SOUTH COUNTY TRAVEL DEMAND MODEL - CALIBRATION SUMMARY**

Roadway	Location	Type	Count Year	Existing Traffic Count	Model Forecast	Model Diff	% Error Model	% Error Target
U.S. 101	North of Brisco Road	Freeway	2013	57,500	56,400	1,100	-1.9%	7.0%
	South of Grand Avenue/SR 227	Freeway	2013	51,700	52,900	-1,200	2.3%	7.0%
	North of Los Berros Road	Freeway	2013	54,800	55,500	-700	1.3%	7.0%
	North of Tefft Street	Freeway	2013	55,500	50,100	5,400	-9.7%	7.0%
	South of Tefft Street	Freeway	2013	55,800	55,900	-100	0.2%	7.0%
	North of State Route 135	Freeway	2013	64,100	65,600	-1,500	2.3%	7.0%
	South of State Route 135	Freeway	2013	58,000	61,500	-3,500	6.0%	7.0%
State Route 1	West of Halcyon Road (North)	Arterial	2014	10,409	11,600	-1,191	11.4%	15.0%
	West of Valley Road	Arterial	2014	5,367	6,700	-1,333	24.8%	15.0%
	South of Valley Road	Arterial	2015	3,757	5,800	-2,043	54.4%	15.0%
	South of Halcyon Road (South)	Arterial	2014	8,474	9,100	-626	7.4%	15.0%
	South of Willow Road	Arterial	2014	4,983	4,800	183	-3.7%	15.0%
State Route 166	East of U.S. 101	Arterial	2014	3,480	3,800	-320	9.2%	15.0%
Camino Caballo	West of Osage Street	Collector	2014	1,975	1,600	375	-19.0%	25.0%

Roadway	Location	Type	Count Year	Existing Traffic Count	Model Forecast	Model Diff	% Error Model	% Error Target
Dale Avenue	South of Los Berros Road	Collector	2014	478	490	-12	2.5%	25.0%
Division Street	West of Orchard Road	Collector	2014	6,894	6,000	894	-13.0%	25.0%
	South of Las Flores Drive	Collector	2014	3,046	3,400	-354	11.6%	25.0%
El Campo Road	North of Halcyon Road	Collector	2014	1,778	2,100	-322	18.1%	25.0%
	South of Halcyon Road	Collector	2014	2,049	2,200	-151	7.4%	25.0%
	South of U.S. 101	Collector	2014	2,060	2,500	-440	21.4%	25.0%
Eucalyptus Road	West of Osage Street	Collector	2014	2,204	1,800	404	-18.3%	25.0%
Frontage Road	North of Juniper Street	Collector	2014	1,498	1,400	98	-6.5%	25.0%
Halcyon Road	South of Cienaga Street (SR 1)	Arterial	2014	9,876	10,300	-424	4.3%	15.0%
	South of Mesa View (SR 1)	Arterial	2014	4,668	3,600	1,068	-22.9%	15.0%
	West of El Campo Road	Collector	2014	3,655	3,600	55	-1.5%	25.0%
Hetrick Avenue	South of Summit Station Road	Collector	2014	391	190	201	-51.4%	25.0%
Hutton Road	North of State Route 166	Arterial	2014	7,801	7,500	301	-3.9%	15.0%
Los Berros Road	East of Valley Road	Arterial	2014	4,866	5,100	-234	4.8%	15.0%
	East of Stanton Road	Arterial	2014	5,850	5,400	450	-7.7%	15.0%
	West of U.S. 101	Arterial	2014	5,239	4,100	1,139	-21.7%	15.0%
Mary Avenue	North of Tefft Street	Collector	2014	3,623	3,200	423	-11.7%	25.0%
	South of Tefft Street	Collector	2014	3,377	4,100	-723	21.4%	25.0%
Mesa Road	West of Tefft Street	Collector	2014	3,269	3,300	-31	0.9%	25.0%
	West of Osage Street	Collector	2014	2,942	2,500	442	-15.0%	25.0%
Orchard Road	East of Tefft Street	Arterial	2014	5,327	5,700	-373	7.0%	15.0%
	South of Southland Street	Arterial	2014	6,927	6,100	827	-11.9%	15.0%
Pomeroy Road	South of Los Berros Road	Collector	2014	1,202	1,500	-298	24.8%	25.0%

Roadway	Location	Type	Count Year	Existing Traffic Count	Model Forecast	Model Diff	% Error Model	% Error Target
	North of Willow Road	Collector	2014	1,626	1,800	-174	10.7%	25.0%
	North of Tefft Street	Arterial	2014	6,050	5,300	750	-12.4%	15.0%
S. Frontage Road	South of Tefft Street	Collector	2014	7,227	7,700	-473	6.5%	25.0%
Southland Street	West of Frontage Road	Collector	2014	857	840	17	-2.0%	25.0%
Summit Station Road	South of Los Berros Road	Collector	2014	550	520	30	-5.5%	25.0%
	East of Las Flores Drive	Arterial	2014	1,473	1,400	73	-5.0%	15.0%
	East of Mesa Road	Arterial	2014	7,579	7,100	479	-6.3%	15.0%
	West of Mary Avenue	Arterial	2014	15,371	16,700	-1,329	8.6%	15.0%
Tefft Street	West of U.S. 101	Arterial	2008	24,500	23,500	1,000	-4.1%	15.0%
	East of U.S. 101	Arterial	2008	9,684	9,700	-16	0.2%	15.0%
	East of Oakglen Avenue	Arterial	2014	9,684	9,400	284	-2.9%	15.0%
	West of Thompson Avenue	Arterial	2014	6,769	6,100	669	-9.9%	15.0%
	South of U.S. 101	Arterial	2014	3,816	3,700	116	-3.0%	15.0%
Thompson Avenue	North of Tefft Street	Arterial	2014	6,544	4,400	2,144	-32.8%	15.0%
	North of State Route 166	Arterial	2014	2,922	2,100	822	-28.1%	15.0%
Via Concha Road	East of US 1	Collector	2014	1,316	1,000	316	-24.0%	25.0%
Valley Road	North of Los Berros Road	Arterial	2014	5,367	6,100	-733	13.7%	15.0%
	South of Los Berros Road	Arterial	2014	7,068	6,400	668	-9.5%	15.0%
	East of State Route 1	Arterial	2014	4,524	4,100	424	-9.4%	15.0%
Willow Road	West of Pomeroy Road	Arterial	2014	7,641	7,200	441	-5.8%	15.0%
	West of US 101	Arterial	2014	8,555	9,900	-1,345	15.7%	15.0%
	East of US 101	Arterial	2014	2,181	1,900	281	-12.9%	15.0%

*Adjusted based on increase at Hetrick Road since 2004

As shown in Table 3, nine roadway segments are highlighted where the model forecast % Error is higher or lower than the target. These segments have been considered and analyzed based on the surrounding land uses and adjacent roadway data, and the previous model update.

The following segments are considered to have a possible error in the existing traffic count, and therefore the model forecast % Error results are acceptable:

- SR 1 South of Valley Road
- Division Street South of Las Flores Drive
- Hetrick Avenue South of Summit Station Road
- Los Berros Road East of Stanton Road
- Thompson Avenue North of Tefft Street

The following segments have been higher in the previous model update, are still forecasting the same % Error results, and are not considered to be a major issue due to the volume difference, which will not affect future deficiencies or improvements on these roadways:

- U.S. 101 North of Tefft Street
- Thompson Avenue North of SR 166

Road Type

The travel demand model validation is based on criteria created by the Federal Highway Administration (*Federal Highway Administration, Calibration and Adjustment of System Planning Models, 1990.*) and Caltrans (*California Department of Transportation, Travel Forecasting Guidelines, 1992.*). Table 4 presents the Federal Highway Administration (FHWA)-recommended absolute error targets for each facility type. The Root-Mean-Squared Error (RMSE) more heavily weights large errors.

**TABLE 4:
SOUTH COUNTY TRAVEL DEMAND MODEL – CALIBRATION SUMMARY**

Roadway Classification	Daily Count	Model Volume	% Model	% Target	RMSE Model	RMSE Target
Freeway	397,400	397,900	0.1%	7.0%	4.6%	15.0%
Arterial	216,752	214,600	1.0%	15.0%	16.3%	40.0%
Collector/Local	52,017	51,740	0.5%	25.0%	17.9%	50.0%
Total	666,169	664,240	0.3%	5.0%	16.0%	35.0%

1. Federal Highway Administration, Calibration and Adjustment of System Planning Models, 1990.
2. California Department of Transportation, Travel Forecasting Guidelines, 1992.

Table 4 shows that the model satisfies each facility-specific absolute percent-error target and the RMSE targets for all facilities.

Screenlines

Screenlines are imaginary boundaries that measure the total traffic across multiple parallel routes. Screenlines allow for calibration across areas rather than at specific sites. Traffic count locations were selected such that three screenlines were defined for the South County TDM.

The South County North screenline includes:

- U.S. 101, north of Los Berros Road;
- State Route 1, west of Valley Road;
- Valley Road, south of Sunrise Drive;
- El Campo Road, south of U.S. 101; and,
- Halcyon Road, south of Mesa View Road.

The Nipomo Central screenline includes:

- U.S. 101, north of Tefft Street;
- Thompson Street, north of Tefft Street;
- Pomeroy Road, north of Tefft Street;
- Mary Avenue, north of Tefft Street; and,
- Mesa Road, west of Tefft Street.

The South County South screenline includes:

- U.S. 101, north of State Route 166;
- Thompson Street, north of State Route 166; and,
- Hutton Road, north of State Route 166.

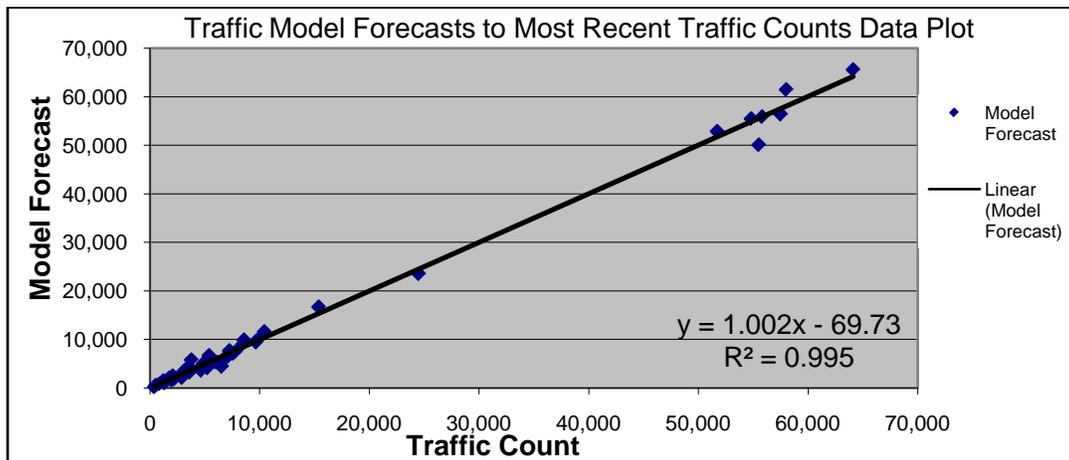
Table 5 shows the model screenline calibration results. All screenline results are within recommended percent error targets.

**TABLE 5:
SOUTH COUNTY TRAVEL DEMAND MODEL - SCREENLINE SUMMARY**

Screenline	Traffic Count	Model Volume	% Error Model	% Error Target
South County, north	72,262	74,400	3.0%	15.0%
US 101, n/o Los Berros Road interchange	54,800	55,500		
Highway 1, w/o Valley Road	5,367	6,700		
Valley Road, s/o Sunrise	5,367	6,100		
El Campo Rd, s/o US 101	2,060	2,500		
Halcyon Rd, s/o Mesa View Road	4,668	3,600		
Nipomo, north of Tefft St.	74,986	66,300	11.6%	15.0%
US 101, n/o Tefft Street interchange	55,500	50,100		
Pomeroy Rd, n/o Tefft St	6,050	5,300		
Mary Ave, n/o Tefft St	3,623	3,200		
Thompson St, n/o Tefft St	6,544	4,400		
Mesa Rd, w/o Tefft St	3,269	3,300		
South County, south	66,523	65,500	1.5%	15.0%
US 101, n/o SR 166 interchange	55,800	55,900		
Thompson St, n/o SR 166	2,922	2,100		
Hutton Rd, n/o SR 166	7,801	7,500		

Region-wide Correlation Coefficient

The correlation coefficient represents the model forecasts of each segment compared to the traffic counts on a system-wide basis, and how close they are correlated. The region-wide model correlation was calculated by plotting the model forecasts against the roadway counts. An acceptable correlation coefficient is 0.88. As shown in the following chart, which plots model traffic forecasts to the most recent traffic counts, the model correlation coefficient is 0.995, meaning the model explains slightly more than 99% of the variability in the traffic counts.



Appendix B

FORECAST MEMORANDUM

Memorandum

To:	San Luis Obispo County	Date:	June 18, 2015
Attn:	Michelle Matson	Project:	South County Circulation Study and Traffic Impact Fee Update
From:	Rosanna Southern	Job No.:	25-6462-11
Re:	2035 Baseline Conditions Model Models Land Use - Update	File No.:	C1916MEM004.docx
CC:	Jeremy Ghent, San Luis Obispo County Todd Tregenza, Omni-Means Marty Inouye, Omni-Means		

Introduction

This memorandum summarizes tasks that have been undertaken so far by Omni-Means and discusses the progress towards building an updated South San Luis Obispo County (South County) Travel Demand Model (TDM) in support of the South County Circulation Study and Traffic Impact Fee Update.

Preparation of 2035 Baseline Conditions Model

This memorandum presents the land uses that will be utilized to develop the *2035 Baseline Conditions* South County Travel Demand Model (TDM).

Traffic Analysis Zones

The Traffic Analysis Zone (TAZ) boundaries for the future conditions model are the same as those for the existing conditions model, and are separated into three areas. Two of the three model areas represent the South County fee areas (Area 1 and Area 2), which will be used in the South County Circulation Study and Impact Fee Update. The study area showing the two fee areas is presented in Figure 1. Figure 2 shows the individual travel demand model TAZ boundaries.

Existing Land Use Data

Existing land uses were determined based on assessor's parcel data, which was obtained from ParcelQuest, who maintains the County's parcel database. The parcels contain land uses, which are based on the County's (assessor) land use codes, and indicate types of residential and non-residential land use designations for each parcel. Existing land uses were verified, and adjusted as needed.

Table 1 presents the 2015 existing conditions land uses. Table 2 presents the 2005 baseline land uses used in the 2006 South County Fee Update (Omni-Means, 2006) compared to the 2015 existing conditions land uses for the fee area (Area 1 and Area 2).

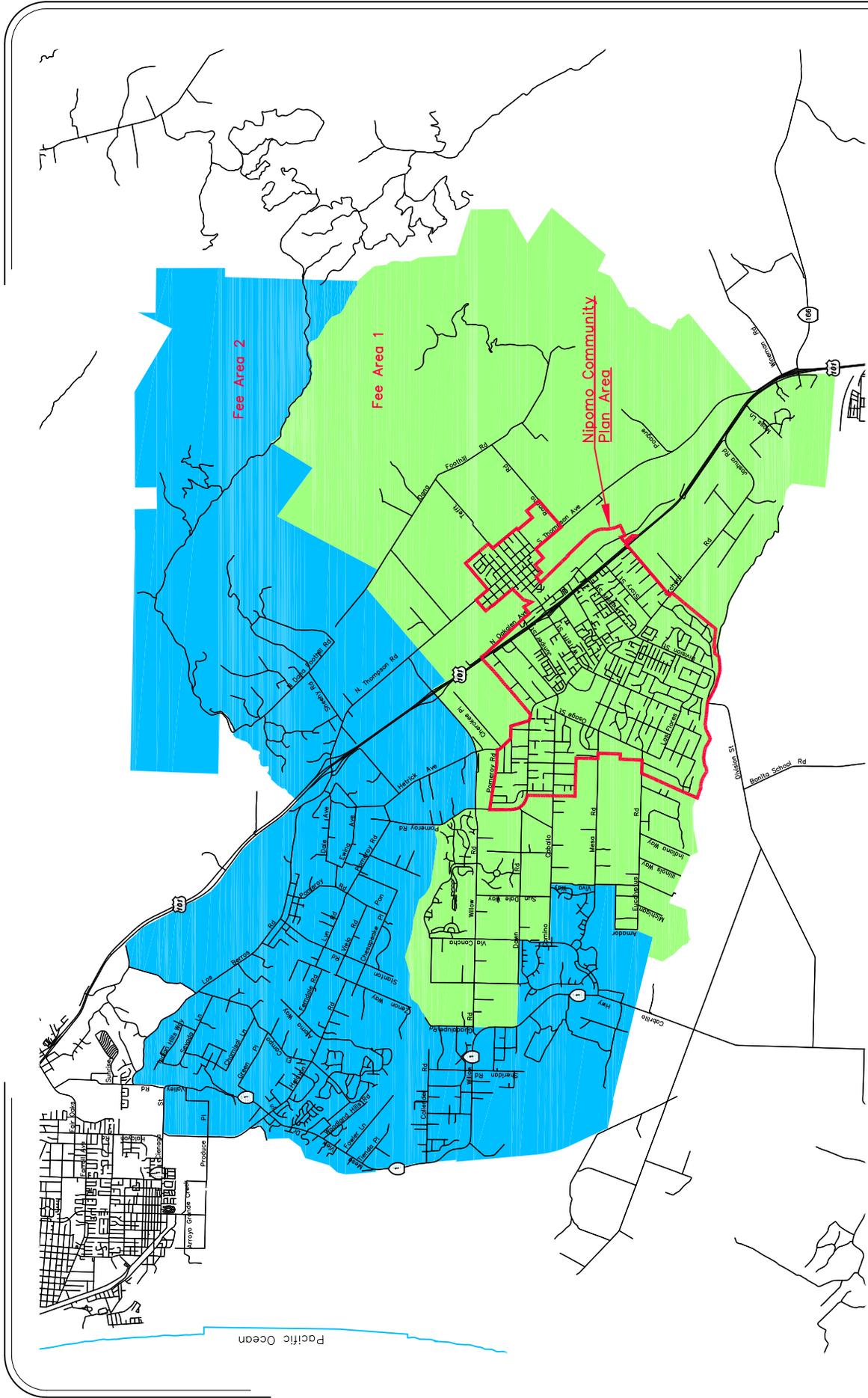
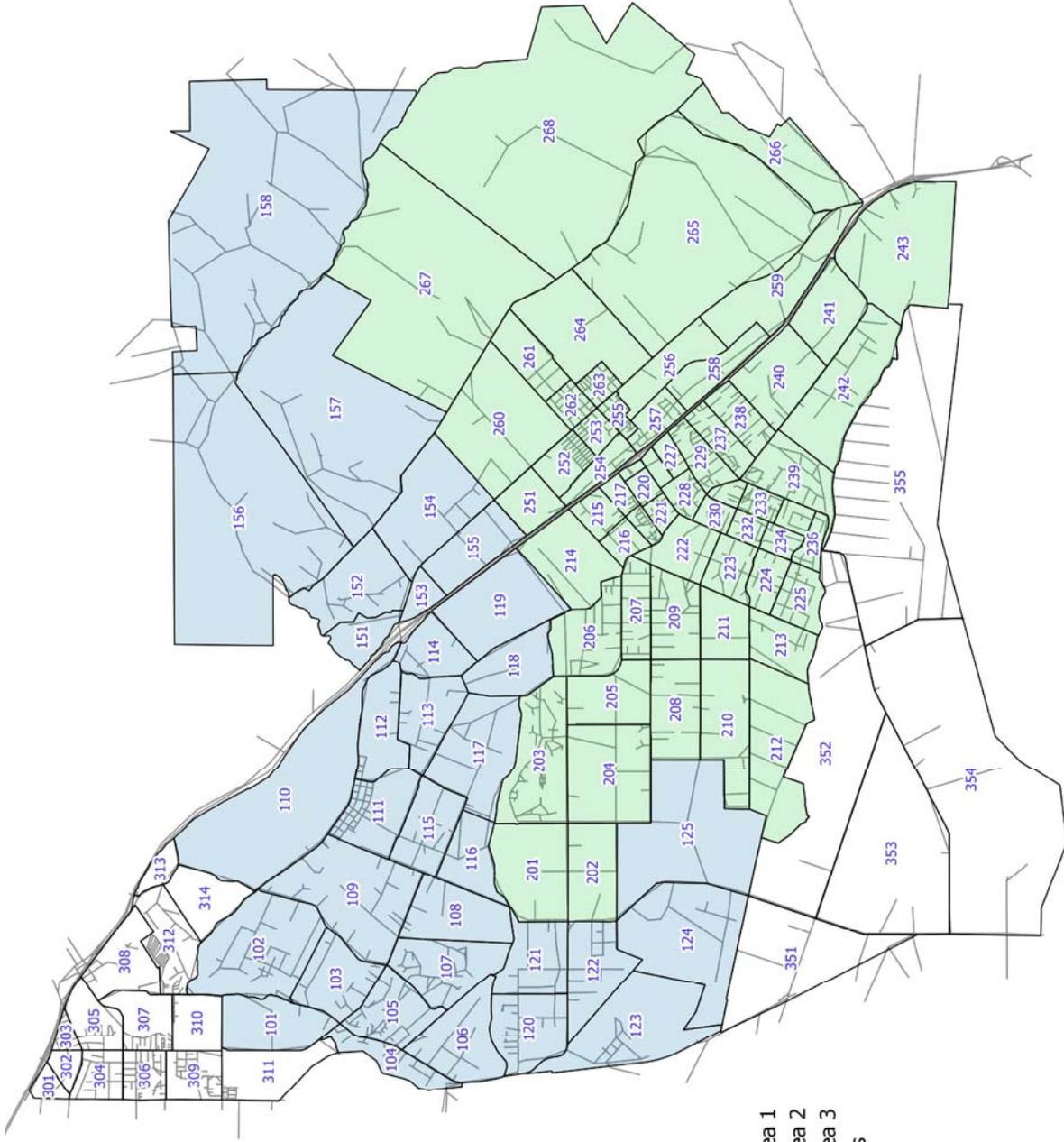


Figure 1

South County Circulation Study & Traffic Impact Fee Update

Study Area Map



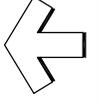


- Legend**
- TAZ Boundary
 - Model Area 1
 - Model Area 2
 - Model Area 3
 - Roadways

South County Circulation Study & Traffic Impact Fee Update

South County TAZ Boundary Map

Figure 1



**TABLE 1
EXISTING 2015 LAND USE**

Land Use	2015 Conditions				
	Area 1	Area 2	Fee Area	Area 3*	Total
Residential (dwelling units)					
Single Family	5,121	2,481	7,602	2,055	9,657
Multi Family	1,015	100	1,115	821	1,936
Mobile Home	317	316	633	564	1,197
Total Residential	6,453	2,897	9,350	3,440	12,790
Non-Residential (acres)					
Agriculture	1,232	2,240	3,472	4,608	8,080
Commercial/Retail	53	64	117	30	147
Golf	178	251	429	0	429
Industrial	23	21	44	9	53
Office	18	17	35	30	65
Storage + Warehouse	81	28	109	15	124
Total Non-Residential	1,585	2,620	4,205	4,693	8,897
Estimated Employment					
Retail	204	71	275	127	402
Service	558	282	839	645	1,484
Other	599	857	1,455	710	2,165
Total Employment	1,360	1,209	2,569	1,481	4,050

*Area 3 consists of parcels outside Nipomo Areas 1 & 2, in unincorporated San Luis Obispo County and Arroyo Grande, that are included in the South County TDM

**TABLE 2
2005 TO 2015 LAND USE COMPARISON**

Land Use	2005 Conditions			2015 Conditions		
	Area 1	Area 2	Fee Area (Total)	Area 1	Area 2	Fee Area (Total)
Residential (dwelling units)						
Single Family	4,529	1,720	6,249	5,121	2,481	7,602
Multi Family	273	2	275	1,015	100	1,115
Mobile Home	683	416	1,099	317	316	633
Total Residential	5,485	2,138	7,623	6,453	2,897	9,350
Non-Residential						
Commercial/Retail (KSF)	709	160	869	581	692	1,273
Office (KSF)	52	21	73	195	184	379
Industrial (KSF)	192	1,540	1,732	249	226	475
Agriculture (Acres)	1,802	2,806	4,608	1,232	2,240	3,472
Total Non-Residential (AC)	1,901	3,058	4,960	1,326	2,341	3,667

Note: This list only includes specific land uses for the above summary, please refer to 2006 Traffic Model Update for full breakdown.

As shown in Tables 1 and 2, the 2015 land use database includes just over 1,700 more residential units in the Fee Area than were present in the 2005 database that formed the basis of the 2006 South County Fee Update. The comparison in Table 2 also indicates a reduction in



agricultural land use, indicating that these parcels have likely been developed as other non-residential or residential uses over the last ten (10) years.

As also shown in Table 2, a significant reduction in industrial uses was identified in the 2015 database relative to the 2005 data. A significant portion of the reduction was the result of eliminating an incorrect floor-area-ratio assumption on the Philips 66 oil refinery. This site's parcel is very large, and a significant portion of it is undeveloped. This overestimation of industrial uses was corrected in the 2015 land use inventory during the post-processing of the raw parcel data into model TAZs.

Lastly, Table 2 shows a net increase in commercial and office development in 2015 relative to 2005. This increase has been attributed to development of new commercial and office projects over the last ten (10) years as well as some reclassification of some industrial uses as commercial.

Figures 3 and 4 show the existing residential units and employment totals by TAZ.

Future Land Uses

Future land uses were developed by first identifying vacant and underutilized, using the assessor parcel database, and building out the identified parcels using the County's General Plan land use designations. The dwelling unit densities, and non residential use floor area ratios, for the future land uses were determined using the County's Land Use Ordinance and refined area-specific data provided by the County. Tables 3 presents the added build-out (2035) land use growth increment alongside existing and net buildout land use quantities within the modeling area.

As shown in Table 3, the Fee Area (Areas 1 and 2 combined) is expected to grow by just over 2,000 dwelling units, and just under 2,000 jobs. The modeling area as a whole (Areas 1, 2, and 3 combined) is expected to grow by approximately 2,300 dwelling units and 2,100 jobs by buildout.

Figures 5 and 6 show the proposed growth increments in residential units and employment by TAZ. Figures 7 and 8 show the proposed 2035 buildout residential unit and employment totals by TAZ.



**TABLE 3
EXISTING AND FUTURE LANE USE COMPARISON**

Land Use	2015 Conditions					2035 Added Land-Uses					2035 Conditions				
	Area 1	Area 2	Fee Area	Area 3*	Total	Area 1	Area 2	Fee Area	Area 3*	Total	Area 1	Area 2	Fee Area	Area 3*	Total
Residential (dwelling units)															
Single Family	5,121	2,481	7,602	2,055	9,657	1,124	609	1,733	296	2,029	6,245	3,090	9,335	2,351	11,686
Multi Family	1,015	100	1,115	821	1,936	303	5	308	0	308	1,318	105	1,423	821	2,244
Mobile Home	317	316	633	564	1,197	0	0	0	0	0	317	316	633	564	1,197
Total Residential	6,453	2,897	9,350	3,440	12,790	1,427	614	2,041	296	2,337	7,880	3,511	11,391	3,736	15,127
Non-Residential (acres)															
Agriculture	1,232	2,240	3,472	4,608	8,080	0	0	0	0	0	1,232	2,240	3,472	4,608	8,080
Commercial	53	64	117	30	147	166	48	213	7	221	219	111	330	37	368
Golf	178	251	429	0	429	86	34	120	131	251	264	285	548	131	679
Industrial	23	21	44	9	53	0	264	264	0	264	23	285	308	9	317
Office	18	17	35	30	65	19	0	19	7	26	37	17	54	37	91
Storage + Warehouse	81	28	109	15	124	0	0	0	0	0	81	28	109	15	124
Total Non-Residential	1,585	2,620	4,205	4,693	8,897	271	345	616	145	761	1,856	2,965	4,821	4,838	9,659
Estimated Employment															
Retail	204	71	275	127	402	824	123	946	27	973	1,028	194	946	154	1,375
Service	558	282	839	645	1,484	679	232	911	157	1,068	1,237	513	1,186	802	2,551
Other	599	857	1,455	710	2,165	0	67	67	0	67	599	924	906	710	2,232
Total Employment	1,360	1,209	2,569	1,481	4,050	1,503	421	1,924	184	2,108	2,863	1,630	3,038	1,665	6,158

*Area 3 consists of parcels outside Nipomo Areas 1 & 2, in unincorporated San Luis Obispo County and Arroyo Grande, that are included in the South County TDM



Table 4 presents a comparison of the 2025 growth increment applied to the 2005 land use quantities during the 2006 South County Fee Update and the 2035 growth increment proposed to be applied to 2015 land use quantities for this fee update.

**TABLE 4
2025 AND 2035 GROWTH INCREMENT COMPARISON**

Land Use	2005 to 2025 Growth			2015 to 2035 Growth		
	Area 1	Area 2	Fee Area (Total)	Area 1	Area 2	Fee Area (Total)
Residential (dwelling units)						
Single Family	2,375	1,750	4,125	1,124	609	1,733
Multi Family	710	67	777	303	5	308
Mobile Home	0	0	0	0	0	0
Total Residential	3,085	1,817	4,902	1,427	614	2,041
Non-Residential						
Commercial/Retail (KSF)	1,729	204	1,933	1,805	518	2,323
Office (KSF)	137	334	471	208	0	208
Industrial (KSF)	0	120	120	0	2,875	2,875
Agriculture (Acres)	1,556	854	2,410	0	0	0
Total Non-Residential (AC)	1,727	922	2,649	185	312	496

Note: This list only includes specific land uses for the above summary, please refer to 2006 Traffic Model Update for full breakdown.

As shown in Table 4, residential growth has been reduced significantly during this model update compared to the 2006 model. This reduction is due in part to the fact that the Fee Area has experienced residential development over the last ten (10) years, thus reducing the remaining vacant residential growth that was part of the 2025 growth increment. Also, during the 2006 South County Fee Update, a "post processing" adjustment was made to residential growth in the model to reflect the County's increased residential growth forecasts at the time. The proposed 2015 to 2035 residential growth increment is based strictly on buildout of the vacant residential parcels at the prescribed densities provided by the County, without any upward "post processing" adjustment to the rate, as was done in 2005.

The commercial and office growth rates remain similar for the 2035 model to the 2025 model, although some variances are noted and are attributable to development over the last ten (10) years as well as refinements to the parcel database and land use densities. The 2006 South County Fee Update also included significant agricultural growth. This growth has been eliminated from the proposed growth increment based on an understanding that agricultural lands are currently being used at the same intensity as would be expected in the future.

Table 5 presents the year 2025 buildout forecasts that were from the 2006 South County Fee Update using the 2005 land use quantities, and compares them to the 2035 buildout forecasts determined from 2015 land use quantities.



**TABLE 5
2025 AND 2035 BUILDOUT COMPARISON**

Land Use	2025 Forecast			2035 Forecast		
	Area 1	Area 2	Fee Area (Total)	Area 1	Area 2	Fee Area (Total)
Residential (dwelling units)						
Single Family	6,904	3,470	10,374	6,245	3,090	9,335
Multi Family	983	69	1,052	1,318	105	1,423
Mobile Home	683	416	1,099	317	316	633
Total Residential	8,570	3,955	12,525	7,880	3,511	11,391
Non-Residential						
Commercial/Retail (KSF)	2,438	364	2,802	2,386	1,210	3,596
Office (KSF)	189	355	544	403	184	587
Industrial (KSF)	192	1,660	1,852	249	3,101	3,350
Agriculture (Acres)	3,358	3,660	7,018	1,232	2,240	3,472
Total Non-Residential (AC)	3,629	3,980	7,609	1,511	2,653	4,163

Note: This list only includes specific land uses for the above summary, please refer to 2006 Traffic Model Update for full breakdown.

As shown in Table 5, the 2035 forecast, after adding the growth increment presented in Tables 3 and 4, will result in a total 11,391 residential units in the Fee Areas, compared to 12,525 previously identified in the 2025 forecast, due to the changes in forecast methodology discussed previously. As also shown in Table 5, the total 2035 commercial and office uses at buildout are higher than those reported in the 2025 forecast, while the industrial and agricultural uses are lower.

The San Luis Obispo Council of Governments (SLOCOG) model was compared to the South County base model residential and employment general totals. Table 6 presents the SLOCOG model land uses for 2010 and 2035 conditions, within South County model area, and the South County model land uses of the base model for existing 2015 and 2035 conditions.

**TABLE 6
REGIONAL MODEL COMPARISON**

GP Land Use	2010 SLOCOG MODEL					2015 Conditions				
	Area 1	Area 2	Fee Area	Area 3*	Total	Area 1	Area 2	Fee Area	Area 3*	Total
Total Residential (DU)	6,138	2,683	8,821	3,382	12,203	6,453	2,897	9,350	3,440	12,790
Total Employment	2,112	987	3,099	2,238	5,337	1,360	1,209	2,569	1,481	4,050
GP Land Use	2035 SLOCOG MODEL					2035 CONDITIONS				
Total Residential (DU)	6,392	3,238	9,630	3,414	13,044	7,880	3,511	11,391	3,736	15,127
Total Employment	2,857	1,608	4,465	2,563	7,028	2,863	1,630	4,493	1,665	6,158

**Area 3 consists of parcels outside Nipomo Areas 1 & 2, in unincorporated San Luis Obispo County and Arroyo Grande, that are included in the South County TDM*

As shown in Table 6, the 2035 SLOCOG model projects a lower residential growth than the proposed 2035 South County model, despite the reduction in residential growth relative to the 2025 South County model. Within the Fee Area, the 2035 SLOCOG model and the proposed 2035 South County model employment totals are consistent. The SLOCOG model may overestimate agricultural employment, as shown in the higher employment numbers in Area 3 for the existing and the buildout conditions scenario.



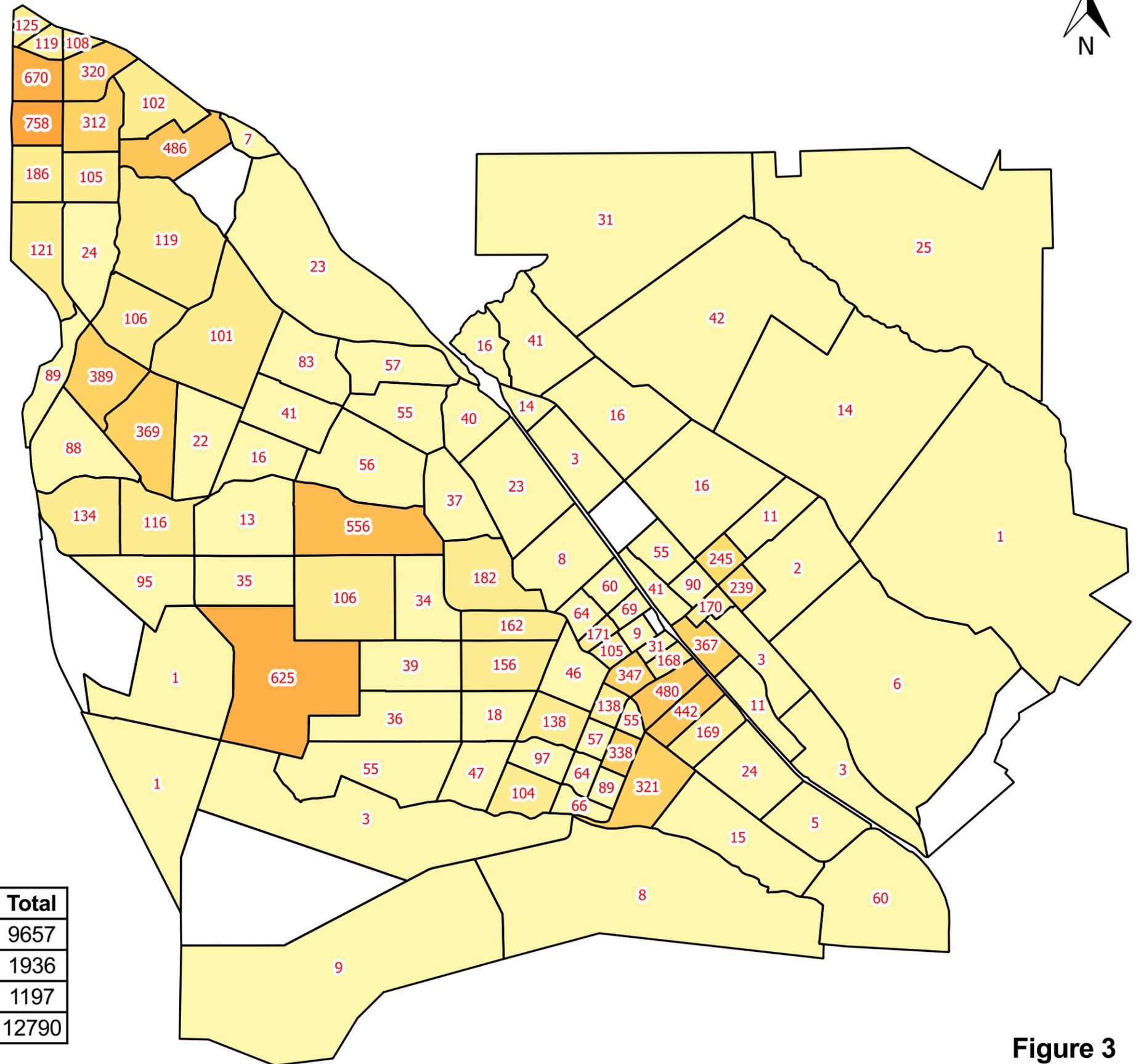
South County Circulation Study & Traffic Impact Fee Update

2015 Total Dwelling Units



Legend

- TAZ Boundary
- 2015 Total Dwelling Units
- 1 - 100
- 100 - 200
- 200 - 300
- 300 - 400
- 400 - 500
- 500 - 600
- 600 - 700
- 700 - 800



2015 Total Dwelling Units	Area 1	Area 2	Fee Area	Area 3	Total
Single Family	5121	2481	7602	2055	9657
Multi Family	1015	100	1115	821	1936
Mobile Home	317	316	633	564	1197
Total Residential	6453	2897	9350	3440	12790

Figure 3

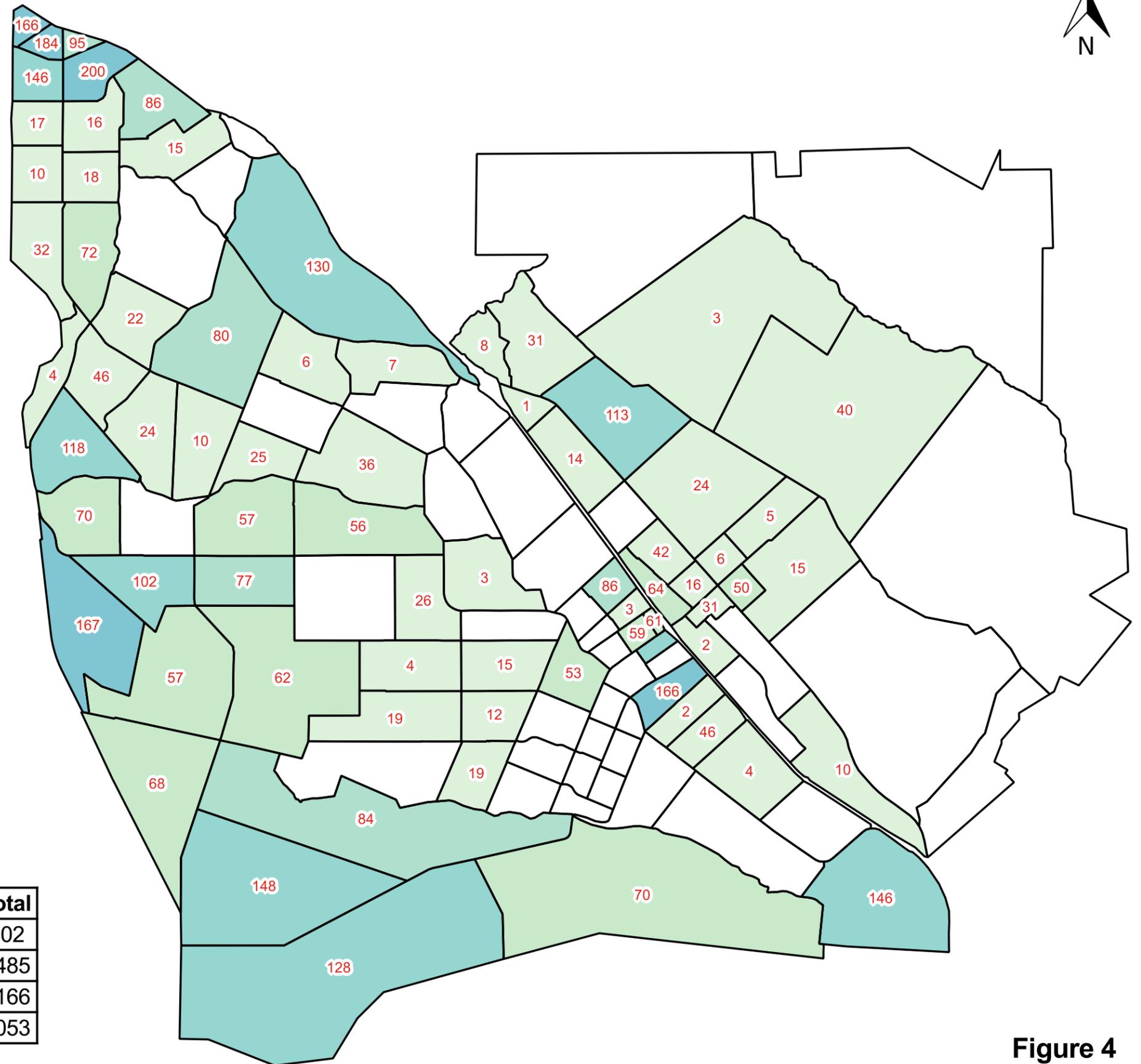
South County Circulation Study & Traffic Impact Fee Update

2015 Total Employment



Legend

- TAZ Boundary
- 2015 Total Employees
- 1 - 50
- 50 - 75
- 75 - 100
- 100 - 150
- 150 - 300



2015 Total Employment	Area 1	Area 2	Fee Area	Area 3	Total
Retail	204	71	275	127	402
Service	558	282	840	645	1485
Other	599	857	1456	710	2166
Total Employment	1361	1210	2571	1482	4053

Figure 4

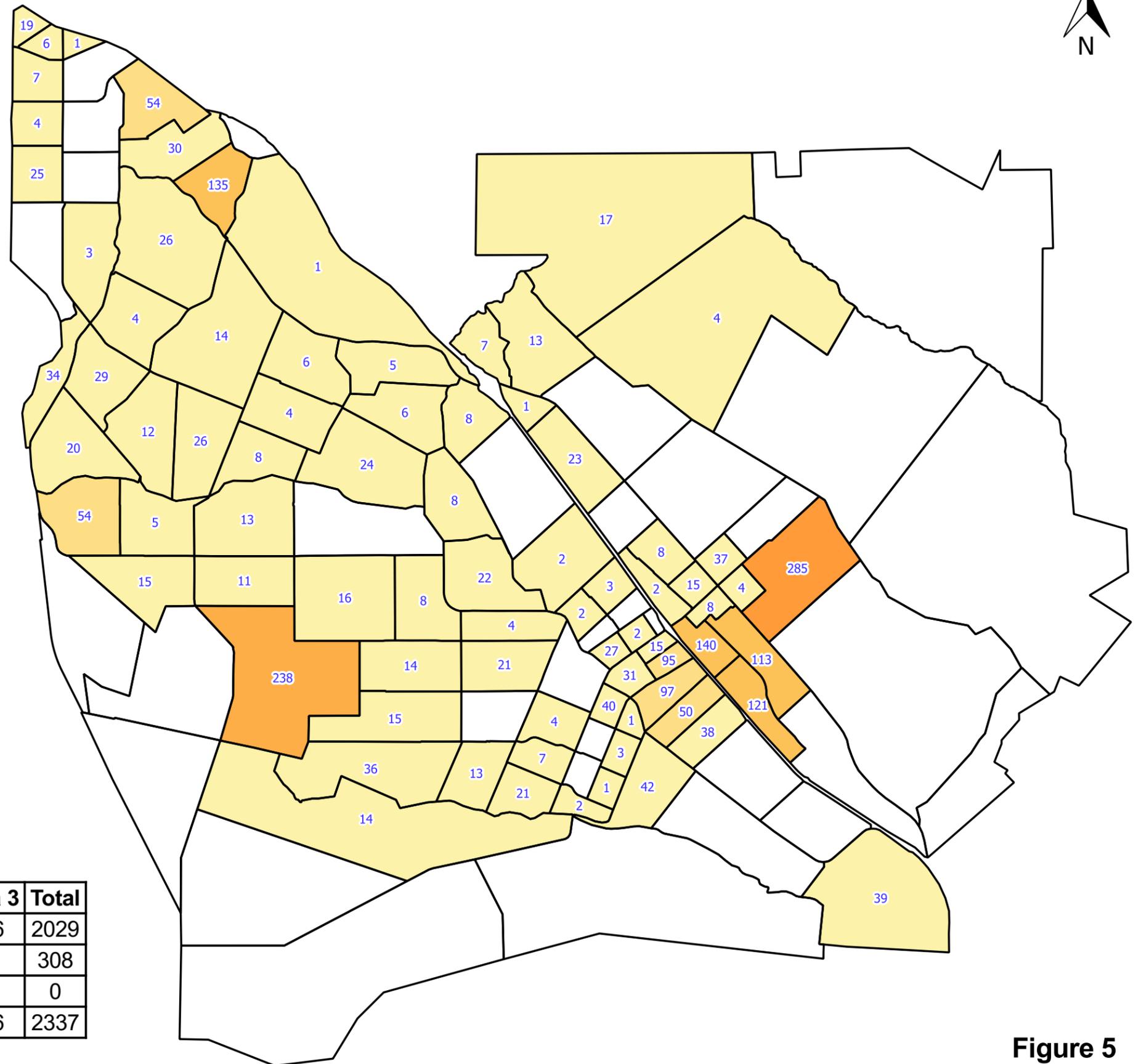
South County Circulation Study & Traffic Impact Fee Update

2015 - 2035 Growth in Dwelling Units



Legend

- TAZ Boundary
- Growth in Dwelling Units
- 1 - 50
- 50 - 100
- 100 - 150
- 150 - 250
- 250 - 350



Total Dwelling Units Growth	Area 1	Area 2	Fee Area	Area 3	Total
Single Family	1124	609	1733	296	2029
Multi Family	303	5	308	0	308
Mobile Home	0	0	0	0	0
Total Residential	1427	614	2041	296	2337

Figure 5

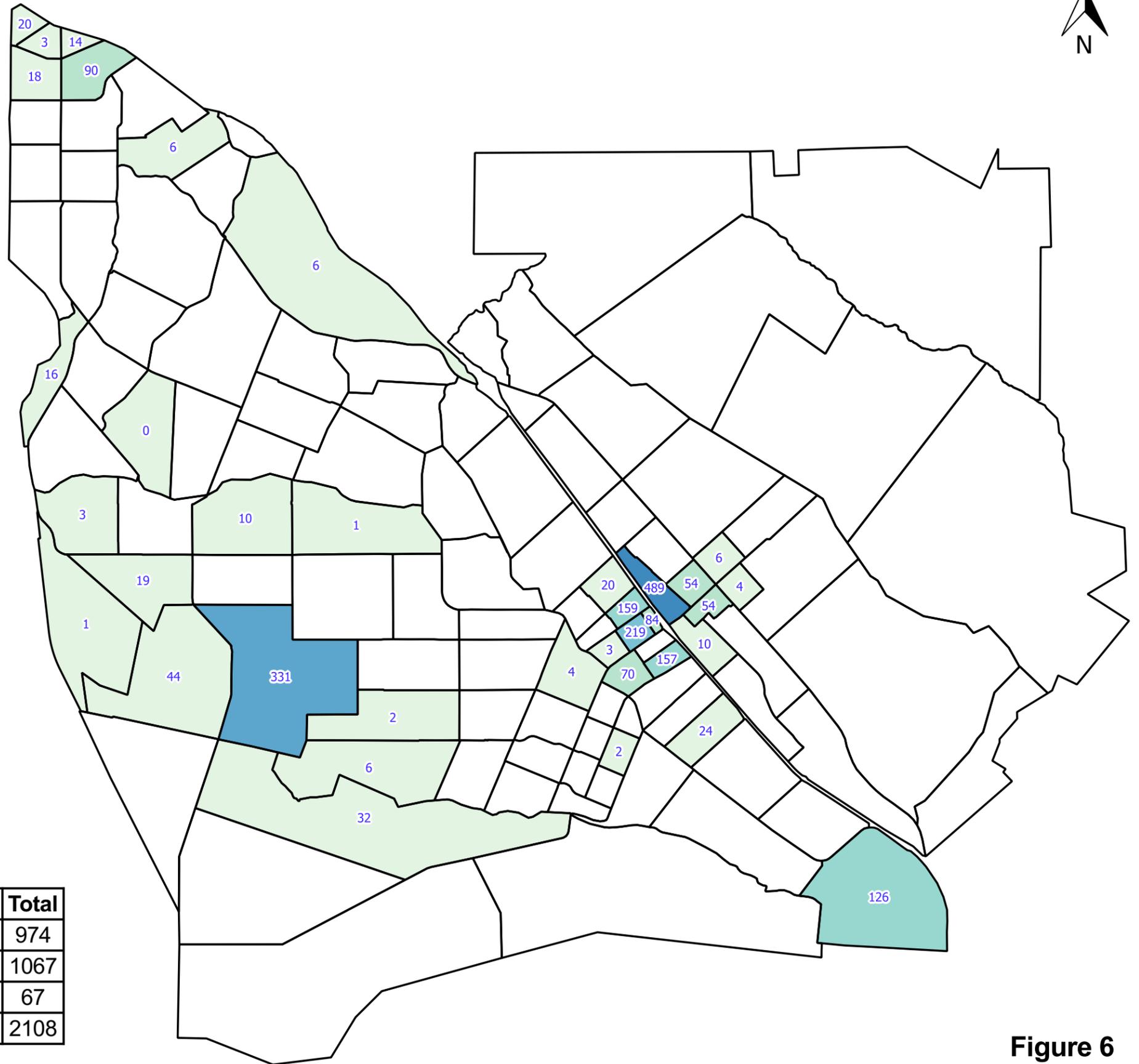
South County Circulation Study & Traffic Impact Fee Update

2015 - 2035 Growth in Employment



Legend

- TAZ Boundary
- Growth in Employees
- 1 - 50
- 50 - 100
- 100 - 200
- 200 - 300
- 300 - 400
- 400 - 500



Total Employment Growth	Area 1	Area 2	Fee Area	Area 3	Total
Retail	824	123	947	27	974
Service	679	231	910	157	1067
Other	0	67	67	0	67
Total Employment	1503	421	1924	184	2108

Figure 6

South County Circulation Study & Traffic Impact Fee Update

2035 Total Dwelling Units

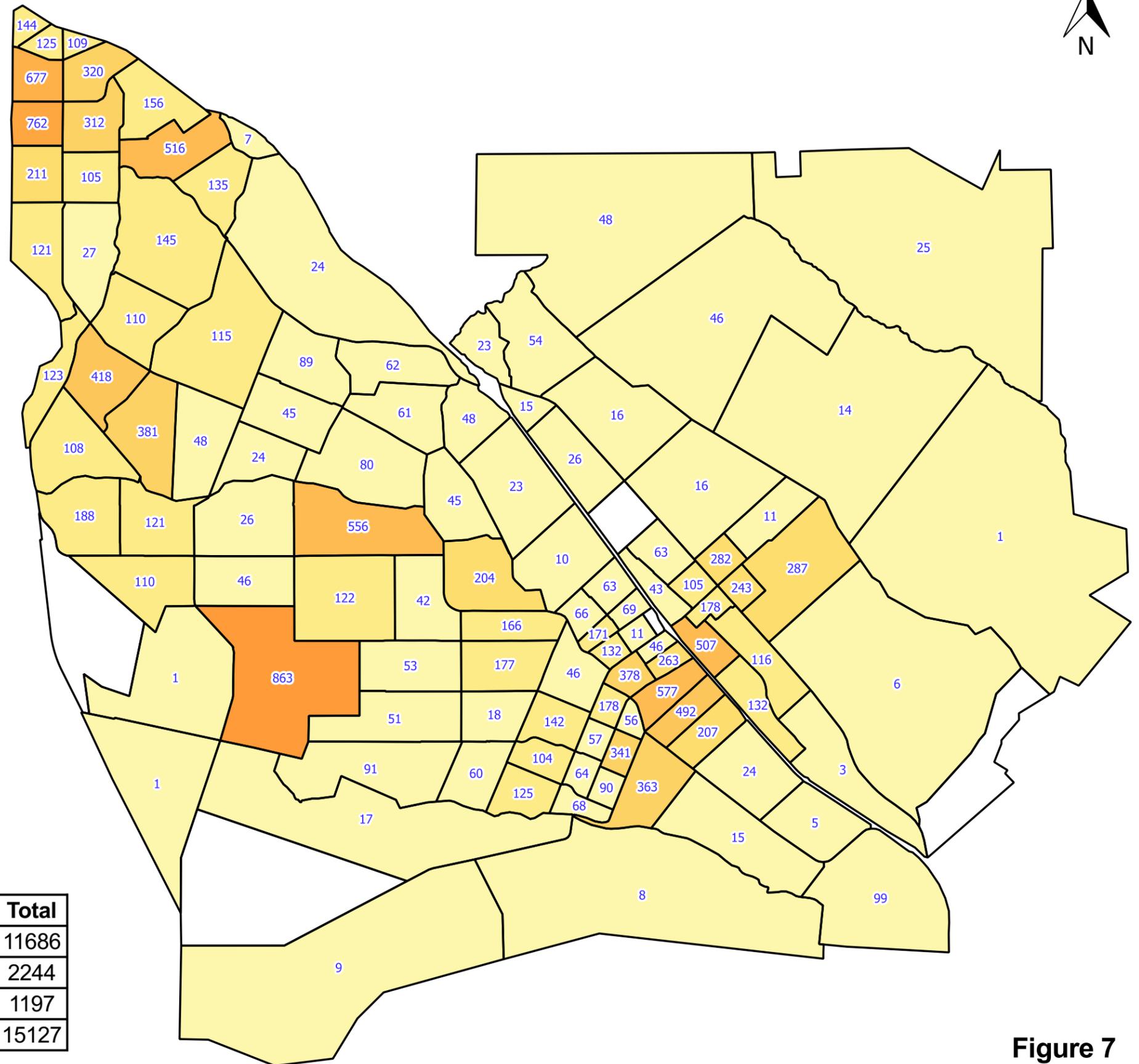


Legend

□ TAZ Boundary

2035 Total Dwelling Units

- 1 - 100
- 100 - 200
- 200 - 300
- 300 - 400
- 400 - 500
- 500 - 600
- 600 - 700
- 700 - 800
- 800 - 900



2035 Total Dwelling Units	Area 1	Area 2	Fee Area	Area 3	Total
Single Family	6245	3090	9335	2351	11686
Multi Family	1318	105	1423	821	2244
Mobile Home	317	316	633	564	1197
Total Residential	7880	3511	11391	3736	15127

Figure 7

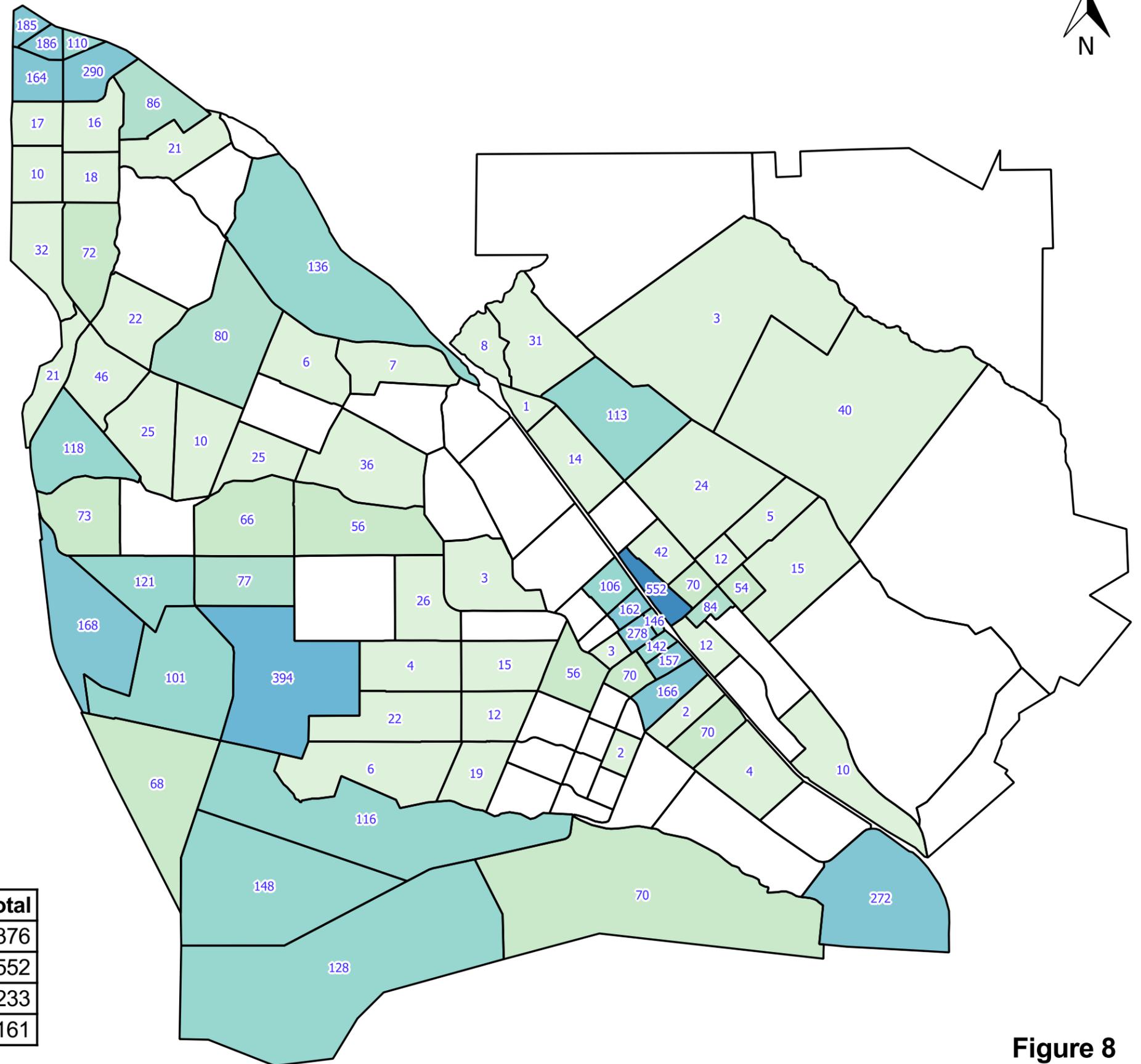
South County Circulation Study & Traffic Impact Fee Update

2035 Total Employment



Legend

- TAZ Boundary
- 2035 Total Employment
- 1 - 50
- 50 - 75
- 75 - 100
- 100 - 150
- 150 - 300
- 300 - 400
- 500 - 600



2035 Total Employment	Area 1	Area 2	Fee Area	Area 3	Total
Retail	1028	194	1222	154	1376
Service	1237	513	1750	802	2552
Other	599	924	1523	710	2233
Total Employment	2864	1631	4495	1666	6161

Figure 8

Appendix C

LAND USE TABLES BY TAZ

EXISTING CONDITIONS LAND USE							
TAZ	HH_0	HH_1	HH_2	RETAIL	SERVICE	OTHER	EDUC
101	0	5	19	2	0	70	0
102	2	26	92	0	0	0	0
103	1	22	83	0	0	22	0
104	1	20	68	3	2	0	0
105	36	164	189	0	46	0	550
106	2	21	66	0	100	18	0
107	1	73	295	0	25	0	0
108	1	7	15	0	0	10	0
109	2	23	76	42	28	10	0
110	1	5	17	0	0	130	0
111	1	18	64	0	0	6	0
112	1	12	44	0	0	7	0
113	2	14	40	0	0	0	0
114	2	12	26	0	0	0	0
115	2	13	25	0	0	0	0
116	0	3	13	0	0	25	0
117	1	13	42	0	0	36	0
118	2	11	24	0	0	0	0
119	0	5	17	0	0	0	0
120	2	30	102	0	0	70	0
121	1	23	92	0	0	0	0
122	2	21	72	24	19	59	0
123	0	0	0	0	0	167	0
124	0	0	1	0	0	57	0
125	5	125	494	0	63	0	0
151	1	5	10	0	0	8	0
152	1	9	31	0	0	31	0
153	0	3	10	0	0	1	0
154	0	3	13	0	0	113	0
155	0	1	2	0	0	14	0
156	0	7	24	0	0	0	0
157	1	10	32	0	0	3	0
158	2	8	15	0	0	0	0
201	0	3	10	0	0	57	0
202	2	12	21	0	0	77	0
203	7	111	438	7	49	0	0
204	2	24	80	0	0	0	0
205	1	9	24	0	0	26	0
206	2	40	140	0	0	3	0

EXISTING CONDITIONS LAND USE							
TAZ	HH_0	HH_1	HH_2	RETAIL	SERVICE	OTHER	EDUC
207	1	33	128	0	0	0	0
208	1	10	28	0	0	4	0
209	1	32	123	0	0	15	0
210	2	11	24	0	0	19	0
211	0	4	13	0	0	12	0
212	1	13	41	0	0	0	0
213	1	10	37	0	19	0	561
214	0	2	6	0	0	0	0
215	0	12	47	17	67	2	0
216	0	13	51	0	0	0	0
217	0	14	55	2	1	0	0
218	0	34	137	0	0	0	0
219	0	0	0	37	24	0	0
220	0	2	7	8	51	0	0
221	0	21	84	0	0	0	0
222	0	9	37	0	53	0	600
223	1	28	110	0	0	0	0
224	0	20	77	0	0	0	0
225	1	21	82	0	0	0	0
226	2	6	23	51	92	0	0
227	13	36	119	0	0	0	0
228	10	70	267	0	0	0	0
229	18	98	364	0	0	166	0
230	1	27	109	0	0	0	0
231	0	11	44	0	0	0	0
232	0	11	46	0	0	0	0
233	1	67	270	0	0	0	0
234	0	13	51	0	0	0	0
235	0	18	71	0	0	0	0
236	0	13	53	0	0	0	0
237	12	90	341	1	1	0	0
238	1	35	133	0	42	4	0
239	2	64	256	0	0	0	0
240	1	5	18	0	0	4	0
241	0	1	3	0	0	0	0
242	0	3	12	0	0	0	0
243	1	13	46	39	25	82	0
251	0	0	0	0	0	0	0
252	1	11	43	0	42	0	1250

EXISTING CONDITIONS LAND USE							
TAZ	HH_0	HH_1	HH_2	RETAIL	SERVICE	OTHER	EDUC
253	2	18	70	6	9	1	0
254	0	9	32	9	22	33	0
255	7	35	128	13	18	0	0
256	0	1	2	0	0	0	0
257	47	176	144	0	2	0	0
258	0	2	9	0	0	0	0
259	0	1	2	0	0	10	0
260	1	4	11	0	0	24	0
261	0	3	8	0	0	5	0
262	3	49	193	4	3	0	0
263	1	47	190	10	41	0	450
264	0	0	2	0	0	15	0
265	0	2	4	0	0	0	0
266	0	0	0	0	0	0	0
267	1	4	9	0	0	40	0
268	0	0	1	0	0	0	0
301	10	34	82	24	22	120	0
302	9	32	77	15	162	7	0
303	0	21	86	21	74	0	0
304	25	136	509	37	109	0	0
305	13	65	242	23	163	14	0
306	15	152	591	0	17	0	500
307	20	109	183	0	0	16	0
308	0	20	82	0	80	6	2400
309	4	37	144	2	1	7	0
310	0	21	84	0	0	19	0
311	21	76	23	5	3	25	0
312	54	226	207	0	15	0	0
313	0	2	5	0	0	0	0
314	0	0	0	0	0	0	0
351	0	0	1	0	0	68	0
352	0	1	1	0	0	84	0
353	0	0	0	0	0	148	0
354	1	2	6	0	0	128	0
355	0	2	6	0	0	70	0

BUILD-OUT CONDITIONS LAND USE							
TAZ	HH_0	HH_1	HH_2	RETAIL	SERVICE	OTHER	EDUC
101	0	6	21	2	0	70	0
102	2	31	112	0	0	0	0
103	1	23	86	0	0	22	0
104	1	27	96	19	2	0	0
105	36	170	213	0	46	0	550
106	2	25	82	0	100	18	0
107	1	75	305	0	26	0	0
108	1	12	36	0	0	10	0
109	2	26	87	42	28	10	0
110	1	5	18	0	12	130	0
111	1	19	69	0	0	6	0
112	1	13	48	0	0	7	0
113	2	15	45	0	0	0	0
114	2	14	32	0	0	0	0
115	2	14	28	0	0	0	0
116	0	5	19	0	0	25	0
117	1	18	61	0	0	36	0
118	2	13	30	0	0	0	0
119	0	5	17	0	0	0	0
120	2	41	145	0	0	73	0
121	1	24	96	0	0	0	0
122	2	24	84	24	19	78	0
123	0	0	0	0	0	168	0
124	0	0	1	0	0	101	0
125	11	264	1047	102	453	38	0
151	1	6	15	0	0	8	0
152	1	12	41	0	0	31	0
153	0	3	11	0	0	1	0
154	0	3	13	0	0	113	0
155	0	6	21	0	0	14	0
156	0	31	119	0	0	0	0
157	1	11	35	0	0	3	0
158	2	8	15	0	0	0	0
201	0	6	21	0	19	57	0
202	2	14	30	0	0	77	0
203	7	111	438	7	51	0	0
204	2	27	93	0	0	0	0
205	1	11	30	0	0	26	0
206	2	44	158	0	0	3	0

BUILD-OUT CONDITIONS LAND USE							
TAZ	HH_0	HH_1	HH_2	RETAIL	SERVICE	OTHER	EDUC
207	1	34	131	0	0	0	0
208	1	13	39	0	0	4	0
209	1	36	140	0	0	15	0
210	2	14	36	0	5	19	0
211	0	4	13	0	0	12	0
212	1	20	69	0	11	0	0
213	1	12	47	0	19	0	561
214	0	2	8	0	0	0	0
215	0	13	49	17	96	2	0
216	0	13	53	0	0	0	0
217	0	14	55	45	175	0	0
218	0	34	137	0	0	0	0
219	0	0	0	122	24	0	0
220	0	2	9	8	54	0	0
221	0	26	105	0	0	0	0
222	0	9	37	0	60	0	600
223	1	29	113	0	0	0	0
224	0	21	83	0	0	0	0
225	1	25	98	0	0	0	0
226	3	9	34	51	92	0	0
227	21	56	186	157	0	0	0
228	11	76	291	36	0	0	0
229	25	118	433	0	0	166	0
230	1	35	141	0	0	0	0
231	0	11	45	0	0	0	0
232	0	11	46	0	0	0	0
233	1	68	272	3	0	0	0
234	0	13	51	0	0	0	0
235	0	18	72	0	0	0	0
236	0	13	54	0	0	0	0
237	16	101	377	1	1	0	0
238	1	43	164	0	77	4	0
239	2	72	289	0	0	0	0
240	1	5	18	0	0	4	0
241	0	1	3	0	0	0	0
242	0	3	12	0	0	0	0
243	1	21	77	39	214	82	0
251	0	0	0	0	0	0	0
252	1	13	50	0	42	0	1250

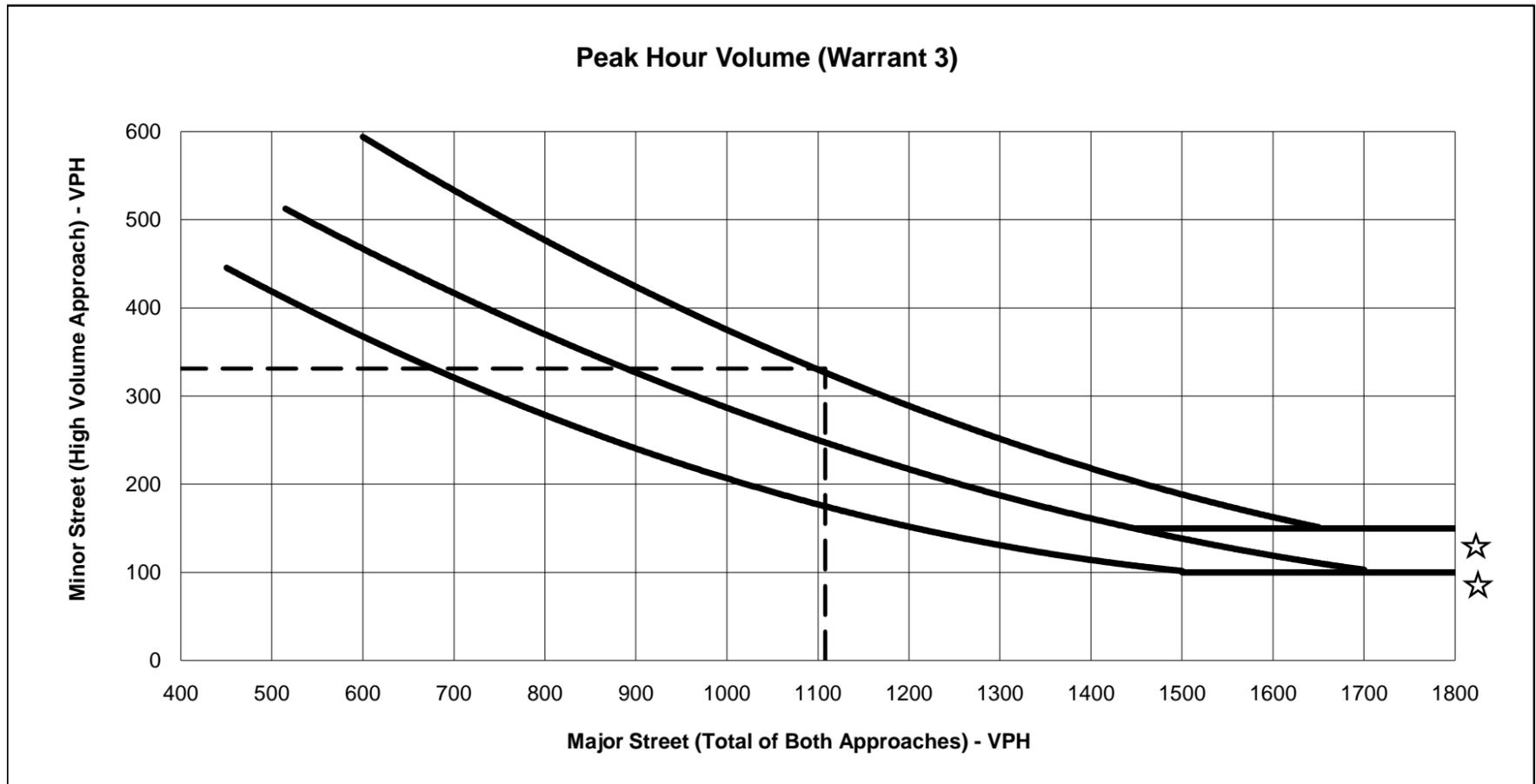
BUILD-OUT CONDITIONS LAND USE							
TAZ	HH_0	HH_1	HH_2	RETAIL	SERVICE	OTHER	EDUC
253	2	21	82	60	9	1	0
254	0	9	34	404	163	33	0
255	7	37	134	45	18	0	0
256	0	23	92	0	0	0	0
257	50	204	253	10	2	0	0
258	0	26	105	0	0	0	0
259	0	1	2	0	0	10	0
260	1	4	11	0	0	24	0
261	0	3	8	0	0	5	0
262	4	56	222	10	3	0	0
263	1	48	193	14	41	0	450
264	1	56	230	0	0	15	0
265	0	2	4	0	0	0	0
266	0	0	0	0	0	0	0
267	1	4	9	0	0	40	0
268	0	0	1	0	0	0	0
301	10	38	97	34	31	120	0
302	9	33	82	17	163	7	0
303	0	21	87	28	81	0	0
304	25	137	514	39	111	0	0
305	13	65	242	27	168	14	0
306	15	153	594	0	17	0	500
307	20	109	183	0	0	16	0
308	0	31	125	0	80	6	2400
309	4	42	164	2	1	7	0
310	0	21	84	0	0	19	0
311	21	76	23	5	3	25	0
312	54	232	231	3	18	0	0
313	0	2	5	0	0	0	0
314	0	27	108	0	0	0	0
351	0	0	1	0	0	68	0
352	0	4	12	0	65	84	0
353	0	0	0	0	0	148	0
354	1	2	6	0	0	128	0
355	0	2	6	0	0	70	0

Appendix D

SIGNAL WARRANTS

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	470	600	590
700	325	700	415	700	540
800	285	800	370	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



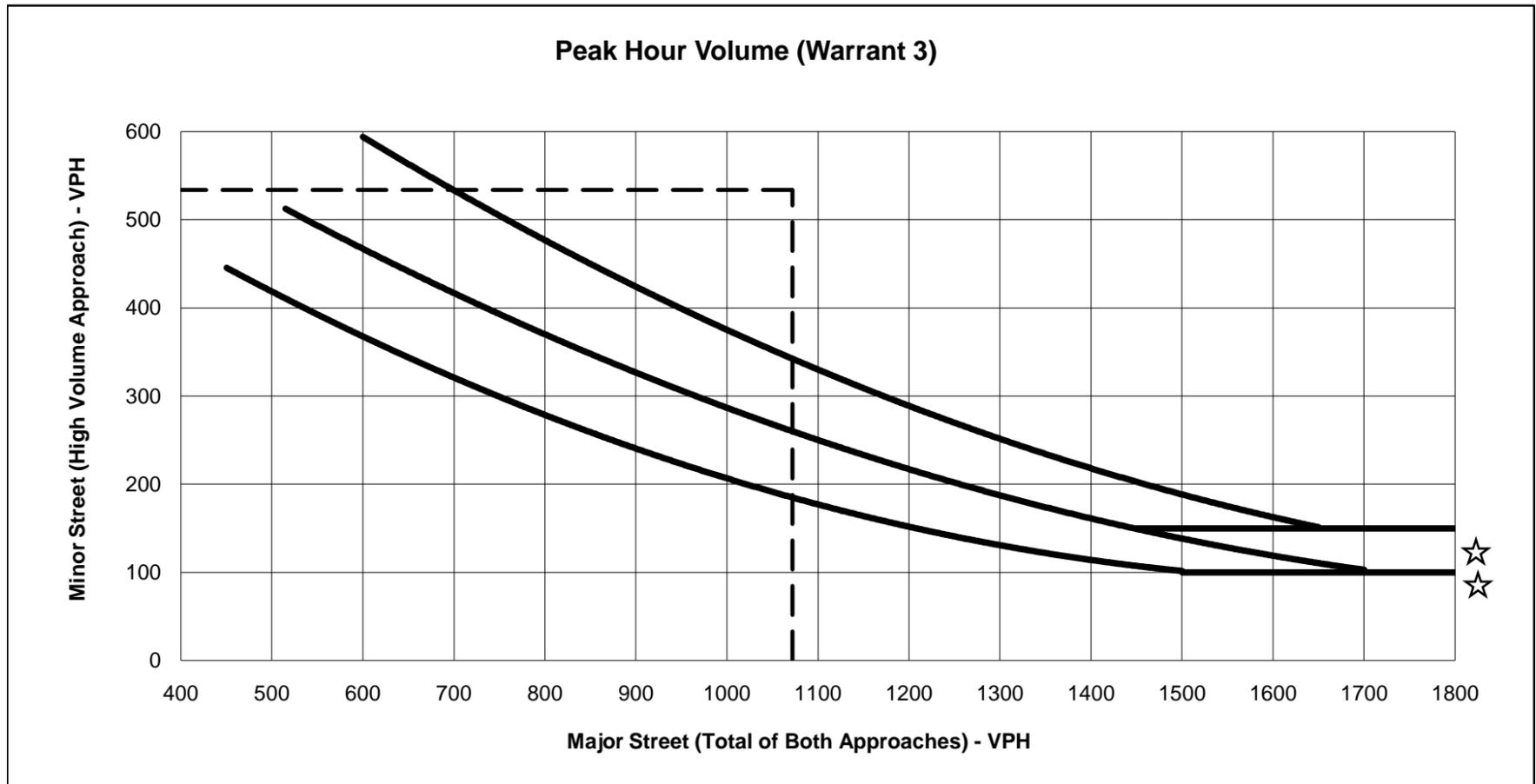
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (AM)

		Number of Lanes
Major Approach	Highway 1	1
Minor Approach	Halcyon Road (West)	1
Major St. Volume:	1108	
Minor St. Volume:	331	
Warrant Met?:	Yes	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	470	600	590
700	325	700	415	700	540
800	285	800	370	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



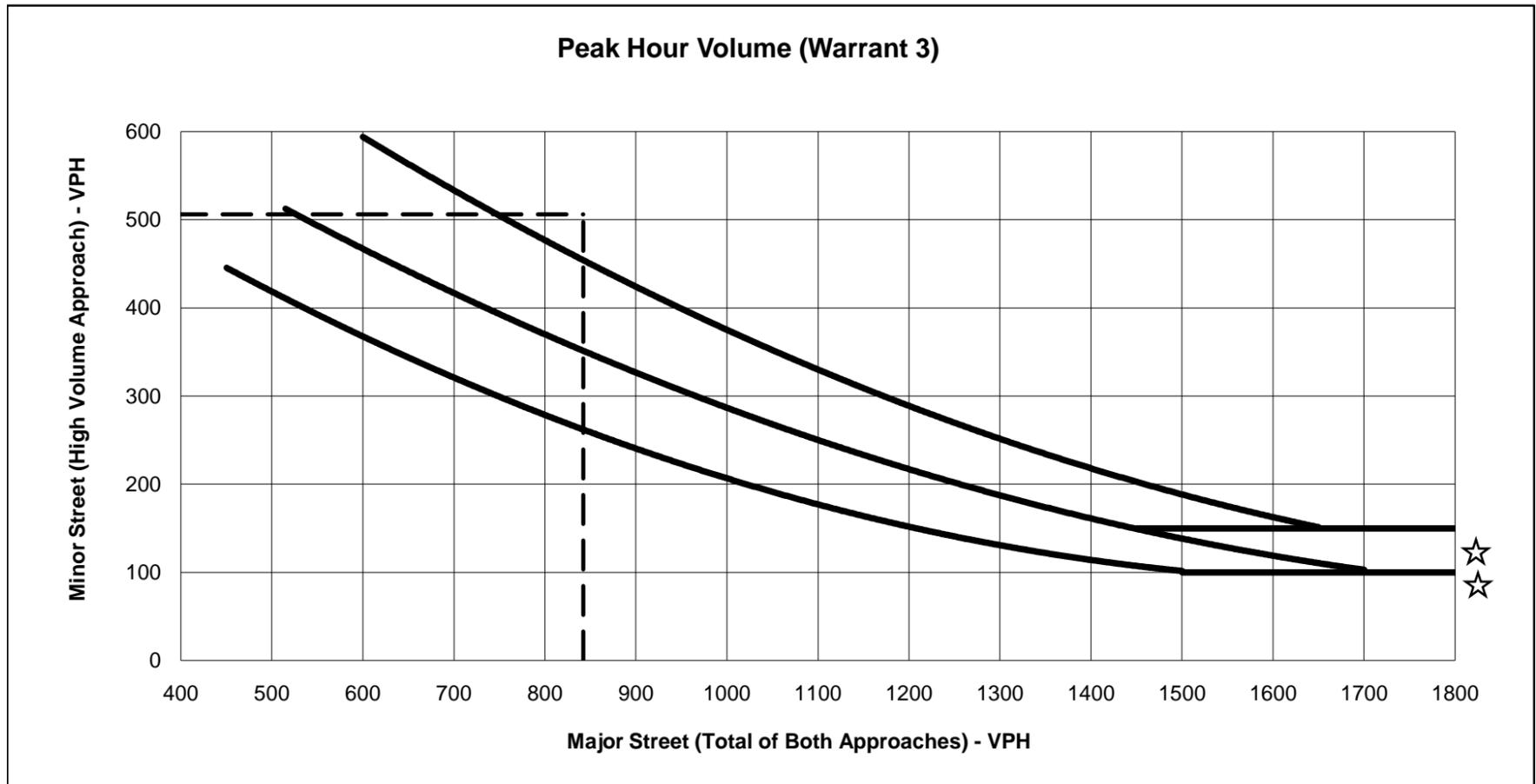
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (PM)

Major Approach	Highway 1	Number of Lanes	1
Minor Approach	Halcyon Road (West)		1
Major St. Volume:	1072		
Minor St. Volume:	534		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	470	600	590
700	325	700	415	700	540
800	285	800	370	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



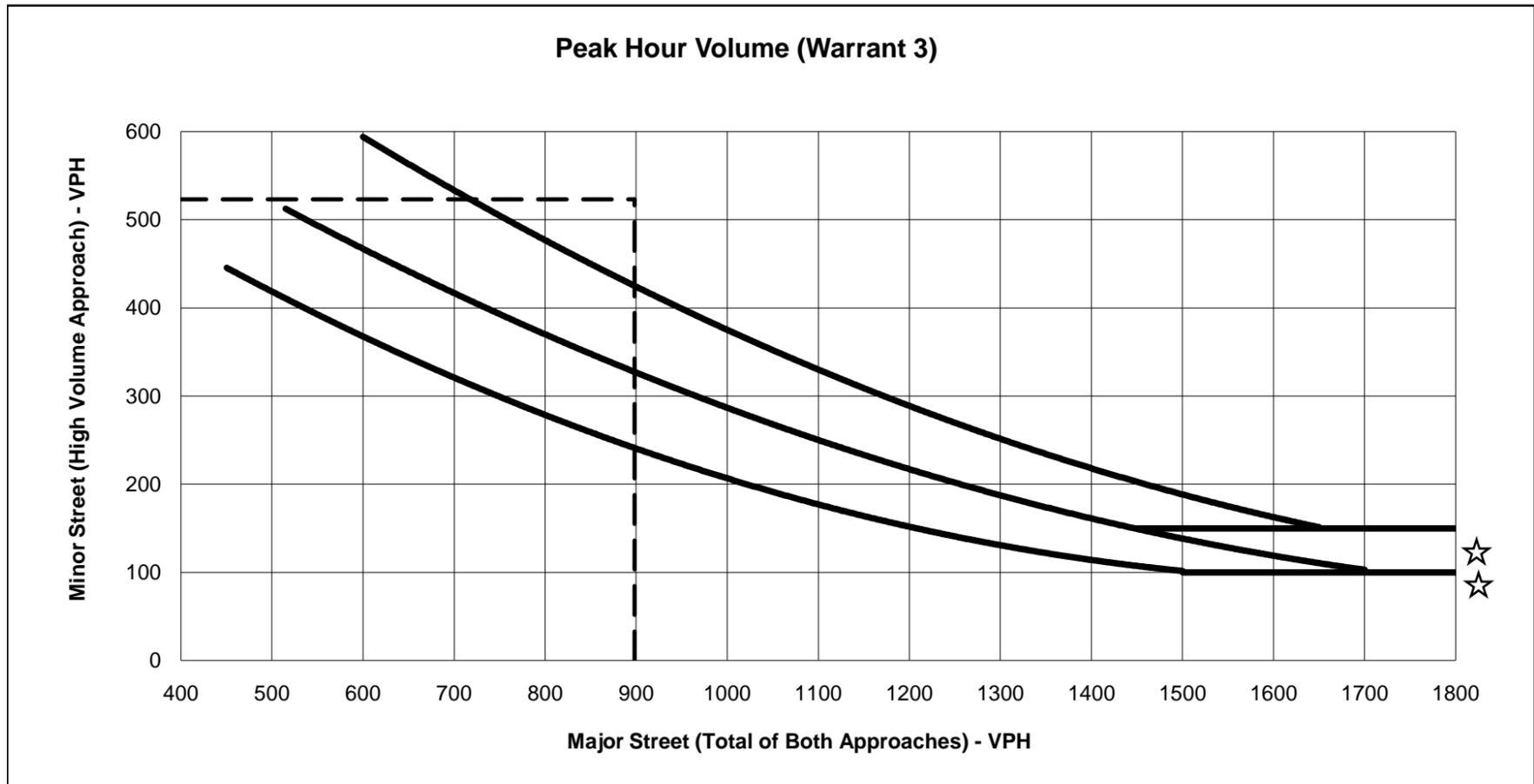
☆ NOTE:
 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (AM)

		Number of Lanes
Major Approach	Highway 1	1
Minor Approach	Halcyon Road (East)	1
Major St. Volume:	842	
Minor St. Volume:	506	
Warrant Met?:	Yes	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	470	600	590
700	325	700	415	700	540
800	285	800	370	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



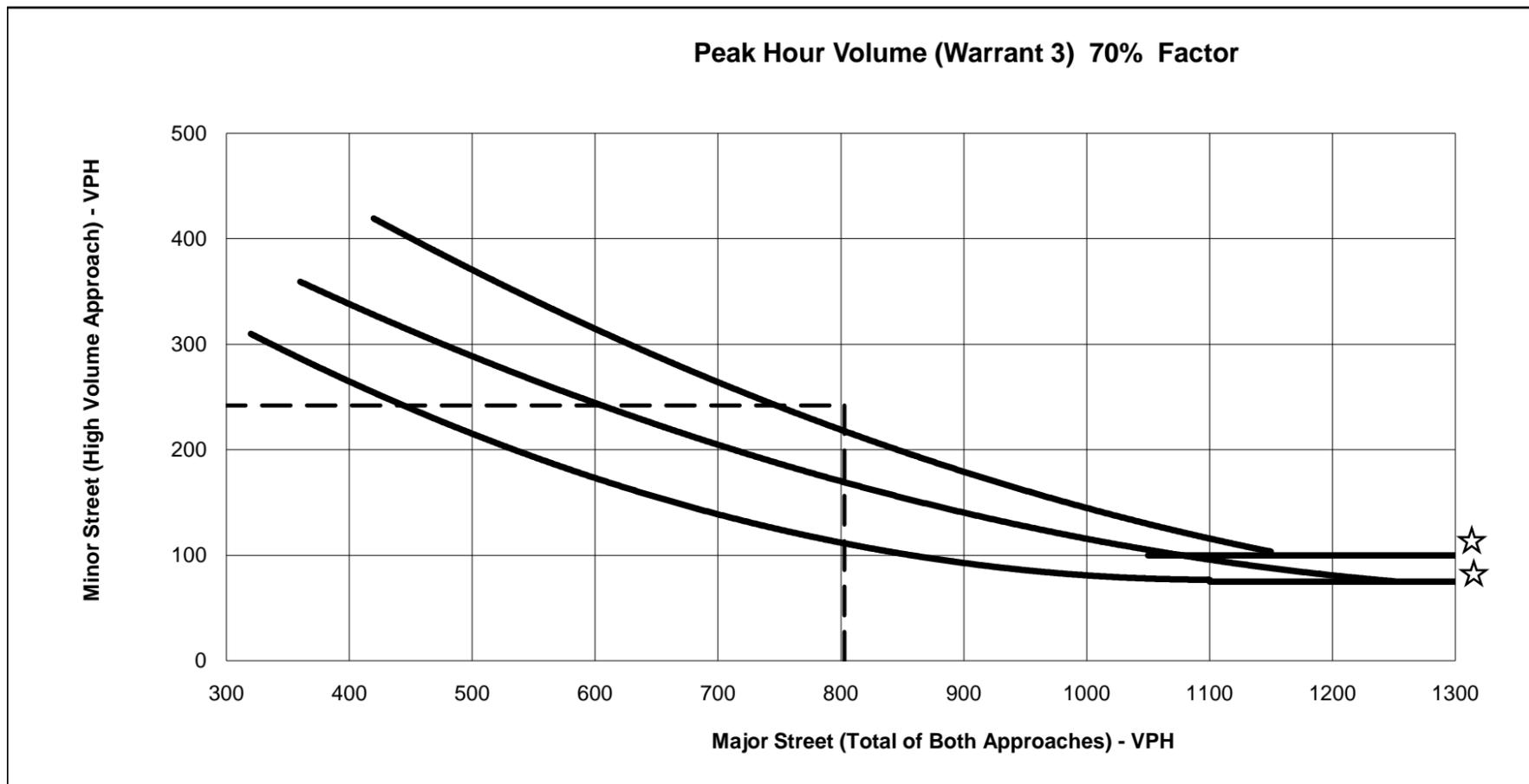
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (PM)

		Number of Lanes
Major Approach	Highway 1	1
Minor Approach	Halcyon Road (East)	1
Major St. Volume:	898	
Minor St. Volume:	523	
Warrant Met?:	Yes	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



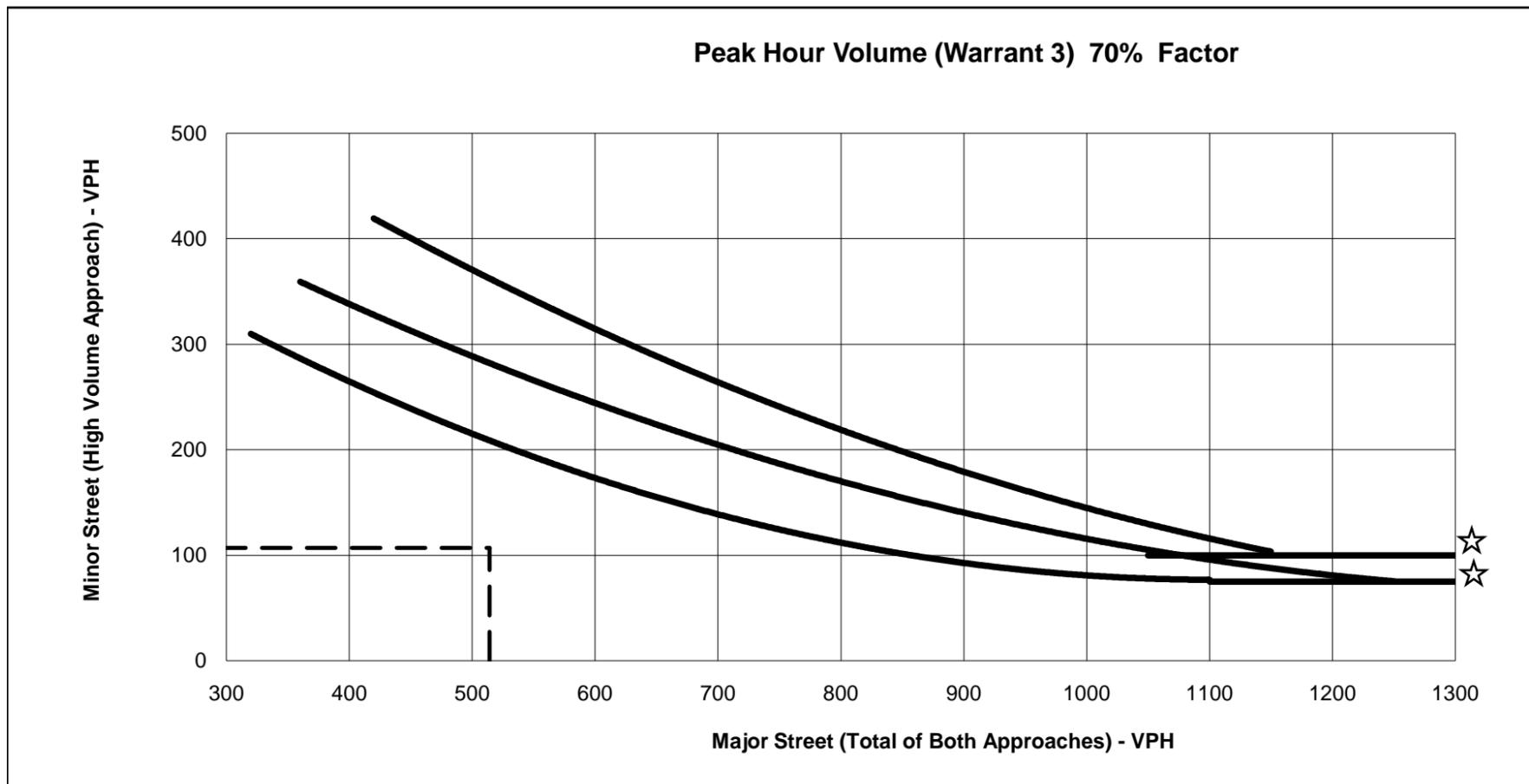
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (AM)

		Number of Lanes
Major Approach	Thompson Avenue	1
Minor Approach	Nipomo High School	1
Major St. Volume:	803	
Minor St. Volume:	242	
Warrant Met?:	Yes	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



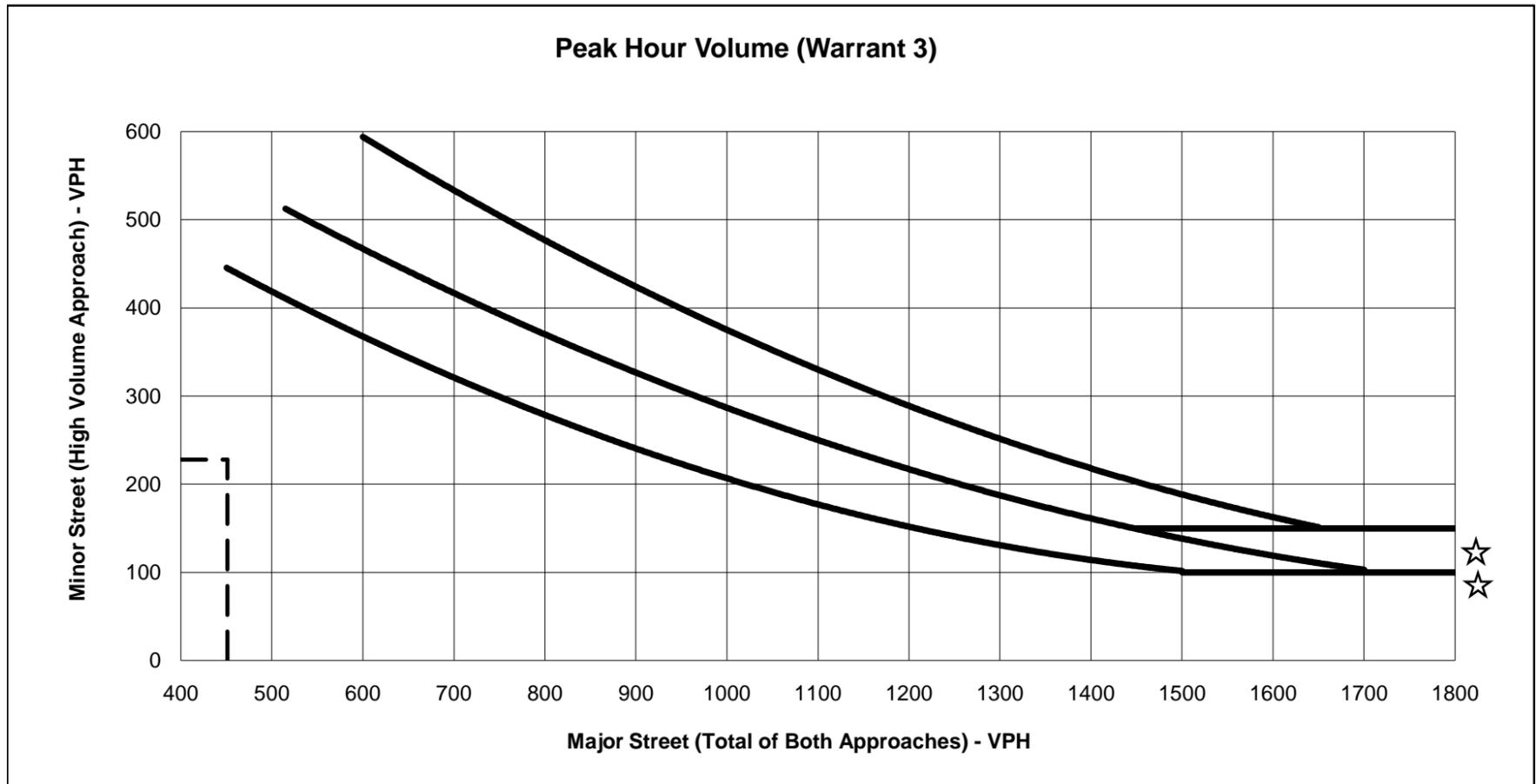
☆ NOTE:
 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (PM)

		Number of Lanes
Major Approach	Thompson Avenue	1
Minor Approach	Nipomo High School	1
Major St. Volume:	514	
Minor St. Volume:	107	
Warrant Met?:	No	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	470	600	590
700	325	700	415	700	540
800	285	800	370	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



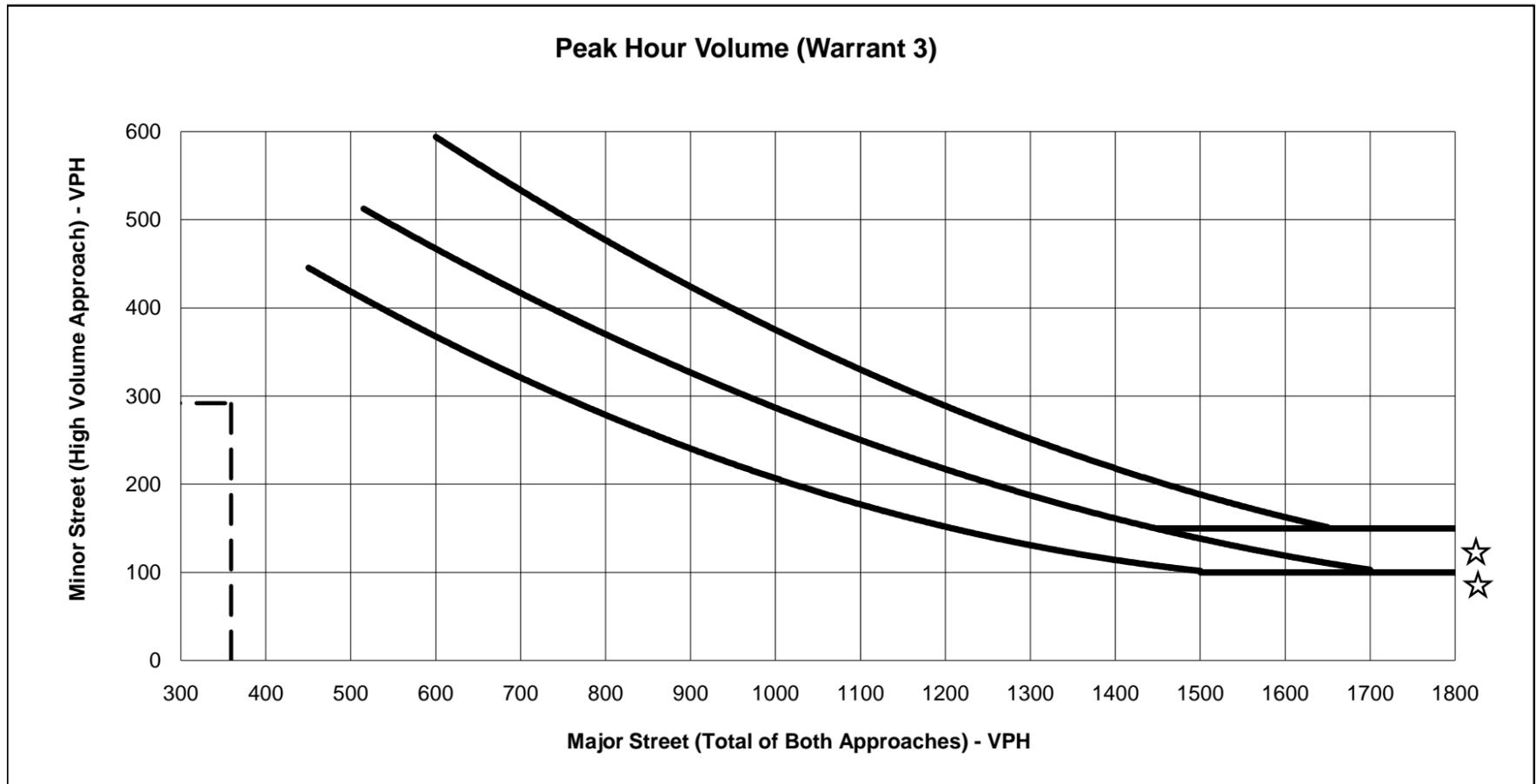
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (AM)

		Number of Lanes
Major Approach	Highway 1	1
Minor Approach	Valley Road	1
Major St. Volume:	451	
Minor St. Volume:	228	
Warrant Met?:	No	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	470	600	590
700	325	700	415	700	540
800	285	800	370	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



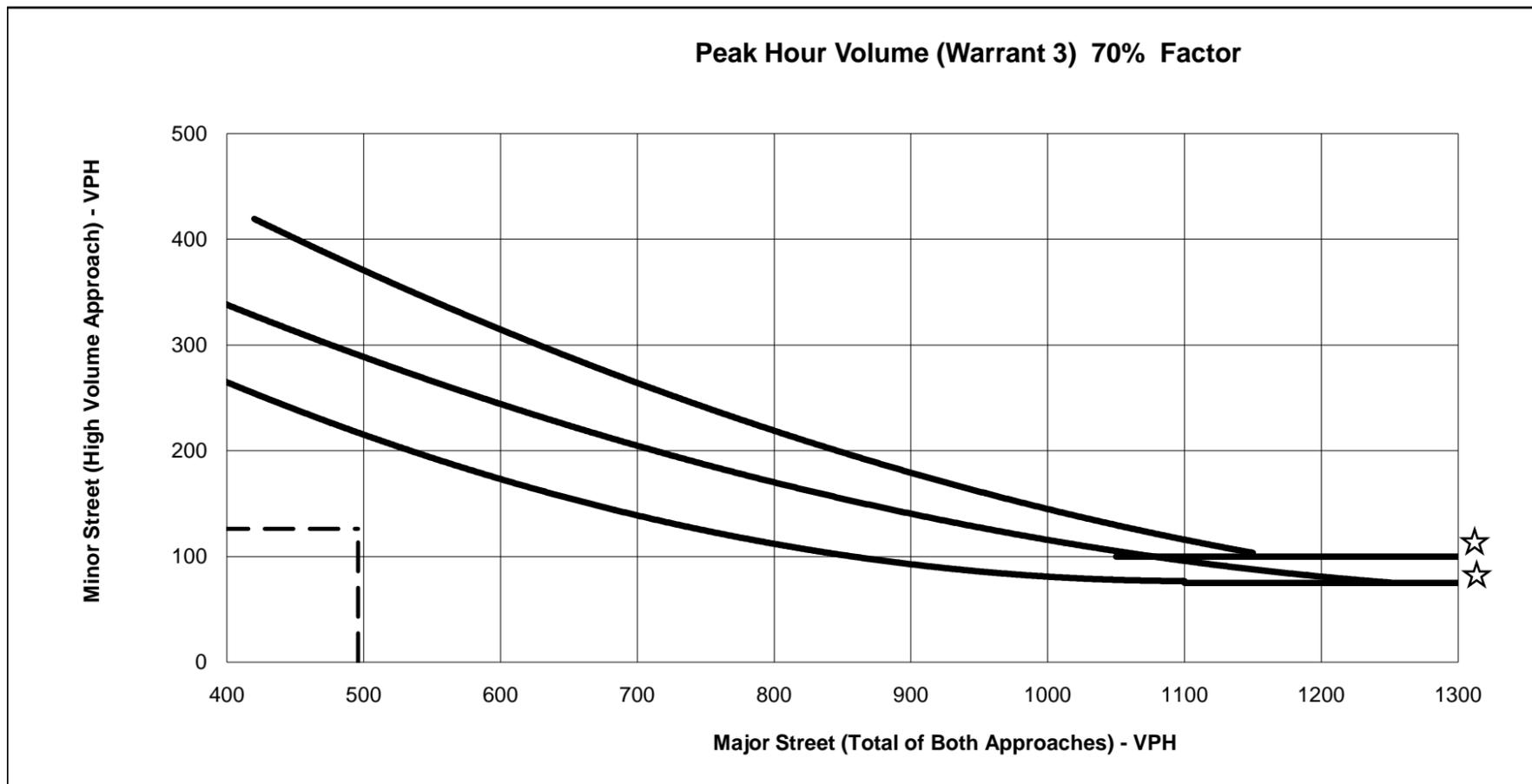
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (PM)

		Number of Lanes
Major Approach	Highway 1	1
Minor Approach	Valley Road	1
Major St. Volume:	359	
Minor St. Volume:	292	
Warrant Met?:	No	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



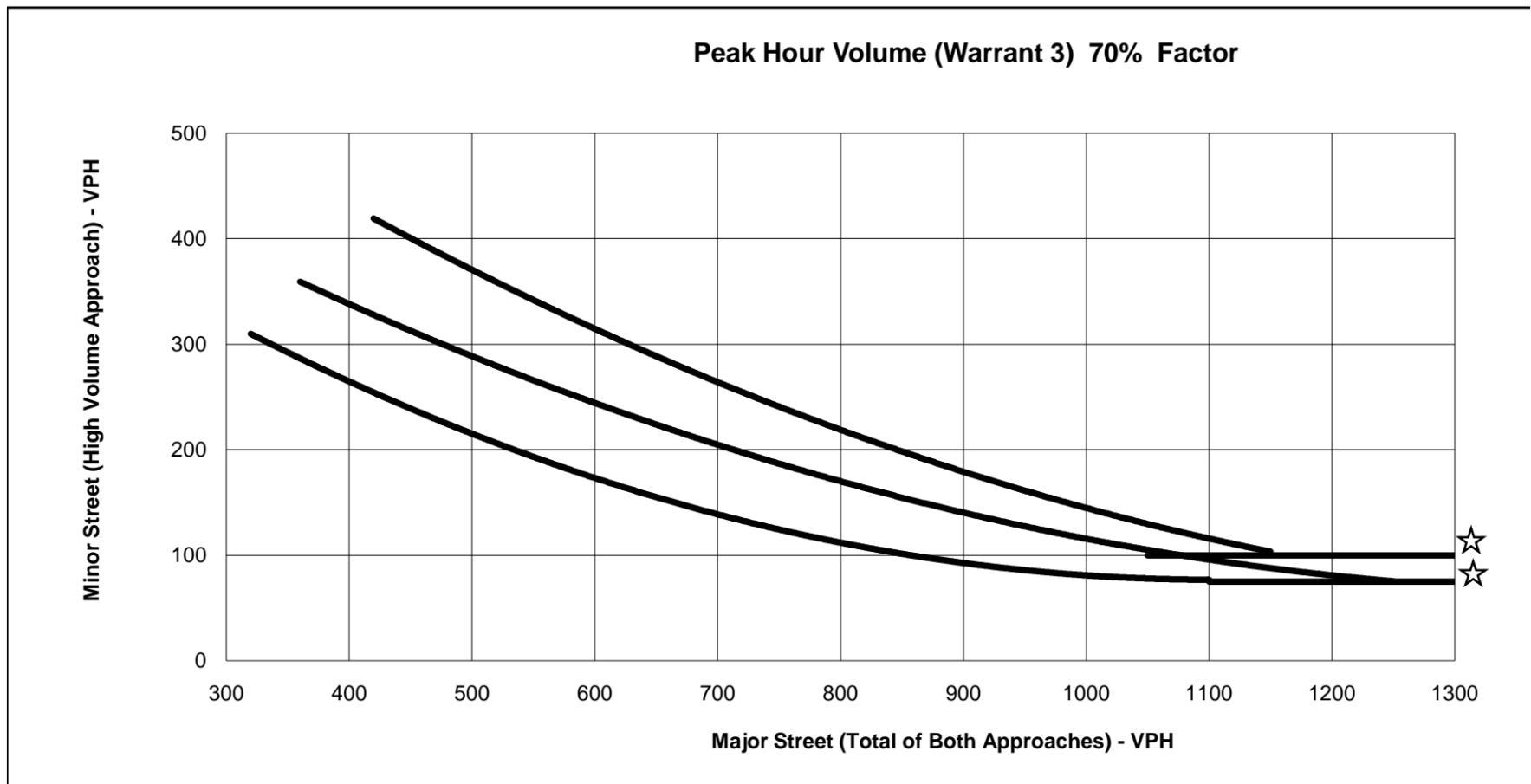
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (AM)

Major Approach	Willow Road	Number of Lanes	1
Minor Approach	US 101 NB Ramps		1
Major St. Volume:	496		
Minor St. Volume:	126		
Warrant Met?:	No		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



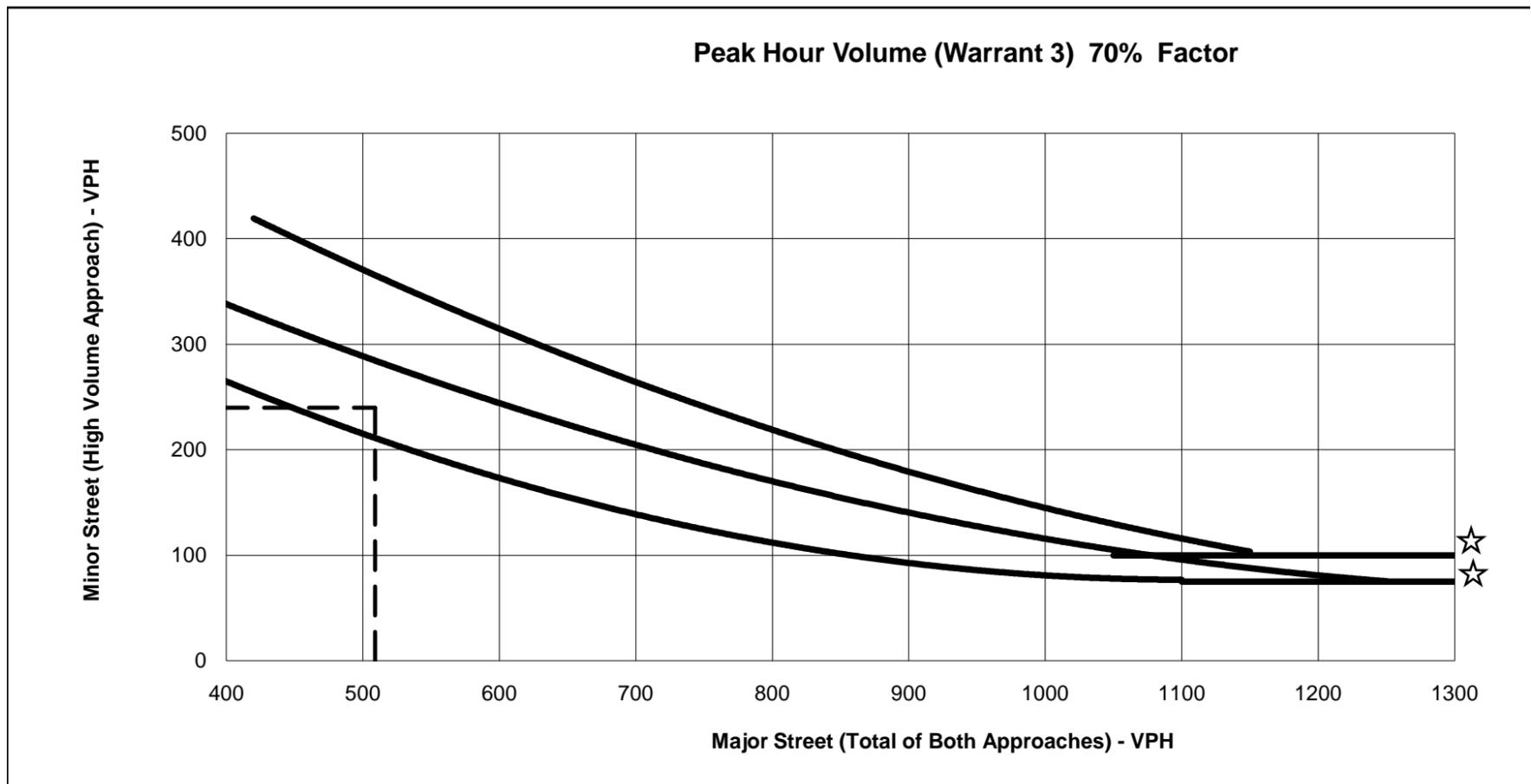
☆ NOTE:
 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (PM)

		Number of Lanes
Major Approach	Willow Road	1
Minor Approach	US 101 NB Ramps	1
Major St. Volume:	294	
Minor St. Volume:	155	
Warrant Met?:	No	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



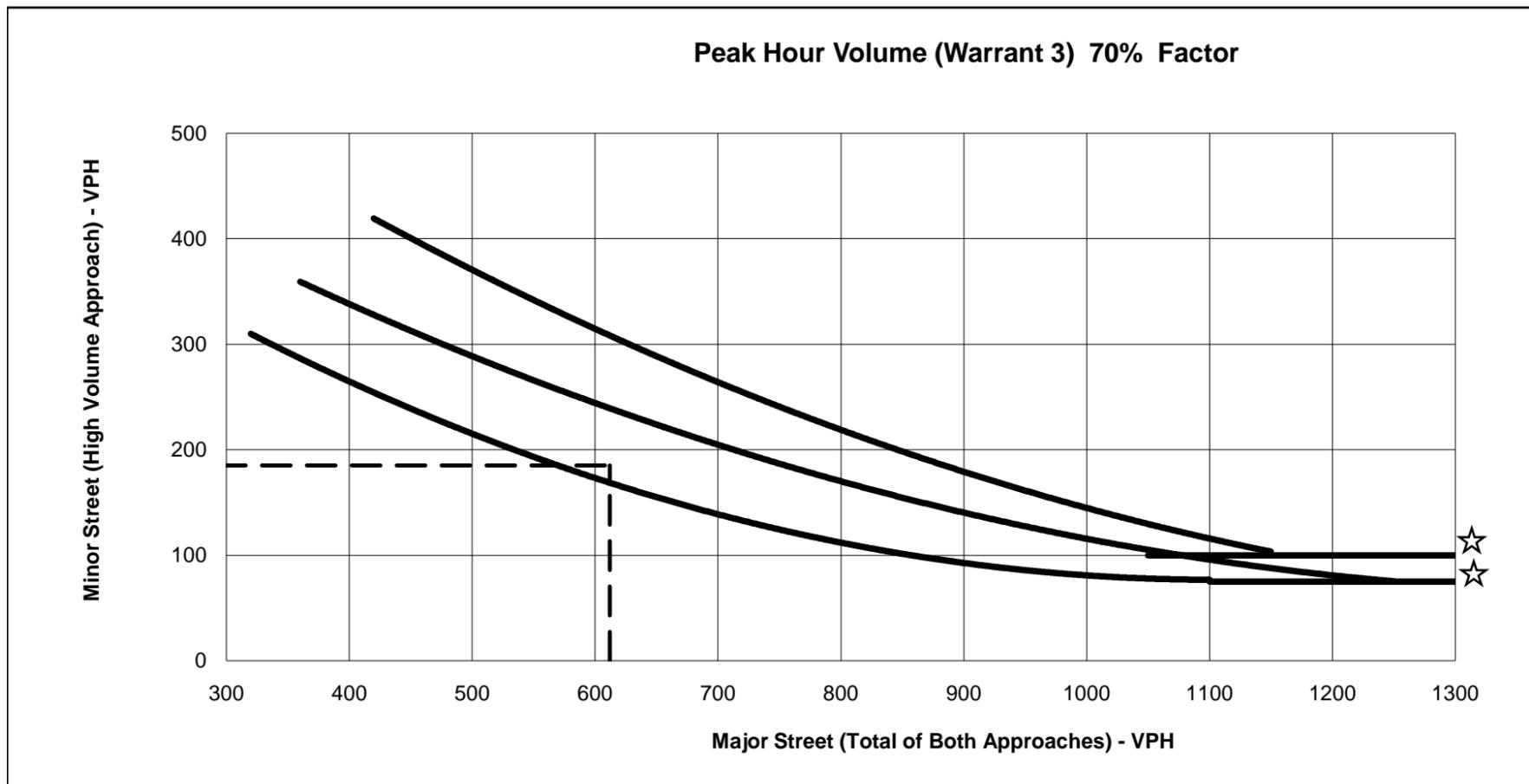
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (AM)

Major Approach	Willow Road	Number of Lanes	1
Minor Approach	Pomeroy Rd		1
Major St. Volume:	509		
Minor St. Volume:	240		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



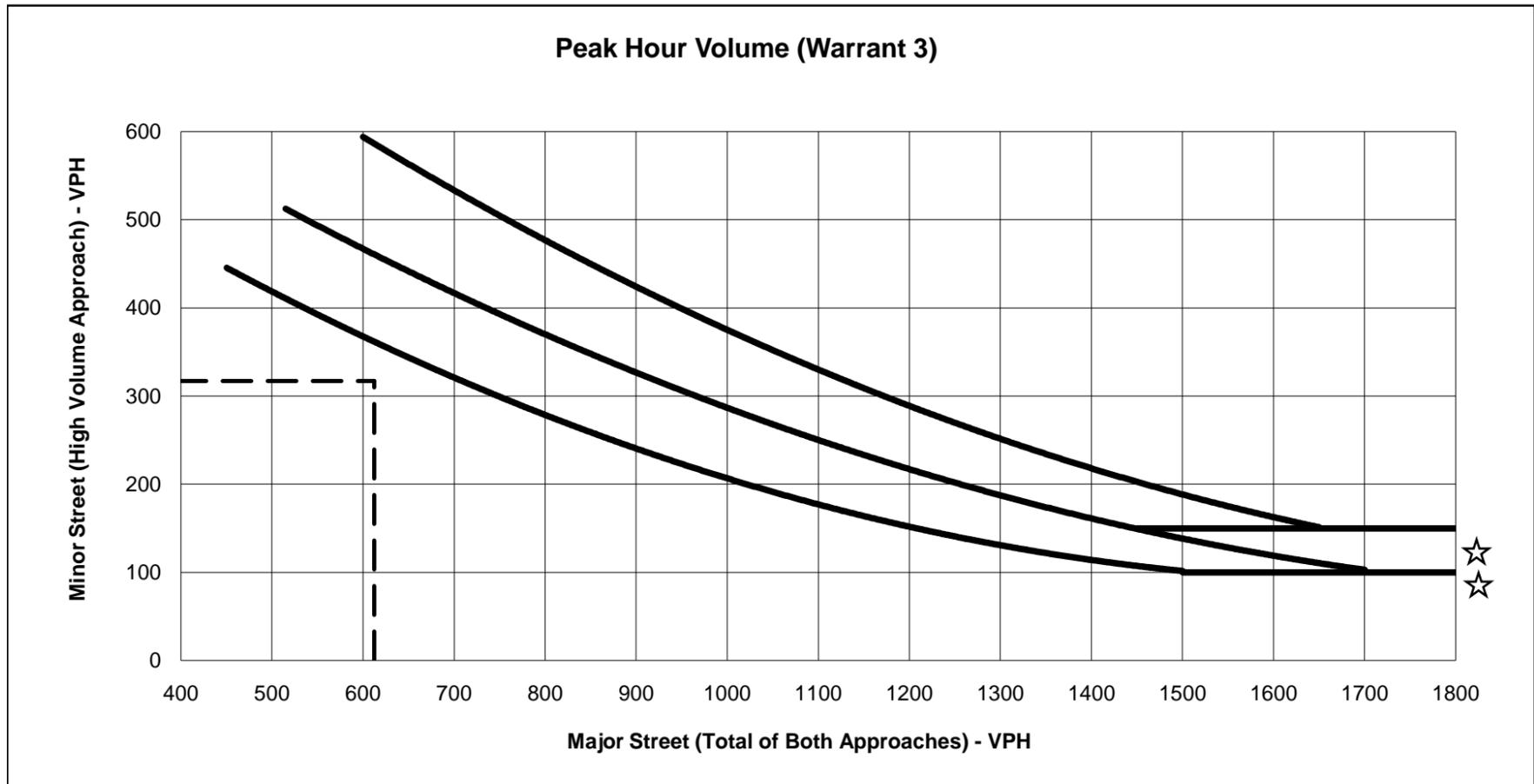
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING (PM)

		Number of Lanes
Major Approach	Willow Road	1
Minor Approach	Pomeroy Rd	1
Major St. Volume:	612	
Minor St. Volume:	185	
Warrant Met?:	Yes	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	470	600	590
700	325	700	415	700	540
800	285	800	370	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



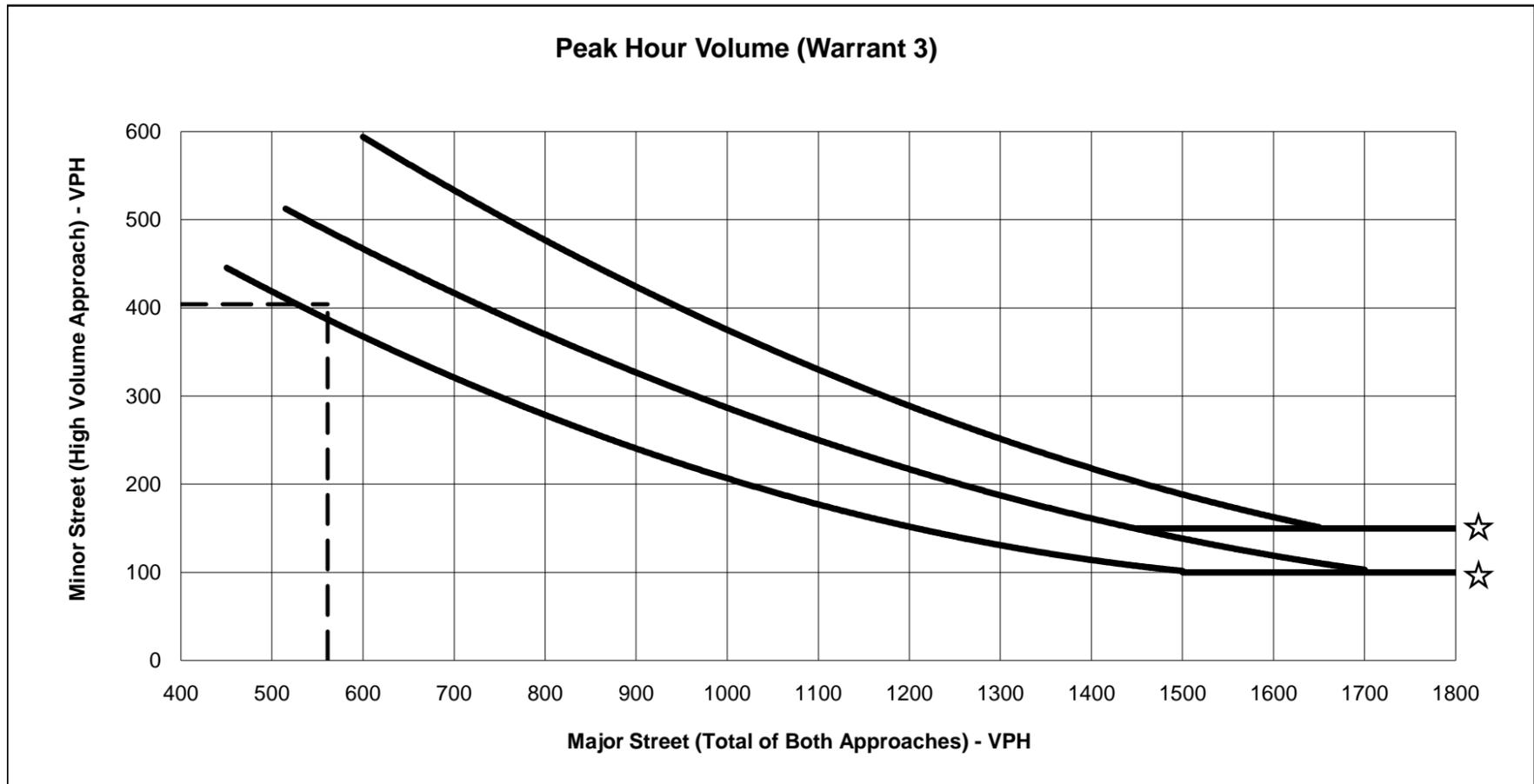
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Cumulative (AM)

Major Approach	Minor Approach	Number of Lanes
Highway 1	Valley Road	1
		1
Major St. Volume:	612	
Minor St. Volume:	317	
Warrant Met?:	No	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	470	600	590
700	325	700	415	700	540
800	285	800	370	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



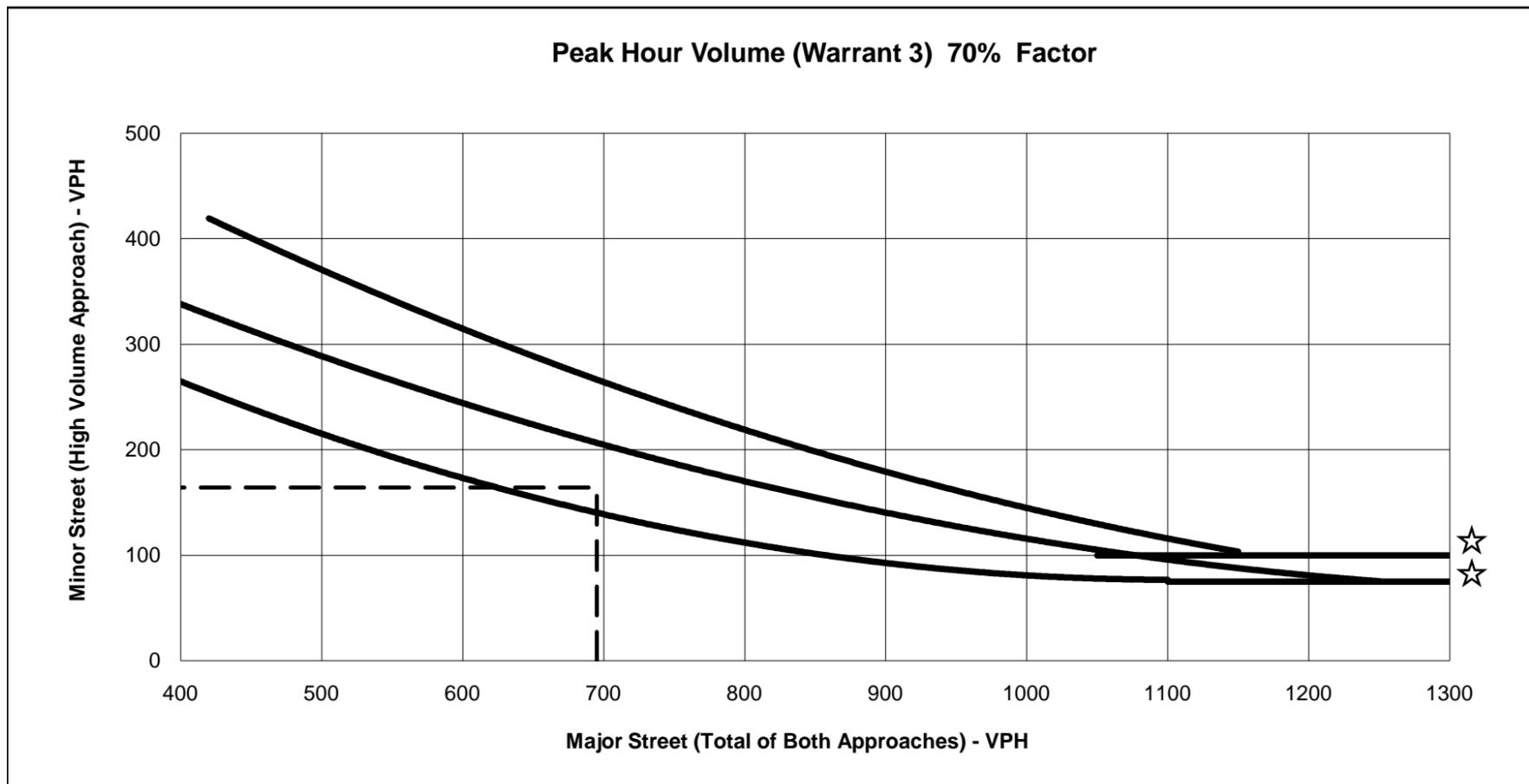
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Cumulative (PM)

		Number of Lanes
Major Approach	Highway 1	1
Minor Approach	Valley Road	1
Major St. Volume:	561	
Minor St. Volume:	404	
Warrant Met?:	Yes	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



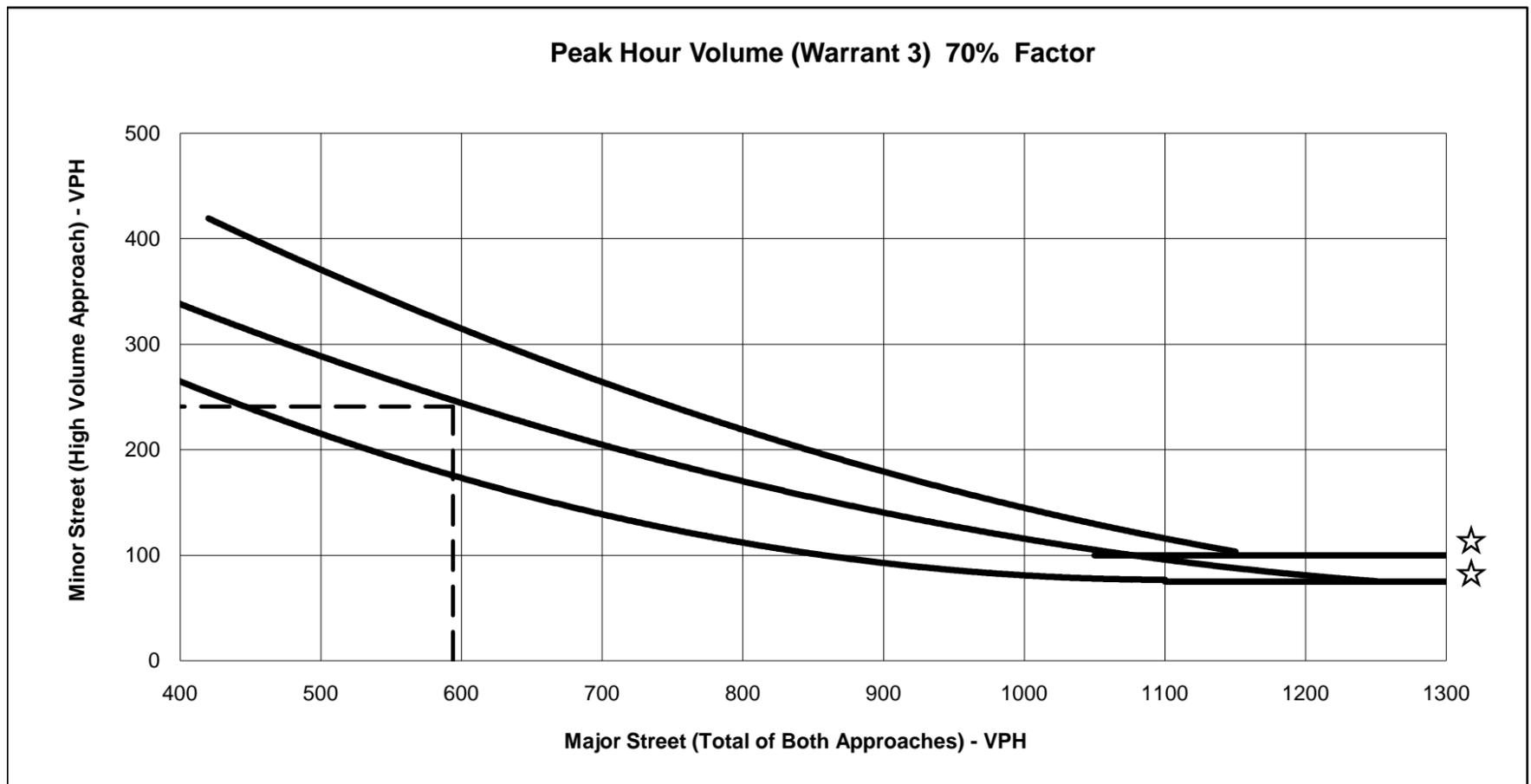
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Cumulative (AM)

Major Approach	Thompson Avenue	Number of Lanes	1
Minor Approach	US 101 NB Ramps		1
Major St. Volume:	695		
Minor St. Volume:	164		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



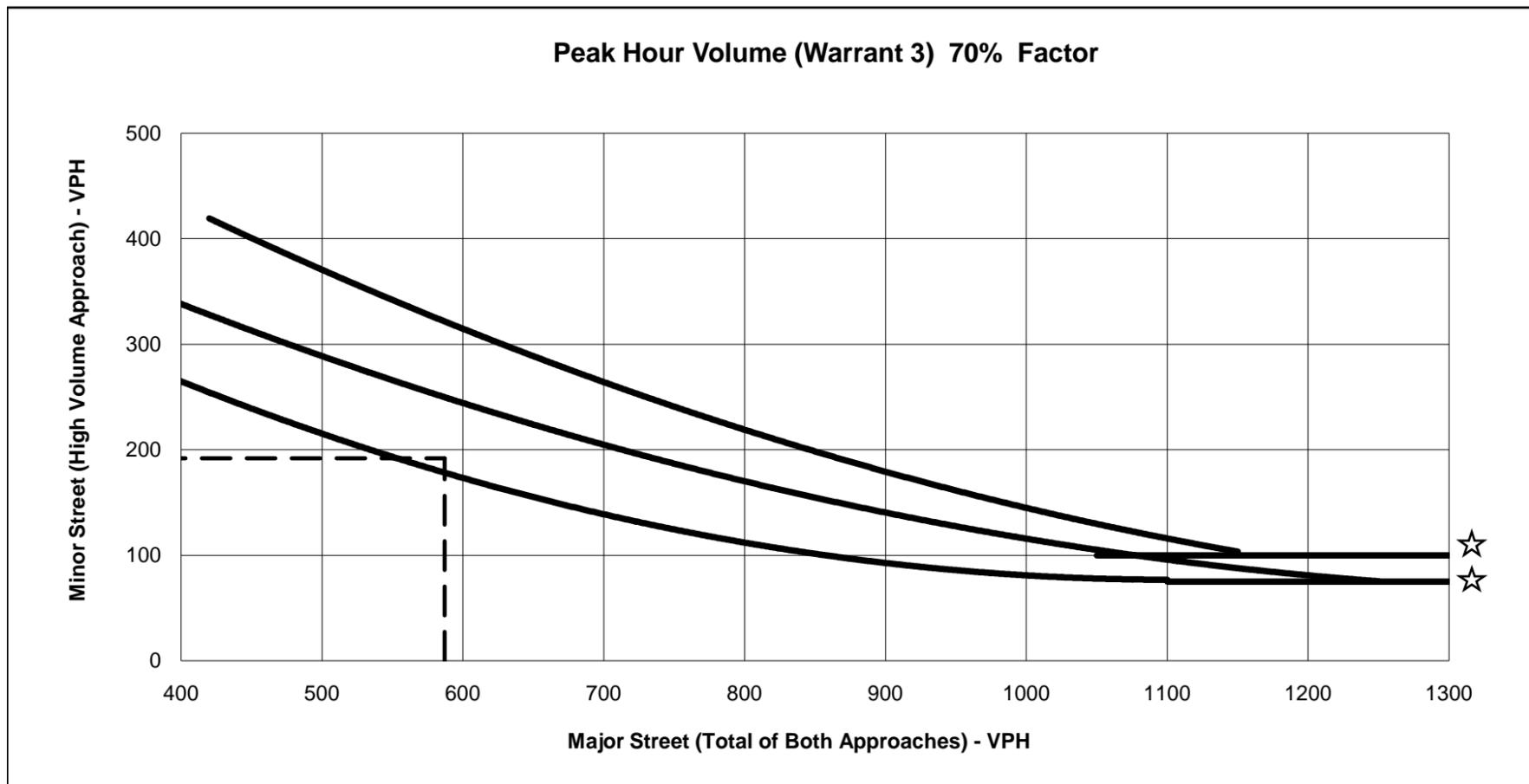
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Cumulative (PM)

		Number of Lanes
Major Approach	Thompson Avenue	1
Minor Approach	US 101 NB Ramps	1
Major St. Volume:	594	
Minor St. Volume:	241	
Warrant Met?:	No	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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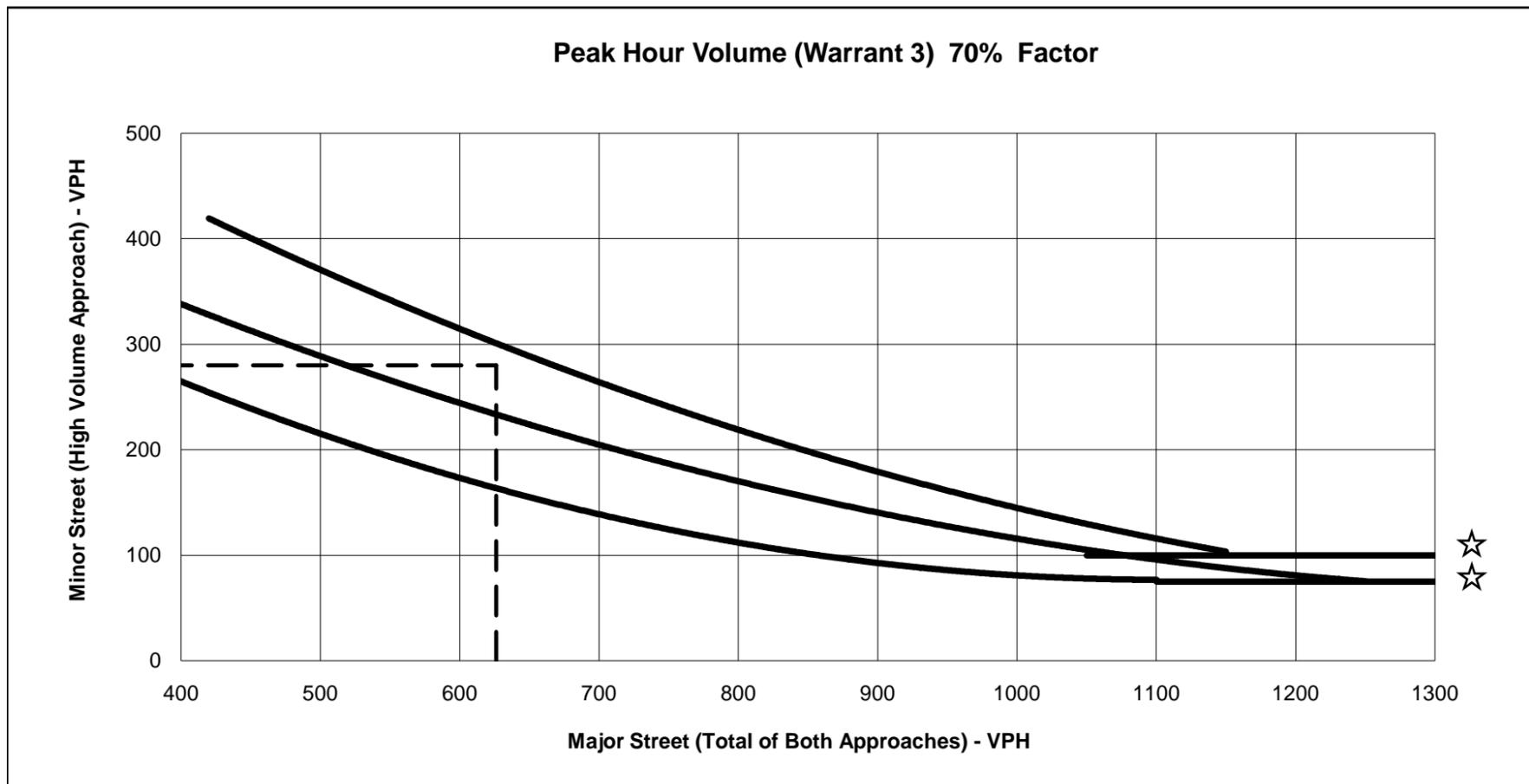
☆ NOTE:
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Cumulative (AM)

Major Approach	Los Berros Road	Number of Lanes	1
Minor Approach	US 101 SB Ramps		1
Major St. Volume:	587		
Minor St. Volume:	192		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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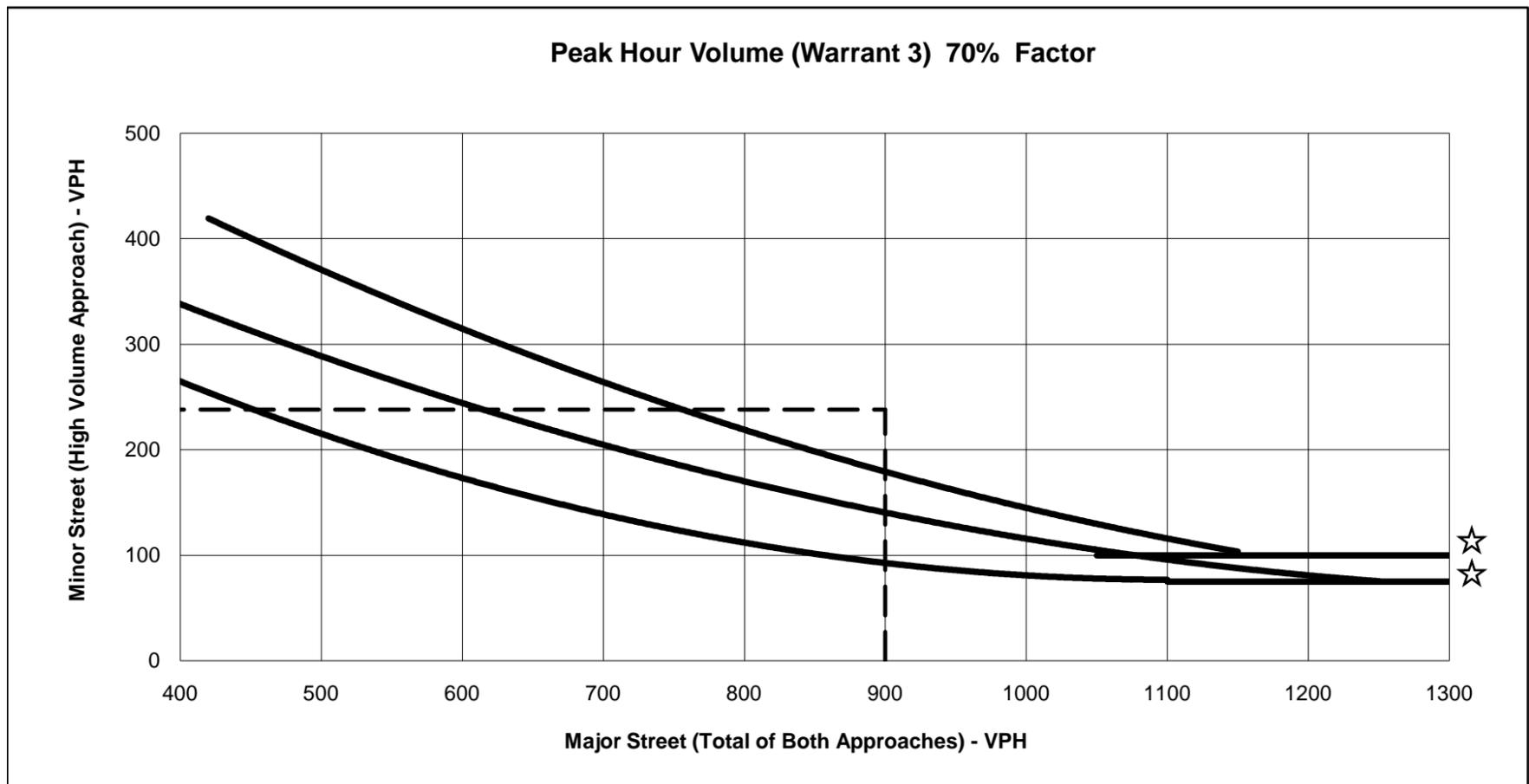
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Cumulative (PM)

		Number of Lanes
Major Approach	Los Berros Road	1
Minor Approach	US 101 SB Ramps	1
Major St. Volume:	626	
Minor St. Volume:	280	
Warrant Met?:	No	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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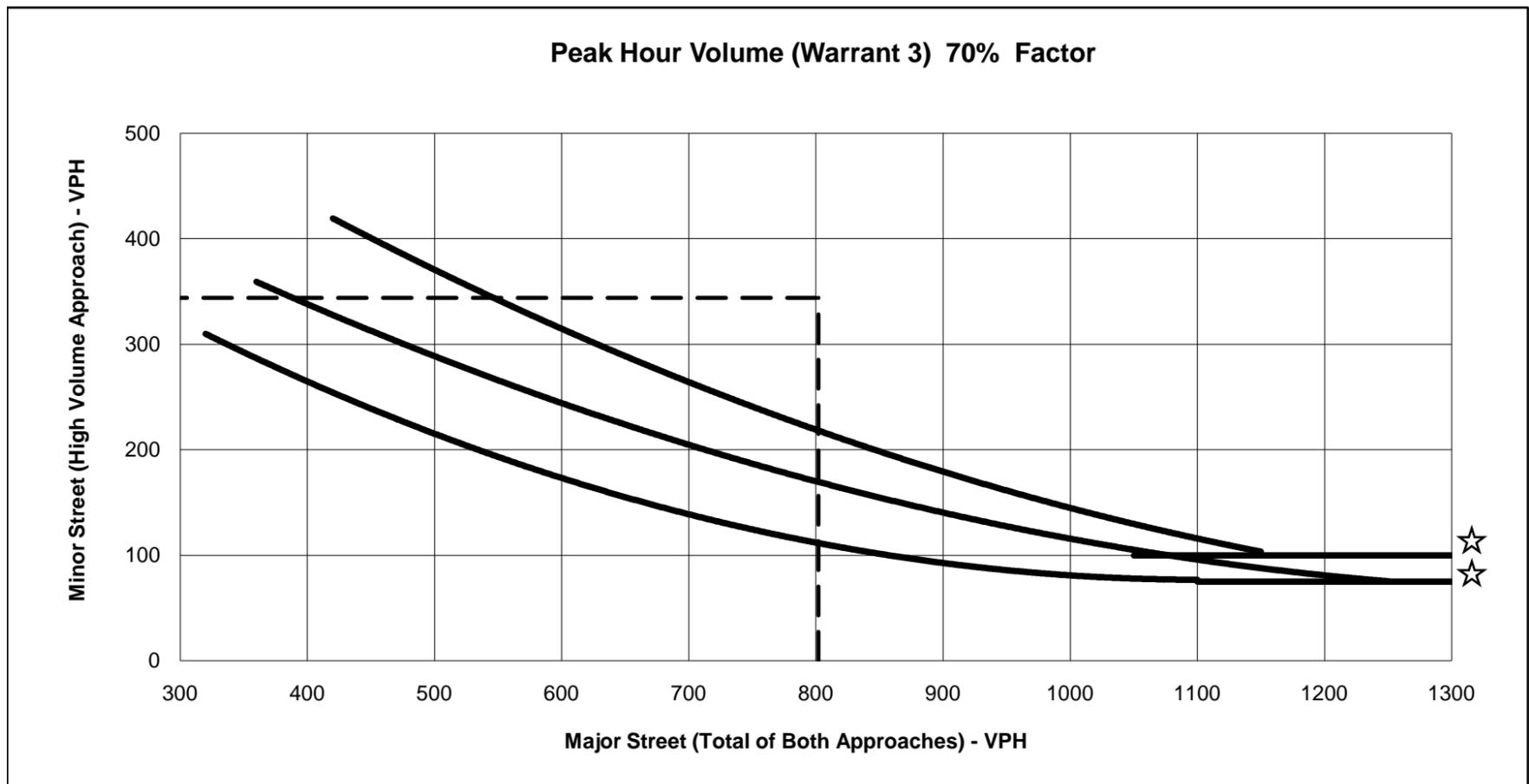
☆ NOTE:
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Cumulative (AM)

Major Approach	Willow Road	Number of Lanes	1
Minor Approach	US 101 SB Ramps		1
Major St. Volume:	900		
Minor St. Volume:	238		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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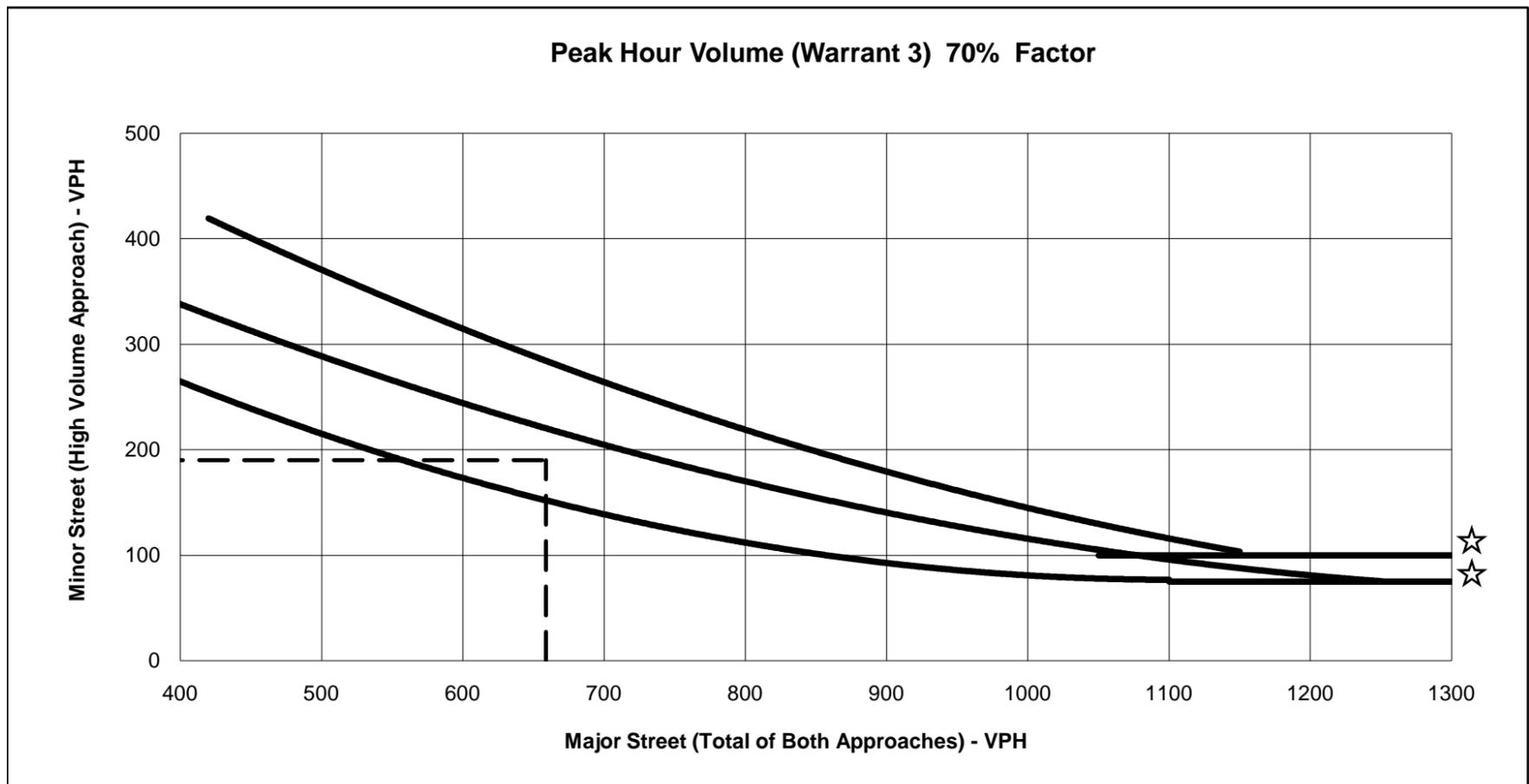
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Cumulative (PM)

		Number of Lanes
Major Approach	Willow Road	1
Minor Approach	US 101 SB Ramps	1
Major St. Volume:	802	
Minor St. Volume:	344	
Warrant Met?:	Yes	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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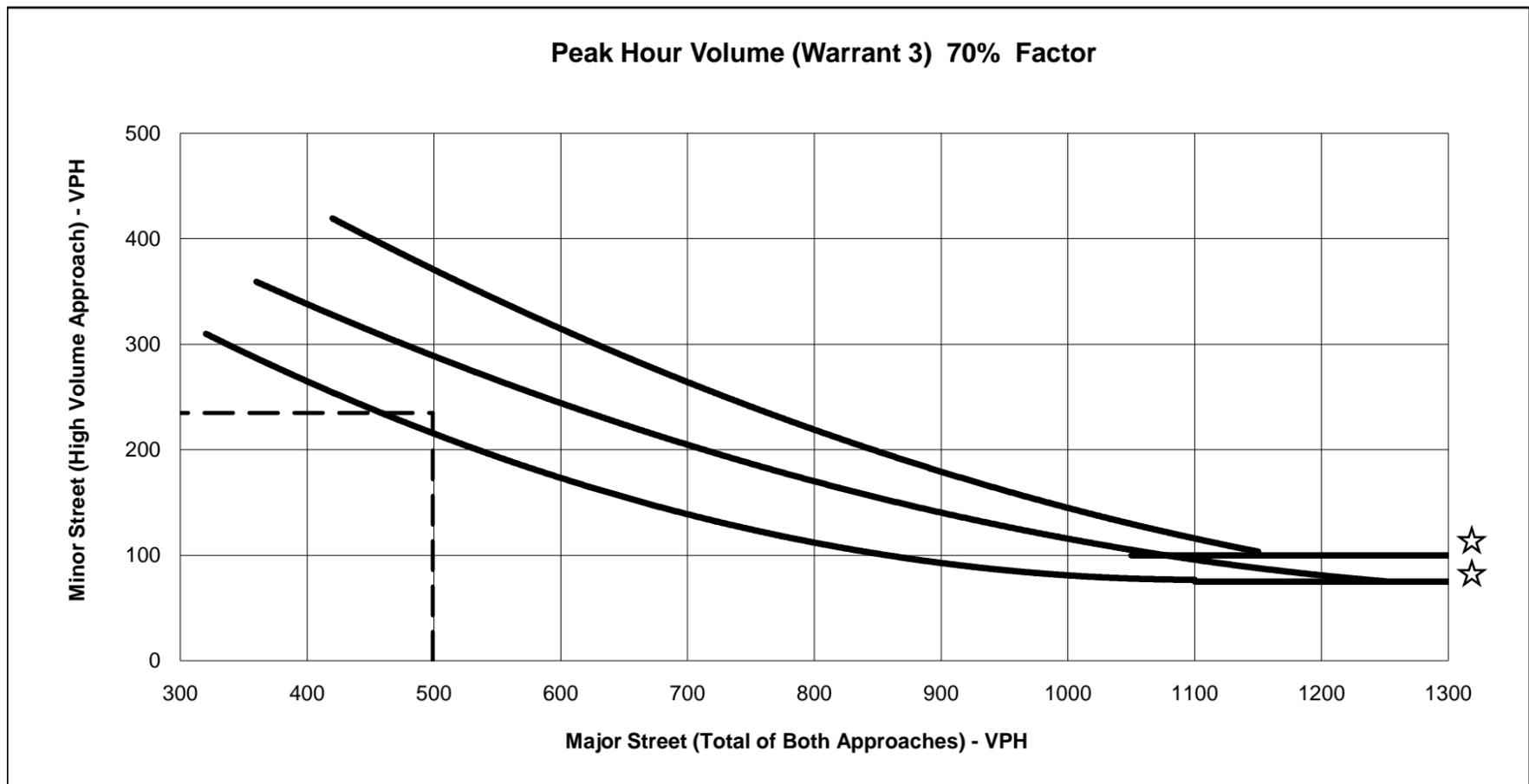
☆ NOTE:
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Cumulative (AM)

Major Approach	Willow Road	Number of Lanes	1
Minor Approach	US 101 NB Ramps		1
Major St. Volume:	659		
Minor St. Volume:	190		
Warrant Met?:	No		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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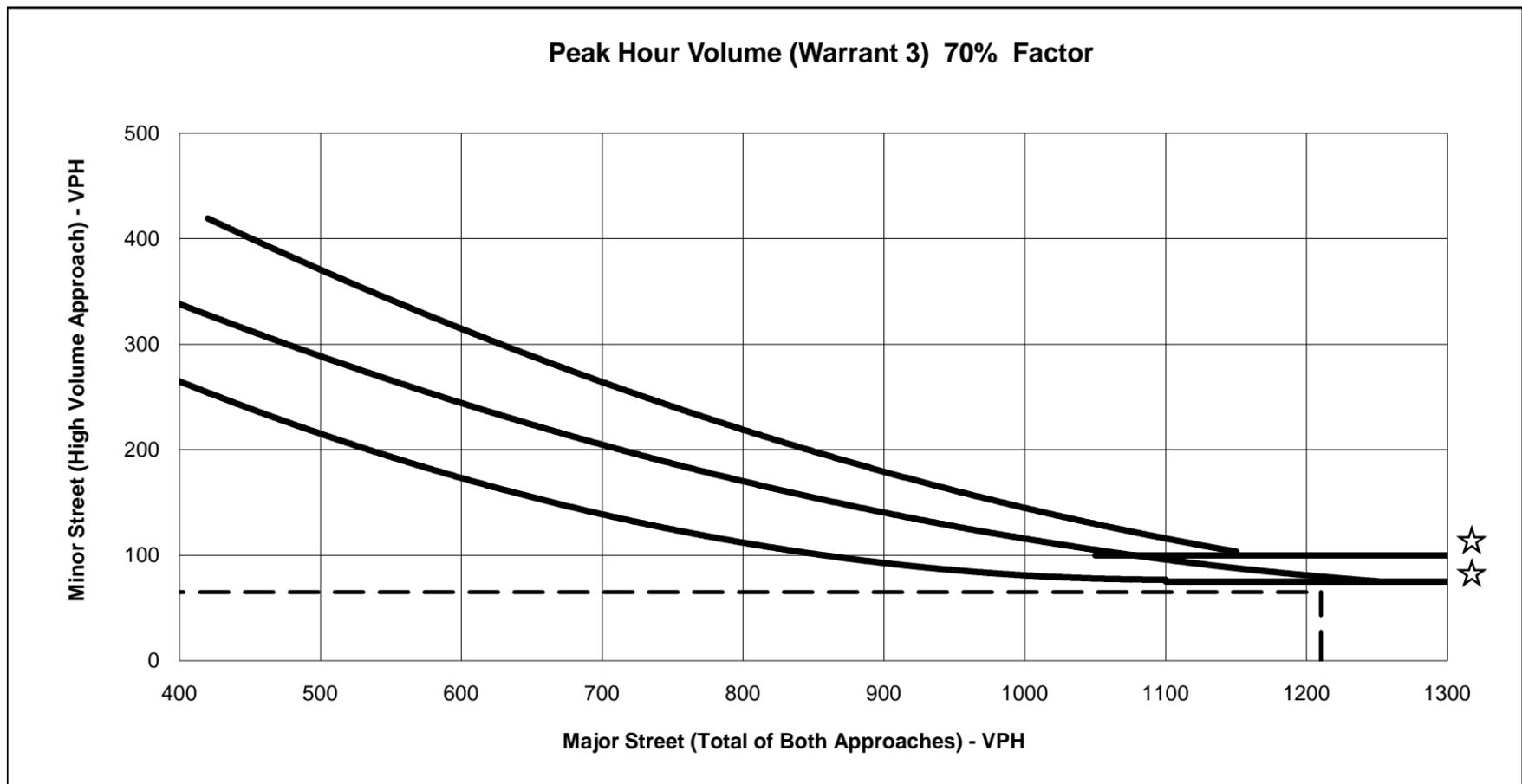
☆ NOTE:
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Cumulative (PM)

		Number of Lanes
Major Approach	Willow Road	1
Minor Approach	US 101 NB Ramps	1
Major St. Volume:	499	
Minor St. Volume:	235	
Warrant Met?:	No	

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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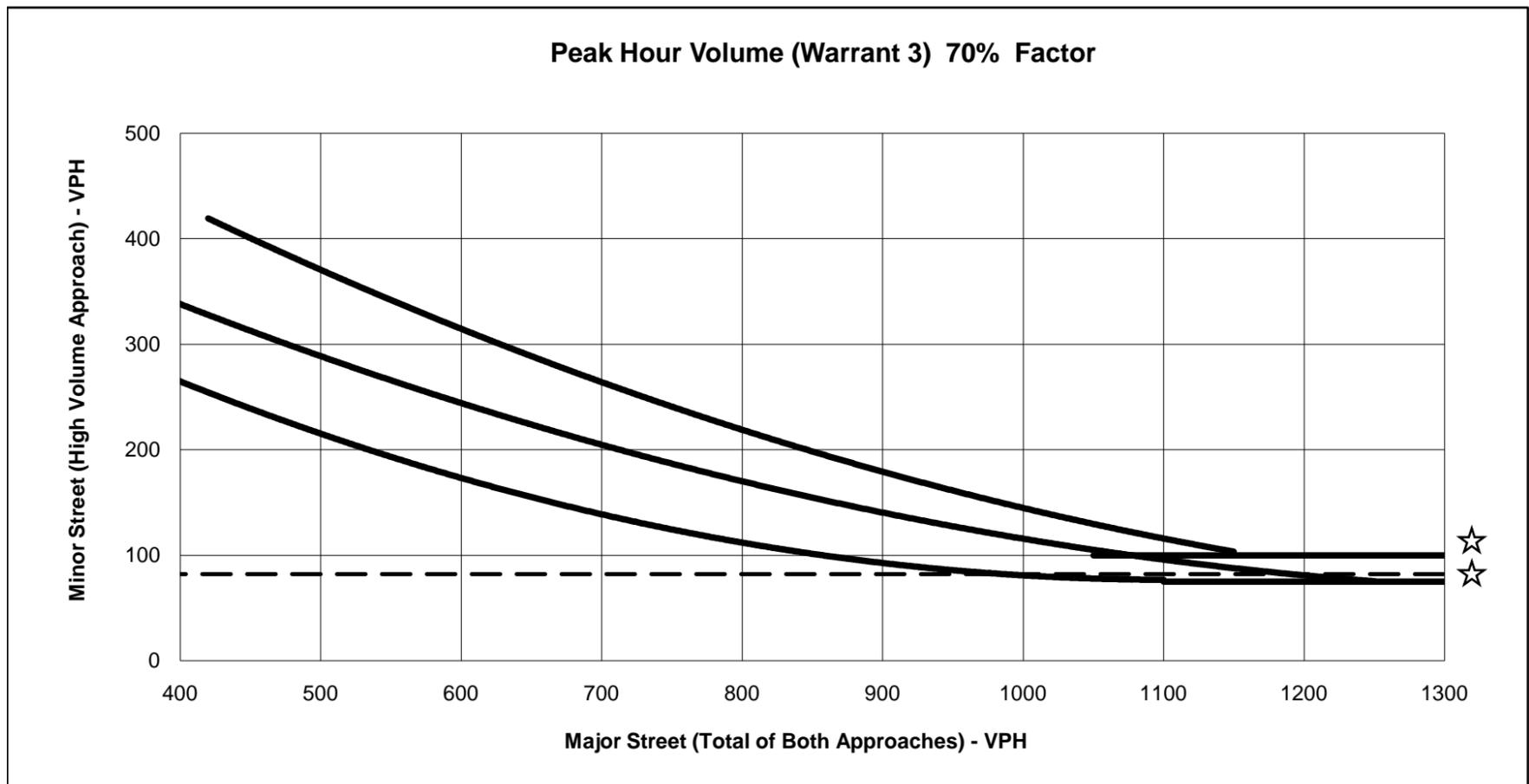
☆ NOTE:
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Cumulative (AM)

Major Approach	SR 166	Number of Lanes	1
Minor Approach	US 101 SB Ramps		1
Major St. Volume:	1210		
Minor St. Volume:	65		
Warrant Met?:	No		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



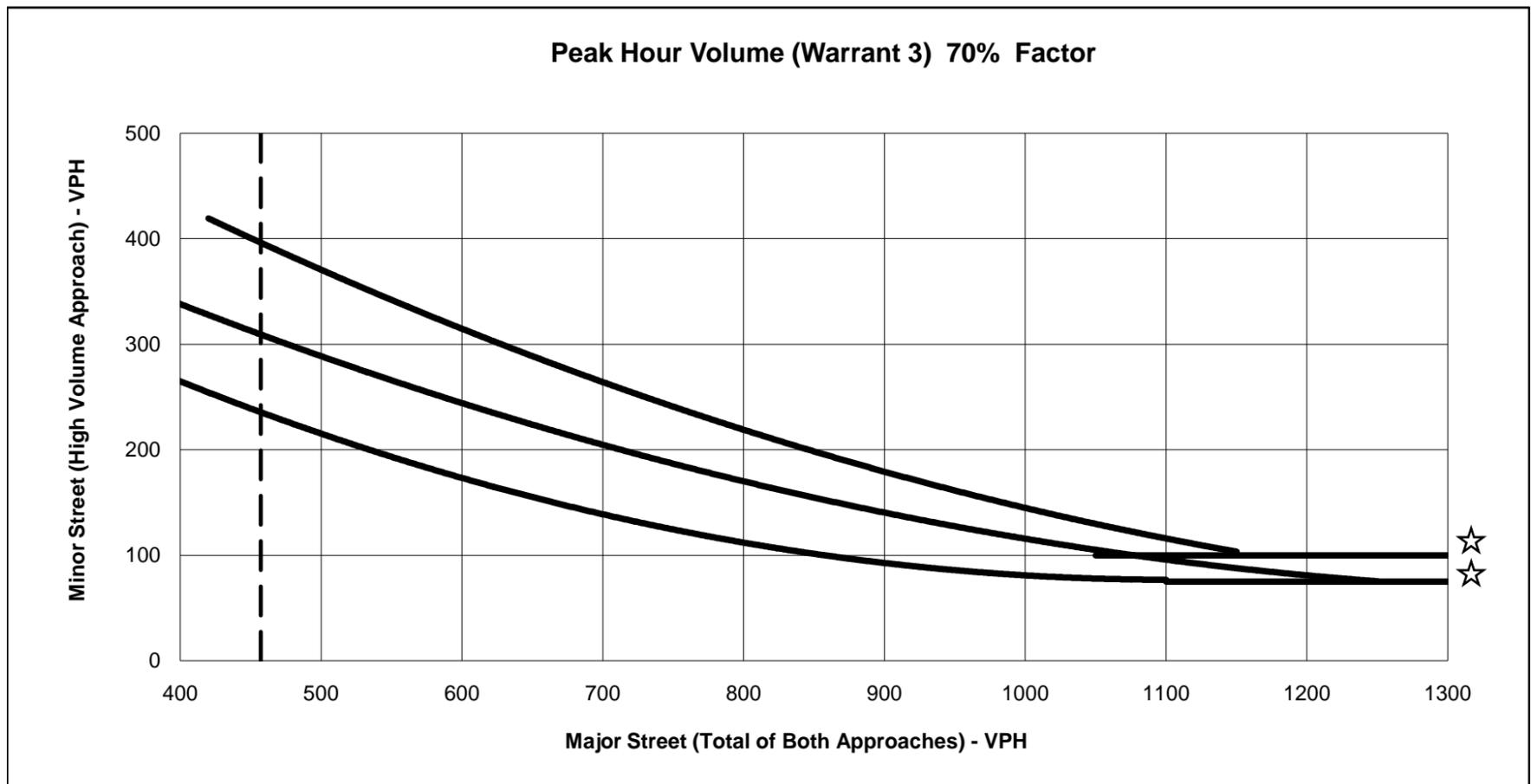
☆ NOTE:
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Cumulative (PM)

Major Approach	SR 166	Number of Lanes	1
Minor Approach	US 101 SB Ramps		1
Major St. Volume:	1571		
Minor St. Volume:	82		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



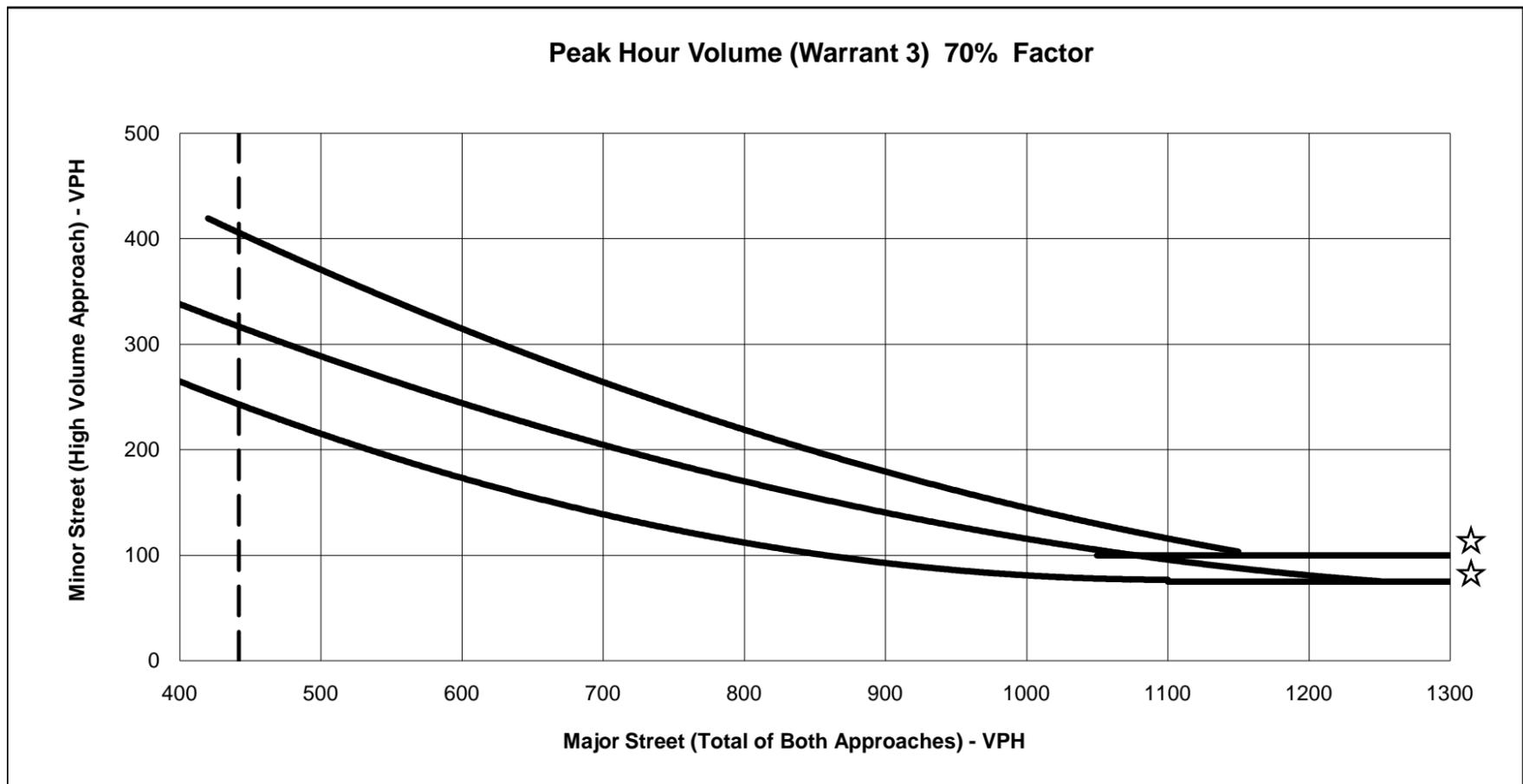
☆ NOTE:
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Cumulative (AM)

Major Approach	SR 166	Number of Lanes	1
Minor Approach	US 101 NB Ramps		1
Major St. Volume:	457		
Minor St. Volume:	610		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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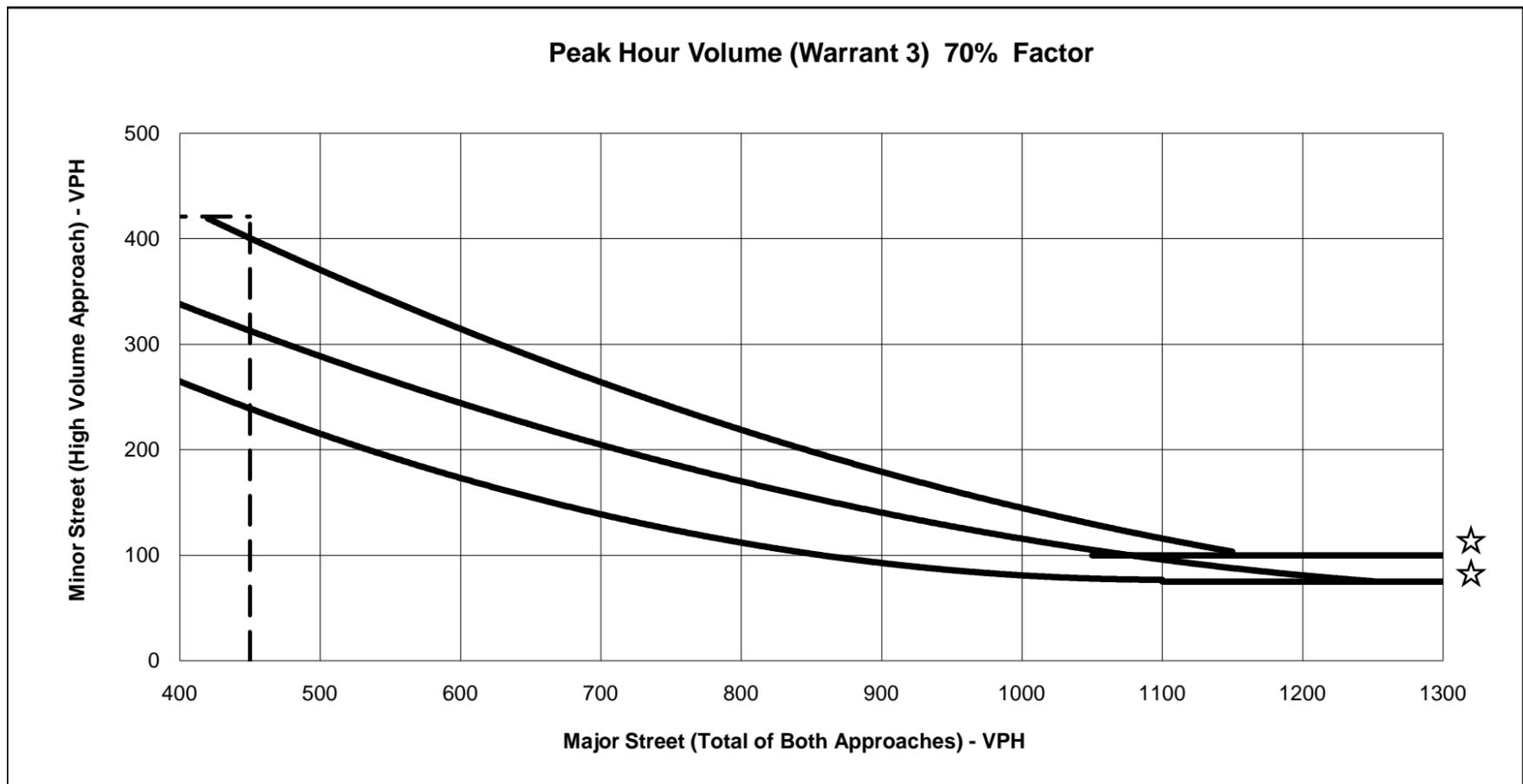
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Cumulative (PM)

Major Approach	SR 166	Number of Lanes	1
Minor Approach	US 101 NB Ramps		1
Major St. Volume:	442		
Minor St. Volume:	1013		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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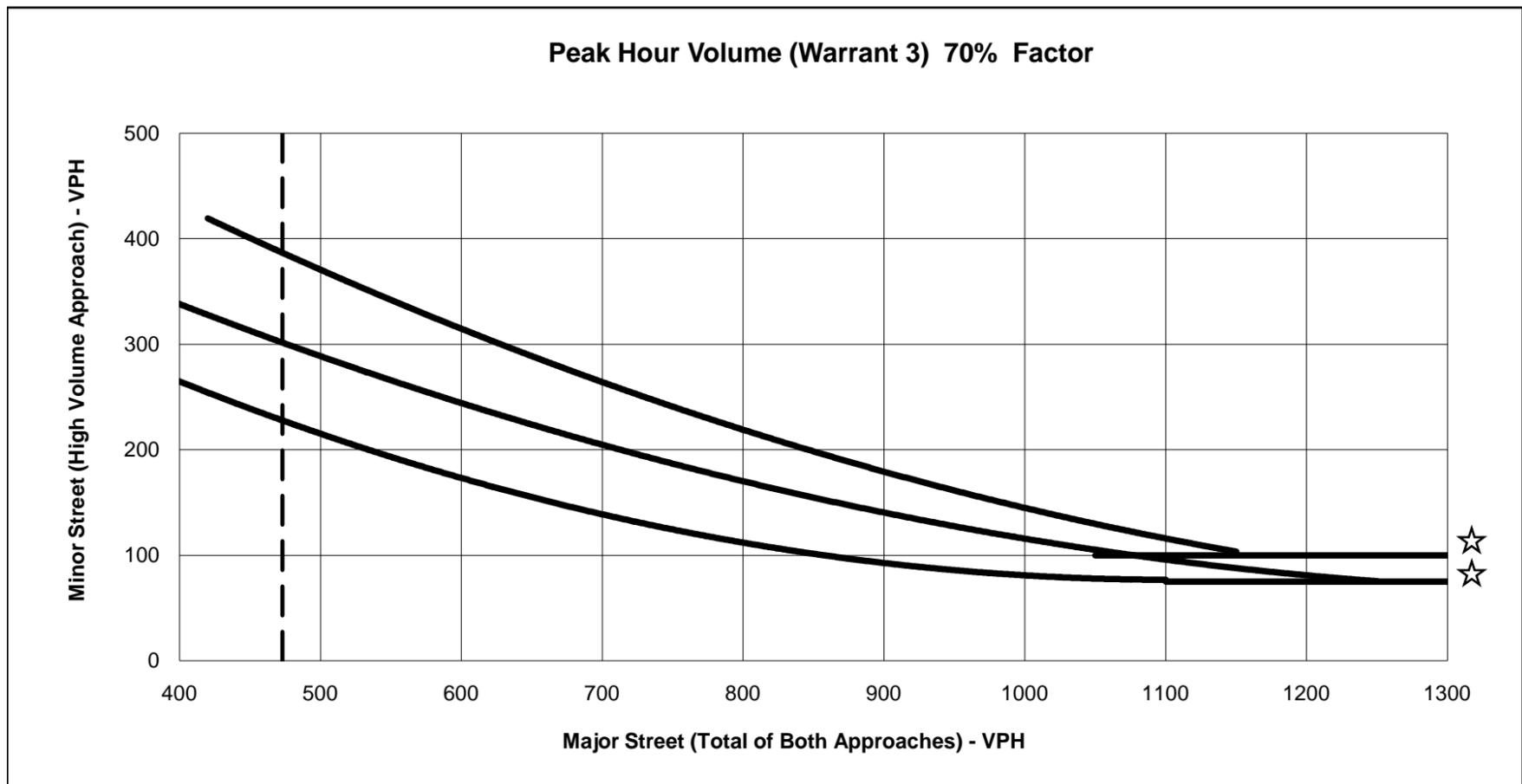
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Cumulative (AM)

Major Approach	SR 166	Number of Lanes	1
Minor Approach	Hutton Rd		1
Major St. Volume:	450		
Minor St. Volume:	421		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



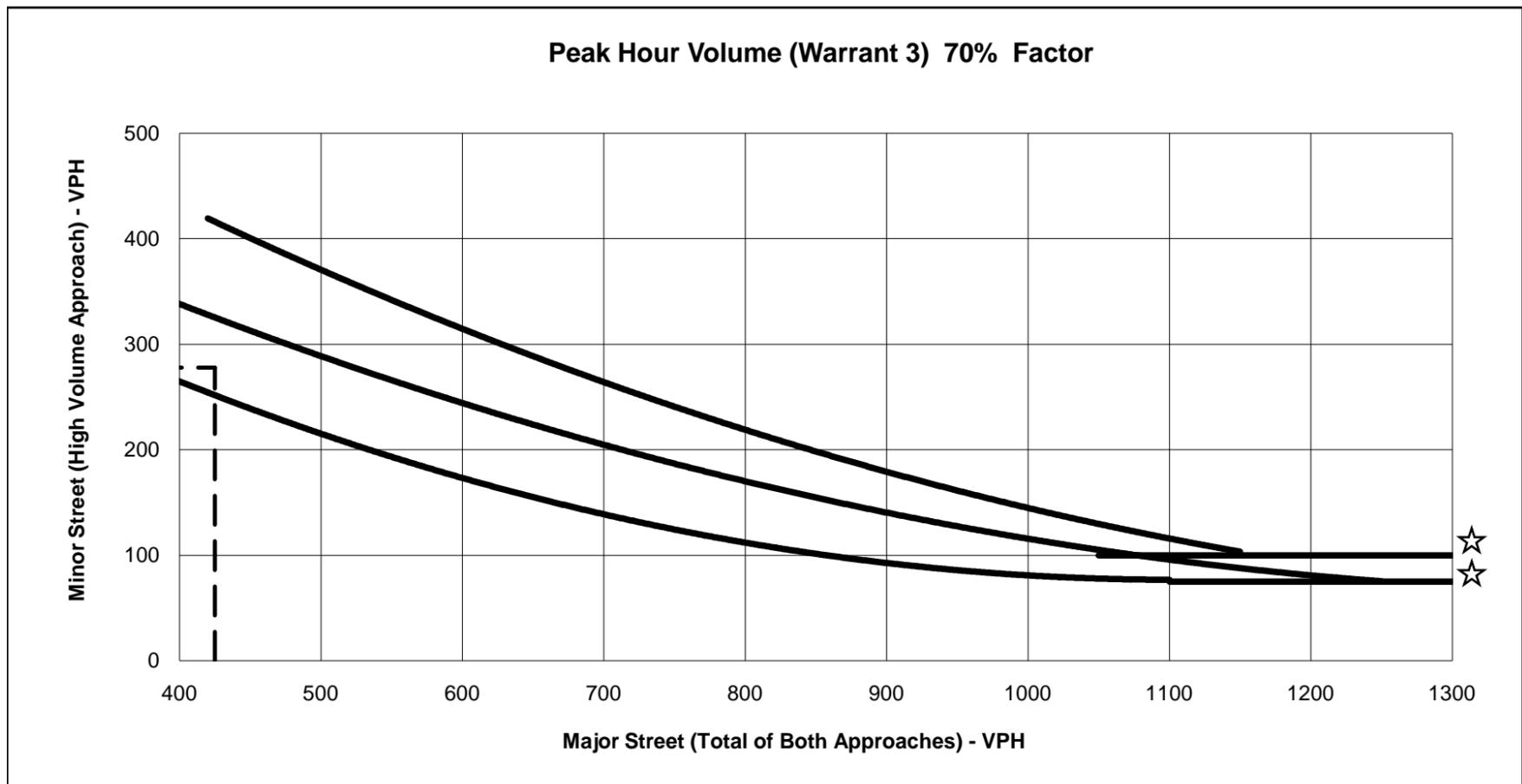
☆ NOTE:
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Cumulative (PM)

Major Approach	SR 166	Number of Lanes	1
Minor Approach	Hutton Rd		1
Major St. Volume:	473		
Minor St. Volume:	529		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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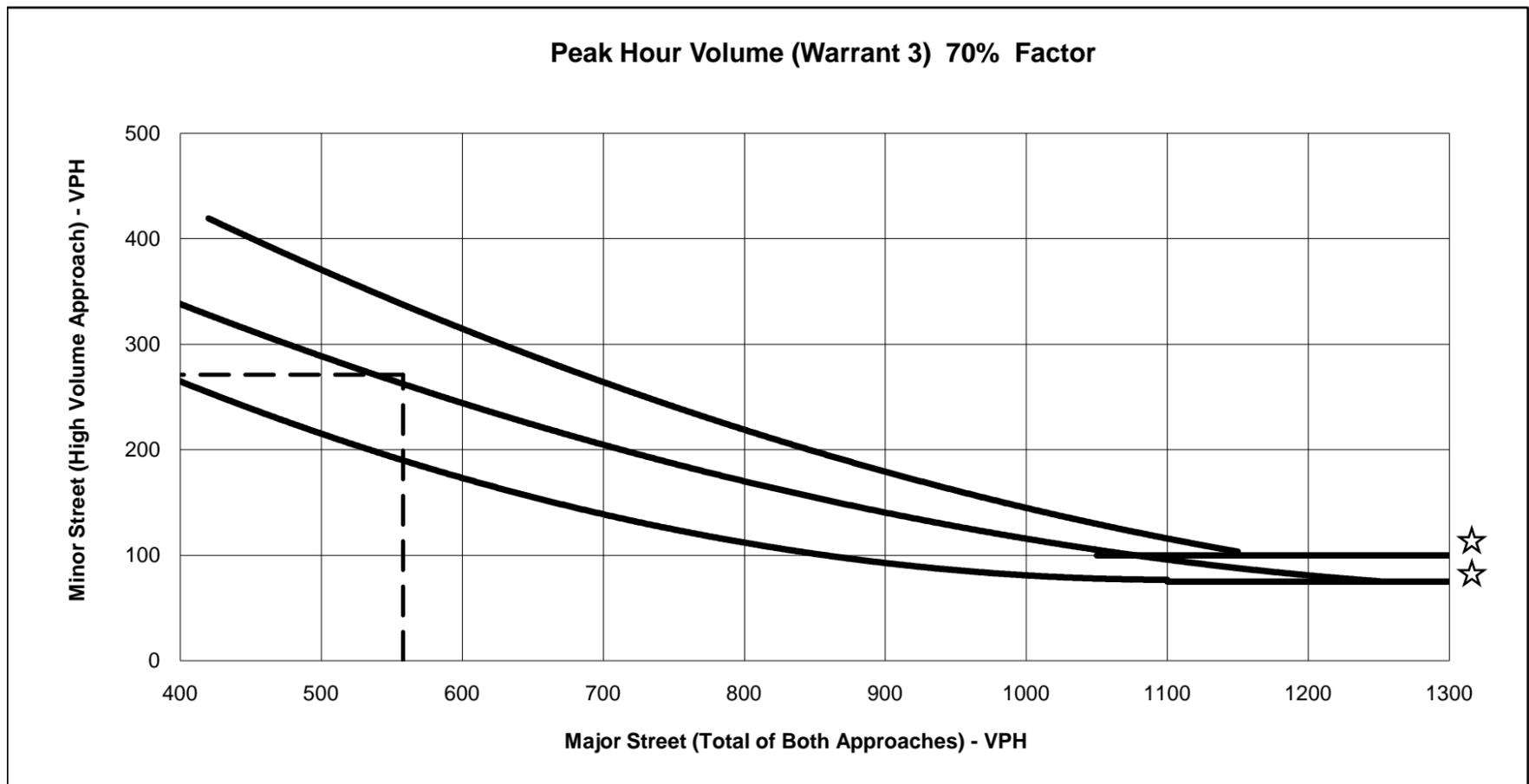
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Cumulative (AM)

Major Approach	SR 166	Number of Lanes	1
Minor Approach	Thompson Ave		1
Major St. Volume:	425		
Minor St. Volume:	278		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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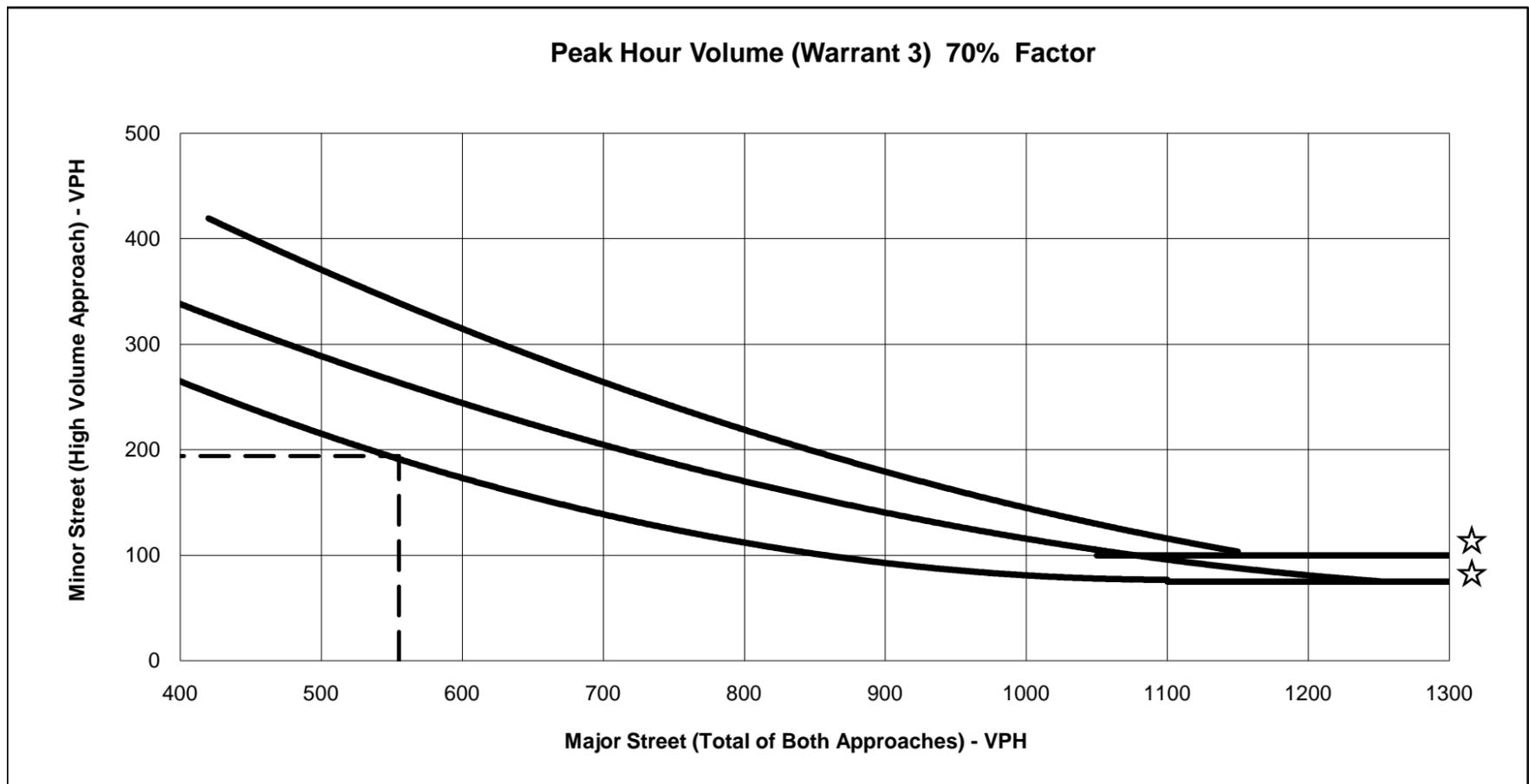
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Cumulative (PM)

Major Approach	SR 166	Number of Lanes	1
Minor Approach	Thompson Ave		1
Major St. Volume:	558		
Minor St. Volume:	271		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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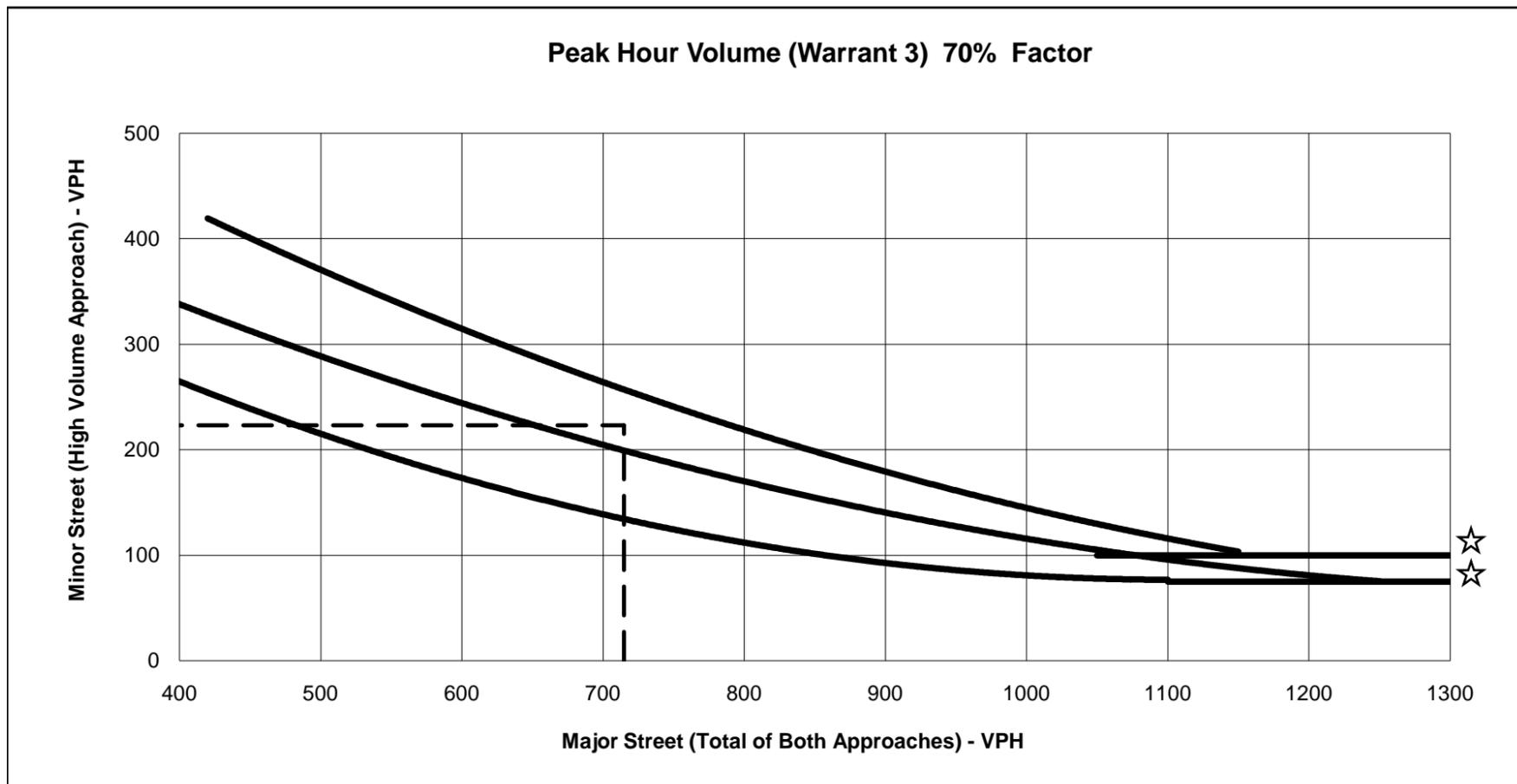
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Cumulative (AM)

Major Approach	Tefft Street	Number of Lanes	1	Speed Limit	45 mph
Minor Approach	Mesa Road		1		
Major St. Volume:	555				
Minor St. Volume:	194				
Warrant Met?:	Yes				

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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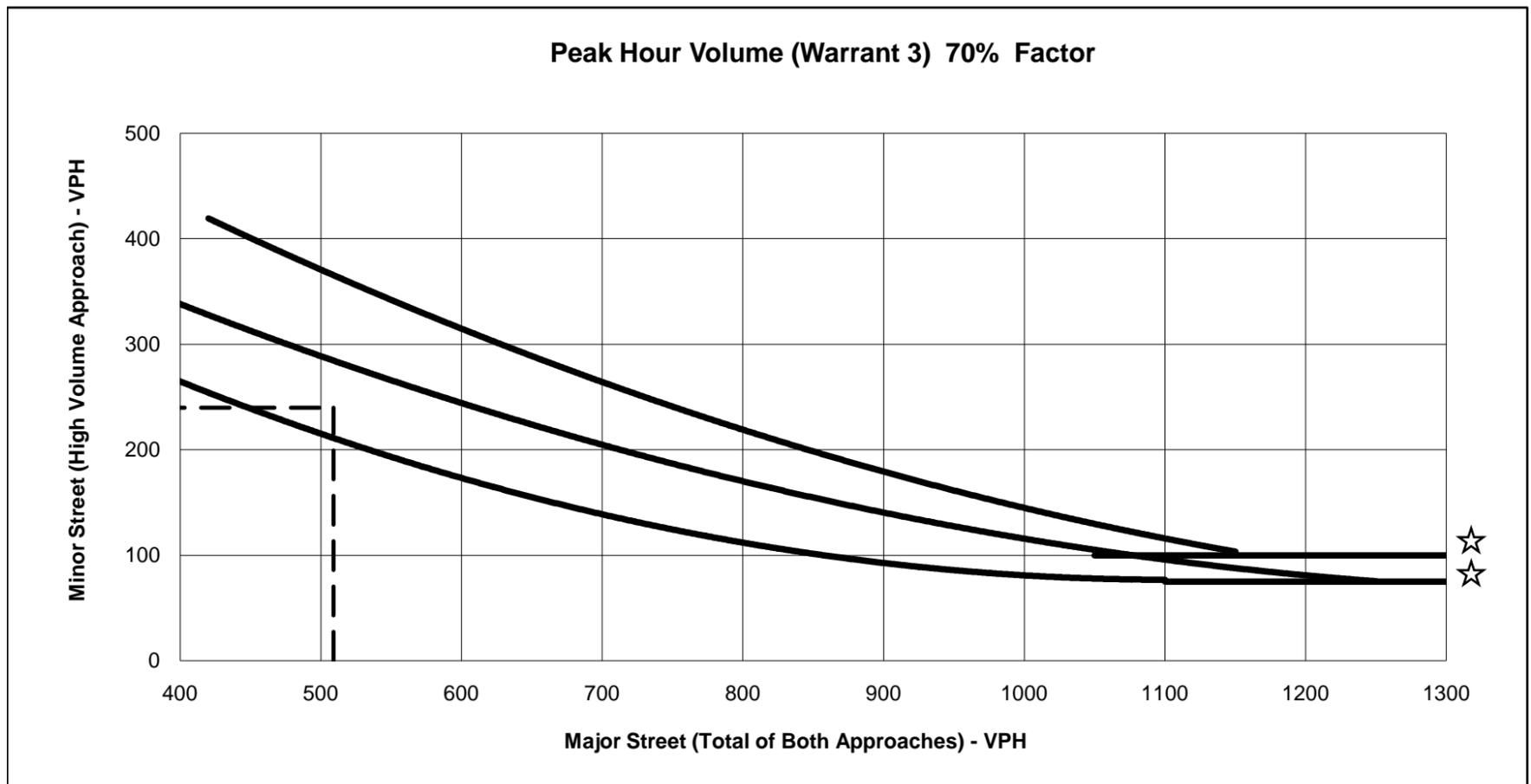
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Cumulative (PM)

Major Approach	Tefft Street	Number of Lanes	1	Speed Limit	45 mph
Minor Approach	Mesa Road		1		
Major St. Volume:	715				
Minor St. Volume:	223				
Warrant Met?:	Yes				

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

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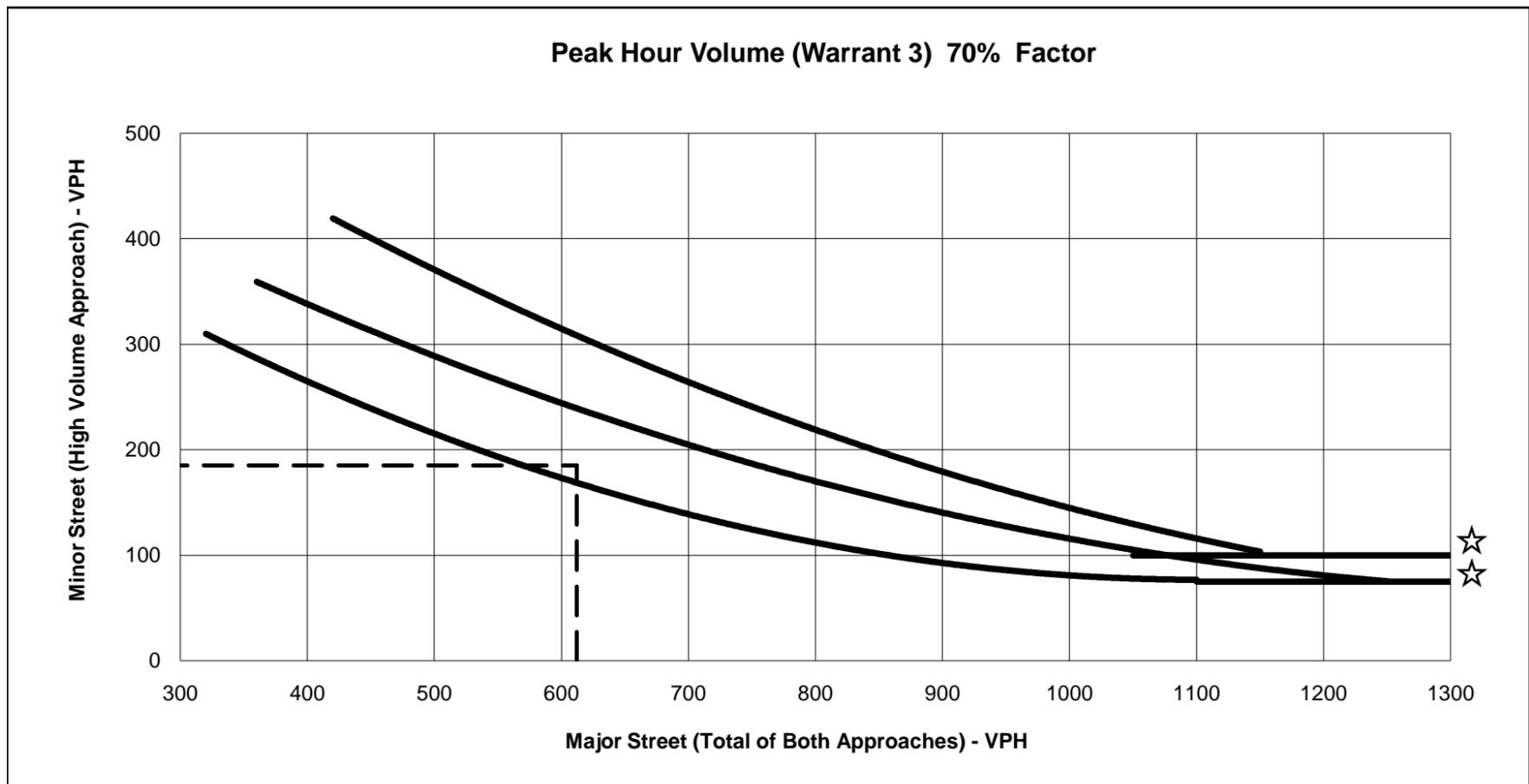
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Cumulative (AM)

Major Approach	Willow Road	Number of Lanes	1
Minor Approach	Pomeroy Rd		1
Major St. Volume:	509		
Minor St. Volume:	240		
Warrant Met?:	Yes		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



☆ NOTE:
 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Cumulative (PM)

Major Approach	Willow Road	Number of Lanes	1
Minor Approach	Pomeroy Rd		1
Major St. Volume:	612		
Minor St. Volume:	185		
Warrant Met?:	Yes		

Appendix E

LEVEL OF SERVICE WORKSHEETS

Intersection									
Intersection Delay, s/veh	42.5								
Intersection LOS	E								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	54	320	0	346	388	0	246	85
Peak Hour Factor	0.92	0.80	0.80	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	5	5	2	5	5	2	5	5
Mvmt Flow	0	67	400	0	432	485	0	307	106
Number of Lanes	0	0	1	0	2	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	45.5	49.5	23.7
HCM LOS	E	E	C

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	14%	0%	0%	100%	0%
Vol Thru, %	86%	100%	23%	0%	0%
Vol Right, %	0%	0%	77%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	374	231	503	246	85
LT Vol	54	0	0	246	0
Through Vol	320	231	115	0	0
RT Vol	0	0	388	0	85
Lane Flow Rate	468	288	629	308	106
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.902	0.566	1	0.7	0.206
Departure Headway (Hd)	6.945	7.073	6.519	8.191	6.991
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	524	510	560	443	515
Service Time	4.971	4.822	4.268	5.914	4.714
HCM Lane V/C Ratio	0.893	0.565	1.123	0.695	0.206
HCM Control Delay	45.5	18.7	63.6	27.9	11.5
HCM Lane LOS	E	C	F	D	B
HCM 95th-tile Q	10.4	3.5	14.3	5.3	0.8

Intersection

Intersection Delay, s/veh 57.3
Intersection LOS F

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	243	384	0	6	209	0	487	19
Peak Hour Factor	0.92	0.72	0.72	0.92	0.72	0.72	0.92	0.72	0.72
Heavy Vehicles, %	2	6	6	2	6	6	2	6	6
Mvmt Flow	0	338	533	0	8	290	0	676	26
Number of Lanes	0	1	0	0	1	1	0	1	0

Approach

	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	2
HCM Control Delay	63	21.9	65.2
HCM LOS	F	C	F

Lane

	NBLn1	EBLn1	WBLn1	WBLn2
Vol Left, %	96%	0%	100%	0%
Vol Thru, %	0%	39%	0%	100%
Vol Right, %	4%	61%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	506	627	6	209
LT Vol	487	0	6	0
Through Vol	0	243	0	209
RT Vol	19	384	0	0
Lane Flow Rate	703	871	8	290
Geometry Grp	2	5	7	7
Degree of Util (X)	1	1	0.019	0.621
Departure Headway (Hd)	6.818	6.381	8.199	7.699
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	541	575	439	473
Service Time	4.818	4.381	5.899	5.399
HCM Lane V/C Ratio	1.299	1.515	0.018	0.613
HCM Control Delay	65.2	63	11.1	22.2
HCM Lane LOS	F	F	B	C
HCM 95th-tile Q	14.1	14.5	0.1	4.1

Intersection

Int Delay, s/veh 11.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	242	24	57	128	72	156
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	74	74	74	74	74	74
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	327	32	77	173	97	211

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	250	0	850
Stage 1	-	-	164
Stage 2	-	-	686
Critical Hdwy	4.18	-	6.48
Critical Hdwy Stg 1	-	-	5.48
Critical Hdwy Stg 2	-	-	5.48
Follow-up Hdwy	2.272	-	3.572
Pot Cap-1 Maneuver	1281	-	323
Stage 1	-	-	851
Stage 2	-	-	489
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1281	-	239
Mov Cap-2 Maneuver	-	-	239
Stage 1	-	-	851
Stage 2	-	-	362

Approach	EB	WB	SB
HCM Control Delay, s	8	0	25.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1281	-	-	-	473
HCM Lane V/C Ratio	0.255	-	-	-	0.651
HCM Control Delay (s)	8.8	0	-	-	25.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1	-	-	-	4.6

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	24	158	158	26	112	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	120	-	-	420	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	28	184	184	30	130	151

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	611	199	0 0 214 0
Stage 1	199	-	- - - -
Stage 2	412	-	- - - -
Critical Hdwy	6.5	6.3	- - 4.2 -
Critical Hdwy Stg 1	5.5	-	- - - -
Critical Hdwy Stg 2	5.5	-	- - - -
Follow-up Hdwy	3.59	3.39	- - 2.29 -
Pot Cap-1 Maneuver	444	822	- - 1310 -
Stage 1	816	-	- - - -
Stage 2	652	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	400	822	- - 1310 -
Mov Cap-2 Maneuver	400	-	- - - -
Stage 1	816	-	- - - -
Stage 2	587	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	3.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	400	822	1310	-
HCM Lane V/C Ratio	-	-	0.07	0.224	0.099	-
HCM Control Delay (s)	-	-	14.7	10.6	8.1	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.9	0.3	-

Intersection

Int Delay, s/veh 5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	57	171	0	0	90	186	124	4	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	79	238	0	0	125	258	172	6	7	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	383	0	0	238	0	0	650	779	238
Stage 1	-	-	-	-	-	-	396	396	-
Stage 2	-	-	-	-	-	-	254	383	-
Critical Hdwy	4.15	-	-	4.15	-	-	6.45	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	5.45	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.45	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345
Pot Cap-1 Maneuver	1159	-	-	1311	-	-	429	324	794
Stage 1	-	-	-	-	-	-	673	599	-
Stage 2	-	-	-	-	-	-	781	607	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1159	-	-	1311	-	-	395	0	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	395	0	-
Stage 1	-	-	-	-	-	-	620	0	-
Stage 2	-	-	-	-	-	-	781	0	-

Approach

	EB		WB		NB
HCM Control Delay, s	2.1		0		21
HCM LOS					C

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	395	794	1159	-	-	1311	-	-
HCM Lane V/C Ratio	0.45	0.009	0.068	-	-	-	-	-
HCM Control Delay (s)	21.4	9.6	8.3	0	-	0	-	-
HCM Lane LOS	C	A	A	A	-	A	-	-
HCM 95th %tile Q(veh)	2.3	0	0.2	-	-	0	-	-

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	146	182	13	174	0	0	0	0	95	4	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	0	200	249	18	238	0	0	0	0	130	5	18

Major/Minor

	Major1		Major2		Minor2				
Conflicting Flow All	238	0	0	449	0	0	599	723	238
Stage 1	-	-	-	-	-	-	274	274	-
Stage 2	-	-	-	-	-	-	325	449	-
Critical Hdwy	4.16	-	-	4.16	-	-	6.46	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	5.46	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.46	5.56	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.554	4.054	3.354
Pot Cap-1 Maneuver	1306	-	-	1091	-	-	458	348	791
Stage 1	-	-	-	-	-	-	763	676	-
Stage 2	-	-	-	-	-	-	723	566	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1306	-	-	1091	-	-	449	0	791
Mov Cap-2 Maneuver	-	-	-	-	-	-	449	0	-
Stage 1	-	-	-	-	-	-	749	0	-
Stage 2	-	-	-	-	-	-	723	0	-

Approach

	EB	WB	SB
HCM Control Delay, s	0	0.6	15.7
HCM LOS			C

Minor Lane/Major Mvmt

	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1306	-	-	1091	-	-	449	791
HCM Lane V/C Ratio	-	-	-	0.016	-	-	0.302	0.023
HCM Control Delay (s)	0	-	-	8.4	0	-	16.5	9.7
HCM Lane LOS	A	-	-	A	A	-	C	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-	1.3	0.1

Intersection												
Int Delay, s/veh	2.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	380	163	25	110	0	0	0	0	45	0	91
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	165	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	514	220	34	149	0	0	0	0	61	0	123

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	149	0	0	514	0	0	730	730	149
Stage 1	-	-	-	-	-	-	216	216	-
Stage 2	-	-	-	-	-	-	514	514	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.44	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.54	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.536	4.036	3.336
Pot Cap-1 Maneuver	1420	-	-	1041	-	-	386	347	892
Stage 1	-	-	-	-	-	-	815	720	-
Stage 2	-	-	-	-	-	-	596	532	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1420	-	-	1041	-	-	373	0	892
Mov Cap-2 Maneuver	-	-	-	-	-	-	373	0	-
Stage 1	-	-	-	-	-	-	788	0	-
Stage 2	-	-	-	-	-	-	596	0	-

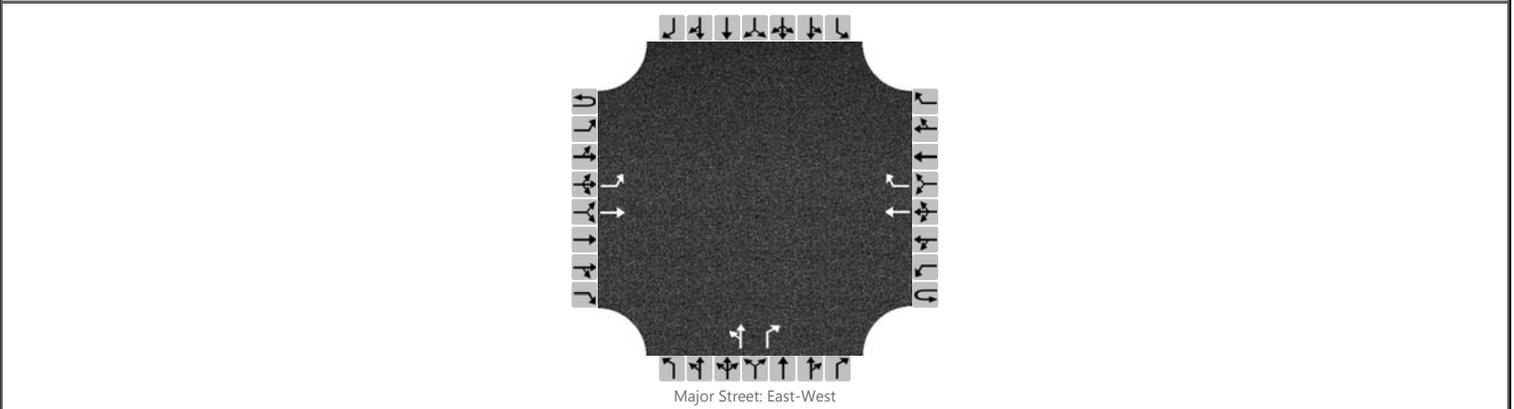
Approach	EB	WB	SB
HCM Control Delay, s	0	1.6	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1420	-	-	1041	-	-	373	892
HCM Lane V/C Ratio	-	-	-	0.032	-	-	0.163	0.138
HCM Control Delay (s)	0	-	-	8.6	-	-	16.5	9.7
HCM Lane LOS	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-	0.6	0.5

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	RS	Intersection	WILLOW /NB US 101 RAMPS
Agency/Co.	OMNI-MEANS	Jurisdiction	
Date Performed	9/23/2015	East/West Street	WILLOW ROAD
Analysis Year	2015	North/South Street	US 101 NB RAMPS
Time Analyzed	AM PEAK	Peak Hour Factor	0.70
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	AVILA - WILLOW IC		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	1	1	0	0	0	1	1	0	1	1		0	0	0	
Configuration		L	T				T	R	LT		R					
Volume (veh/h)		236	190				49	21	85	1	40					
Percent Heavy Vehicles		3							3	3	3					
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		337								122		57				
Capacity		1485								262		765				
v/c Ratio		0.23								0.47		0.07				
95% Queue Length		0.9								2.5		0.2				
Control Delay (s/veh)		8.1								30.6		10.1				
Level of Service (LOS)		A								D		B				
Approach Delay (s/veh)	4.5								23.8							
Approach LOS	A								C							

HCM 2010 Signalized Intersection Summary
 9: 101 NB Ramps & Tefft Street

Existing Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	558	445	0	0	388	182	210	1	123	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1827	0	0	1827	1900	1827	1827	1900			
Adj Flow Rate, veh/h	656	524	0	0	456	214	196	72	145			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	773	2443	0	0	528	246	412	129	259			
Arrive On Green	0.74	1.00	0.00	0.00	0.08	0.08	0.24	0.24	0.24			
Sat Flow, veh/h	1740	3563	0	0	2393	1072	1740	542	1092			
Grp Volume(v), veh/h	656	524	0	0	343	327	196	0	217			
Grp Sat Flow(s),veh/h/ln	1740	1736	0	0	1736	1638	1740	0	1634			
Q Serve(g_s), s	35.4	0.0	0.0	0.0	26.4	26.7	13.1	0.0	15.8			
Cycle Q Clear(g_c), s	35.4	0.0	0.0	0.0	26.4	26.7	13.1	0.0	15.8			
Prop In Lane	1.00		0.00	0.00		0.65	1.00		0.67			
Lane Grp Cap(c), veh/h	773	2443	0	0	399	376	412	0	387			
V/C Ratio(X)	0.85	0.21	0.00	0.00	0.86	0.87	0.48	0.00	0.56			
Avail Cap(c_a), veh/h	773	2443	0	0	399	376	412	0	387			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.89	0.89	1.00	0.00	1.00			
Uniform Delay (d), s/veh	14.2	0.0	0.0	0.0	60.3	60.4	44.3	0.0	45.3			
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	19.0	20.8	3.9	0.0	5.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	16.6	0.0	0.0	0.0	14.8	14.3	6.7	0.0	7.7			
LnGrp Delay(d),s/veh	15.1	0.0	0.0	0.0	79.2	81.2	48.2	0.0	51.1			
LnGrp LOS	B	A			E	F	D		D			
Approach Vol, veh/h		1180			670			413				
Approach Delay, s/veh		8.4			80.2			49.7				
Approach LOS		A			F			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		36.0		99.0			64.0	35.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		32.0		95.0			60.0	31.0				
Max Q Clear Time (g_c+I1), s		17.8		2.0			37.4	28.7				
Green Ext Time (p_c), s		1.6		6.8			6.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay				37.2								
HCM 2010 LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM Signalized Intersection Capacity Analysis

10: Frontage Road & Tefft Street

Existing Conditions
AM Peak Hour - Default



Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR	NBR2	SBL2	SBT
Lane Configurations	↑↑		↑		↓	↑↑		↑↓				↑
Volume (vph)	644	236	7	93	76	429	9	0	288	105	55	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0		4.0				4.0
Lane Util. Factor	0.91		0.91		1.00	0.95		1.00				1.00
Frt	0.96		0.85		1.00	1.00		0.87				1.00
Flt Protected	1.00		1.00		0.95	1.00		1.00				0.98
Satd. Flow (prot)	3211		1413		1754	3471		1592				1786
Flt Permitted	1.00		1.00		0.95	1.00		1.00				0.98
Satd. Flow (perm)	3211		1413		1754	3471		1592				1786
Peak-hour factor, PHF	0.88	0.92	0.88	0.92	0.88	0.88	0.88	0.88	0.88	0.92	0.88	0.88
Adj. Flow (vph)	732	257	8	101	86	488	10	0	327	114	62	74
RTOR Reduction (vph)	0	0	5	0	0	0	0	53	0	0	0	0
Lane Group Flow (vph)	990	0	2	0	187	488	0	398	0	0	0	136
Heavy Vehicles (%)	4%	2%	4%	2%	4%	4%	4%	4%	4%	2%	4%	4%
Turn Type	NA		Perm	Prot	Prot	NA	Split	NA			Split	NA
Protected Phases	4			3	3	8	2	2			6	6
Permitted Phases			4									
Actuated Green, G (s)	33.1		33.1		15.9	53.0		37.0				33.0
Effective Green, g (s)	33.1		33.1		15.9	53.0		37.0				33.0
Actuated g/C Ratio	0.25		0.25		0.12	0.39		0.27				0.24
Clearance Time (s)	4.0		4.0		4.0	4.0		4.0				4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0				3.0
Lane Grp Cap (vph)	787		346		206	1362		436				436
v/s Ratio Prot	c0.31				c0.11	0.14		c0.25				c0.08
v/s Ratio Perm			0.00									
v/c Ratio	1.26		0.00		0.91	0.36		0.91				0.31
Uniform Delay, d1	51.0		38.5		58.8	29.0		47.4				41.7
Progression Factor	0.53		1.00		0.51	1.02		1.00				1.00
Incremental Delay, d2	125.6		0.0		28.8	0.5		26.0				1.9
Delay (s)	152.6		38.5		58.8	30.1		73.4				43.6
Level of Service	F		D		E	C		E				D
Approach Delay (s)	151.8					38.0		73.4				41.9
Approach LOS	F					D		E				D

Intersection Summary

HCM 2000 Control Delay	90.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 10: Frontage Road & Tefft Street

Existing Conditions
 AM Peak Hour - Default

Movement	SBR
Lane Configurations	7
Volume (vph)	206
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.88
Adj. Flow (vph)	234
RTOR Reduction (vph)	177
Lane Group Flow (vph)	57
Heavy Vehicles (%)	4%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	33.0
Effective Green, g (s)	33.0
Actuated g/C Ratio	0.24
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	379
v/s Ratio Prot	
v/s Ratio Perm	0.04
v/c Ratio	0.15
Uniform Delay, d1	40.0
Progression Factor	1.00
Incremental Delay, d2	0.8
Delay (s)	40.9
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 2010 methodology does not support more than 4 approaches.

Intersection												
Int Delay, s/veh	3.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	28	332	205	192	0	0	0	0	35	1	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	32	382	236	221	0	0	0	0	40	1	23

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	221	0	0	414	0	0	915	1106	221
Stage 1	-	-	-	-	-	-	692	692	-
Stage 2	-	-	-	-	-	-	223	414	-
Critical Hdwy	4.19	-	-	4.19	-	-	6.49	6.59	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	5.49	5.59	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.49	5.59	-
Follow-up Hdwy	2.281	-	-	2.281	-	-	3.581	4.081	3.381
Pot Cap-1 Maneuver	1308	-	-	1108	-	-	294	204	801
Stage 1	-	-	-	-	-	-	484	435	-
Stage 2	-	-	-	-	-	-	798	581	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1308	-	-	1108	-	-	223	0	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	223	0	-
Stage 1	-	-	-	-	-	-	366	0	-
Stage 2	-	-	-	-	-	-	798	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	20.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1308	-	-	1108	-	-	302
HCM Lane V/C Ratio	-	-	-	0.213	-	-	0.213
HCM Control Delay (s)	0	-	-	9.1	0	-	20.1
HCM Lane LOS	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0	-	-	0.8	-	-	0.8

Intersection												
Intersection Delay, s/veh	10.6											
Intersection LOS	B											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	27	22	0	0	0	216	19	0	187	0	104
Peak Hour Factor	0.92	0.89	0.89	0.89	0.92	0.89	0.89	0.89	0.92	0.89	0.89	0.89
Heavy Vehicles, %	2	11	11	11	2	11	11	11	2	11	11	11
Mvmt Flow	0	30	25	0	0	0	243	21	0	210	0	117
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.9	10.8	10.7
HCM LOS	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	55%	0%
Vol Thru, %	0%	0%	45%	92%
Vol Right, %	0%	100%	0%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	187	104	49	235
LT Vol	187	0	27	0
Through Vol	0	0	22	216
RT Vol	0	104	0	19
Lane Flow Rate	210	117	55	264
Geometry Grp	7	7	2	2
Degree of Util (X)	0.349	0.155	0.082	0.364
Departure Headway (Hd)	5.986	4.779	5.391	4.96
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	599	746	661	723
Service Time	3.747	2.538	3.454	3.001
HCM Lane V/C Ratio	0.351	0.157	0.083	0.365
HCM Control Delay	12	8.4	8.9	10.8
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	1.6	0.5	0.3	1.7

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	0
Peak Hour Factor	0.92	0.89	0.89	0.89
Heavy Vehicles, %	2	11	11	11
Mvmt Flow	0	0	0	0
Number of Lanes	0	0	0	0

Approach

Opposing Approach

Opposing Lanes

Conflicting Approach Left

Conflicting Lanes Left

Conflicting Approach Right

Conflicting Lanes Right

HCM Control Delay

HCM LOS

Lane

HCM research does not support more than two 'Stop' controlled approaches at the intersection.

Intersection

Int Delay, s/veh 6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	88	49	73	4	4	155
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	86	86	86	86	86	86
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	102	57	85	5	5	180

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	90	0	349
Stage 1	-	-	87
Stage 2	-	-	262
Critical Hdwy	4.21	-	6.51
Critical Hdwy Stg 1	-	-	5.51
Critical Hdwy Stg 2	-	-	5.51
Follow-up Hdwy	2.299	-	3.599
Pot Cap-1 Maneuver	1450	-	630
Stage 1	-	-	914
Stage 2	-	-	761
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1450	-	584
Mov Cap-2 Maneuver	-	-	584
Stage 1	-	-	914
Stage 2	-	-	705

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1450	-	-	-	932
HCM Lane V/C Ratio	0.071	-	-	-	0.198
HCM Control Delay (s)	7.7	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.7

Intersection	
Int Delay, s/veh	7.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	7	67	80	7	131	64
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, %	2	2	2	2	2	2
Mvmt Flow	8	73	87	8	142	70

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	226
Stage 1	-	-	44
Stage 2	-	-	182
Critical Hdwy	-	4.12	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.518
Pot Cap-1 Maneuver	-	1518	762
Stage 1	-	-	978
Stage 2	-	-	849
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1518	718
Mov Cap-2 Maneuver	-	-	718
Stage 1	-	-	978
Stage 2	-	-	800

Approach	EB	WB	NB
HCM Control Delay, s	0	6.9	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	796	-	-	1518	-
HCM Lane V/C Ratio	0.266	-	-	0.057	-
HCM Control Delay (s)	11.2	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.2	-

HCM 2010 Signalized Intersection Summary
 17: Halcyon Road & Highway 1

Existing Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	68	150	42	153	41	232	105	65	13	56	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1810	1900	1810	1900	1810	1810	1900	1810	1810	1900
Adj Flow Rate, veh/h	8	80	176	49	180	48	273	124	76	15	66	16
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	70	378	621	105	252	62	320	611	375	37	588	142
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.19	0.58	0.58	0.02	0.42	0.42
Sat Flow, veh/h	53	1729	1538	193	1156	283	1723	1051	644	1723	1408	341
Grp Volume(v), veh/h	88	0	176	277	0	0	273	0	200	15	0	82
Grp Sat Flow(s),veh/h/ln	1782	0	1538	1631	0	0	1723	0	1696	1723	0	1749
Q Serve(g_s), s	0.0	0.0	0.0	6.1	0.0	0.0	10.3	0.0	3.8	0.6	0.0	1.9
Cycle Q Clear(g_c), s	2.7	0.0	0.0	10.6	0.0	0.0	10.3	0.0	3.8	0.6	0.0	1.9
Prop In Lane	0.09		1.00	0.18		0.17	1.00		0.38	1.00		0.20
Lane Grp Cap(c), veh/h	448	0	621	420	0	0	320	0	986	37	0	730
V/C Ratio(X)	0.20	0.00	0.28	0.66	0.00	0.00	0.85	0.00	0.20	0.41	0.00	0.11
Avail Cap(c_a), veh/h	712	0	858	662	0	0	385	0	986	103	0	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	13.5	24.5	0.0	0.0	26.5	0.0	6.7	32.4	0.0	12.0
Incr Delay (d2), s/veh	0.2	0.0	0.2	1.8	0.0	0.0	14.7	0.0	0.5	7.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.2	5.0	0.0	0.0	6.2	0.0	1.8	0.3	0.0	1.0
LnGrp Delay(d),s/veh	21.8	0.0	13.7	26.3	0.0	0.0	41.1	0.0	7.1	39.4	0.0	12.3
LnGrp LOS	C		B	C			D		A	D		B
Approach Vol, veh/h		264			277			473				97
Approach Delay, s/veh		16.4			26.3			26.8				16.5
Approach LOS		B			C			C				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	43.0		18.7	16.4	32.0		18.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	39.0		25.0	15.0	28.0		25.0				
Max Q Clear Time (g_c+I1), s	2.6	5.8		4.7	12.3	3.9		12.6				
Green Ext Time (p_c), s	0.1	1.1		2.5	0.2	0.3		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			23.3									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 18: Orchard Road & Division Street

Existing Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	37	38	50	82	70	111	24	81	46	58	155	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1810	1900	1810	1810	1810	1810	1900	1810	1810	1810
Adj Flow Rate, veh/h	44	45	0	96	82	131	28	95	54	68	182	21
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	59	61	104	141	121	228	58	519	295	85	895	761
Arrive On Green	0.07	0.07	0.00	0.15	0.15	0.15	0.03	0.48	0.48	0.05	0.49	0.49
Sat Flow, veh/h	873	893	1538	950	812	1538	1723	1084	616	1723	1810	1538
Grp Volume(v), veh/h	89	0	0	178	0	131	28	0	149	68	182	21
Grp Sat Flow(s),veh/h/ln	1766	0	1538	1762	0	1538	1723	0	1701	1723	1810	1538
Q Serve(g_s), s	3.1	0.0	0.0	6.0	0.0	5.0	1.0	0.0	3.1	2.4	3.5	0.4
Cycle Q Clear(g_c), s	3.1	0.0	0.0	6.0	0.0	5.0	1.0	0.0	3.1	2.4	3.5	0.4
Prop In Lane	0.49		1.00	0.54		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	120	0	104	262	0	228	58	0	814	85	895	761
V/C Ratio(X)	0.74	0.00	0.00	0.68	0.00	0.57	0.48	0.00	0.18	0.80	0.20	0.03
Avail Cap(c_a), veh/h	620	0	540	1125	0	982	165	0	814	193	895	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	0.0	25.3	0.0	24.8	29.7	0.0	9.3	29.5	8.9	8.1
Incr Delay (d2), s/veh	8.7	0.0	0.0	3.1	0.0	2.3	6.2	0.0	0.5	15.3	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	3.1	0.0	2.2	0.6	0.0	1.6	1.5	1.9	0.2
LnGrp Delay(d),s/veh	37.4	0.0	0.0	28.4	0.0	27.1	35.9	0.0	9.8	44.8	9.4	8.2
LnGrp LOS	D			C		C	D		A	D	A	A
Approach Vol, veh/h		89			309			177			271	
Approach Delay, s/veh		37.4			27.8			13.9			18.2	
Approach LOS		D			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	34.0		8.2	6.1	35.0		13.3				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		22.0	6.0	31.0		40.0				
Max Q Clear Time (g_c+I1), s	4.4	5.1		5.1	3.0	5.5		8.0				
Green Ext Time (p_c), s	0.0	0.8		0.3	0.2	0.9		1.4				
Intersection Summary												
HCM 2010 Ctrl Delay				22.8								
HCM 2010 LOS				C								

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	234	20	9	212	45	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	312	27	12	283	60	39

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	339
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.236
Pot Cap-1 Maneuver	-	-	1209
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1209
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	591	-	-	1209	-
HCM Lane V/C Ratio	0.167	-	-	0.01	-
HCM Control Delay (s)	12.3	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	23	25	180	7	25	211
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	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	34	247	10	34	289

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	609	251	0
Stage 1	251	-	-
Stage 2	358	-	-
Critical Hdwy	6.43	6.23	4.13
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.227
Pot Cap-1 Maneuver	457	785	1303
Stage 1	788	-	-
Stage 2	705	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	445	785	1303
Mov Cap-2 Maneuver	445	-	-
Stage 1	788	-	-
Stage 2	687	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	575	1303
HCM Lane V/C Ratio	-	-	0.114	0.026
HCM Control Delay (s)	-	-	12.1	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection

Int Delay, s/veh 0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	7	19	227	4	6	108
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	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	9	25	303	5	8	144

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	465	305	0
Stage 1	305	-	-
Stage 2	160	-	-
Critical Hdwy	6.43	6.23	4.13
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.227
Pot Cap-1 Maneuver	554	732	1247
Stage 1	745	-	-
Stage 2	866	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	550	732	1247
Mov Cap-2 Maneuver	550	-	-
Stage 1	745	-	-
Stage 2	860	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	672	1247
HCM Lane V/C Ratio	-	-	0.052	0.006
HCM Control Delay (s)	-	-	10.6	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 2010 Signalized Intersection Summary
 22: Tefft Street & Mary Avenue

Existing Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	34	485	33	127	379	78	60	32	143	169	22	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	37	527	36	138	412	85	65	35	155	216	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	90	823	368	245	936	191	425	447	598	902	474	0
Arrive On Green	0.05	0.24	0.24	0.28	0.65	0.65	0.24	0.24	0.24	0.26	0.00	0.00
Sat Flow, veh/h	1740	3471	1553	1740	2871	588	1740	1827	1553	3480	1827	0
Grp Volume(v), veh/h	37	527	36	138	248	249	65	35	155	216	0	0
Grp Sat Flow(s),veh/h/ln	1740	1736	1553	1740	1736	1723	1740	1827	1553	1740	1827	0
Q Serve(g_s), s	2.8	18.4	2.4	9.1	9.4	9.6	4.0	2.0	0.0	6.6	0.0	0.0
Cycle Q Clear(g_c), s	2.8	18.4	2.4	9.1	9.4	9.6	4.0	2.0	0.0	6.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	90	823	368	245	566	562	425	447	598	902	474	0
V/C Ratio(X)	0.41	0.64	0.10	0.56	0.44	0.44	0.15	0.08	0.26	0.24	0.00	0.00
Avail Cap(c_a), veh/h	90	823	368	245	566	562	425	447	598	902	474	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	62.0	46.3	40.2	45.0	17.5	17.5	40.0	39.3	28.3	39.5	0.0	0.0
Incr Delay (d2), s/veh	3.0	3.8	0.5	2.8	2.3	2.4	0.8	0.3	1.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	9.3	1.1	4.5	4.7	4.9	2.0	1.0	4.1	3.3	0.0	0.0
LnGrp Delay(d),s/veh	65.0	50.1	40.8	47.7	19.8	19.9	40.8	39.6	29.4	40.1	0.0	0.0
LnGrp LOS	E	D	D	D	B	B	D	D	C	D		
Approach Vol, veh/h		600			635			255			216	
Approach Delay, s/veh		50.5			25.9			33.7			40.1	
Approach LOS		D			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.0	23.0	36.0		39.0	11.0	48.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		33.0	19.0	32.0		35.0	7.0	44.0				
Max Q Clear Time (g_c+I1), s		6.0	11.1	20.4		8.6	4.8	11.6				
Green Ext Time (p_c), s		0.9	0.3	2.7		0.7	0.1	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			37.5									
HCM 2010 LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection												
Int Delay, s/veh	4.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	103	1	28	1	2	8	37	212	2	0	120	81
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	134	1	36	1	3	10	48	275	3	0	156	105

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	587	582	208	600	634	277	261	0	0	278	0	0
Stage 1	208	208	-	373	373	-	-	-	-	-	-	-
Stage 2	379	374	-	227	261	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	418	422	827	410	394	757	1292	-	-	1273	-	-
Stage 1	789	726	-	644	615	-	-	-	-	-	-	-
Stage 2	639	614	-	771	689	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	396	403	827	378	377	757	1292	-	-	1273	-	-
Mov Cap-2 Maneuver	396	403	-	378	377	-	-	-	-	-	-	-
Stage 1	754	726	-	616	588	-	-	-	-	-	-	-
Stage 2	600	587	-	736	689	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	11.2	1.2	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1292	-	-	445	594	1273	-
HCM Lane V/C Ratio	0.037	-	-	0.385	0.024	-	-
HCM Control Delay (s)	7.9	0	-	18.1	11.2	0	-
HCM Lane LOS	A	A	-	C	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	0.1	0	-

HCM 2010 Signalized Intersection Summary
 24: Oakglen Avenue & Tefft Street

Existing Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	19	406	8	29	410	35	10	0	27	75	0	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	27	580	11	41	586	50	14	0	39	107	0	39
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	34	984	836	358	1204	103	17	0	49	129	0	47
Arrive On Green	0.04	1.00	1.00	0.20	0.72	0.72	0.04	0.00	0.04	0.10	0.00	0.10
Sat Flow, veh/h	1757	1845	1568	1757	1676	143	426	0	1188	1247	0	455
Grp Volume(v), veh/h	27	580	11	41	0	636	53	0	0	146	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1819	1614	0	0	1702	0	0
Q Serve(g_s), s	2.1	0.0	0.0	2.6	0.0	20.5	4.4	0.0	0.0	11.4	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	2.6	0.0	20.5	4.4	0.0	0.0	11.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	0.26		0.74	0.73		0.27
Lane Grp Cap(c), veh/h	34	984	836	358	0	1306	66	0	0	176	0	0
V/C Ratio(X)	0.80	0.59	0.01	0.11	0.00	0.49	0.80	0.00	0.00	0.83	0.00	0.00
Avail Cap(c_a), veh/h	78	984	836	358	0	1306	72	0	0	416	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	64.7	0.0	0.0	43.8	0.0	8.3	64.2	0.0	0.0	59.3	0.0	0.0
Incr Delay (d2), s/veh	33.5	2.6	0.0	0.1	0.0	1.3	43.9	0.0	0.0	9.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.7	0.0	1.3	0.0	10.7	2.8	0.0	0.0	5.8	0.0	0.0
LnGrp Delay(d),s/veh	98.2	2.6	0.0	44.0	0.0	9.6	108.1	0.0	0.0	68.9	0.0	0.0
LnGrp LOS	F	A	A	D		A	F			E		
Approach Vol, veh/h		618			677			53				146
Approach Delay, s/veh		6.7			11.6			108.1				68.9
Approach LOS		A			B			F				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	31.5	76.0		18.0	6.6	100.9				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		6.0	8.0	72.0		33.0	6.0	74.0				
Max Q Clear Time (g_c+I1), s		6.4	4.6	2.0		13.4	4.1	22.5				
Green Ext Time (p_c), s		0.0	1.3	4.3		0.7	0.0	5.0				
Intersection Summary												
HCM 2010 Ctrl Delay			18.6									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
25: Orchard Road & Tefft Street

Existing Conditions
AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	322	65	82	268	20	133	5	119	9	4	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1827	1900	1827	1900	1900	1827	1900
Adj Flow Rate, veh/h	0	393	79	100	327	24	162	6	145	11	5	0
Adj No. of Lanes	1	1	1	1	1	1	0	1	1	0	1	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	5	566	481	123	904	768	248	9	353	20	9	0
Arrive On Green	0.00	0.31	0.31	0.07	0.49	0.49	0.15	0.15	0.15	0.02	0.02	0.00
Sat Flow, veh/h	1740	1827	1553	1740	1827	1553	1681	62	1615	1214	552	0
Grp Volume(v), veh/h	0	393	79	100	327	24	168	0	145	16	0	0
Grp Sat Flow(s),veh/h/ln	1740	1827	1553	1740	1827	1553	1743	0	1615	1766	0	0
Q Serve(g_s), s	0.0	6.6	1.3	2.0	3.9	0.3	3.2	0.0	0.2	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.6	1.3	2.0	3.9	0.3	3.2	0.0	0.2	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.96		1.00	0.69		0.00
Lane Grp Cap(c), veh/h	5	566	481	123	904	768	257	0	353	29	0	0
V/C Ratio(X)	0.00	0.69	0.16	0.81	0.36	0.03	0.65	0.00	0.41	0.55	0.00	0.00
Avail Cap(c_a), veh/h	198	1403	1193	198	1403	1193	347	0	436	1558	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.7	8.8	16.1	5.5	4.6	14.1	0.0	11.8	17.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	0.2	12.2	0.2	0.0	2.8	0.0	0.8	15.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	0.6	1.4	2.0	0.1	1.7	0.0	1.2	0.3	0.0	0.0
LnGrp Delay(d),s/veh	0.0	12.2	9.0	28.3	5.7	4.6	16.9	0.0	12.6	32.4	0.0	0.0
LnGrp LOS		B	A	C	A	A	B		B	C		
Approach Vol, veh/h		472			451			313			16	
Approach Delay, s/veh		11.7			10.7			14.9			32.4	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	14.9		4.6	0.0	21.4		9.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	27.0		31.0	4.0	27.0		7.0				
Max Q Clear Time (g_c+I1), s	4.0	8.6		2.3	0.0	5.9		5.2				
Green Ext Time (p_c), s	0.0	2.2		0.0	0.0	2.0		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			12.4									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 26: Tefft Street & Pomeroy Road

Existing Conditions
 AM Peak Hour - Default



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	70	404	286	100	158	77		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1810	1810	1810	1900	1810	1810		
Adj Flow Rate, veh/h	89	511	362	127	200	97		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79		
Percent Heavy Veh, %	5	5	5	5	5	5		
Cap, veh/h	210	1866	705	244	305	272		
Arrive On Green	0.12	0.54	0.28	0.28	0.18	0.18		
Sat Flow, veh/h	1723	3529	2599	867	1723	1538		
Grp Volume(v), veh/h	89	511	246	243	200	97		
Grp Sat Flow(s),veh/h/ln	1723	1719	1719	1656	1723	1538		
Q Serve(g_s), s	1.4	2.3	3.4	3.5	3.1	1.6		
Cycle Q Clear(g_c), s	1.4	2.3	3.4	3.5	3.1	1.6		
Prop In Lane	1.00			0.52	1.00	1.00		
Lane Grp Cap(c), veh/h	210	1866	483	466	305	272		
V/C Ratio(X)	0.42	0.27	0.51	0.52	0.66	0.36		
Avail Cap(c_a), veh/h	1932	7228	1446	1393	725	647		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	11.6	3.5	8.6	8.6	10.9	10.3		
Incr Delay (d2), s/veh	1.4	0.1	0.8	0.9	2.4	0.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.7	1.1	1.7	1.7	1.6	1.4		
LnGrp Delay(d),s/veh	13.0	3.6	9.4	9.5	13.3	11.1		
LnGrp LOS	B	A	A	A	B	B		
Approach Vol, veh/h		600	489		297			
Approach Delay, s/veh		5.0	9.5		12.6			
Approach LOS		A	A		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		19.5		9.0	7.5	12.0		
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s		60.0		12.0	32.0	24.0		
Max Q Clear Time (g_c+I1), s		4.3		5.1	3.4	5.5		
Green Ext Time (p_c), s		3.7		0.5	3.5	2.5		
Intersection Summary								
HCM 2010 Ctrl Delay			8.2					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
 27: Thompson Avenue & Tefft Street

Existing Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	240	22	72	18	20	25	39	162	20	9	142	261
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1810	1810	1900	1810	1810	1810
Adj Flow Rate, veh/h	407	37	122	31	34	42	66	275	34	15	241	442
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	444	528	449	44	108	92	83	668	83	83	765	1046
Arrive On Green	0.26	0.29	0.29	0.03	0.06	0.06	0.05	0.42	0.42	0.05	0.42	0.42
Sat Flow, veh/h	1723	1810	1538	1723	1810	1538	1723	1580	195	1723	1810	1538
Grp Volume(v), veh/h	407	37	122	31	34	42	66	0	309	15	241	442
Grp Sat Flow(s),veh/h/ln	1723	1810	1538	1723	1810	1538	1723	0	1775	1723	1810	1538
Q Serve(g_s), s	17.4	1.1	3.6	1.4	1.4	1.7	2.9	0.0	9.2	0.6	6.7	3.4
Cycle Q Clear(g_c), s	17.4	1.1	3.6	1.4	1.4	1.7	2.9	0.0	9.2	0.6	6.7	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	444	528	449	44	108	92	83	0	751	83	765	1046
V/C Ratio(X)	0.92	0.07	0.27	0.71	0.31	0.46	0.79	0.00	0.41	0.18	0.31	0.42
Avail Cap(c_a), veh/h	456	1005	854	137	670	569	91	0	751	91	765	1046
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	19.4	12.6	36.6	34.1	24.0	35.6	0.0	15.3	34.6	14.5	1.2
Incr Delay (d2), s/veh	23.2	0.1	0.3	19.1	1.6	3.5	34.4	0.0	1.7	1.0	1.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	0.6	1.8	0.9	0.7	0.9	2.2	0.0	4.8	0.3	3.6	2.2
LnGrp Delay(d),s/veh	50.5	19.4	12.9	55.7	35.7	27.5	70.1	0.0	16.9	35.6	15.6	2.5
LnGrp LOS	D	B	B	E	D	C	E		B	D	B	A
Approach Vol, veh/h		566			107			375			698	
Approach Delay, s/veh		40.4			38.3			26.3			7.7	
Approach LOS		D			D			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	36.0	5.9	26.1	7.7	36.0	23.5	8.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	32.0	6.0	42.0	4.0	32.0	20.0	28.0				
Max Q Clear Time (g_c+I1), s	2.6	11.2	3.4	5.6	4.9	8.7	19.4	3.7				
Green Ext Time (p_c), s	0.0	1.8	0.0	0.9	0.0	3.0	0.1	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			24.2									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 16.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	65	177	177	241	149	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	230	0	220	-	-	215
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	52	52	52	52	52	52
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	340	340	463	287	454

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1431	287	0
Stage 1	287	-	-
Stage 2	1144	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	148	752	1275
Stage 1	762	-	-
Stage 2	304	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	~ 109	752	1275
Mov Cap-2 Maneuver	~ 109	-	-
Stage 1	762	-	-
Stage 2	223	-	-

Approach	EB	NB	SB
HCM Control Delay, s	65.3	3.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1275	-	109	752	-	-
HCM Lane V/C Ratio	0.267	-	1.147	0.453	-	-
HCM Control Delay (s)	8.8	-	205.7	13.7	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	1.1	-	7.9	2.4	-	-

Notes

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

Intersection												
Intersection Delay, s/veh	15.6											
Intersection LOS	C											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	4	276	35	0	25	159	10	0	87	61	92
Peak Hour Factor	0.92	0.78	0.78	0.78	0.92	0.78	0.78	0.78	0.92	0.78	0.78	0.78
Heavy Vehicles, %	2	4	4	4	2	4	4	4	2	4	4	4
Mvmt Flow	0	5	354	45	0	32	204	13	0	112	78	118
Number of Lanes	0	1	1	0	0	1	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	21	12.8	12.2
HCM LOS	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	40%	0%	89%	0%	94%	0%	82%
Vol Right, %	0%	60%	0%	11%	0%	6%	0%	18%
Sign Control	Stop							
Traffic Vol by Lane	87	153	4	311	25	169	25	45
LT Vol	87	0	4	0	25	0	25	0
Through Vol	0	61	0	276	0	159	0	37
RT Vol	0	92	0	35	0	10	0	8
Lane Flow Rate	112	196	5	399	32	217	32	58
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.224	0.342	0.01	0.681	0.062	0.387	0.069	0.113
Departure Headway (Hd)	7.216	6.279	6.735	6.149	6.975	6.424	7.767	7.028
Convergence, Y/N	Yes							
Cap	495	569	529	586	511	557	464	506
Service Time	4.995	4.057	4.502	3.915	4.753	4.202	5.467	4.827
HCM Lane V/C Ratio	0.226	0.344	0.009	0.681	0.063	0.39	0.069	0.115
HCM Control Delay	12.1	12.3	9.6	21.1	10.2	13.2	11	10.7
HCM Lane LOS	B	B	A	C	B	B	B	B
HCM 95th-tile Q	0.9	1.5	0	5.2	0.2	1.8	0.2	0.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	25	37	8
Peak Hour Factor	0.92	0.78	0.78	0.78
Heavy Vehicles, %	2	4	4	4
Mvmt Flow	0	32	47	10
Number of Lanes	0	1	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	10.8
HCM LOS	B

Lane

Intersection

Int Delay, s/veh 5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	16	219	54	234	177	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	190	0	195	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	60	60	60	60	60	60
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	27	365	90	390	295	22

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	876	306	317 0
Stage 1	306	-	- -
Stage 2	570	-	- -
Critical Hdwy	6.44	6.24	4.14 -
Critical Hdwy Stg 1	5.44	-	- -
Critical Hdwy Stg 2	5.44	-	- -
Follow-up Hdwy	3.536	3.336	2.236 -
Pot Cap-1 Maneuver	317	729	1232 -
Stage 1	742	-	- -
Stage 2	562	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	294	729	1232 -
Mov Cap-2 Maneuver	294	-	- -
Stage 1	742	-	- -
Stage 2	521	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	15.1	1.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1232	-	294	729	-	-
HCM Lane V/C Ratio	0.073	-	0.091	0.501	-	-
HCM Control Delay (s)	8.2	-	18.5	14.8	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	2.8	-	-

Intersection									
Intersection Delay, s/veh	36.6								
Intersection LOS	E								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	52	348	0	395	277	0	367	167
Peak Hour Factor	0.92	0.93	0.93	0.92	0.93	0.93	0.92	0.93	0.93
Heavy Vehicles, %	2	4	4	2	4	4	2	4	4
Mvmt Flow	0	56	374	0	425	298	0	395	180
Number of Lanes	0	0	1	0	2	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	42.7	32.2	37.6
HCM LOS	E	D	E

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	13%	0%	0%	100%	0%
Vol Thru, %	87%	100%	32%	0%	0%
Vol Right, %	0%	0%	68%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	400	263	409	367	167
LT Vol	52	0	0	367	0
Through Vol	348	263	132	0	0
RT Vol	0	0	277	0	167
Lane Flow Rate	430	283	439	395	180
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.872	0.594	0.862	0.89	0.344
Departure Headway (Hd)	7.41	7.554	7.065	8.224	6.991
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	490	481	514	442	517
Service Time	5.41	5.254	4.765	5.924	4.691
HCM Lane V/C Ratio	0.878	0.588	0.854	0.894	0.348
HCM Control Delay	42.7	20.7	39.6	48.7	13.3
HCM Lane LOS	E	C	E	E	B
HCM 95th-tile Q	9.3	3.8	9.2	9.4	1.5

Intersection									
Intersection Delay, s/veh	56								
Intersection LOS	F								
Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	187	503	0	6	202	0	500	23
Peak Hour Factor	0.92	0.91	0.91	0.92	0.91	0.91	0.92	0.91	0.91
Heavy Vehicles, %	2	5	5	2	5	5	2	5	5
Mvmt Flow	0	205	553	0	7	222	0	549	25
Number of Lanes	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	2
HCM Control Delay	61.6	16.9	64.2
HCM LOS	F	C	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2
Vol Left, %	96%	0%	100%	0%
Vol Thru, %	0%	27%	0%	100%
Vol Right, %	4%	73%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	523	690	6	202
LT Vol	500	0	6	0
Through Vol	0	187	0	202
RT Vol	23	503	0	0
Lane Flow Rate	575	758	7	222
Geometry Grp	2	5	7	7
Degree of Util (X)	1	1	0.015	0.474
Departure Headway (Hd)	6.619	6.102	8.182	7.682
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	552	599	440	473
Service Time	4.619	4.118	5.882	5.382
HCM Lane V/C Ratio	1.042	1.265	0.016	0.469
HCM Control Delay	64.2	61.6	11	17.1
HCM Lane LOS	F	F	B	C
HCM 95th-tile Q	14.3	14.9	0	2.5

Intersection

Int Delay, s/veh 11.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	188	38	42	91	135	157
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	85	85	85	85	85	85
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	221	45	49	107	159	185

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	156	0	590
Stage 1	-	-	103
Stage 2	-	-	487
Critical Hdwy	4.16	-	6.46
Critical Hdwy Stg 1	-	-	5.46
Critical Hdwy Stg 2	-	-	5.46
Follow-up Hdwy	2.254	-	3.554
Pot Cap-1 Maneuver	1400	-	464
Stage 1	-	-	911
Stage 2	-	-	610
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1400	-	389
Mov Cap-2 Maneuver	-	-	389
Stage 1	-	-	911
Stage 2	-	-	511

Approach	EB	WB	SB
HCM Control Delay, s	6.7	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1400	-	-	-	568
HCM Lane V/C Ratio	0.158	-	-	-	0.605
HCM Control Delay (s)	8.1	0	-	-	20.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.6	-	-	-	4

Intersection

Int Delay, s/veh 4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	23	146	180	33	159	180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	120	-	-	420	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	24	151	186	34	164	186

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	716	203	0
Stage 1	203	-	-
Stage 2	513	-	-
Critical Hdwy	6.47	6.27	4.17
Critical Hdwy Stg 1	5.47	-	-
Critical Hdwy Stg 2	5.47	-	-
Follow-up Hdwy	3.563	3.363	2.263
Pot Cap-1 Maneuver	389	825	1320
Stage 1	819	-	-
Stage 2	591	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	341	825	1320
Mov Cap-2 Maneuver	341	-	-
Stage 1	819	-	-
Stage 2	518	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	3.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	341	825	1320	-
HCM Lane V/C Ratio	-	-	0.07	0.182	0.124	-
HCM Control Delay (s)	-	-	16.3	10.3	8.1	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.7	0.4	-

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	36	174	0	0	47	98	185	3	14	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	38	183	0	0	49	103	195	3	15	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	153	0	0	183	0	0	360	412	183
Stage 1	-	-	-	-	-	-	259	259	-
Stage 2	-	-	-	-	-	-	101	153	-
Critical Hdwy	4.15	-	-	4.15	-	-	6.45	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	5.45	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.45	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345
Pot Cap-1 Maneuver	1409	-	-	1374	-	-	633	525	852
Stage 1	-	-	-	-	-	-	777	688	-
Stage 2	-	-	-	-	-	-	916	765	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1409	-	-	1374	-	-	614	0	852
Mov Cap-2 Maneuver	-	-	-	-	-	-	614	0	-
Stage 1	-	-	-	-	-	-	754	0	-
Stage 2	-	-	-	-	-	-	916	0	-

Approach

	EB		WB		NB
HCM Control Delay, s	1.3		0		13.3
HCM LOS					B

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	614	852	1409	-	-	1374	-	-
HCM Lane V/C Ratio	0.322	0.017	0.027	-	-	-	-	-
HCM Control Delay (s)	13.6	9.3	7.6	0	-	0	-	-
HCM Lane LOS	B	A	A	A	-	A	-	-
HCM 95th %tile Q(veh)	1.4	0.1	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	76	225	8	227	0	0	0	0	136	1	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	82	242	9	244	0	0	0	0	146	1	46

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	244	0	0	324	0	0	464	585	244
Stage 1	-	-	-	-	-	-	261	261	-
Stage 2	-	-	-	-	-	-	203	324	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.44	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.54	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.536	4.036	3.336
Pot Cap-1 Maneuver	1311	-	-	1225	-	-	553	420	790
Stage 1	-	-	-	-	-	-	778	689	-
Stage 2	-	-	-	-	-	-	826	646	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1311	-	-	1225	-	-	549	0	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	549	0	-
Stage 1	-	-	-	-	-	-	772	0	-
Stage 2	-	-	-	-	-	-	826	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.3	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1311	-	-	1225	-	-	549	790
HCM Lane V/C Ratio	-	-	-	0.007	-	-	0.268	0.059
HCM Control Delay (s)	0	-	-	8	0	-	13.9	9.8
HCM Lane LOS	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0	-	-	0	-	-	1.1	0.2

Intersection												
Int Delay, s/veh	3.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	182	149	29	164	0	0	0	0	48	3	166
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	165	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	196	160	31	176	0	0	0	0	52	3	178

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	176	0	0	196	0	0	435	435	176
Stage 1	-	-	-	-	-	-	239	239	-
Stage 2	-	-	-	-	-	-	196	196	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.43	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327
Pot Cap-1 Maneuver	1394	-	-	1371	-	-	576	513	865
Stage 1	-	-	-	-	-	-	798	706	-
Stage 2	-	-	-	-	-	-	835	737	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1394	-	-	1371	-	-	563	0	865
Mov Cap-2 Maneuver	-	-	-	-	-	-	563	0	-
Stage 1	-	-	-	-	-	-	780	0	-
Stage 2	-	-	-	-	-	-	835	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.2	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1394	-	-	1371	-	-	563	865
HCM Lane V/C Ratio	-	-	-	0.023	-	-	0.097	0.206
HCM Control Delay (s)	0	-	-	7.7	-	-	12.1	10.2
HCM Lane LOS	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-	0.3	0.8

Intersection

Int Delay, s/veh 7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	133	100	0	0	48	13	137	0	18	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	0	-	-	-	-	180	-	-	190	-	-	-
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	146	110	0	0	53	14	151	0	20	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	53	0	0	110	0	0	455	455	110
Stage 1	-	-	-	-	-	-	402	402	-
Stage 2	-	-	-	-	-	-	53	53	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.44	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.54	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.536	4.036	3.336
Pot Cap-1 Maneuver	1540	-	-	1468	-	-	559	498	938
Stage 1	-	-	-	-	-	-	671	597	-
Stage 2	-	-	-	-	-	-	964	847	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1540	-	-	1468	-	-	506	0	938
Mov Cap-2 Maneuver	-	-	-	-	-	-	506	0	-
Stage 1	-	-	-	-	-	-	607	0	-
Stage 2	-	-	-	-	-	-	964	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	4.3	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	506	938	1540	-	-	1468	-	-
HCM Lane V/C Ratio	0.298	0.021	0.095	-	-	-	-	-
HCM Control Delay (s)	15.1	8.9	7.6	-	-	0	-	-
HCM Lane LOS	C	A	A	-	-	A	-	-
HCM 95th %tile Q(veh)	1.2	0.1	0.3	-	-	0	-	-

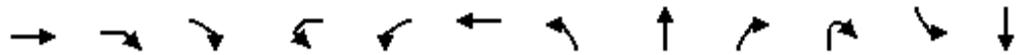
HCM 2010 Signalized Intersection Summary
 9: 101 NB Ramps & Tefft Street

Existing Conditions
 PM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Volume (veh/h)	307	451	0	0	438	114	324	1	147	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1827	0	0	1827	1900	1827	1827	1900			
Adj Flow Rate, veh/h	313	460	0	0	447	116	241	127	150			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	576	2243	0	0	778	200	509	223	264			
Arrive On Green	0.66	1.00	0.00	0.00	0.09	0.09	0.29	0.29	0.29			
Sat Flow, veh/h	1740	3563	0	0	2825	704	1740	765	903			
Grp Volume(v), veh/h	313	460	0	0	282	281	241	0	277			
Grp Sat Flow(s),veh/h/ln	1740	1736	0	0	1736	1703	1740	0	1668			
Q Serve(g_s), s	12.4	0.0	0.0	0.0	20.3	20.5	14.8	0.0	18.3			
Cycle Q Clear(g_c), s	12.4	0.0	0.0	0.0	20.3	20.5	14.8	0.0	18.3			
Prop In Lane	1.00		0.00	0.00		0.41	1.00		0.54			
Lane Grp Cap(c), veh/h	576	2243	0	0	494	485	509	0	487			
V/C Ratio(X)	0.54	0.21	0.00	0.00	0.57	0.58	0.47	0.00	0.57			
Avail Cap(c_a), veh/h	576	2243	0	0	494	485	509	0	487			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.86	0.86	0.00	0.00	0.94	0.94	1.00	0.00	1.00			
Uniform Delay (d), s/veh	16.8	0.0	0.0	0.0	51.3	51.4	37.8	0.0	39.0			
Incr Delay (d2), s/veh	0.9	0.2	0.0	0.0	4.5	4.7	3.1	0.0	4.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.9	0.1	0.0	0.0	10.4	10.3	7.5	0.0	9.1			
LnGrp Delay(d),s/veh	17.7	0.2	0.0	0.0	55.8	56.1	40.9	0.0	43.8			
LnGrp LOS	B	A			E	E	D		D			
Approach Vol, veh/h		773			563			518				
Approach Delay, s/veh		7.3			55.9			42.5				
Approach LOS		A			E			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		42.0		88.0			47.0	41.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		38.0		84.0			43.0	37.0				
Max Q Clear Time (g_c+I1), s		20.3		2.0			14.4	22.5				
Green Ext Time (p_c), s		2.3		4.3			4.1	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			31.9									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM Signalized Intersection Capacity Analysis
 10: Frontage Road/101 SB Off Ramp & Tefft Street

Existing Conditions
 PM Peak Hour - Default



Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR	NBR2	SBL2	SBT
Lane Configurations	↑↑	↔			↔	↑↑		↔				↑
Volume (vph)	431	252	21	63	138	544	25	0	178	105	103	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				4.0
Lane Util. Factor	0.95	1.00			1.00	0.95		1.00				1.00
Frt	1.00	0.85			1.00	1.00		0.88				1.00
Flt Protected	1.00	1.00			0.95	1.00		1.00				0.98
Satd. Flow (prot)	3610	1583			1770	3539		1625				1832
Flt Permitted	1.00	1.00			0.95	1.00		1.00				0.98
Satd. Flow (perm)	3610	1583			1770	3539		1625				1832
Peak-hour factor, PHF	0.95	0.92	0.95	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.95	0.95
Adj. Flow (vph)	454	274	22	68	145	573	26	0	187	114	108	214
RTOR Reduction (vph)	0	57	0	0	0	0	0	59	0	0	0	0
Lane Group Flow (vph)	454	239	0	0	213	573	0	268	0	0	0	322
Heavy Vehicles (%)	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	NA	Perm		Prot	Prot	NA	Split	NA			Split	NA
Protected Phases	4			3	3	8	2	2			6	6
Permitted Phases		4										
Actuated Green, G (s)	32.6	32.6			19.4	56.0		29.0				33.0
Effective Green, g (s)	32.6	32.6			19.4	56.0		29.0				33.0
Actuated g/C Ratio	0.25	0.25			0.15	0.43		0.22				0.25
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				3.0
Lane Grp Cap (vph)	905	396			264	1524		362				465
v/s Ratio Prot	0.13				c0.12	0.16		c0.16				c0.18
v/s Ratio Perm		c0.15										
v/c Ratio	0.50	0.60			0.81	0.38		0.74				0.69
Uniform Delay, d1	41.7	43.0			53.5	25.1		47.0				43.9
Progression Factor	0.32	0.27			0.83	0.46		1.00				1.00
Incremental Delay, d2	1.6	5.5			14.1	0.6		12.8				8.2
Delay (s)	14.8	16.9			58.8	12.2		59.8				52.1
Level of Service	B	B			E	B		E				D
Approach Delay (s)	15.6					24.8		59.8				45.5
Approach LOS	B					C		E				D

Intersection Summary		
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.70	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	76.6%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 10: Frontage Road/101 SB Off Ramp & Tefft Street

Existing Conditions
 PM Peak Hour - Default

Movement	SBR
Lane Configurations	
Volume (vph)	426
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	448
RTOR Reduction (vph)	334
Lane Group Flow (vph)	114
Heavy Vehicles (%)	2%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	33.0
Effective Green, g (s)	33.0
Actuated g/C Ratio	0.25
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	401
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.28
Uniform Delay, d1	39.0
Progression Factor	1.00
Incremental Delay, d2	1.8
Delay (s)	40.8
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 2010 methodology does not support more than 4 approaches.

Intersection												
Int Delay, s/veh	2.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	30	420	174	404	0	0	0	0	35	1	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	0	30	424	176	408	0	0	0	0	35	1	26

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	408	0	0	455	0	0	1002	1215	408
Stage 1	-	-	-	-	-	-	760	760	-
Stage 2	-	-	-	-	-	-	242	455	-
Critical Hdwy	4.16	-	-	4.16	-	-	6.46	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	5.46	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.46	5.56	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.554	4.054	3.354
Pot Cap-1 Maneuver	1129	-	-	1085	-	-	264	178	635
Stage 1	-	-	-	-	-	-	455	409	-
Stage 2	-	-	-	-	-	-	789	562	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1129	-	-	1085	-	-	209	0	635
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	0	-
Stage 1	-	-	-	-	-	-	359	0	-
Stage 2	-	-	-	-	-	-	789	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.7	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1129	-	-	1085	-	-	293
HCM Lane V/C Ratio	-	-	-	0.162	-	-	0.214
HCM Control Delay (s)	0	-	-	9	0	-	20.6
HCM Lane LOS	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0	-	-	0.6	-	-	0.8

Intersection												
Intersection Delay, s/veh	15.9											
Intersection LOS	C											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	18	29	0	0	0	156	25	0	415	2	197
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	7	7	7	2	7	7	7	2	7	7	7
Mvmt Flow	0	19	31	0	0	0	168	27	0	446	2	212
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.5	10.9	17.9
HCM LOS	A	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	38%	0%
Vol Thru, %	0%	0%	62%	86%
Vol Right, %	0%	100%	0%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	417	197	47	181
LT Vol	415	0	18	0
Through Vol	2	0	29	156
RT Vol	0	197	0	25
Lane Flow Rate	448	212	51	195
Geometry Grp	7	7	2	2
Degree of Util (X)	0.72	0.269	0.083	0.299
Departure Headway (Hd)	5.779	4.575	5.914	5.522
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	623	777	600	648
Service Time	3.553	2.348	4.005	3.585
HCM Lane V/C Ratio	0.719	0.273	0.085	0.301
HCM Control Delay	22.1	9	9.5	10.9
HCM Lane LOS	C	A	A	B
HCM 95th-tile Q	6	1.1	0.3	1.3

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	0
Peak Hour Factor	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	7	7	7
Mvmt Flow	0	0	0	0
Number of Lanes	0	0	0	0

Approach

Opposing Approach

Opposing Lanes

Conflicting Approach Left

Conflicting Lanes Left

Conflicting Approach Right

Conflicting Lanes Right

HCM Control Delay

HCM LOS

Lane

HCM research does not support more than two 'Stop' controlled approaches at the intersection.

Intersection

Int Delay, s/veh 4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	121	100	78	5	2	119
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	93	93	93	93	93	93
Heavy Vehicles, %	14	14	14	14	14	14
Mvmt Flow	130	108	84	5	2	128

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	89	0	455
Stage 1	-	-	87
Stage 2	-	-	368
Critical Hdwy	4.24	-	6.54
Critical Hdwy Stg 1	-	-	5.54
Critical Hdwy Stg 2	-	-	5.54
Follow-up Hdwy	2.326	-	3.626
Pot Cap-1 Maneuver	1434	-	542
Stage 1	-	-	907
Stage 2	-	-	674
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1434	-	490
Mov Cap-2 Maneuver	-	-	490
Stage 1	-	-	907
Stage 2	-	-	609

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1434	-	-	-	925
HCM Lane V/C Ratio	0.091	-	-	-	0.141
HCM Control Delay (s)	7.8	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.5

Intersection

Int Delay, s/veh 8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	7	67	80	7	131	64
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	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	78	93	8	152	74

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	86	0	241	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	194	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1510	-	747	1022
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	839	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1510	-	701	1022
Mov Cap-2 Maneuver	-	-	-	-	701	-
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	787	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.9	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	782	-	-	1510	-
HCM Lane V/C Ratio	0.29	-	-	0.062	-
HCM Control Delay (s)	11.5	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.2	-

HCM 2010 Signalized Intersection Summary
 17: Halcyon Road & Highway 1

Existing Conditions
 PM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	112	211	64	110	28	263	109	34	24	95	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	13	123	232	70	121	31	289	120	37	26	104	21
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	73	368	690	137	188	41	403	798	246	40	571	115
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.23	0.59	0.59	0.02	0.38	0.38
Sat Flow, veh/h	71	1748	1568	318	890	196	1757	1354	417	1757	1491	301
Grp Volume(v), veh/h	136	0	232	222	0	0	289	0	157	26	0	125
Grp Sat Flow(s),veh/h/ln	1819	0	1568	1404	0	0	1757	0	1771	1757	0	1792
Q Serve(g_s), s	0.0	0.0	0.0	5.9	0.0	0.0	10.3	0.0	2.7	1.0	0.0	3.1
Cycle Q Clear(g_c), s	4.3	0.0	0.0	10.2	0.0	0.0	10.3	0.0	2.7	1.0	0.0	3.1
Prop In Lane	0.10		1.00	0.32		0.14	1.00		0.24	1.00		0.17
Lane Grp Cap(c), veh/h	441	0	690	366	0	0	403	0	1044	40	0	686
V/C Ratio(X)	0.31	0.00	0.34	0.61	0.00	0.00	0.72	0.00	0.15	0.65	0.00	0.18
Avail Cap(c_a), veh/h	667	0	891	550	0	0	492	0	1044	129	0	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	12.5	25.0	0.0	0.0	24.1	0.0	6.3	32.9	0.0	13.9
Incr Delay (d2), s/veh	0.4	0.0	0.3	1.6	0.0	0.0	3.9	0.0	0.3	16.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	2.8	4.1	0.0	0.0	5.4	0.0	1.4	0.7	0.0	1.6
LnGrp Delay(d),s/veh	23.2	0.0	12.8	26.7	0.0	0.0	28.0	0.0	6.6	49.1	0.0	14.5
LnGrp LOS	C		B	C			C		A	D		B
Approach Vol, veh/h		368			222			446			151	
Approach Delay, s/veh		16.6			26.7			20.5			20.4	
Approach LOS		B			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	44.0		18.3	19.5	30.0		18.3				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	40.0		23.0	19.0	26.0		23.0				
Max Q Clear Time (g_c+I1), s	3.0	4.7		6.3	12.3	5.1		12.2				
Green Ext Time (p_c), s	0.0	1.7		2.6	1.0	0.5		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			20.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 18: Orchard Road & Division Street

Existing Conditions
 PM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	79	61	64	118	231	80	120	68	107	140	37
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	26	83	0	67	124	243	84	126	72	113	147	39
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	35	113	128	127	235	314	267	465	266	144	648	551
Arrive On Green	0.08	0.08	0.00	0.20	0.20	0.20	0.15	0.42	0.42	0.08	0.35	0.35
Sat Flow, veh/h	439	1402	1583	642	1188	1583	1774	1114	637	1774	1863	1583
Grp Volume(v), veh/h	109	0	0	191	0	243	84	0	198	113	147	39
Grp Sat Flow(s),veh/h/ln	1841	0	1583	1831	0	1583	1774	0	1750	1774	1863	1583
Q Serve(g_s), s	4.2	0.0	0.0	6.7	0.0	10.4	3.0	0.0	5.3	4.5	4.0	1.2
Cycle Q Clear(g_c), s	4.2	0.0	0.0	6.7	0.0	10.4	3.0	0.0	5.3	4.5	4.0	1.2
Prop In Lane	0.24		1.00	0.35		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	148	0	128	363	0	314	267	0	731	144	648	551
V/C Ratio(X)	0.74	0.00	0.00	0.53	0.00	0.77	0.31	0.00	0.27	0.79	0.23	0.07
Avail Cap(c_a), veh/h	564	0	485	1019	0	882	296	0	731	173	648	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	0.0	25.8	0.0	27.3	27.2	0.0	13.7	32.4	16.6	15.7
Incr Delay (d2), s/veh	6.9	0.0	0.0	1.2	0.0	4.1	0.7	0.0	0.9	17.8	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	3.5	0.0	4.9	1.5	0.0	2.8	2.9	2.2	0.6
LnGrp Delay(d),s/veh	39.2	0.0	0.0	27.0	0.0	31.4	27.9	0.0	14.7	50.2	17.4	15.9
LnGrp LOS	D			C		C	C		B	D	B	B
Approach Vol, veh/h		109			434			282			299	
Approach Delay, s/veh		39.2			29.4			18.6			29.6	
Approach LOS		D			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	34.0		9.8	14.8	29.0		18.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		22.0	12.0	25.0		40.0				
Max Q Clear Time (g_c+I1), s	6.5	7.3		6.2	5.0	6.0		12.4				
Green Ext Time (p_c), s	0.0	1.2		0.4	0.7	0.7		1.8				
Intersection Summary												
HCM 2010 Ctrl Delay				27.7								
HCM 2010 LOS				C								

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	261	45	10	213	23	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	307	53	12	251	27	19

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	360
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.13
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.227
Pot Cap-1 Maneuver	-	-	1193
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1193
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	601	-	-	1193	-
HCM Lane V/C Ratio	0.076	-	-	0.01	-
HCM Control Delay (s)	11.5	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection

Int Delay, s/veh 2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	16	69	249	17	36	254
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	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	77	277	19	40	282

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	648	286	0
Stage 1	286	-	-
Stage 2	362	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	435	753	1265
Stage 1	763	-	-
Stage 2	704	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	421	753	1265
Mov Cap-2 Maneuver	421	-	-
Stage 1	763	-	-
Stage 2	682	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	656	1265	-
HCM Lane V/C Ratio	-	-	0.144	0.032	-
HCM Control Delay (s)	-	-	11.4	7.9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	11	15	219	15	10	228
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	16	228	16	10	238

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	494	236	0
Stage 1	236	-	-
Stage 2	258	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	535	803	1322
Stage 1	803	-	-
Stage 2	785	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	530	803	1322
Mov Cap-2 Maneuver	530	-	-
Stage 1	803	-	-
Stage 2	778	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	659	1322
HCM Lane V/C Ratio	-	-	0.041	0.008
HCM Control Delay (s)	-	-	10.7	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 2010 Signalized Intersection Summary
 22: Tefft Street & Mary Avenue

Existing Conditions
 PM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	490	74	209	676	78	99	68	77	266	60	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	74	516	78	220	712	82	104	72	81	198	178	52
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	708	317	273	935	108	450	473	646	478	373	109
Arrive On Green	0.06	0.20	0.20	0.31	0.58	0.58	0.25	0.25	0.25	0.27	0.27	0.27
Sat Flow, veh/h	1774	3539	1583	1774	3199	368	1774	1863	1583	1774	1386	405
Grp Volume(v), veh/h	74	516	78	220	394	400	104	72	81	198	0	230
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1798	1774	1863	1583	1774	0	1791
Q Serve(g_s), s	5.3	17.8	5.4	14.8	21.6	21.7	6.0	3.9	0.0	11.9	0.0	14.0
Cycle Q Clear(g_c), s	5.3	17.8	5.4	14.8	21.6	21.7	6.0	3.9	0.0	11.9	0.0	14.0
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	109	708	317	273	517	526	450	473	646	478	0	482
V/C Ratio(X)	0.68	0.73	0.25	0.81	0.76	0.76	0.23	0.15	0.13	0.41	0.00	0.48
Avail Cap(c_a), veh/h	109	708	317	273	517	526	450	473	646	478	0	482
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.7	48.7	43.8	43.2	23.6	23.6	38.4	37.6	24.0	39.1	0.0	39.8
Incr Delay (d2), s/veh	15.5	6.5	1.8	14.3	8.9	8.8	1.2	0.7	0.4	2.6	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	9.3	2.5	8.3	11.6	11.7	3.1	2.1	1.9	6.2	0.0	7.3
LnGrp Delay(d),s/veh	75.2	55.2	45.6	57.5	32.5	32.5	39.6	38.3	24.4	41.7	0.0	43.2
LnGrp LOS	E	E	D	E	C	C	D	D	C	D		D
Approach Vol, veh/h		668			1014			257			428	
Approach Delay, s/veh		56.3			37.9			34.5			42.5	
Approach LOS		E			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.0	24.0	30.0		39.0	12.0	42.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		33.0	20.0	26.0		35.0	8.0	38.0				
Max Q Clear Time (g_c+I1), s		8.0	16.8	19.8		16.0	7.3	23.7				
Green Ext Time (p_c), s		0.9	0.3	1.9		1.8	0.1	4.2				
Intersection Summary												
HCM 2010 Ctrl Delay			43.6									
HCM 2010 LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection												
Int Delay, s/veh	4.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	112	4	37	1	0	4	25	169	2	7	276	107
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	126	4	42	1	0	4	28	190	2	8	310	120

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	635	634	370	656	693	191	430	0	0	192	0	0
Stage 1	386	386	-	247	247	-	-	-	-	-	-	-
Stage 2	249	248	-	409	446	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	391	397	676	379	367	851	1129	-	-	1381	-	-
Stage 1	637	610	-	757	702	-	-	-	-	-	-	-
Stage 2	755	701	-	619	574	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	378	383	676	343	354	851	1129	-	-	1381	-	-
Mov Cap-2 Maneuver	378	383	-	343	354	-	-	-	-	-	-	-
Stage 1	619	605	-	736	682	-	-	-	-	-	-	-
Stage 2	730	681	-	572	569	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.2	10.5	1.1	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1129	-	-	423	657	1381	-	-
HCM Lane V/C Ratio	0.025	-	-	0.406	0.009	0.006	-	-
HCM Control Delay (s)	8.3	0	-	19.2	10.5	7.6	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.9	0	0	-	-

HCM 2010 Signalized Intersection Summary
 24: Tefft Street & Oakglen Avenue

Existing Conditions
 PM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	365	3	31	416	84	5	0	30	63	0	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	17	388	3	33	443	89	5	0	32	67	0	16
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	495	1421	1208	42	765	154	6	0	39	87	0	21
Arrive On Green	0.09	0.25	0.25	0.02	0.51	0.51	0.03	0.00	0.03	0.06	0.00	0.06
Sat Flow, veh/h	1774	1863	1583	1774	1507	303	217	0	1390	1400	0	334
Grp Volume(v), veh/h	17	388	3	33	0	532	37	0	0	83	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1809	1607	0	0	1734	0	0
Q Serve(g_s), s	1.1	21.8	0.2	2.4	0.0	26.7	3.0	0.0	0.0	6.1	0.0	0.0
Cycle Q Clear(g_c), s	1.1	21.8	0.2	2.4	0.0	26.7	3.0	0.0	0.0	6.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.17	0.14		0.86	0.81		0.19
Lane Grp Cap(c), veh/h	495	1421	1208	42	0	919	46	0	0	108	0	0
V/C Ratio(X)	0.03	0.27	0.00	0.79	0.00	0.58	0.81	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	495	1421	1208	109	0	919	99	0	0	440	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.1	19.7	11.6	63.1	0.0	22.3	62.8	0.0	0.0	60.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	26.7	0.0	2.7	27.8	0.0	0.0	11.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	11.4	0.1	1.5	0.0	14.0	1.7	0.0	0.0	3.3	0.0	0.0
LnGrp Delay(d),s/veh	43.1	20.1	11.6	89.8	0.0	25.0	90.7	0.0	0.0	71.1	0.0	0.0
LnGrp LOS	D	C	B	F		C	F			E		
Approach Vol, veh/h		408			565			37				83
Approach Delay, s/veh		21.0			28.8			90.7				71.1
Approach LOS		C			C			F				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.7	7.1	103.2		12.1	40.3	70.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		8.0	8.0	65.0		33.0	7.0	66.0				
Max Q Clear Time (g_c+I1), s		5.0	4.4	23.8		8.1	3.1	28.7				
Green Ext Time (p_c), s		0.0	0.0	2.6		0.4	0.8	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			31.2									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
25: Orchard Road & Tefft Street

Existing Conditions
PM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	348	63	166	411	12	68	4	147	9	5	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	2	382	69	182	452	13	75	4	162	10	5	0
Adj No. of Lanes	1	1	1	1	1	1	0	1	1	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	553	470	240	635	539	172	9	376	19	9	0
Arrive On Green	0.09	0.30	0.30	0.14	0.34	0.34	0.10	0.10	0.10	0.02	0.02	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1688	90	1583	1202	601	0
Grp Volume(v), veh/h	2	382	69	182	452	13	79	0	162	15	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1778	0	1583	1803	0	0
Q Serve(g_s), s	0.0	6.4	1.1	3.5	7.5	0.2	1.5	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.4	1.1	3.5	7.5	0.2	1.5	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.95		1.00	0.67		0.00
Lane Grp Cap(c), veh/h	162	553	470	240	635	539	182	0	376	28	0	0
V/C Ratio(X)	0.01	0.69	0.15	0.76	0.71	0.02	0.43	0.00	0.43	0.54	0.00	0.00
Avail Cap(c_a), veh/h	200	1363	1159	599	1783	1515	250	0	437	1573	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.7	11.0	9.2	14.8	10.2	7.8	15.0	0.0	11.5	17.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	0.1	4.9	1.5	0.0	1.6	0.0	0.8	15.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	0.5	2.0	4.0	0.1	0.8	0.0	1.4	0.3	0.0	0.0
LnGrp Delay(d),s/veh	14.7	12.6	9.3	19.7	11.7	7.8	16.6	0.0	12.3	32.4	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	B		B	C		
Approach Vol, veh/h		453			647			241			15	
Approach Delay, s/veh		12.1			13.9			13.7			32.4	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	14.5		4.6	7.2	16.1		7.6				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	12.0	26.0		31.0	4.0	34.0		5.0				
Max Q Clear Time (g_c+I1), s	5.5	8.4		2.3	2.0	9.5		3.5				
Green Ext Time (p_c), s	0.2	2.1		0.0	0.1	2.6		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			13.5									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 26: Tefft Street & Pomeroy Road

Existing Conditions
 PM Peak Hour - Default



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	117	387	477	172	182	107		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845		
Adj Flow Rate, veh/h	127	421	518	187	198	116		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	3	3	3	3	3	3		
Cap, veh/h	170	2109	987	355	297	265		
Arrive On Green	0.10	0.60	0.39	0.39	0.17	0.17		
Sat Flow, veh/h	1757	3597	2620	909	1757	1568		
Grp Volume(v), veh/h	127	421	358	347	198	116		
Grp Sat Flow(s),veh/h/ln	1757	1752	1752	1684	1757	1568		
Q Serve(g_s), s	2.5	1.9	5.5	5.5	3.7	2.3		
Cycle Q Clear(g_c), s	2.5	1.9	5.5	5.5	3.7	2.3		
Prop In Lane	1.00			0.54	1.00	1.00		
Lane Grp Cap(c), veh/h	170	2109	684	658	297	265		
V/C Ratio(X)	0.75	0.20	0.52	0.53	0.67	0.44		
Avail Cap(c_a), veh/h	1611	6028	1206	1159	604	539		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	15.3	3.1	8.1	8.2	13.6	13.0		
Incr Delay (d2), s/veh	6.4	0.0	0.6	0.7	2.6	1.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.5	0.9	2.7	2.6	2.0	2.1		
LnGrp Delay(d),s/veh	21.7	3.2	8.8	8.8	16.2	14.2		
LnGrp LOS	C	A	A	A	B	B		
Approach Vol, veh/h		548	705		314			
Approach Delay, s/veh		7.5	8.8		15.4			
Approach LOS		A	A		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		25.0		9.9	7.4	17.6		
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s		60.0		12.0	32.0	24.0		
Max Q Clear Time (g_c+I1), s		3.9		5.7	4.5	7.5		
Green Ext Time (p_c), s		8.2		0.5	0.3	6.1		
Intersection Summary								
HCM 2010 Ctrl Delay			9.7					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
 27: Thompson Avenue & Tefft Street

Existing Conditions
 PM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	149	22	115	15	23	16	96	124	20	11	131	160
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	157	23	121	16	24	17	101	131	21	12	138	168
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	195	287	244	27	111	94	129	814	130	102	939	972
Arrive On Green	0.11	0.16	0.16	0.02	0.06	0.06	0.07	0.52	0.52	0.06	0.51	0.51
Sat Flow, veh/h	1757	1845	1568	1757	1845	1568	1757	1552	249	1757	1845	1568
Grp Volume(v), veh/h	157	23	121	16	24	17	101	0	152	12	138	168
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1757	0	1801	1757	1845	1568
Q Serve(g_s), s	5.7	0.7	3.5	0.6	0.8	0.5	3.7	0.0	2.8	0.4	2.6	0.9
Cycle Q Clear(g_c), s	5.7	0.7	3.5	0.6	0.8	0.5	3.7	0.0	2.8	0.4	2.6	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	195	287	244	27	111	94	129	0	944	102	939	972
V/C Ratio(X)	0.80	0.08	0.50	0.59	0.22	0.18	0.79	0.00	0.16	0.12	0.15	0.17
Avail Cap(c_a), veh/h	217	910	774	108	796	677	135	0	944	108	939	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	23.4	14.7	31.7	29.0	18.9	29.6	0.0	8.0	29.0	8.5	1.2
Incr Delay (d2), s/veh	17.8	0.1	1.6	18.7	1.0	0.9	24.5	0.0	0.4	0.5	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.4	1.9	0.4	0.4	0.3	2.6	0.0	1.5	0.2	1.4	0.8
LnGrp Delay(d),s/veh	45.9	23.5	16.3	50.4	30.0	19.8	54.1	0.0	8.4	29.5	8.8	1.6
LnGrp LOS	D	C	B	D	C	B	D		A	C	A	A
Approach Vol, veh/h		301			57			253			318	
Approach Delay, s/veh		32.3			32.7			26.6			5.8	
Approach LOS		C			C			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	38.0	5.0	14.1	8.7	37.0	11.2	7.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	34.0	4.0	32.0	5.0	33.0	8.0	28.0				
Max Q Clear Time (g_c+I1), s	2.4	4.8	2.6	5.5	5.7	4.6	7.7	2.8				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.7	0.0	1.3	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			21.7									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	32	75	79	144	253	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	230	0	220	-	-	215
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	85	90	164	288	43

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	631	288	288 0
Stage 1	288	-	- -
Stage 2	343	-	- -
Critical Hdwy	6.42	6.22	4.12 -
Critical Hdwy Stg 1	5.42	-	- -
Critical Hdwy Stg 2	5.42	-	- -
Follow-up Hdwy	3.518	3.318	2.218 -
Pot Cap-1 Maneuver	445	751	1274 -
Stage 1	761	-	- -
Stage 2	719	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	414	751	1274 -
Mov Cap-2 Maneuver	414	-	- -
Stage 1	761	-	- -
Stage 2	668	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	11.6	2.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1274	-	414	751	-	-
HCM Lane V/C Ratio	0.07	-	0.088	0.113	-	-
HCM Control Delay (s)	8	-	14.5	10.4	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	0.4	-	-

Intersection

Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	13	242	92	0	60	196	9	0	80	51	54
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	255	97	0	63	206	9	0	84	54	57
Number of Lanes	0	1	1	0	0	1	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	14.7	11.4	10.6
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	49%	0%	72%	0%	96%	0%	90%
Vol Right, %	0%	51%	0%	28%	0%	4%	0%	10%
Sign Control	Stop							
Traffic Vol by Lane	80	105	13	334	60	205	11	67
LT Vol	80	0	13	0	60	0	11	0
Through Vol	0	51	0	242	0	196	0	60
RT Vol	0	54	0	92	0	9	0	7
Lane Flow Rate	84	111	14	352	63	216	12	71
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.163	0.187	0.024	0.547	0.112	0.351	0.023	0.129
Departure Headway (Hd)	6.962	6.088	6.305	5.605	6.397	5.86	7.189	6.605
Convergence, Y/N	Yes							
Cap	515	589	568	643	560	613	497	542
Service Time	4.706	3.832	4.038	3.338	4.135	3.598	4.94	4.356
HCM Lane V/C Ratio	0.163	0.188	0.025	0.547	0.113	0.352	0.024	0.131
HCM Control Delay	11.1	10.2	9.2	14.9	9.9	11.8	10.1	10.3
HCM Lane LOS	B	B	A	B	A	B	B	B
HCM 95th-tile Q	0.6	0.7	0.1	3.3	0.4	1.6	0.1	0.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	11	60	7
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	12	63	7
Number of Lanes	0	1	1	0

Approach SB

Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	10.3
HCM LOS	B

Lane

Intersection

Int Delay, s/veh 3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	22	100	54	122	182	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	190	0	195	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	25	114	61	139	207	35

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	485	224	242
Stage 1	224	-	-
Stage 2	261	-	-
Critical Hdwy	6.44	6.24	4.14
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.336	2.236
Pot Cap-1 Maneuver	537	810	1313
Stage 1	809	-	-
Stage 2	778	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	512	810	1313
Mov Cap-2 Maneuver	512	-	-
Stage 1	809	-	-
Stage 2	742	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	2.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1313	-	512	810	-	-
HCM Lane V/C Ratio	0.047	-	0.049	0.14	-	-
HCM Control Delay (s)	7.9	-	12.4	10.2	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.5	-	-

Intersection									
Intersection Delay, s/veh	52.2								
Intersection LOS	F								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	54	419	0	423	432	0	285	85
Peak Hour Factor	0.92	0.80	0.80	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	5	5	2	5	5	2	5	5
Mvmt Flow	0	67	524	0	529	540	0	356	106
Number of Lanes	0	0	1	0	2	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	67.1	52.3	32.7
HCM LOS	F	F	D

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	11%	0%	0%	100%	0%
Vol Thru, %	89%	100%	25%	0%	0%
Vol Right, %	0%	0%	75%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	473	282	573	285	85
LT Vol	54	0	0	285	0
Through Vol	419	282	141	0	0
RT Vol	0	0	432	0	85
Lane Flow Rate	591	352	716	356	106
Geometry Grp	4	7	7	7	7
Degree of Util (X)	1	0.72	1	0.819	0.209
Departure Headway (Hd)	7.186	7.35	6.822	8.276	7.075
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	508	494	537	438	507
Service Time	5.186	5.05	4.522	6.022	4.823
HCM Lane V/C Ratio	1.163	0.713	1.333	0.813	0.209
HCM Control Delay	67.1	26.7	64.9	39	11.7
HCM Lane LOS	F	D	F	E	B
HCM 95th-tile Q	13.7	5.8	14.1	7.6	0.8

Intersection									
Intersection Delay, s/veh	58.4								
Intersection LOS	F								
Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	323	442	0	6	209	0	611	19
Peak Hour Factor	0.92	0.72	0.72	0.92	0.72	0.72	0.92	0.72	0.72
Heavy Vehicles, %	2	6	6	2	6	6	2	6	6
Mvmt Flow	0	449	614	0	8	290	0	849	26
Number of Lanes	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	2
HCM Control Delay	63.1	21.9	65.2
HCM LOS	F	C	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2
Vol Left, %	97%	0%	100%	0%
Vol Thru, %	0%	42%	0%	100%
Vol Right, %	3%	58%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	630	765	6	209
LT Vol	611	0	6	0
Through Vol	0	323	0	209
RT Vol	19	442	0	0
Lane Flow Rate	875	1062	8	290
Geometry Grp	2	5	7	7
Degree of Util (X)	1	1	0.019	0.621
Departure Headway (Hd)	6.775	6.353	8.199	7.699
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	543	574	439	473
Service Time	4.824	4.402	5.899	5.399
HCM Lane V/C Ratio	1.611	1.85	0.018	0.613
HCM Control Delay	65.2	63.1	11.1	22.2
HCM Lane LOS	F	F	B	C
HCM 95th-tile Q	14.1	14.5	0.1	4.1

Intersection

Int Delay, s/veh 64.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	264	82	57	209	118	199
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	74	74	74	74	74	74
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	357	111	77	282	159	269

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	359	0	1042
Stage 1	-	-	218
Stage 2	-	-	824
Critical Hdwy	4.18	-	6.48
Critical Hdwy Stg 1	-	-	5.48
Critical Hdwy Stg 2	-	-	5.48
Follow-up Hdwy	2.272	-	3.572
Pot Cap-1 Maneuver	1167	-	248
Stage 1	-	-	804
Stage 2	-	-	421
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1167	-	167
Mov Cap-2 Maneuver	-	-	167
Stage 1	-	-	804
Stage 2	-	-	284

Approach	EB	WB	SB
HCM Control Delay, s	7.2	0	182.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1167	-	-	-	333
HCM Lane V/C Ratio	0.306	-	-	-	1.286
HCM Control Delay (s)	9.4	0	-	-	182.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.3	-	-	-	20

Intersection

Int Delay, s/veh 5.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	74	175	197	61	131	154
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	120	-	-	420	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	86	203	229	71	152	179

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	749	265	0
Stage 1	265	-	-
Stage 2	484	-	-
Critical Hdwy	6.5	6.3	4.2
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.39	2.29
Pot Cap-1 Maneuver	368	755	1217
Stage 1	761	-	-
Stage 2	603	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	322	755	1217
Mov Cap-2 Maneuver	322	-	-
Stage 1	761	-	-
Stage 2	528	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	3.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	322	755	1217	-
HCM Lane V/C Ratio	-	-	0.267	0.27	0.125	-
HCM Control Delay (s)	-	-	20.2	11.5	8.4	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.1	1.1	0.4	-

Intersection

Int Delay, s/veh 9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	58	252	0	0	92	293	155	4	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	81	350	0	0	128	407	215	6	7	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	535	0	0	350	0	0	842	1046	350
Stage 1	-	-	-	-	-	-	511	511	-
Stage 2	-	-	-	-	-	-	331	535	-
Critical Hdwy	4.15	-	-	4.15	-	-	6.45	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	5.45	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.45	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345
Pot Cap-1 Maneuver	1018	-	-	1192	-	-	331	226	687
Stage 1	-	-	-	-	-	-	596	532	-
Stage 2	-	-	-	-	-	-	721	519	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1018	-	-	1192	-	-	298	0	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	298	0	-
Stage 1	-	-	-	-	-	-	537	0	-
Stage 2	-	-	-	-	-	-	721	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	1.7	0	43.9
HCM LOS			E

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	298	687	1018	-	-	1192	-	-
HCM Lane V/C Ratio	0.741	0.01	0.079	-	-	-	-	-
HCM Control Delay (s)	45	10.3	8.8	0	-	0	-	-
HCM Lane LOS	E	B	A	A	-	A	-	-
HCM 95th %tile Q(veh)	5.5	0	0.3	-	-	0	-	-

Intersection												
Int Delay, s/veh	6.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	149	217	13	208	0	0	0	0	173	4	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	0	204	297	18	285	0	0	0	0	237	5	21

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	285	0	0	501	0	0	674	822	285
Stage 1	-	-	-	-	-	-	321	321	-
Stage 2	-	-	-	-	-	-	353	501	-
Critical Hdwy	4.16	-	-	4.16	-	-	6.46	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	5.46	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.46	5.56	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.554	4.054	3.354
Pot Cap-1 Maneuver	1255	-	-	1043	-	-	414	304	745
Stage 1	-	-	-	-	-	-	726	645	-
Stage 2	-	-	-	-	-	-	702	536	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1255	-	-	1043	-	-	405	0	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	405	0	-
Stage 1	-	-	-	-	-	-	711	0	-
Stage 2	-	-	-	-	-	-	702	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.5	25
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1255	-	-	1043	-	-	405	745
HCM Lane V/C Ratio	-	-	-	0.017	-	-	0.599	0.028
HCM Control Delay (s)	0	-	-	8.5	0	-	26.3	10
HCM Lane LOS	A	-	-	A	A	-	D	B
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-	3.8	0.1

Intersection												
Int Delay, s/veh	3.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	476	202	57	165	0	0	0	0	57	0	181
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	165	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	643	273	77	223	0	0	0	0	77	0	245

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	223	0	0	643	0	0	1020	1020	223
Stage 1	-	-	-	-	-	-	377	377	-
Stage 2	-	-	-	-	-	-	643	643	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.44	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.54	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.536	4.036	3.336
Pot Cap-1 Maneuver	1334	-	-	932	-	-	260	235	812
Stage 1	-	-	-	-	-	-	689	612	-
Stage 2	-	-	-	-	-	-	520	465	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1334	-	-	932	-	-	239	0	812
Mov Cap-2 Maneuver	-	-	-	-	-	-	239	0	-
Stage 1	-	-	-	-	-	-	632	0	-
Stage 2	-	-	-	-	-	-	520	0	-

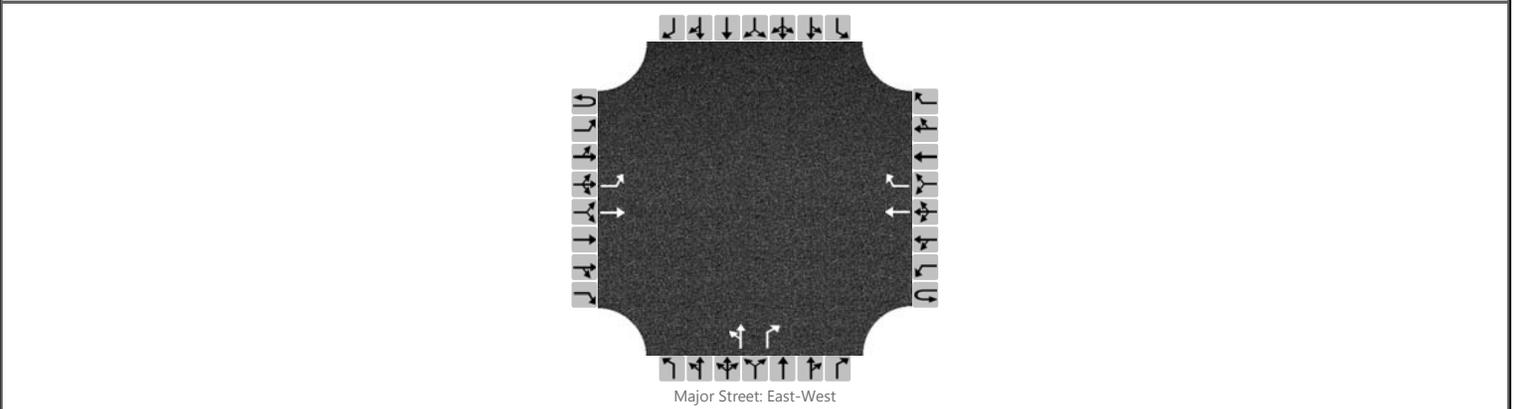
Approach	EB	WB	SB
HCM Control Delay, s	0	2.4	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1334	-	-	932	-	-	239	812
HCM Lane V/C Ratio	-	-	-	0.083	-	-	0.322	0.301
HCM Control Delay (s)	0	-	-	9.2	-	-	27.1	11.3
HCM Lane LOS	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0	-	-	0.3	-	-	1.3	1.3

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	RS	Intersection	WILLOW /NB US 101 RAMPS
Agency/Co.	OMNI-MEANS	Jurisdiction	SLOCO
Date Performed	9/23/2015	East/West Street	WILLOW ROAD
Analysis Year	2015	North/South Street	US 101 NB RAMPS
Time Analyzed	AM PEAK	Peak Hour Factor	0.88
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	AVILA - WILLOW IC		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	1	1	0	0	0	1	1	0	1	1		0	0	0	
Configuration		L	T				T	R	LT		R					
Volume (veh/h)		307	226				105	21		116	1	73				
Percent Heavy Vehicles		3								3	3	3				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		349								133		83				
Capacity		1432								241		779				
v/c Ratio		0.24								0.55		0.11				
95% Queue Length		1.0								3.5		0.4				
Control Delay (s/veh)		8.3								37.8		10.2				
Level of Service (LOS)		A								E		B				
Approach Delay (s/veh)	4.8								26.9							
Approach LOS	A								D							

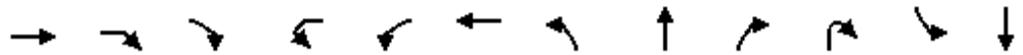
HCM 2010 Signalized Intersection Summary
 9: 101 NB Ramps & Tefft Street

2035 NO BUILD Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	641	1001	0	0	856	335	271	1	210	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1827	0	0	1827	1900	1827	1827	1900			
Adj Flow Rate, veh/h	754	1178	0	0	1007	394	284	51	247			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	536	2314	0	0	796	308	464	73	352			
Arrive On Green	0.62	1.00	0.00	0.00	0.65	0.65	0.27	0.27	0.27			
Sat Flow, veh/h	1740	3563	0	0	2541	946	1740	273	1321			
Grp Volume(v), veh/h	754	1178	0	0	710	691	284	0	298			
Grp Sat Flow(s),veh/h/ln	1740	1736	0	0	1736	1660	1740	0	1594			
Q Serve(g_s), s	37.0	0.0	0.0	0.0	39.0	39.0	17.2	0.0	20.2			
Cycle Q Clear(g_c), s	37.0	0.0	0.0	0.0	39.0	39.0	17.2	0.0	20.2			
Prop In Lane	1.00		0.00	0.00		0.57	1.00		0.83			
Lane Grp Cap(c), veh/h	536	2314	0	0	564	539	464	0	425			
V/C Ratio(X)	1.41	0.51	0.00	0.00	1.26	1.28	0.61	0.00	0.70			
Avail Cap(c_a), veh/h	536	2314	0	0	564	539	464	0	425			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.09	0.09	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.0	0.0	0.0	0.0	21.0	21.0	38.6	0.0	39.7			
Incr Delay (d2), s/veh	183.5	0.1	0.0	0.0	117.7	127.9	5.9	0.0	9.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	44.6	0.0	0.0	0.0	36.6	36.5	9.0	0.0	10.0			
LnGrp Delay(d),s/veh	206.5	0.1	0.0	0.0	138.7	148.9	44.5	0.0	49.0			
LnGrp LOS	F	A			F	F	D		D			
Approach Vol, veh/h		1932			1401			582				
Approach Delay, s/veh		80.6			143.7			46.8				
Approach LOS		F			F			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		36.0		84.0			41.0	43.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		32.0		80.0			37.0	39.0				
Max Q Clear Time (g_c+I1), s		22.2		2.0			39.0	41.0				
Green Ext Time (p_c), s		2.1		18.8			0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			98.2									
HCM 2010 LOS			F									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM Signalized Intersection Capacity Analysis
 10: Frontage Road & Tefft Street

2035 NO BUILD Conditions
 AM Peak Hour - Default



Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR	NBR2	SBL2	SBT
Lane Configurations	↑↑		↑		↑	↑↑		↑↓				↑
Volume (vph)	951	270	21	231	191	705	24	0	437	105	237	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0		4.0				4.0
Lane Util. Factor	0.91		0.91		1.00	0.95		1.00				1.00
Frt	0.97		0.85		1.00	1.00		0.87				1.00
Flt Protected	1.00		1.00		0.95	1.00		1.00				0.96
Satd. Flow (prot)	3231		1413		1754	3471		1593				1762
Flt Permitted	1.00		1.00		0.95	1.00		1.00				0.96
Satd. Flow (perm)	3231		1413		1754	3471		1593				1762
Peak-hour factor, PHF	0.88	0.92	0.88	0.92	0.88	0.88	0.88	0.88	0.88	0.92	0.88	0.88
Adj. Flow (vph)	1081	293	24	251	217	801	27	0	497	114	269	97
RTOR Reduction (vph)	0	0	15	0	0	0	0	70	0	0	0	0
Lane Group Flow (vph)	1376	0	7	0	468	801	0	568	0	0	0	366
Heavy Vehicles (%)	4%	2%	4%	2%	4%	4%	4%	4%	4%	2%	4%	4%
Turn Type	NA		Perm	Prot	Prot	NA	Split	NA			Split	NA
Protected Phases	4			3	3	8	2	2			6	6
Permitted Phases			4									
Actuated Green, G (s)	37.0		37.0		16.0	57.0		18.0				33.0
Effective Green, g (s)	37.0		37.0		16.0	57.0		18.0				33.0
Actuated g/C Ratio	0.31		0.31		0.13	0.48		0.15				0.28
Clearance Time (s)	4.0		4.0		4.0	4.0		4.0				4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0				3.0
Lane Grp Cap (vph)	996		435		233	1648		238				484
v/s Ratio Prot	c0.43				c0.27	0.23		c0.36				c0.21
v/s Ratio Perm			0.00									
v/c Ratio	1.38		0.02		2.01	0.49		2.39				0.76
Uniform Delay, d1	41.5		28.8		52.0	21.5		51.0				39.8
Progression Factor	0.52		1.00		1.35	0.20		1.00				1.00
Incremental Delay, d2	177.2		0.1		455.2	0.1		637.3				10.5
Delay (s)	199.0		28.9		525.3	4.3		688.3				50.3
Level of Service	F		C		F	A		F				D
Approach Delay (s)	196.3					196.4		688.3				43.1
Approach LOS	F					F		F				D

Intersection Summary			
HCM 2000 Control Delay	248.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	124.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	7
Volume (vph)	278
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.88
Adj. Flow (vph)	316
RTOR Reduction (vph)	223
Lane Group Flow (vph)	93
Heavy Vehicles (%)	4%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	33.0
Effective Green, g (s)	33.0
Actuated g/C Ratio	0.28
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	427
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.22
Uniform Delay, d1	33.5
Progression Factor	1.00
Incremental Delay, d2	1.2
Delay (s)	34.7
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 2010 methodology does not support more than 4 approaches.

Intersection												
Int Delay, s/veh	8.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	41	479	346	336	0	0	0	0	35	1	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	9	9	9	9	9	9	9	9	9	9	9	9
Mvmt Flow	0	47	551	398	386	0	0	0	0	40	1	33

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	386	0	0	598	0	0	1504	1780	386
Stage 1	-	-	-	-	-	-	1182	1182	-
Stage 2	-	-	-	-	-	-	322	598	-
Critical Hdwy	4.19	-	-	4.19	-	-	6.49	6.59	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	5.49	5.59	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.49	5.59	-
Follow-up Hdwy	2.281	-	-	2.281	-	-	3.581	4.081	3.381
Pot Cap-1 Maneuver	1135	-	-	945	-	-	129	79	647
Stage 1	-	-	-	-	-	-	282	255	-
Stage 2	-	-	-	-	-	-	719	480	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1135	-	-	945	-	-	60	0	647
Mov Cap-2 Maneuver	-	-	-	-	-	-	60	0	-
Stage 1	-	-	-	-	-	-	131	0	-
Stage 2	-	-	-	-	-	-	719	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.9	103.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1135	-	-	945	-	-	102
HCM Lane V/C Ratio	-	-	-	0.421	-	-	0.732
HCM Control Delay (s)	0	-	-	11.5	0	-	103.6
HCM Lane LOS	A	-	-	B	A	-	F
HCM 95th %tile Q(veh)	0	-	-	2.1	-	-	3.9

Intersection												
Intersection Delay, s/veh	18.7											
Intersection LOS	C											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	36	22	0	0	0	361	19	0	327	0	283
Peak Hour Factor	0.92	0.89	0.89	0.89	0.92	0.89	0.89	0.89	0.92	0.89	0.89	0.89
Heavy Vehicles, %	2	11	11	11	2	11	11	11	2	11	11	11
Mvmt Flow	0	40	25	0	0	0	406	21	0	367	0	318
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	10.6	20.7	18.3
HCM LOS	B	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	62%	0%
Vol Thru, %	0%	0%	38%	95%
Vol Right, %	0%	100%	0%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	327	283	58	380
LT Vol	327	0	36	0
Through Vol	0	0	22	361
RT Vol	0	283	0	19
Lane Flow Rate	367	318	65	427
Geometry Grp	7	7	2	2
Degree of Util (X)	0.684	0.484	0.12	0.689
Departure Headway (Hd)	6.698	5.483	6.64	5.806
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	540	658	540	623
Service Time	4.427	3.212	4.684	3.835
HCM Lane V/C Ratio	0.68	0.483	0.12	0.685
HCM Control Delay	22.7	13.3	10.6	20.7
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	5.2	2.6	0.4	5.4

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	0
Peak Hour Factor	0.92	0.89	0.89	0.89
Heavy Vehicles, %	2	11	11	11
Mvmt Flow	0	0	0	0
Number of Lanes	0	0	0	0

Approach

Opposing Approach

Opposing Lanes

Conflicting Approach Left

Conflicting Lanes Left

Conflicting Approach Right

Conflicting Lanes Right

HCM Control Delay

HCM LOS

Lane

HCM research does not support more than two 'Stop' controlled approaches at the intersection.

Intersection

Int Delay, s/veh 7.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	245	57	81	4	4	274
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	86	86	86	86	86	86
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	285	66	94	5	5	319

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	99	0	733
Stage 1	-	-	97
Stage 2	-	-	636
Critical Hdwy	4.21	-	6.51
Critical Hdwy Stg 1	-	-	5.51
Critical Hdwy Stg 2	-	-	5.51
Follow-up Hdwy	2.299	-	3.599
Pot Cap-1 Maneuver	1439	-	375
Stage 1	-	-	905
Stage 2	-	-	511
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1439	-	298
Mov Cap-2 Maneuver	-	-	298
Stage 1	-	-	905
Stage 2	-	-	406

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1439	-	-	-	907
HCM Lane V/C Ratio	0.198	-	-	-	0.356
HCM Control Delay (s)	8.1	0	-	-	11.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.7	-	-	-	1.6

Intersection

Int Delay, s/veh 9.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	7	189	87	7	257	71
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, %	2	2	2	2	2	2
Mvmt Flow	8	205	95	8	279	77

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	213
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1357
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1357
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	685	-	-	1357	-
HCM Lane V/C Ratio	0.52	-	-	0.07	-
HCM Control Delay (s)	15.8	-	-	7.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3	-	-	0.2	-

HCM 2010 Signalized Intersection Summary
 17: Halcyon Road & Highway 1

2035 NO BUILD Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	82	194	42	172	41	337	129	65	27	127	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1810	1900	1810	1900	1810	1810	1900	1810	1810	1900
Adj Flow Rate, veh/h	8	96	228	49	202	48	396	152	76	32	149	16
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	50	382	878	84	256	57	606	722	361	42	492	53
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.35	0.63	0.63	0.02	0.31	0.31
Sat Flow, veh/h	48	1743	1538	189	1169	260	1723	1139	570	1723	1607	173
Grp Volume(v), veh/h	104	0	228	299	0	0	396	0	228	32	0	165
Grp Sat Flow(s),veh/h/ln	1791	0	1538	1618	0	0	1723	0	1709	1723	0	1779
Q Serve(g_s), s	0.0	0.0	0.0	11.5	0.0	0.0	18.9	0.0	5.5	1.8	0.0	6.9
Cycle Q Clear(g_c), s	4.7	0.0	0.0	17.2	0.0	0.0	18.9	0.0	5.5	1.8	0.0	6.9
Prop In Lane	0.08		1.00	0.16		0.16	1.00		0.33	1.00		0.10
Lane Grp Cap(c), veh/h	432	0	878	398	0	0	606	0	1083	42	0	545
V/C Ratio(X)	0.24	0.00	0.26	0.75	0.00	0.00	0.65	0.00	0.21	0.76	0.00	0.30
Avail Cap(c_a), veh/h	583	0	1012	534	0	0	669	0	1083	106	0	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	10.6	36.3	0.0	0.0	26.7	0.0	7.6	47.4	0.0	25.9
Incr Delay (d2), s/veh	0.3	0.0	0.2	4.1	0.0	0.0	2.0	0.0	0.4	23.4	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	3.1	8.2	0.0	0.0	9.4	0.0	2.7	1.1	0.0	3.6
LnGrp Delay(d),s/veh	31.9	0.0	10.7	40.4	0.0	0.0	28.7	0.0	8.0	70.9	0.0	27.4
LnGrp LOS	C		B	D			C		A	E		C
Approach Vol, veh/h		332			299			624				197
Approach Delay, s/veh		17.4			40.4			21.2				34.4
Approach LOS		B			D			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	66.0		25.5	38.4	34.0		25.5				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	6.0	62.0		30.0	38.0	30.0		30.0				
Max Q Clear Time (g_c+I1), s	3.8	7.5		6.7	20.9	8.9		19.2				
Green Ext Time (p_c), s	0.3	1.3		3.0	1.2	0.7		2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			26.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 18: Orchard Road & Division Street

2035 NO BUILD Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	62	51	50	137	70	111	42	110	88	58	179	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1810	1900	1810	1810	1810	1810	1900	1810	1810	1810
Adj Flow Rate, veh/h	73	60	0	161	82	131	49	129	104	68	211	61
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	97	80	155	215	109	285	136	402	324	86	732	622
Arrive On Green	0.10	0.10	0.00	0.19	0.19	0.19	0.08	0.43	0.43	0.05	0.40	0.40
Sat Flow, veh/h	967	795	1538	1160	591	1538	1723	929	749	1723	1810	1538
Grp Volume(v), veh/h	133	0	0	243	0	131	49	0	233	68	211	61
Grp Sat Flow(s),veh/h/ln	1761	0	1538	1752	0	1538	1723	0	1677	1723	1810	1538
Q Serve(g_s), s	5.1	0.0	0.0	9.1	0.0	5.3	1.9	0.0	6.3	2.7	5.4	1.7
Cycle Q Clear(g_c), s	5.1	0.0	0.0	9.1	0.0	5.3	1.9	0.0	6.3	2.7	5.4	1.7
Prop In Lane	0.55		1.00	0.66		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	155	324	0	285	136	0	727	86	732	622
V/C Ratio(X)	0.75	0.00	0.00	0.75	0.00	0.46	0.36	0.00	0.32	0.79	0.29	0.10
Avail Cap(c_a), veh/h	560	0	489	1012	0	889	224	0	727	174	732	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	0.0	26.7	0.0	25.1	30.2	0.0	12.9	32.5	13.9	12.8
Incr Delay (d2), s/veh	6.2	0.0	0.0	3.5	0.0	1.2	1.6	0.0	1.2	14.9	1.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	4.7	0.0	2.3	0.9	0.0	3.1	1.6	2.9	0.8
LnGrp Delay(d),s/veh	36.5	0.0	0.0	30.2	0.0	26.3	31.9	0.0	14.1	47.5	14.9	13.1
LnGrp LOS	D			C		C	C		B	D	B	B
Approach Vol, veh/h		133			374			282			340	
Approach Delay, s/veh		36.5			28.8			17.2			21.1	
Approach LOS		D			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	34.0		11.0	9.4	32.0		16.8				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		22.0	9.0	28.0		40.0				
Max Q Clear Time (g_c+I1), s	4.7	8.3		7.1	3.9	7.4		11.1				
Green Ext Time (p_c), s	0.0	1.3		0.5	0.6	1.2		1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			24.5									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	265	25	9	241	62	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	353	33	12	321	83	39

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	387
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.236
Pot Cap-1 Maneuver	-	-	1161
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1161
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	542	-	-	1161	-
HCM Lane V/C Ratio	0.224	-	-	0.01	-
HCM Control Delay (s)	13.5	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Intersection

Int Delay, s/veh 3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	49	54	213	32	51	235
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	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	67	74	292	44	70	322

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	776	314	0
Stage 1	314	-	-
Stage 2	462	-	-
Critical Hdwy	6.43	6.23	4.13
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.227
Pot Cap-1 Maneuver	364	724	1218
Stage 1	738	-	-
Stage 2	632	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	343	724	1218
Mov Cap-2 Maneuver	343	-	-
Stage 1	738	-	-
Stage 2	596	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	474	1218
HCM Lane V/C Ratio	-	-	0.298	0.057
HCM Control Delay (s)	-	-	15.8	8.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.2	0.2

Intersection

Int Delay, s/veh 0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	9	19	261	6	6	128
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	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	25	348	8	8	171

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	539	352	0
Stage 1	352	-	-
Stage 2	187	-	-
Critical Hdwy	6.43	6.23	4.13
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.227
Pot Cap-1 Maneuver	502	689	1197
Stage 1	710	-	-
Stage 2	843	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	498	689	1197
Mov Cap-2 Maneuver	498	-	-
Stage 1	710	-	-
Stage 2	837	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	613	1197	-
HCM Lane V/C Ratio	-	-	0.061	0.007	-
HCM Control Delay (s)	-	-	11.3	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

HCM 2010 Signalized Intersection Summary
 22: Tefft Street & Mary Avenue

2035 NO BUILD Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	584	33	171	478	181	60	40	192	270	33	24
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	41	635	36	186	520	197	65	43	209	343	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	52	752	336	145	667	251	478	502	556	1015	533	0
Arrive On Green	0.03	0.22	0.22	0.17	0.54	0.54	0.28	0.28	0.28	0.29	0.00	0.00
Sat Flow, veh/h	1740	3471	1553	1740	2468	931	1740	1827	1553	3480	1827	0
Grp Volume(v), veh/h	41	635	36	186	365	352	65	43	209	343	0	0
Grp Sat Flow(s),veh/h/ln	1740	1736	1553	1740	1736	1663	1740	1827	1553	1740	1827	0
Q Serve(g_s), s	2.8	21.0	2.2	10.0	20.0	20.2	3.4	2.1	2.0	9.3	0.0	0.0
Cycle Q Clear(g_c), s	2.8	21.0	2.2	10.0	20.0	20.2	3.4	2.1	2.0	9.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.56	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	52	752	336	145	469	449	478	502	556	1015	533	0
V/C Ratio(X)	0.79	0.84	0.11	1.28	0.78	0.78	0.14	0.09	0.38	0.34	0.00	0.00
Avail Cap(c_a), veh/h	72	752	336	145	469	449	478	502	556	1015	533	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.8	45.1	37.7	50.0	24.7	24.8	32.8	32.3	28.5	33.4	0.0	0.0
Incr Delay (d2), s/veh	31.1	11.2	0.6	165.0	10.6	11.3	0.6	0.3	1.9	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	11.2	1.0	11.4	10.7	10.6	1.7	1.1	1.1	4.6	0.0	0.0
LnGrp Delay(d),s/veh	88.9	56.3	38.3	215.0	35.3	36.1	33.4	32.6	30.5	34.3	0.0	0.0
LnGrp LOS	F	E	D	F	D	D	C	C	C	C		
Approach Vol, veh/h		712			903			317			343	
Approach Delay, s/veh		57.2			72.6			31.4			34.3	
Approach LOS		E			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.0	14.0	30.0		39.0	7.6	36.4				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		33.0	10.0	26.0		35.0	5.0	31.0				
Max Q Clear Time (g_c+I1), s		5.4	12.0	23.0		11.3	4.8	22.2				
Green Ext Time (p_c), s		1.1	0.0	1.2		1.2	0.0	3.3				
Intersection Summary												
HCM 2010 Ctrl Delay			56.3									
HCM 2010 LOS			E									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection												
Int Delay, s/veh	10											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	158	1	35	1	2	8	56	231	2	0	142	124
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	205	1	45	1	3	10	73	300	3	0	184	161

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	718	713	265	735	792	301	345	0	0	303	0	0
Stage 1	265	265	-	447	447	-	-	-	-	-	-	-
Stage 2	453	448	-	288	345	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	342	355	769	333	319	734	1203	-	-	1247	-	-
Stage 1	736	686	-	587	570	-	-	-	-	-	-	-
Stage 2	582	569	-	715	633	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	319	333	769	298	300	734	1203	-	-	1247	-	-
Mov Cap-2 Maneuver	319	333	-	298	300	-	-	-	-	-	-	-
Stage 1	691	686	-	551	535	-	-	-	-	-	-	-
Stage 2	536	534	-	671	633	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	36			12			1.6			0		
HCM LOS	E			B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	357	526	1247	-	-
HCM Lane V/C Ratio	0.06	-	-	0.706	0.027	-	-	-
HCM Control Delay (s)	8.2	-	-	36	12	0	-	-
HCM Lane LOS	A	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	5.2	0.1	0	-	-

HCM 2010 Signalized Intersection Summary
 24: Oakglen Avenue & Tefft Street

2035 NO BUILD Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	366	652	57	57	683	57	10	17	53	97	17	375
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	523	931	81	81	976	81	14	24	76	139	24	536
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	293	907	771	73	616	51	8	14	46	93	16	360
Arrive On Green	0.33	0.98	0.98	0.04	0.37	0.37	0.04	0.04	0.04	0.29	0.29	0.29
Sat Flow, veh/h	1757	1845	1568	1757	1681	139	202	346	1094	320	55	1235
Grp Volume(v), veh/h	523	931	81	81	0	1057	114	0	0	699	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1820	1641	0	0	1611	0	0
Q Serve(g_s), s	20.0	59.0	0.1	5.0	0.0	44.0	5.0	0.0	0.0	35.0	0.0	0.0
Cycle Q Clear(g_c), s	20.0	59.0	0.1	5.0	0.0	44.0	5.0	0.0	0.0	35.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	0.12		0.67	0.20		0.77
Lane Grp Cap(c), veh/h	293	907	771	73	0	667	68	0	0	470	0	0
V/C Ratio(X)	1.79	1.03	0.11	1.11	0.00	1.58	1.67	0.00	0.00	1.49	0.00	0.00
Avail Cap(c_a), veh/h	293	907	771	73	0	667	68	0	0	470	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.0	1.0	0.5	57.5	0.0	38.0	57.5	0.0	0.0	42.5	0.0	0.0
Incr Delay (d2), s/veh	365.3	34.5	0.2	137.2	0.0	269.9	355.6	0.0	0.0	230.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	39.3	9.2	0.1	5.2	0.0	72.1	9.0	0.0	0.0	45.6	0.0	0.0
LnGrp Delay(d),s/veh	405.3	35.5	0.7	195.1	0.0	307.9	413.1	0.0	0.0	273.2	0.0	0.0
LnGrp LOS	F	F	A	F		F	F			F		
Approach Vol, veh/h		1535			1138			114			699	
Approach Delay, s/veh		159.7			299.8			413.1			273.2	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.0	9.0	63.0		39.0	24.0	48.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		5.0	5.0	59.0		35.0	20.0	44.0				
Max Q Clear Time (g_c+I1), s		7.0	7.0	61.0		37.0	22.0	46.0				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			236.5									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary
25: Orchard Road & Tefft Street

2035 NO BUILD Conditions
AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	322	65	116	268	92	133	62	153	91	48	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1827	1900	1827	1900	1900	1827	1900
Adj Flow Rate, veh/h	0	393	79	141	327	112	162	76	187	111	59	0
Adj No. of Lanes	1	1	1	1	1	1	0	1	1	0	1	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	647	435	370	595	381	324	187	88	803	137	73	0
Arrive On Green	0.00	0.24	0.24	0.34	0.21	0.21	0.16	0.16	0.16	0.12	0.12	0.00
Sat Flow, veh/h	1740	1827	1553	1740	1827	1553	1203	564	1615	1155	614	0
Grp Volume(v), veh/h	0	393	79	141	327	112	238	0	187	170	0	0
Grp Sat Flow(s),veh/h/ln	1740	1827	1553	1740	1827	1553	1767	0	1615	1769	0	0
Q Serve(g_s), s	0.0	23.0	4.5	6.4	19.0	6.8	14.5	0.0	0.0	10.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.0	4.5	6.4	19.0	6.8	14.5	0.0	0.0	10.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.68		1.00	0.65		0.00
Lane Grp Cap(c), veh/h	647	435	370	595	381	324	275	0	803	210	0	0
V/C Ratio(X)	0.00	0.90	0.21	0.24	0.86	0.35	0.87	0.00	0.23	0.81	0.00	0.00
Avail Cap(c_a), veh/h	647	515	438	595	648	551	321	0	846	499	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	40.7	33.6	25.9	42.0	37.1	45.3	0.0	15.7	47.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	24.6	1.3	0.2	21.0	2.8	19.1	0.0	0.1	7.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.5	2.1	3.1	11.8	3.1	8.5	0.0	3.2	5.5	0.0	0.0
LnGrp Delay(d),s/veh	0.0	65.2	34.9	26.1	63.0	40.0	64.4	0.0	15.9	54.5	0.0	0.0
LnGrp LOS		E	C	C	E	D	E		B	D		
Approach Vol, veh/h		472			580			425			170	
Approach Delay, s/veh		60.2			49.6			43.0			54.5	
Approach LOS		E			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	41.6	30.2		17.1	44.9	26.9		21.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	12.0	31.0		31.0	4.0	39.0		20.0				
Max Q Clear Time (g_c+I1), s	8.4	25.0		12.3	0.0	21.0		16.5				
Green Ext Time (p_c), s	0.1	1.2		0.8	0.0	1.9		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			51.4									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 26: Tefft Street & Pomeroy Road

2035 NO BUILD Conditions
 AM Peak Hour - Default



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	84	404	286	100	158	97		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1810	1810	1810	1900	1810	1810		
Adj Flow Rate, veh/h	106	511	362	127	200	123		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79		
Percent Heavy Veh, %	5	5	5	5	5	5		
Cap, veh/h	985	2711	453	157	239	213		
Arrive On Green	0.19	0.26	0.18	0.18	0.14	0.14		
Sat Flow, veh/h	1723	3529	2599	867	1723	1538		
Grp Volume(v), veh/h	106	511	246	243	200	123		
Grp Sat Flow(s),veh/h/ln	1723	1719	1719	1656	1723	1538		
Q Serve(g_s), s	5.6	12.7	15.1	15.5	12.4	8.2		
Cycle Q Clear(g_c), s	5.6	12.7	15.1	15.5	12.4	8.2		
Prop In Lane	1.00			0.52	1.00	1.00		
Lane Grp Cap(c), veh/h	985	2711	310	299	239	213		
V/C Ratio(X)	0.11	0.19	0.79	0.81	0.84	0.58		
Avail Cap(c_a), veh/h	985	2711	531	512	470	419		
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.83	0.83	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	21.4	13.3	43.1	43.3	46.2	44.3		
Incr Delay (d2), s/veh	0.0	0.1	18.6	20.7	7.5	2.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.7	6.1	8.8	8.8	6.4	7.1		
LnGrp Delay(d),s/veh	21.4	13.4	61.7	64.0	53.7	46.8		
LnGrp LOS	C	B	E	E	D	D		
Approach Vol, veh/h		617	489		323			
Approach Delay, s/veh		14.8	62.8		51.1			
Approach LOS		B	E		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		90.7		19.3	66.9	23.9		
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s		72.0		30.0	34.0	34.0		
Max Q Clear Time (g_c+I1), s		14.7		14.4	7.6	17.5		
Green Ext Time (p_c), s		3.7		0.8	3.5	2.4		
Intersection Summary								
HCM 2010 Ctrl Delay			39.4					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary
 27: Thompson Avenue & Tefft Street

2035 NO BUILD Conditions
 AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	240	30	131	23	20	37	97	280	30	9	226	281
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1810	1810	1900	1810	1810	1810
Adj Flow Rate, veh/h	407	51	222	39	34	63	164	475	51	15	383	476
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	442	555	471	48	142	120	196	751	81	24	665	960
Arrive On Green	0.26	0.31	0.31	0.03	0.08	0.08	0.11	0.47	0.47	0.01	0.37	0.37
Sat Flow, veh/h	1723	1810	1538	1723	1810	1538	1723	1607	172	1723	1810	1538
Grp Volume(v), veh/h	407	51	222	39	34	63	164	0	526	15	383	476
Grp Sat Flow(s),veh/h/ln	1723	1810	1538	1723	1810	1538	1723	0	1779	1723	1810	1538
Q Serve(g_s), s	20.0	1.8	7.2	2.0	1.5	3.4	8.1	0.0	19.5	0.8	14.8	4.8
Cycle Q Clear(g_c), s	20.0	1.8	7.2	2.0	1.5	3.4	8.1	0.0	19.5	0.8	14.8	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	442	555	471	48	142	120	196	0	832	24	665	960
V/C Ratio(X)	0.92	0.09	0.47	0.81	0.24	0.52	0.84	0.00	0.63	0.62	0.58	0.50
Avail Cap(c_a), veh/h	475	956	813	119	582	495	198	0	832	79	665	960
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	21.5	12.1	42.1	37.7	38.6	37.8	0.0	17.5	42.7	22.1	2.6
Incr Delay (d2), s/veh	22.6	0.1	0.7	25.9	0.9	3.5	25.3	0.0	3.6	23.4	3.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	0.9	3.1	1.3	0.8	1.6	5.3	0.0	10.3	0.5	8.0	3.0
LnGrp Delay(d),s/veh	54.1	21.6	12.8	67.9	38.5	42.0	63.0	0.0	21.2	66.1	25.7	4.4
LnGrp LOS	D	C	B	E	D	D	E		C	E	C	A
Approach Vol, veh/h		680			136			690			874	
Approach Delay, s/veh		38.2			48.6			31.1			14.8	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	44.7	6.4	30.7	13.9	36.0	26.3	10.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	38.0	6.0	46.0	10.0	32.0	24.0	28.0				
Max Q Clear Time (g_c+I1), s	2.8	21.5	4.0	9.2	10.1	16.8	22.0	5.4				
Green Ext Time (p_c), s	0.0	3.7	0.0	1.5	0.0	3.7	0.3	1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			28.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 28: Nipomo High School & Thompson Avenue

2035 NO BUILD Conditions
 AM Peak Hour - Default

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Volume (veh/h)	87	178	178	328	228	257		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	167	342	342	631	438	494		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.52	0.52	0.52	0.52	0.52	0.52		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	399	356	434	1257	1257	1069		
Arrive On Green	0.22	0.22	0.68	0.68	0.68	0.68		
Sat Flow, veh/h	1774	1583	598	1863	1863	1583		
Grp Volume(v), veh/h	167	342	342	631	438	494		
Grp Sat Flow(s),veh/h/ln	1774	1583	598	1863	1863	1583		
Q Serve(g_s), s	6.4	17.1	45.4	13.3	8.0	11.8		
Cycle Q Clear(g_c), s	6.4	17.1	53.4	13.3	8.0	11.8		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	399	356	434	1257	1257	1069		
V/C Ratio(X)	0.42	0.96	0.79	0.50	0.35	0.46		
Avail Cap(c_a), veh/h	399	356	434	1257	1257	1069		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	26.5	30.6	16.9	6.4	5.5	6.1		
Incr Delay (d2), s/veh	0.7	37.1	9.4	0.3	0.2	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.2	11.1	8.5	6.8	4.1	5.2		
LnGrp Delay(d),s/veh	27.2	67.8	26.2	6.7	5.7	6.5		
LnGrp LOS	C	E	C	A	A	A		
Approach Vol, veh/h	509			973	932			
Approach Delay, s/veh	54.5			13.6	6.1			
Approach LOS	D			B	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		58.0		22.0		58.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		54.0		18.0		54.0		
Max Q Clear Time (g_c+I1), s		55.4		19.1		13.8		
Green Ext Time (p_c), s		0.0		0.0		17.1		
Intersection Summary								
HCM 2010 Ctrl Delay			19.3					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
29: Willow Road & Pomeroy Road

2035 NO BUILD Conditions
AM Peak Hour - Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	437	40	25	325	10	95	63	92	25	37	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	21	560	51	32	417	13	122	81	118	32	47	21
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	35	728	66	50	792	25	157	119	173	50	138	62
Arrive On Green	0.02	0.44	0.44	0.03	0.45	0.45	0.09	0.18	0.18	0.03	0.11	0.11
Sat Flow, veh/h	1740	1650	150	1740	1762	55	1740	673	981	1740	1197	535
Grp Volume(v), veh/h	21	0	611	32	0	430	122	0	199	32	0	68
Grp Sat Flow(s),veh/h/ln	1740	0	1800	1740	0	1817	1740	0	1654	1740	0	1733
Q Serve(g_s), s	0.6	0.0	14.1	0.9	0.0	8.4	3.4	0.0	5.5	0.9	0.0	1.8
Cycle Q Clear(g_c), s	0.6	0.0	14.1	0.9	0.0	8.4	3.4	0.0	5.5	0.9	0.0	1.8
Prop In Lane	1.00		0.08	1.00		0.03	1.00		0.59	1.00		0.31
Lane Grp Cap(c), veh/h	35	0	794	50	0	817	157	0	291	50	0	199
V/C Ratio(X)	0.60	0.00	0.77	0.64	0.00	0.53	0.78	0.00	0.68	0.64	0.00	0.34
Avail Cap(c_a), veh/h	141	0	1244	141	0	1256	318	0	706	177	0	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	11.6	23.6	0.0	9.8	21.9	0.0	19.0	23.6	0.0	20.1
Incr Delay (d2), s/veh	15.0	0.0	1.6	12.7	0.0	0.5	8.1	0.0	2.8	12.7	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	7.3	0.6	0.0	4.3	2.0	0.0	2.8	0.6	0.0	0.9
LnGrp Delay(d),s/veh	38.9	0.0	13.2	36.4	0.0	10.3	30.0	0.0	21.8	36.4	0.0	21.1
LnGrp LOS	D		B	D		B	C		C	D		C
Approach Vol, veh/h		632			462			321			100	
Approach Delay, s/veh		14.1			12.1			24.9			26.0	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.4	12.7	5.4	25.7	8.4	9.7	5.0	26.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	5.0	21.0	4.0	34.0	9.0	17.0	4.0	34.0				
Max Q Clear Time (g_c+I1), s	2.9	7.5	2.9	16.1	5.4	3.8	2.6	10.4				
Green Ext Time (p_c), s	0.0	1.1	0.0	5.6	0.1	1.1	0.0	6.1				
Intersection Summary												
HCM 2010 Ctrl Delay			16.6									
HCM 2010 LOS			B									

Intersection

Int Delay, s/veh 8.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	34	270	85	313	227	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	190	0	195	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	60	60	60	60	60	60
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	57	450	142	522	378	50

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1208	403	428 0
Stage 1	403	-	- -
Stage 2	805	-	- -
Critical Hdwy	6.44	6.24	4.14 -
Critical Hdwy Stg 1	5.44	-	- -
Critical Hdwy Stg 2	5.44	-	- -
Follow-up Hdwy	3.536	3.336	2.236 -
Pot Cap-1 Maneuver	200	643	1121 -
Stage 1	671	-	- -
Stage 2	436	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	175	643	1121 -
Mov Cap-2 Maneuver	175	-	- -
Stage 1	671	-	- -
Stage 2	381	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	24	1.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1121	-	175	643	-	-
HCM Lane V/C Ratio	0.126	-	0.324	0.7	-	-
HCM Control Delay (s)	8.7	-	35.1	22.6	-	-
HCM Lane LOS	A	-	E	C	-	-
HCM 95th %tile Q(veh)	0.4	-	1.3	5.7	-	-

Intersection									
Intersection Delay, s/veh	57.8								
Intersection LOS	F								
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Vol, veh/h	0	52	472	0	492	332	0	415	167
Peak Hour Factor	0.92	0.93	0.93	0.92	0.93	0.93	0.92	0.93	0.93
Heavy Vehicles, %	2	4	4	2	4	4	2	4	4
Mvmt Flow	0	56	508	0	529	357	0	446	180
Number of Lanes	0	0	1	0	2	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	68.5	52.6	55.4
HCM LOS	F	F	F

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	10%	0%	0%	100%	0%
Vol Thru, %	90%	100%	33%	0%	0%
Vol Right, %	0%	0%	67%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	524	328	496	415	167
LT Vol	52	0	0	415	0
Through Vol	472	328	164	0	0
RT Vol	0	0	332	0	167
Lane Flow Rate	563	353	533	446	180
Geometry Grp	4	7	7	7	7
Degree of Util (X)	1	0.757	1	1	0.351
Departure Headway (Hd)	7.476	7.732	7.264	8.271	7.036
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	490	473	501	442	508
Service Time	5.476	5.432	4.964	6.013	4.814
HCM Lane V/C Ratio	1.149	0.746	1.064	1.009	0.354
HCM Control Delay	68.5	30.7	67.1	72.2	13.6
HCM Lane LOS	F	D	F	F	B
HCM 95th-tile Q	13.4	6.4	13.6	12.7	1.6

Intersection									
Intersection Delay, s/veh	57.4								
Intersection LOS	F								
Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	287	575	0	6	202	0	655	23
Peak Hour Factor	0.92	0.91	0.91	0.92	0.91	0.91	0.92	0.91	0.91
Heavy Vehicles, %	2	5	5	2	5	5	2	5	5
Mvmt Flow	0	315	632	0	7	222	0	720	25
Number of Lanes	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	2
HCM Control Delay	61.8	16.9	64.2
HCM LOS	F	C	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2
Vol Left, %	97%	0%	100%	0%
Vol Thru, %	0%	33%	0%	100%
Vol Right, %	3%	67%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	678	862	6	202
LT Vol	655	0	6	0
Through Vol	0	287	0	202
RT Vol	23	575	0	0
Lane Flow Rate	745	947	7	222
Geometry Grp	2	5	7	7
Degree of Util (X)	1	1	0.015	0.474
Departure Headway (Hd)	6.558	6.086	8.182	7.682
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	551	597	440	473
Service Time	4.627	4.155	5.882	5.382
HCM Lane V/C Ratio	1.352	1.586	0.016	0.469
HCM Control Delay	64.2	61.8	11	17.1
HCM Lane LOS	F	F	B	C
HCM 95th-tile Q	14.3	14.8	0	2.5

Intersection

Int Delay, s/veh 48.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	216	110	42	193	193	211
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	85	85	85	85	85	85
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	254	129	49	227	227	248

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	276	0	801
Stage 1	-	-	163
Stage 2	-	-	638
Critical Hdwy	4.16	-	6.46
Critical Hdwy Stg 1	-	-	5.46
Critical Hdwy Stg 2	-	-	5.46
Follow-up Hdwy	2.254	-	3.554
Pot Cap-1 Maneuver	1264	-	348
Stage 1	-	-	856
Stage 2	-	-	519
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1264	-	272
Mov Cap-2 Maneuver	-	-	272
Stage 1	-	-	856
Stage 2	-	-	406

Approach	EB	WB	SB
HCM Control Delay, s	5.7	0	111.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1264	-	-	-	424
HCM Lane V/C Ratio	0.201	-	-	-	1.121
HCM Control Delay (s)	8.6	0	-	-	111.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.8	-	-	-	16.9

Intersection

Int Delay, s/veh 5.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	85	167	229	77	183	210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	120	-	-	420	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	88	172	236	79	189	216

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	870	276	0
Stage 1	276	-	-
Stage 2	594	-	-
Critical Hdwy	6.47	6.27	4.17
Critical Hdwy Stg 1	5.47	-	-
Critical Hdwy Stg 2	5.47	-	-
Follow-up Hdwy	3.563	3.363	2.263
Pot Cap-1 Maneuver	316	751	1217
Stage 1	759	-	-
Stage 2	542	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	267	751	1217
Mov Cap-2 Maneuver	267	-	-
Stage 1	759	-	-
Stage 2	458	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	267	751	1217	-
HCM Lane V/C Ratio	-	-	0.328	0.229	0.155	-
HCM Control Delay (s)	-	-	24.9	11.2	8.5	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.4	0.9	0.5	-

Intersection													
Int Delay, s/veh	5.9												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	37	275	0	0	50	232	224	3	14	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	39	289	0	0	53	244	236	3	15	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	297	0	0	289	0	0	542	664	289
Stage 1	-	-	-	-	-	-	367	367	-
Stage 2	-	-	-	-	-	-	175	297	-
Critical Hdwy	4.15	-	-	4.15	-	-	6.45	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	5.45	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.45	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345
Pot Cap-1 Maneuver	1247	-	-	1256	-	-	496	377	743
Stage 1	-	-	-	-	-	-	694	617	-
Stage 2	-	-	-	-	-	-	848	662	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1247	-	-	1256	-	-	478	0	743
Mov Cap-2 Maneuver	-	-	-	-	-	-	478	0	-
Stage 1	-	-	-	-	-	-	668	0	-
Stage 2	-	-	-	-	-	-	848	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.9	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	478	743	1247	-	-	1256	-	-
HCM Lane V/C Ratio	0.5	0.02	0.031	-	-	-	-	-
HCM Control Delay (s)	19.8	9.9	8	0	-	0	-	-
HCM Lane LOS	C	A	A	A	-	A	-	-
HCM 95th %tile Q(veh)	2.7	0.1	0.1	-	-	0	-	-

Intersection													
Int Delay, s/veh	5.7												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	80	269	8	269	0	0	0	0	234	1	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	86	289	9	289	0	0	0	0	252	1	48

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	289	0	0	375	0	0	537	681	289
Stage 1	-	-	-	-	-	-	306	306	-
Stage 2	-	-	-	-	-	-	231	375	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.44	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.54	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.536	4.036	3.336
Pot Cap-1 Maneuver	1262	-	-	1173	-	-	501	370	745
Stage 1	-	-	-	-	-	-	742	658	-
Stage 2	-	-	-	-	-	-	803	614	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1262	-	-	1173	-	-	496	0	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	496	0	-
Stage 1	-	-	-	-	-	-	735	0	-
Stage 2	-	-	-	-	-	-	803	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.2	18.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1262	-	-	1173	-	-	496	745
HCM Lane V/C Ratio	-	-	-	0.007	-	-	0.509	0.065
HCM Control Delay (s)	0	-	-	8.1	0	-	19.6	10.2
HCM Lane LOS	A	-	-	A	A	-	C	B
HCM 95th %tile Q(veh)	0	-	-	0	-	-	2.8	0.2

Intersection												
Int Delay, s/veh	4.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	302	198	69	233	0	0	0	0	63	3	278
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	165	0	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	325	213	74	251	0	0	0	0	68	3	299

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	251	0	0	325	0	0	724	724	251
Stage 1	-	-	-	-	-	-	399	399	-
Stage 2	-	-	-	-	-	-	325	325	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.43	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327
Pot Cap-1 Maneuver	1309	-	-	1229	-	-	391	351	785
Stage 1	-	-	-	-	-	-	676	600	-
Stage 2	-	-	-	-	-	-	730	647	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1309	-	-	1229	-	-	367	0	785
Mov Cap-2 Maneuver	-	-	-	-	-	-	367	0	-
Stage 1	-	-	-	-	-	-	635	0	-
Stage 2	-	-	-	-	-	-	730	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.9	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1309	-	-	1229	-	-	367	785
HCM Lane V/C Ratio	-	-	-	0.06	-	-	0.193	0.381
HCM Control Delay (s)	0	-	-	8.1	-	-	17.1	12.4
HCM Lane LOS	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	0.2	-	-	0.7	1.8

Intersection												
Int Delay, s/veh	11.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	222	146	0	0	118	13	176	0	59	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	0	-	-	-	-	180	-	-	190	-	-	-
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	244	160	0	0	130	14	193	0	65	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	130	0	0	160	0	0	778	778	160
Stage 1	-	-	-	-	-	-	648	648	-
Stage 2	-	-	-	-	-	-	130	130	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.44	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.54	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.536	4.036	3.336
Pot Cap-1 Maneuver	1443	-	-	1407	-	-	362	325	880
Stage 1	-	-	-	-	-	-	517	463	-
Stage 2	-	-	-	-	-	-	891	785	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1443	-	-	1407	-	-	301	0	880
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	0	-
Stage 1	-	-	-	-	-	-	430	0	-
Stage 2	-	-	-	-	-	-	891	0	-

Approach	EB	WB	NB
HCM Control Delay, s	4.8	0	29.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	301	880	1443	-	-	1407	-	-
HCM Lane V/C Ratio	0.643	0.074	0.169	-	-	-	-	-
HCM Control Delay (s)	36.2	9.4	8	-	-	0	-	-
HCM Lane LOS	E	A	A	-	-	A	-	-
HCM 95th %tile Q(veh)	4.1	0.2	0.6	-	-	0	-	-

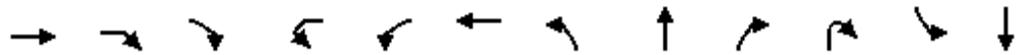
HCM 2010 Signalized Intersection Summary
 9: 101 NB Ramps & Tefft Street

2035 NO BUILD Conditions
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	411	1146	0	0	1023	305	401	1	256	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1827	0	0	1827	1900	1827	1827	1900			
Adj Flow Rate, veh/h	419	1169	0	0	1044	311	336	104	261			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	420	2314	0	0	1035	306	464	123	309			
Arrive On Green	0.48	1.00	0.00	0.00	0.78	0.78	0.27	0.27	0.27			
Sat Flow, veh/h	1740	3563	0	0	2735	781	1740	462	1160			
Grp Volume(v), veh/h	419	1169	0	0	683	672	336	0	365			
Grp Sat Flow(s),veh/h/ln	1740	1736	0	0	1736	1689	1740	0	1622			
Q Serve(g_s), s	28.8	0.0	0.0	0.0	47.0	47.0	21.1	0.0	25.5			
Cycle Q Clear(g_c), s	28.8	0.0	0.0	0.0	47.0	47.0	21.1	0.0	25.5			
Prop In Lane	1.00		0.00	0.00		0.46	1.00		0.72			
Lane Grp Cap(c), veh/h	420	2314	0	0	680	662	464	0	433			
V/C Ratio(X)	1.00	0.51	0.00	0.00	1.00	1.02	0.72	0.00	0.84			
Avail Cap(c_a), veh/h	420	2314	0	0	680	662	464	0	433			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.09	0.09	1.00	0.00	1.00			
Uniform Delay (d), s/veh	30.9	0.0	0.0	0.0	13.0	13.0	40.0	0.0	41.6			
Incr Delay (d2), s/veh	12.3	0.1	0.0	0.0	11.4	14.8	9.5	0.0	17.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	14.9	0.0	0.0	0.0	23.3	23.3	11.3	0.0	13.6			
LnGrp Delay(d),s/veh	43.3	0.1	0.0	0.0	24.4	27.8	49.5	0.0	59.5			
LnGrp LOS	D	A			F	F	D		E			
Approach Vol, veh/h		1588			1355			701				
Approach Delay, s/veh		11.5			26.1			54.7				
Approach LOS		B			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		36.0		84.0			33.0	51.0				
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0				
Max Green Setting (Gmax), s		32.0		80.0			29.0	47.0				
Max Q Clear Time (g_c+I1), s		27.5		2.0			30.8	49.0				
Green Ext Time (p_c), s		1.5		14.6			0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				25.2								
HCM 2010 LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM Signalized Intersection Capacity Analysis
 10: Frontage Road/101 SB Off Ramp & Tefft Street

2035 NO BUILD Conditions
 PM Peak Hour



Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR	NBR2	SBL2	SBT
Lane Configurations	↑↑	↔			↔	↑↑		↔				↑
Volume (vph)	815	295	38	236	282	889	44	0	364	105	330	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				4.0
Lane Util. Factor	0.95	1.00			1.00	0.95		1.00				1.00
Frt	1.00	0.85			1.00	1.00		0.88				1.00
Flt Protected	1.00	1.00			0.95	1.00		1.00				0.97
Satd. Flow (prot)	3610	1583			1770	3539		1626				1809
Flt Permitted	1.00	1.00			0.95	1.00		1.00				0.97
Satd. Flow (perm)	3610	1583			1770	3539		1626				1809
Peak-hour factor, PHF	0.95	0.92	0.95	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.95	0.95
Adj. Flow (vph)	858	321	40	257	297	936	46	0	383	114	347	240
RTOR Reduction (vph)	0	63	0	0	0	0	0	69	0	0	0	0
Lane Group Flow (vph)	858	298	0	0	554	936	0	474	0	0	0	587
Heavy Vehicles (%)	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	NA	Perm		Prot	Prot	NA	Split	NA			Split	NA
Protected Phases	4			3	3	8	2	2			6	6
Permitted Phases		4										
Actuated Green, G (s)	28.0	28.0			23.0	55.0		19.0				34.0
Effective Green, g (s)	28.0	28.0			23.0	55.0		19.0				34.0
Actuated g/C Ratio	0.23	0.23			0.19	0.46		0.16				0.28
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				3.0
Lane Grp Cap (vph)	842	369			339	1622		257				512
v/s Ratio Prot	c0.24				c0.31	0.26		c0.29				c0.32
v/s Ratio Perm		0.19										
v/c Ratio	1.02	0.81			1.63	0.58		1.84				1.15
Uniform Delay, d1	46.0	43.5			48.5	23.9		50.5				43.0
Progression Factor	0.46	0.33			1.04	0.27		1.00				1.00
Incremental Delay, d2	31.6	13.2			290.4	0.6		394.7				86.8
Delay (s)	52.6	27.6			340.8	7.1		445.2				129.8
Level of Service	D	C			F	A		F				F
Approach Delay (s)	45.2					131.2		445.2				93.3
Approach LOS	D					F		F				F

Intersection Summary

HCM 2000 Control Delay	136.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	126.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	516
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	543
RTOR Reduction (vph)	184
Lane Group Flow (vph)	359
Heavy Vehicles (%)	2%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	34.0
Effective Green, g (s)	34.0
Actuated g/C Ratio	0.28
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	448
v/s Ratio Prot	
v/s Ratio Perm	0.23
v/c Ratio	0.80
Uniform Delay, d1	39.9
Progression Factor	1.00
Incremental Delay, d2	14.0
Delay (s)	53.8
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 2010 methodology does not support more than 4 approaches.

Intersection												
Int Delay, s/veh	9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	46	604	351	584	0	0	0	0	35	1	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	0	46	610	355	590	0	0	0	0	35	1	37

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	590	0	0	657	0	0	1651	1956	590
Stage 1	-	-	-	-	-	-	1299	1299	-
Stage 2	-	-	-	-	-	-	352	657	-
Critical Hdwy	4.16	-	-	4.16	-	-	6.46	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	5.46	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.46	5.56	-
Follow-up Hdwy	2.254	-	-	2.254	-	-	3.554	4.054	3.354
Pot Cap-1 Maneuver	966	-	-	912	-	-	106	62	500
Stage 1	-	-	-	-	-	-	251	227	-
Stage 2	-	-	-	-	-	-	703	456	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	966	-	-	912	-	-	45	0	500
Mov Cap-2 Maneuver	-	-	-	-	-	-	45	0	-
Stage 1	-	-	-	-	-	-	106	0	-
Stage 2	-	-	-	-	-	-	703	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.3	149.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	966	-	-	912	-	-	85
HCM Lane V/C Ratio	-	-	-	0.389	-	-	0.867
HCM Control Delay (s)	0	-	-	11.4	0	-	149.5
HCM Lane LOS	A	-	-	B	A	-	F
HCM 95th %tile Q(veh)	0	-	-	1.9	-	-	4.6

Intersection												
Intersection Delay, s/veh	37.1											
Intersection LOS	E											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	29	29	0	0	0	338	25	0	590	2	421
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	7	7	7	2	7	7	7	2	7	7	7
Mvmt Flow	0	31	31	0	0	0	363	27	0	634	2	453
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	10.7	19.4	44.9
HCM LOS	B	C	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	50%	0%
Vol Thru, %	0%	0%	50%	93%
Vol Right, %	0%	100%	0%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	592	421	58	363
LT Vol	590	0	29	0
Through Vol	2	0	29	338
RT Vol	0	421	0	25
Lane Flow Rate	637	453	62	390
Geometry Grp	7	7	2	2
Degree of Util (X)	1	0.674	0.116	0.648
Departure Headway (Hd)	6.573	5.36	6.724	5.979
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	560	679	531	605
Service Time	4.273	3.06	4.789	3.995
HCM Lane V/C Ratio	1.137	0.667	0.117	0.645
HCM Control Delay	63.7	18.4	10.7	19.4
HCM Lane LOS	F	C	B	C
HCM 95th-tile Q	14.3	5.2	0.4	4.7

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	0
Peak Hour Factor	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	7	7	7
Mvmt Flow	0	0	0	0
Number of Lanes	0	0	0	0

Approach

Opposing Approach

Opposing Lanes

Conflicting Approach Left

Conflicting Lanes Left

Conflicting Approach Right

Conflicting Lanes Right

HCM Control Delay

HCM LOS

Lane

HCM research does not support more than two 'Stop' controlled approaches at the intersection.

Intersection

Int Delay, s/veh 7.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	317	111	89	6	3	268
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	93	93	93	93	93	93
Heavy Vehicles, %	14	14	14	14	14	14
Mvmt Flow	341	119	96	6	3	288

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	102	0	900
Stage 1	-	-	99
Stage 2	-	-	801
Critical Hdwy	4.24	-	6.54
Critical Hdwy Stg 1	-	-	5.54
Critical Hdwy Stg 2	-	-	5.54
Follow-up Hdwy	2.326	-	3.626
Pot Cap-1 Maneuver	1418	-	294
Stage 1	-	-	896
Stage 2	-	-	422
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1418	-	218
Mov Cap-2 Maneuver	-	-	218
Stage 1	-	-	896
Stage 2	-	-	313

Approach	EB	WB	SB
HCM Control Delay, s	6.2	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1418	-	-	-	893
HCM Lane V/C Ratio	0.24	-	-	-	0.326
HCM Control Delay (s)	8.3	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.9	-	-	-	1.4

Intersection

Int Delay, s/veh 12

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	7	220	89	7	289	73
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	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	256	103	8	336	85

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	264
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1300
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1300
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.4	20.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	639	-	-	1300	-
HCM Lane V/C Ratio	0.659	-	-	0.08	-
HCM Control Delay (s)	20.8	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	4.9	-	-	0.3	-

HCM 2010 Signalized Intersection Summary
 17: Halcyon Road & Highway 1

2035 NO BUILD Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	130	267	64	134	28	394	139	34	42	184	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	13	143	293	70	147	31	433	153	37	46	202	21
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	67	402	761	126	212	39	452	758	183	143	579	60
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.26	0.53	0.53	0.08	0.35	0.35
Sat Flow, veh/h	61	1762	1568	277	930	172	1757	1436	347	1757	1644	171
Grp Volume(v), veh/h	156	0	293	248	0	0	433	0	190	46	0	223
Grp Sat Flow(s),veh/h/ln	1823	0	1568	1379	0	0	1757	0	1783	1757	0	1815
Q Serve(g_s), s	0.0	0.0	0.0	7.4	0.0	0.0	17.9	0.0	4.2	1.8	0.0	6.7
Cycle Q Clear(g_c), s	5.3	0.0	0.0	12.7	0.0	0.0	17.9	0.0	4.2	1.8	0.0	6.7
Prop In Lane	0.08		1.00	0.28		0.12	1.00		0.19	1.00		0.09
Lane Grp Cap(c), veh/h	469	0	761	377	0	0	452	0	942	143	0	639
V/C Ratio(X)	0.33	0.00	0.38	0.66	0.00	0.00	0.96	0.00	0.20	0.32	0.00	0.35
Avail Cap(c_a), veh/h	616	0	892	496	0	0	452	0	942	143	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.0	0.0	12.0	26.8	0.0	0.0	27.0	0.0	9.2	32.0	0.0	17.7
Incr Delay (d2), s/veh	0.4	0.0	0.3	2.0	0.0	0.0	31.7	0.0	0.5	1.3	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	3.8	5.0	0.0	0.0	12.6	0.0	2.1	0.9	0.0	3.6
LnGrp Delay(d),s/veh	24.4	0.0	12.3	28.7	0.0	0.0	58.8	0.0	9.7	33.3	0.0	19.2
LnGrp LOS	C		B	C			E		A	C		B
Approach Vol, veh/h		449			248			623			269	
Approach Delay, s/veh		16.5			28.7			43.8			21.6	
Approach LOS		B			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	43.0		20.9	23.0	30.0		20.9				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	6.0	39.0		23.0	19.0	26.0		23.0				
Max Q Clear Time (g_c+I1), s	3.8	6.2		7.3	19.9	8.7		14.7				
Green Ext Time (p_c), s	0.4	1.0		3.0	0.0	1.0		2.2				
Intersection Summary												
HCM 2010 Ctrl Delay			30.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 18: Orchard Road & Division Street

2035 NO BUILD Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	95	61	133	118	231	103	157	120	107	171	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	59	100	0	140	124	243	108	165	126	113	180	83
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	131	180	193	171	318	283	387	295	143	588	500
Arrive On Green	0.11	0.11	0.00	0.20	0.20	0.20	0.16	0.39	0.39	0.08	0.32	0.32
Sat Flow, veh/h	679	1150	1583	962	852	1583	1774	981	749	1774	1863	1583
Grp Volume(v), veh/h	159	0	0	264	0	243	108	0	291	113	180	83
Grp Sat Flow(s),veh/h/ln	1829	0	1583	1815	0	1583	1774	0	1731	1774	1863	1583
Q Serve(g_s), s	6.4	0.0	0.0	10.4	0.0	11.0	4.1	0.0	9.3	4.8	5.6	2.9
Cycle Q Clear(g_c), s	6.4	0.0	0.0	10.4	0.0	11.0	4.1	0.0	9.3	4.8	5.6	2.9
Prop In Lane	0.37		1.00	0.53		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	208	0	180	364	0	318	283	0	682	143	588	500
V/C Ratio(X)	0.76	0.00	0.00	0.73	0.00	0.77	0.38	0.00	0.43	0.79	0.31	0.17
Avail Cap(c_a), veh/h	529	0	458	954	0	833	303	0	682	163	588	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	0.0	0.0	28.4	0.0	28.7	28.6	0.0	16.8	34.3	19.7	18.8
Incr Delay (d2), s/veh	5.7	0.0	0.0	2.8	0.0	3.8	0.8	0.0	1.9	20.1	1.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	0.0	5.5	0.0	5.1	2.1	0.0	4.8	3.1	3.1	1.3
LnGrp Delay(d),s/veh	38.4	0.0	0.0	31.2	0.0	32.6	29.4	0.0	18.7	54.4	21.1	19.5
LnGrp LOS	D			C		C	C		B	D	C	B
Approach Vol, veh/h		159			507			399			376	
Approach Delay, s/veh		38.4			31.9			21.6			30.7	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	34.0		12.7	16.1	28.0		19.3				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		22.0	13.0	24.0		40.0				
Max Q Clear Time (g_c+I1), s	6.8	11.3		8.4	6.1	7.6		13.0				
Green Ext Time (p_c), s	0.0	1.8		0.6	1.1	1.0		2.2				
Intersection Summary												
HCM 2010 Ctrl Delay			29.5									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	300	52	10	250	44	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	353	61	12	294	52	19

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	414
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.13
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.227
Pot Cap-1 Maneuver	-	-	1140
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1140
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	538	-	-	1140	-
HCM Lane V/C Ratio	0.131	-	-	0.01	-
HCM Control Delay (s)	12.7	-	-	8.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection

Int Delay, s/veh 3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	49	105	290	48	69	284
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	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	117	322	53	77	316

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	818	349	0
Stage 1	349	-	-
Stage 2	469	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	346	694	1182
Stage 1	714	-	-
Stage 2	630	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	323	694	1182
Mov Cap-2 Maneuver	323	-	-
Stage 1	714	-	-
Stage 2	589	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	508	1182
HCM Lane V/C Ratio	-	-	0.337	0.065
HCM Control Delay (s)	-	-	15.6	8.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.5	0.2

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	14	15	262	18	10	253
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	16	273	19	10	264

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	566	282	0
Stage 1	282	-	-
Stage 2	284	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	486	757	1270
Stage 1	766	-	-
Stage 2	764	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	482	757	1270
Mov Cap-2 Maneuver	482	-	-
Stage 1	766	-	-
Stage 2	757	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	594	1270	-
HCM Lane V/C Ratio	-	-	0.051	0.008	-
HCM Control Delay (s)	-	-	11.4	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

HCM 2010 Signalized Intersection Summary
 22: Tefft Street & Mary Avenue

2035 NO BUILD Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	614	74	265	800	207	99	78	138	393	74	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	79	646	78	279	842	218	104	82	145	278	269	63
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	767	343	148	743	192	488	512	567	517	426	100
Arrive On Green	0.03	0.22	0.22	0.17	0.53	0.53	0.28	0.28	0.28	0.29	0.29	0.29
Sat Flow, veh/h	1774	3539	1583	1774	2784	721	1774	1863	1583	1774	1460	342
Grp Volume(v), veh/h	79	646	78	279	535	525	104	82	145	278	0	332
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1736	1774	1863	1583	1774	0	1802
Q Serve(g_s), s	4.0	21.0	4.9	10.0	32.0	32.0	5.4	4.0	0.0	15.8	0.0	19.2
Cycle Q Clear(g_c), s	4.0	21.0	4.9	10.0	32.0	32.0	5.4	4.0	0.0	15.8	0.0	19.2
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	59	767	343	148	472	463	488	512	567	517	0	526
V/C Ratio(X)	1.34	0.84	0.23	1.89	1.13	1.13	0.21	0.16	0.26	0.54	0.00	0.63
Avail Cap(c_a), veh/h	59	767	343	148	472	463	488	512	567	517	0	526
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.68	0.68	0.68	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.0	45.0	38.7	50.0	28.0	28.0	33.5	33.0	27.2	35.7	0.0	36.9
Incr Delay (d2), s/veh	230.5	10.9	1.5	416.0	77.2	77.7	1.0	0.7	1.1	4.0	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	11.4	2.3	21.9	25.3	24.9	2.8	2.1	3.6	8.3	0.0	10.3
LnGrp Delay(d),s/veh	288.5	55.9	40.3	466.0	105.2	105.7	34.5	33.7	28.3	39.7	0.0	42.6
LnGrp LOS	F	E	D	F	F	F	C	C	C	D		D
Approach Vol, veh/h		803			1339			331			610	
Approach Delay, s/veh		77.3			180.6			31.6			41.2	
Approach LOS		E			F			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.0	14.0	30.0		39.0	8.0	36.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		33.0	10.0	26.0		35.0	4.0	32.0				
Max Q Clear Time (g_c+I1), s		7.4	12.0	23.0		21.2	6.0	34.0				
Green Ext Time (p_c), s		1.2	0.0	1.3		2.4	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			110.1									
HCM 2010 LOS			F									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection												
Int Delay, s/veh	11.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	181	5	37	1	1	4	49	192	2	7	304	161
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	203	6	42	1	1	4	55	216	2	8	342	181

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	778	776	432	798	865	217	522	0	0	218	0	0
Stage 1	448	448	-	327	327	-	-	-	-	-	-	-
Stage 2	330	328	-	471	538	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	314	328	624	304	292	823	1044	-	-	1352	-	-
Stage 1	590	573	-	686	648	-	-	-	-	-	-	-
Stage 2	683	647	-	573	522	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	297	309	624	267	275	823	1044	-	-	1352	-	-
Mov Cap-2 Maneuver	297	309	-	267	275	-	-	-	-	-	-	-
Stage 1	559	570	-	650	614	-	-	-	-	-	-	-
Stage 2	642	613	-	526	519	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	44.8			12.4			1.7			0.1		
HCM LOS	E			B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1044	-	-	326	490	1352	-	-
HCM Lane V/C Ratio	0.053	-	-	0.769	0.014	0.006	-	-
HCM Control Delay (s)	8.6	-	-	44.8	12.4	7.7	-	-
HCM Lane LOS	A	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	6.1	0	0	-	-

HCM 2010 Signalized Intersection Summary
24: Tefft Street & Oakglen Avenue

2035 NO BUILD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	450	672	65	66	757	111	5	21	62	90	21	450
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	479	715	69	70	805	118	5	22	66	96	22	479
Adj No. of Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	325	962	818	89	609	89	3	13	39	69	16	347
Arrive On Green	0.37	1.00	1.00	0.05	0.38	0.38	0.03	0.03	0.03	0.27	0.27	0.27
Sat Flow, veh/h	1774	1863	1583	1774	1589	233	89	391	1172	261	60	1300
Grp Volume(v), veh/h	479	715	69	70	0	923	93	0	0	597	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1822	1651	0	0	1620	0	0
Q Serve(g_s), s	22.0	0.0	0.0	4.7	0.0	46.0	4.0	0.0	0.0	32.0	0.0	0.0
Cycle Q Clear(g_c), s	22.0	0.0	0.0	4.7	0.0	46.0	4.0	0.0	0.0	32.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.13	0.05		0.71	0.16		0.80
Lane Grp Cap(c), veh/h	325	962	818	89	0	698	55	0	0	432	0	0
V/C Ratio(X)	1.47	0.74	0.08	0.78	0.00	1.32	1.69	0.00	0.00	1.38	0.00	0.00
Avail Cap(c_a), veh/h	325	962	818	103	0	698	55	0	0	432	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	38.0	0.0	0.0	56.3	0.0	37.0	58.0	0.0	0.0	44.0	0.0	0.0
Incr Delay (d2), s/veh	226.6	4.5	0.2	28.0	0.0	154.7	376.3	0.0	0.0	185.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	31.1	1.2	0.0	3.0	0.0	53.1	7.6	0.0	0.0	36.6	0.0	0.0
LnGrp Delay(d),s/veh	264.6	4.5	0.2	84.4	0.0	191.7	434.3	0.0	0.0	229.7	0.0	0.0
LnGrp LOS	F	A	A	F		F	F			F		
Approach Vol, veh/h		1263			993			93			597	
Approach Delay, s/veh		102.9			184.1			434.3			229.7	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.0	10.0	66.0		36.0	26.0	50.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		4.0	7.0	61.0		32.0	22.0	46.0				
Max Q Clear Time (g_c+I1), s		6.0	6.7	2.0		34.0	24.0	48.0				
Green Ext Time (p_c), s		0.0	0.0	8.3		0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			166.4									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary
 25: Orchard Road & Tefft Street

2035 NO BUILD Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	348	63	208	411	102	68	75	189	112	60	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	2	382	69	229	452	112	75	82	208	123	66	0
Adj No. of Lanes	1	1	1	1	1	1	0	1	1	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	574	843	716	261	514	437	96	105	407	153	82	0
Arrive On Green	0.32	0.45	0.45	0.15	0.28	0.28	0.11	0.11	0.11	0.13	0.13	0.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	869	950	1583	1174	630	0
Grp Volume(v), veh/h	2	382	69	229	452	112	157	0	208	189	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1819	0	1583	1804	0	0
Q Serve(g_s), s	0.1	14.1	2.5	12.6	23.2	5.5	8.4	0.0	11.0	10.2	0.0	0.0
Cycle Q Clear(g_c), s	0.1	14.1	2.5	12.6	23.2	5.5	8.4	0.0	11.0	10.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.48		1.00	0.65		0.00
Lane Grp Cap(c), veh/h	574	843	716	261	514	437	200	0	407	236	0	0
V/C Ratio(X)	0.00	0.45	0.10	0.88	0.88	0.26	0.78	0.00	0.51	0.80	0.00	0.00
Avail Cap(c_a), veh/h	574	843	716	284	708	602	200	0	407	559	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.9	18.9	15.7	41.8	34.6	28.2	43.3	0.0	31.8	42.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	0.3	22.9	18.1	1.3	18.2	0.0	1.1	6.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.6	1.1	7.8	14.5	2.6	5.2	0.0	5.0	5.5	0.0	0.0
LnGrp Delay(d),s/veh	22.9	20.6	15.9	64.7	52.7	29.6	61.6	0.0	32.8	48.5	0.0	0.0
LnGrp LOS	C	C	B	E	D	C	E		C	D		
Approach Vol, veh/h		453			793			365			189	
Approach Delay, s/veh		19.9			52.9			45.2			48.5	
Approach LOS		B			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.7	49.2		17.1	36.4	31.6		15.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	16.0	26.0		31.0	4.0	38.0		11.0				
Max Q Clear Time (g_c+I1), s	14.6	16.1		12.2	2.1	25.2		13.0				
Green Ext Time (p_c), s	0.1	1.6		1.0	0.5	2.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			42.6									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 26: Tefft Street & Pomeroy Road

2035 NO BUILD Conditions
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	135	387	477	172	182	132		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1845		
Adj Flow Rate, veh/h	147	421	518	187	198	143		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	3	3	3	3	3	3		
Cap, veh/h	873	2746	623	224	240	214		
Arrive On Green	0.33	0.52	0.25	0.25	0.14	0.14		
Sat Flow, veh/h	1757	3597	2620	909	1757	1568		
Grp Volume(v), veh/h	147	421	358	347	198	143		
Grp Sat Flow(s),veh/h/ln	1757	1752	1752	1684	1757	1568		
Q Serve(g_s), s	5.9	6.2	19.4	19.5	11.0	8.7		
Cycle Q Clear(g_c), s	5.9	6.2	19.4	19.5	11.0	8.7		
Prop In Lane	1.00			0.54	1.00	1.00		
Lane Grp Cap(c), veh/h	873	2746	432	415	240	214		
V/C Ratio(X)	0.17	0.15	0.83	0.84	0.83	0.67		
Avail Cap(c_a), veh/h	873	2746	578	556	387	345		
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.88	0.88	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	18.7	6.6	35.7	35.8	42.0	41.0		
Incr Delay (d2), s/veh	0.1	0.1	16.7	17.8	7.6	3.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.9	3.0	11.4	11.1	5.8	7.6		
LnGrp Delay(d),s/veh	18.8	6.7	52.4	53.5	49.6	44.6		
LnGrp LOS	B	A	D	D	D	D		
Approach Vol, veh/h		568	705		341			
Approach Delay, s/veh		9.9	52.9		47.5			
Approach LOS		A	D		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		82.3		17.7	53.7	28.6		
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s		70.0		22.0	33.0	33.0		
Max Q Clear Time (g_c+I1), s		8.2		13.0	7.9	21.5		
Green Ext Time (p_c), s		3.1		0.7	2.9	3.1		
Intersection Summary								
HCM 2010 Ctrl Delay			36.6					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary
 27: Thompson Avenue & Tefft Street

2035 NO BUILD Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	149	32	189	21	23	32	169	272	32	11	236	185
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	157	34	199	22	24	34	178	286	34	12	248	195
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	196	283	241	35	114	97	247	949	113	21	844	892
Arrive On Green	0.11	0.15	0.15	0.02	0.06	0.06	0.14	0.59	0.59	0.01	0.46	0.46
Sat Flow, veh/h	1757	1845	1568	1757	1845	1568	1757	1618	192	1757	1845	1568
Grp Volume(v), veh/h	157	34	199	22	24	34	178	0	320	12	248	195
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1757	0	1811	1757	1845	1568
Q Serve(g_s), s	6.1	1.1	6.0	0.9	0.9	1.3	6.8	0.0	6.2	0.5	5.9	1.2
Cycle Q Clear(g_c), s	6.1	1.1	6.0	0.9	0.9	1.3	6.8	0.0	6.2	0.5	5.9	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	196	283	241	35	114	97	247	0	1061	21	844	892
V/C Ratio(X)	0.80	0.12	0.83	0.63	0.21	0.35	0.72	0.00	0.30	0.57	0.29	0.22
Avail Cap(c_a), veh/h	276	897	762	126	738	628	326	0	1061	100	844	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	25.5	14.0	34.0	31.2	23.6	28.7	0.0	7.3	34.4	11.9	2.1
Incr Delay (d2), s/veh	10.6	0.2	7.1	17.2	0.9	2.2	5.2	0.0	0.7	22.5	0.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.6	3.0	0.6	0.5	0.6	3.6	0.0	3.3	0.4	3.2	1.0
LnGrp Delay(d),s/veh	40.9	25.7	21.1	51.2	32.1	25.8	33.9	0.0	8.0	56.9	12.8	2.7
LnGrp LOS	D	C	C	D	C	C	C		A	E	B	A
Approach Vol, veh/h		390			80			498			455	
Approach Delay, s/veh		29.5			34.7			17.3			9.6	
Approach LOS		C			C			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.8	45.0	5.4	14.7	13.8	36.0	11.8	8.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	41.0	5.0	34.0	13.0	32.0	11.0	28.0				
Max Q Clear Time (g_c+I1), s	2.5	8.2	2.9	8.0	8.8	7.9	8.1	3.3				
Green Ext Time (p_c), s	0.1	2.1	0.0	1.1	0.2	2.0	0.1	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			19.2									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 28: Nipomo High School & Thompson Avenue

2035 NO BUILD Conditions
 PM Peak Hour

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Volume (veh/h)	60	76	81	252	352	65		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	68	86	92	286	400	74		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	197	176	689	973	973	827		
Arrive On Green	0.11	0.11	0.52	0.52	0.52	0.52		
Sat Flow, veh/h	1774	1583	916	1863	1863	1583		
Grp Volume(v), veh/h	68	86	92	286	400	74		
Grp Sat Flow(s),veh/h/ln	1774	1583	916	1863	1863	1583		
Q Serve(g_s), s	0.8	1.1	1.5	1.9	2.9	0.5		
Cycle Q Clear(g_c), s	0.8	1.1	4.3	1.9	2.9	0.5		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	197	176	689	973	973	827		
V/C Ratio(X)	0.34	0.49	0.13	0.29	0.41	0.09		
Avail Cap(c_a), veh/h	1788	1596	2309	4268	4268	3628		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	9.0	9.1	4.5	2.9	3.2	2.6		
Incr Delay (d2), s/veh	1.0	2.1	0.1	0.2	0.3	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.4	1.0	1.5	0.2		
LnGrp Delay(d),s/veh	10.0	11.2	4.6	3.1	3.5	2.7		
LnGrp LOS	A	B	A	A	A	A		
Approach Vol, veh/h	154			378	474			
Approach Delay, s/veh	10.7			3.5	3.3			
Approach LOS	B			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		15.4		6.4		15.4		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		50.0		22.0		50.0		
Max Q Clear Time (g_c+I1), s		6.3		3.1		4.9		
Green Ext Time (p_c), s		5.1		0.4		5.1		
Intersection Summary								
HCM 2010 Ctrl Delay			4.5					
HCM 2010 LOS			A					

HCM Signalized Intersection Capacity Analysis
29: Willow Road & Pomeroy Road

2035 NO BUILD Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	443	98	60	404	9	90	54	54	11	60	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1812		1770	1857		1770	1723		1770	1801	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1812		1770	1857		1770	1723		1770	1801	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	466	103	63	425	9	95	57	57	12	63	18
RTOR Reduction (vph)	0	11	0	0	1	0	0	36	0	0	12	0
Lane Group Flow (vph)	29	558	0	63	433	0	95	78	0	12	69	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.7	27.1		3.7	29.1		5.8	27.6		0.7	22.5	
Effective Green, g (s)	1.7	27.1		3.7	29.1		5.8	27.6		0.7	22.5	
Actuated g/C Ratio	0.02	0.36		0.05	0.39		0.08	0.37		0.01	0.30	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	40	653		87	719		136	633		16	539	
v/s Ratio Prot	0.02	c0.31		c0.04	0.23		c0.05	c0.05		0.01	0.04	
v/s Ratio Perm												
v/c Ratio	0.72	0.85		0.72	0.60		0.70	0.12		0.75	0.13	
Uniform Delay, d1	36.5	22.2		35.2	18.4		33.8	15.7		37.1	19.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	48.4	10.6		25.6	1.4		14.5	0.4		106.0	0.5	
Delay (s)	84.9	32.8		60.8	19.8		48.3	16.1		143.1	19.6	
Level of Service	F	C		E	B		D	B		F	B	
Approach Delay (s)		35.3			25.0			30.8			35.6	
Approach LOS		D			C			C			D	

Intersection Summary

HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 29: Willow Road & Pomeroy Road

2035 NO BUILD Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	443	98	60	404	9	90	54	54	11	60	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	29	466	103	63	425	9	95	57	57	12	63	18
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	561	124	80	727	15	122	279	279	21	375	107
Arrive On Green	0.02	0.38	0.38	0.04	0.40	0.40	0.07	0.33	0.33	0.01	0.27	0.27
Sat Flow, veh/h	1774	1478	327	1774	1817	38	1774	856	856	1774	1394	398
Grp Volume(v), veh/h	29	0	569	63	0	434	95	0	114	12	0	81
Grp Sat Flow(s),veh/h/ln	1774	0	1805	1774	0	1856	1774	0	1712	1774	0	1792
Q Serve(g_s), s	1.1	0.0	19.3	2.4	0.0	12.4	3.6	0.0	3.2	0.5	0.0	2.3
Cycle Q Clear(g_c), s	1.1	0.0	19.3	2.4	0.0	12.4	3.6	0.0	3.2	0.5	0.0	2.3
Prop In Lane	1.00		0.18	1.00		0.02	1.00		0.50	1.00		0.22
Lane Grp Cap(c), veh/h	44	0	685	80	0	742	122	0	558	21	0	482
V/C Ratio(X)	0.66	0.00	0.83	0.79	0.00	0.58	0.78	0.00	0.20	0.57	0.00	0.17
Avail Cap(c_a), veh/h	131	0	883	131	0	908	210	0	558	105	0	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	18.9	31.9	0.0	15.9	30.9	0.0	16.4	33.2	0.0	18.9
Incr Delay (d2), s/veh	15.4	0.0	5.3	15.7	0.0	0.7	10.1	0.0	0.8	21.6	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	10.5	1.5	0.0	6.4	2.1	0.0	1.6	0.3	0.0	1.2
LnGrp Delay(d),s/veh	48.0	0.0	24.3	47.6	0.0	16.6	41.0	0.0	17.2	54.7	0.0	19.6
LnGrp LOS	D		C	D		B	D		B	D		B
Approach Vol, veh/h		598			497			209			93	
Approach Delay, s/veh		25.4			20.5			28.0			24.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.8	26.0	7.0	29.6	8.6	22.2	5.7	31.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	22.0	5.0	33.0	8.0	18.0	5.0	33.0				
Max Q Clear Time (g_c+I1), s	2.5	5.2	4.4	21.3	5.6	4.3	3.1	14.4				
Green Ext Time (p_c), s	0.0	0.8	0.0	4.4	0.0	0.7	0.0	5.4				
Intersection Summary												
HCM 2010 Ctrl Delay			24.0									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	45	164	93	221	245	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	190	0	195	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	51	186	106	251	278	60

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	772	309	339 0
Stage 1	309	-	- -
Stage 2	463	-	- -
Critical Hdwy	6.44	6.24	4.14 -
Critical Hdwy Stg 1	5.44	-	- -
Critical Hdwy Stg 2	5.44	-	- -
Follow-up Hdwy	3.536	3.336	2.236 -
Pot Cap-1 Maneuver	365	726	1209 -
Stage 1	740	-	- -
Stage 2	629	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	333	726	1209 -
Mov Cap-2 Maneuver	333	-	- -
Stage 1	740	-	- -
Stage 2	574	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	13	2.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1209	-	333	726	-	-
HCM Lane V/C Ratio	0.087	-	0.154	0.257	-	-
HCM Control Delay (s)	8.3	-	17.8	11.7	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	1	-	-

HCM 2010 Signalized Intersection Summary
5: 101 NB Ramps & Thompson Avenue

2035 Mitigations
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	229	0	0	93	278	154	4	5	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1810	0	0	1810	1900	1900	1810	1810			
Adj Flow Rate, veh/h	78	318	0	0	129	386	214	6	7			
Adj No. of Lanes	1	1	0	0	1	0	0	1	1			
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	100	1344	0	0	254	760	264	7	242			
Arrive On Green	0.02	0.25	0.00	0.00	0.63	0.63	0.16	0.16	0.16			
Sat Flow, veh/h	1723	1810	0	0	400	1198	1679	47	1538			
Grp Volume(v), veh/h	78	318	0	0	0	515	220	0	7			
Grp Sat Flow(s),veh/h/ln	1723	1810	0	0	0	1598	1726	0	1538			
Q Serve(g_s), s	3.6	11.3	0.0	0.0	0.0	13.9	9.8	0.0	0.3			
Cycle Q Clear(g_c), s	3.6	11.3	0.0	0.0	0.0	13.9	9.8	0.0	0.3			
Prop In Lane	1.00		0.00	0.00		0.75	0.97		1.00			
Lane Grp Cap(c), veh/h	100	1344	0	0	0	1014	272	0	242			
V/C Ratio(X)	0.78	0.24	0.00	0.00	0.00	0.51	0.81	0.00	0.03			
Avail Cap(c_a), veh/h	194	1344	0	0	0	1014	431	0	385			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	38.7	12.0	0.0	0.0	0.0	7.9	32.5	0.0	28.5			
Incr Delay (d2), s/veh	10.9	0.4	0.0	0.0	0.0	1.8	6.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	5.8	0.0	0.0	0.0	6.5	5.2	0.0	0.1			
LnGrp Delay(d),s/veh	49.6	12.4	0.0	0.0	0.0	9.7	38.7	0.0	28.6			
LnGrp LOS	D	B				A	D		C			
Approach Vol, veh/h		396			515			227				
Approach Delay, s/veh		19.7			9.7			38.3				
Approach LOS		B			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		63.4			8.6	54.8		16.6				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		52.0			9.0	39.0		20.0				
Max Q Clear Time (g_c+I1), s		13.3			5.6	15.9		11.8				
Green Ext Time (p_c), s		5.5			0.0	5.1		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				18.9								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
6: Los Berros Road & 101 SB Ramps

2035 Mitigations
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	149	218	12	207	0	0	0	0	149	4	13
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1792	1900	1792	1792	0				1900	1792	1792
Adj Flow Rate, veh/h	0	204	299	16	284	0				204	5	18
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73				0.73	0.73	0.73
Percent Heavy Veh, %	0	6	6	6	6	0				6	6	6
Cap, veh/h	0	377	552	26	1143	0				438	11	400
Arrive On Green	0.00	0.57	0.57	0.03	1.00	0.00				0.26	0.26	0.26
Sat Flow, veh/h	0	658	964	1707	1792	0				1668	41	1524
Grp Volume(v), veh/h	0	0	503	16	284	0				209	0	18
Grp Sat Flow(s),veh/h/ln	0	0	1622	1707	1792	0				1709	0	1524
Q Serve(g_s), s	0.0	0.0	15.4	0.7	0.0	0.0				8.2	0.0	0.7
Cycle Q Clear(g_c), s	0.0	0.0	15.4	0.7	0.0	0.0				8.2	0.0	0.7
Prop In Lane	0.00		0.59	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	0	929	26	1143	0				449	0	400
V/C Ratio(X)	0.00	0.00	0.54	0.63	0.25	0.00				0.47	0.00	0.05
Avail Cap(c_a), veh/h	0	0	929	85	1143	0				449	0	400
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.87	0.87	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	10.6	38.6	0.0	0.0				24.8	0.0	22.0
Incr Delay (d2), s/veh	0.0	0.0	2.3	19.8	0.5	0.0				3.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.4	0.5	0.1	0.0				4.3	0.0	0.3
LnGrp Delay(d),s/veh	0.0	0.0	12.9	58.4	0.5	0.0				28.2	0.0	22.2
LnGrp LOS			B	E	A					C		C
Approach Vol, veh/h		503			300						227	
Approach Delay, s/veh		12.9			3.5						27.8	
Approach LOS		B			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	5.2	49.8		25.0		55.0						
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0						
Max Green Setting (Gmax), s	4.0	43.0		21.0		51.0						
Max Q Clear Time (g_c+I1), s	2.7	17.4		10.2		2.0						
Green Ext Time (p_c), s	0.0	4.8		0.9		5.2						
Intersection Summary												
HCM 2010 Ctrl Delay			13.4									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 7: Willow Road & 101 SB Ramps

2035 Mitigations
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	545	193	55	175	0	0	0	0	58	0	240
Number	5	2	12	1	6	16				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1827	1827	1827	1827	0				1900	1827	1827
Adj Flow Rate, veh/h	0	736	261	74	236	0				78	0	324
Adj No. of Lanes	0	1	1	1	1	0				0	1	1
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74				0.74	0.74	0.74
Percent Heavy Veh, %	0	4	4	4	4	0				4	4	4
Cap, veh/h	0	1088	925	95	1279	0				348	0	311
Arrive On Green	0.00	0.60	0.60	0.05	0.70	0.00				0.20	0.00	0.20
Sat Flow, veh/h	0	1827	1553	1740	1827	0				1740	0	1553
Grp Volume(v), veh/h	0	736	261	74	236	0				78	0	324
Grp Sat Flow(s),veh/h/ln	0	1827	1553	1740	1827	0				1740	0	1553
Q Serve(g_s), s	0.0	21.8	6.5	3.4	3.6	0.0				3.0	0.0	16.0
Cycle Q Clear(g_c), s	0.0	21.8	6.5	3.4	3.6	0.0				3.0	0.0	16.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1088	925	95	1279	0				348	0	311
V/C Ratio(X)	0.00	0.68	0.28	0.78	0.18	0.00				0.22	0.00	1.04
Avail Cap(c_a), veh/h	0	1088	925	174	1279	0				348	0	311
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.0	7.9	37.4	4.1	0.0				26.8	0.0	32.0
Incr Delay (d2), s/veh	0.0	1.7	0.2	13.1	0.3	0.0				1.5	0.0	62.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.3	2.8	2.0	1.9	0.0				1.6	0.0	12.2
LnGrp Delay(d),s/veh	0.0	12.6	8.0	50.4	4.5	0.0				28.3	0.0	94.8
LnGrp LOS		B	A	D	A					C		F
Approach Vol, veh/h		997			310						402	
Approach Delay, s/veh		11.4			15.4						81.9	
Approach LOS		B			B						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	8.3	51.7				60.0		20.0				
Change Period (Y+Rc), s	4.0	4.0				4.0		4.0				
Max Green Setting (Gmax), s	8.0	44.0				56.0		16.0				
Max Q Clear Time (g_c+I1), s	5.4	23.8				5.6		18.0				
Green Ext Time (p_c), s	0.0	6.6				7.9		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 8: 101 NB Ramps & Willow Road

2035 Mitigations
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	363	242	0	0	119	14	110	1	70	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1845	1900	1845	1845			
Adj Flow Rate, veh/h	519	346	0	0	170	20	157	1	100			
Adj No. of Lanes	1	1	0	0	1	1	0	1	1			
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	630	1185	0	0	337	287	272	2	244			
Arrive On Green	0.36	0.64	0.00	0.00	0.18	0.18	0.16	0.16	0.16			
Sat Flow, veh/h	1757	1845	0	0	1845	1568	1746	11	1568			
Grp Volume(v), veh/h	519	346	0	0	170	20	158	0	100			
Grp Sat Flow(s),veh/h/ln	1757	1845	0	0	1845	1568	1757	0	1568			
Q Serve(g_s), s	10.7	3.3	0.0	0.0	3.3	0.4	3.3	0.0	2.3			
Cycle Q Clear(g_c), s	10.7	3.3	0.0	0.0	3.3	0.4	3.3	0.0	2.3			
Prop In Lane	1.00		0.00	0.00		1.00	0.99		1.00			
Lane Grp Cap(c), veh/h	630	1185	0	0	337	287	274	0	244			
V/C Ratio(X)	0.82	0.29	0.00	0.00	0.50	0.07	0.58	0.00	0.41			
Avail Cap(c_a), veh/h	1597	2609	0	0	745	634	710	0	634			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	11.6	3.1	0.0	0.0	14.6	13.4	15.5	0.0	15.1			
Incr Delay (d2), s/veh	2.8	0.1	0.0	0.0	1.2	0.1	1.9	0.0	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.5	1.7	0.0	0.0	1.8	0.2	1.7	0.0	2.1			
LnGrp Delay(d),s/veh	14.4	3.3	0.0	0.0	15.7	13.5	17.4	0.0	16.2			
LnGrp LOS	B	A			B	B	B		B			
Approach Vol, veh/h		865			190			258				
Approach Delay, s/veh		9.9			15.5			16.9				
Approach LOS		A			B			B				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		29.4		10.2	18.2	11.2						
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0						
Max Green Setting (Gmax), s		56.0		16.0	36.0	16.0						
Max Q Clear Time (g_c+I1), s		5.3		5.3	12.7	5.3						
Green Ext Time (p_c), s		2.8		0.9	1.5	2.0						
Intersection Summary												
HCM 2010 Ctrl Delay				12.1								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis
 9: 101 NB Ramps & Tefft Street

2035 Mitigations
 AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	490	947	0	0	861	320	60	1	235	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0					
Lane Util. Factor	0.91	0.91			0.95	1.00	0.95	0.95					
Frt	1.00	1.00			1.00	0.85	1.00	0.85					
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00					
Satd. Flow (prot)	1579	3317			3471	1553	1649	1481					
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00					
Satd. Flow (perm)	1579	3317			3471	1553	1649	1481					
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	
Adj. Flow (vph)	576	1114	0	0	1013	376	71	1	276	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	85	0	227	0	0	0	0	
Lane Group Flow (vph)	518	1172	0	0	1013	291	64	57	0	0	0	0	
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
Turn Type	Split	NA			NA	Perm	Split	NA					
Protected Phases	4	4			8		2	2					
Permitted Phases						8							
Actuated Green, G (s)	36.0	36.0			26.0	26.0	16.0	16.0					
Effective Green, g (s)	36.0	36.0			26.0	26.0	16.0	16.0					
Actuated g/C Ratio	0.40	0.40			0.29	0.29	0.18	0.18					
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0					
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0					
Lane Grp Cap (vph)	631	1326			1002	448	293	263					
v/s Ratio Prot	0.33	c0.35			c0.29		c0.04	0.04					
v/s Ratio Perm						0.19							
v/c Ratio	0.82	0.88			1.01	0.65	0.22	0.22					
Uniform Delay, d1	24.1	25.1			32.0	28.0	31.7	31.6					
Progression Factor	0.50	0.48			0.74	0.60	1.00	1.00					
Incremental Delay, d2	8.3	6.5			26.4	2.3	1.7	1.9					
Delay (s)	20.3	18.6			50.0	19.2	33.4	33.5					
Level of Service	C	B			D	B	C	C					
Approach Delay (s)		19.1			41.7		33.5				0.0		
Approach LOS		B			D		C				A		
Intersection Summary													
HCM 2000 Control Delay			29.7		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.79										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization			66.6%		ICU Level of Service				C				
Analysis Period (min)			15										

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 10: Tefft Street & 101 SB Off Ramp

2035 Mitigations
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Volume (veh/h)	0	1107	134	254	749	0	0	0	0	216	0	281
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1827	1863	1863	1827	0				1900	1827	1827
Adj Flow Rate, veh/h	0	1258	146	276	851	0				245	0	319
Adj No. of Lanes	0	2	1	1	2	0				0	1	1
Peak Hour Factor	0.88	0.88	0.92	0.92	0.88	0.88				0.88	0.92	0.88
Percent Heavy Veh, %	0	4	2	2	4	0				4	2	4
Cap, veh/h	0	1543	704	355	2391	0				387	0	345
Arrive On Green	0.00	0.44	0.44	0.20	0.69	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	3563	1583	1774	3563	0				1740	0	1553
Grp Volume(v), veh/h	0	1258	146	276	851	0				245	0	319
Grp Sat Flow(s),veh/h/ln	0	1736	1583	1774	1736	0				1740	0	1553
Q Serve(g_s), s	0.0	28.4	5.1	13.3	9.1	0.0				11.5	0.0	18.1
Cycle Q Clear(g_c), s	0.0	28.4	5.1	13.3	9.1	0.0				11.5	0.0	18.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1543	704	355	2391	0				387	0	345
V/C Ratio(X)	0.00	0.82	0.21	0.78	0.36	0.00				0.63	0.00	0.92
Avail Cap(c_a), veh/h	0	1543	704	355	2391	0				387	0	345
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.18	0.18	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	21.8	15.3	34.1	5.8	0.0				31.7	0.0	34.3
Incr Delay (d2), s/veh	0.0	4.9	0.7	2.0	0.1	0.0				7.7	0.0	32.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.5	2.3	6.7	4.3	0.0				6.3	0.0	10.8
LnGrp Delay(d),s/veh	0.0	26.7	16.0	36.1	5.8	0.0				39.4	0.0	66.8
LnGrp LOS		C	B	D	A					D		E
Approach Vol, veh/h		1404			1127						564	
Approach Delay, s/veh		25.5			13.3						54.9	
Approach LOS		C			B						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			22.0	44.0		24.0		66.0				
Change Period (Y+Rc), s			4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s			18.0	40.0		20.0		62.0				
Max Q Clear Time (g_c+I1), s			15.3	30.4		20.1		11.1				
Green Ext Time (p_c), s			1.7	6.0		0.0		8.2				
Intersection Summary												
HCM 2010 Ctrl Delay			26.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
22: Tefft Street & Mary Avenue

2035 Mitigations
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	34	436	29	157	357	114	56	41	124	205	31	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	37	474	32	171	388	124	61	45	135	262	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	116	1137	509	203	981	310	309	325	458	696	365	0
Arrive On Green	0.07	0.33	0.33	0.23	0.76	0.76	0.18	0.18	0.18	0.20	0.00	0.00
Sat Flow, veh/h	1740	3471	1553	1740	2597	820	1740	1827	1553	3480	1827	0
Grp Volume(v), veh/h	37	474	32	171	258	254	61	45	135	262	0	0
Grp Sat Flow(s),veh/h/ln	1740	1736	1553	1740	1736	1682	1740	1827	1553	1740	1827	0
Q Serve(g_s), s	1.8	9.6	1.3	8.4	4.6	4.8	2.7	1.9	6.0	5.9	0.0	0.0
Cycle Q Clear(g_c), s	1.8	9.6	1.3	8.4	4.6	4.8	2.7	1.9	6.0	5.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.49	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	116	1137	509	203	656	635	309	325	458	696	365	0
V/C Ratio(X)	0.32	0.42	0.06	0.84	0.39	0.40	0.20	0.14	0.30	0.38	0.00	0.00
Avail Cap(c_a), veh/h	116	1137	509	329	656	635	309	325	458	696	365	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.1	23.6	20.8	33.7	7.4	7.4	31.5	31.2	24.5	31.1	0.0	0.0
Incr Delay (d2), s/veh	1.6	1.1	0.2	10.2	1.8	1.9	1.4	0.9	1.6	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.8	0.6	4.6	2.5	2.5	1.4	1.0	2.8	3.0	0.0	0.0
LnGrp Delay(d),s/veh	41.6	24.7	21.0	43.9	9.2	9.3	33.0	32.1	26.2	32.7	0.0	0.0
LnGrp LOS	D	C	C	D	A	A	C	C	C	C		
Approach Vol, veh/h		543			683			241			262	
Approach Delay, s/veh		25.6			17.9			29.0			32.7	
Approach LOS		C			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.0	14.5	33.5		22.0	10.0	38.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		16.0	17.0	23.0		18.0	6.0	34.0				
Max Q Clear Time (g_c+I1), s		8.0	10.4	11.6		7.9	3.8	6.8				
Green Ext Time (p_c), s		0.5	0.2	2.5		0.6	0.0	3.2				
Intersection Summary												
HCM 2010 Ctrl Delay			24.1									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
 23: Mesa Road & Tefft Street

2035 Mitigations
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	158	1	35	1	2	8	56	231	2	0	142	124
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1900	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	205	1	45	1	3	10	73	300	3	0	184	161
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	277	1	61	2	5	17	98	855	9	5	282	246
Arrive On Green	0.20	0.20	0.20	0.01	0.01	0.01	0.06	0.47	0.47	0.00	0.31	0.31
Sat Flow, veh/h	1391	7	305	116	347	1155	1740	1806	18	1740	900	788
Grp Volume(v), veh/h	251	0	0	14	0	0	73	0	303	0	0	345
Grp Sat Flow(s),veh/h/ln	1703	0	0	1617	0	0	1740	0	1824	1740	0	1688
Q Serve(g_s), s	5.3	0.0	0.0	0.3	0.0	0.0	1.6	0.0	4.0	0.0	0.0	6.8
Cycle Q Clear(g_c), s	5.3	0.0	0.0	0.3	0.0	0.0	1.6	0.0	4.0	0.0	0.0	6.8
Prop In Lane	0.82		0.18	0.07		0.71	1.00		0.01	1.00		0.47
Lane Grp Cap(c), veh/h	340	0	0	23	0	0	98	0	863	5	0	528
V/C Ratio(X)	0.74	0.00	0.00	0.60	0.00	0.00	0.74	0.00	0.35	0.00	0.00	0.65
Avail Cap(c_a), veh/h	755	0	0	675	0	0	317	0	1284	181	0	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	0.0	18.8	0.0	0.0	17.8	0.0	6.4	0.0	0.0	11.4
Incr Delay (d2), s/veh	3.2	0.0	0.0	22.1	0.0	0.0	10.6	0.0	0.2	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	0.3	0.0	0.0	1.0	0.0	2.1	0.0	0.0	3.3
LnGrp Delay(d),s/veh	17.6	0.0	0.0	40.9	0.0	0.0	28.4	0.0	6.6	0.0	0.0	12.8
LnGrp LOS	B			D			C		A			B
Approach Vol, veh/h		251			14			376				345
Approach Delay, s/veh		17.6			40.9			10.8				12.8
Approach LOS		B			D			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	22.2		11.6	6.2	16.0		4.6				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	27.0		17.0	7.0	24.0		16.0				
Max Q Clear Time (g_c+I1), s	0.0	6.0		7.3	3.6	8.8		2.3				
Green Ext Time (p_c), s	0.0	3.6		0.9	0.0	3.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				13.7								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
 24: Oakglen Avenue & Tefft Street

2035 Mitigations
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	293	723	29	54	747	63	10	12	52	103	12	301
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1845
Adj Flow Rate, veh/h	419	1033	41	77	1067	90	14	17	74	147	17	430
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	449	1642	65	312	1309	110	66	77	232	333	30	732
Arrive On Green	0.26	0.48	0.48	0.18	0.40	0.40	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1757	3437	136	1757	3273	276	96	363	1097	1216	142	1568
Grp Volume(v), veh/h	419	527	547	77	571	586	105	0	0	164	0	430
Grp Sat Flow(s),veh/h/ln	1757	1752	1821	1757	1752	1796	1556	0	0	1358	0	1568
Q Serve(g_s), s	21.0	20.2	20.2	3.4	26.1	26.1	0.0	0.0	0.0	4.7	0.0	18.1
Cycle Q Clear(g_c), s	21.0	20.2	20.2	3.4	26.1	26.1	4.9	0.0	0.0	9.5	0.0	18.1
Prop In Lane	1.00		0.07	1.00		0.15	0.13		0.70	0.90		1.00
Lane Grp Cap(c), veh/h	449	837	870	312	701	719	374	0	0	363	0	732
V/C Ratio(X)	0.93	0.63	0.63	0.25	0.81	0.82	0.28	0.00	0.00	0.45	0.00	0.59
Avail Cap(c_a), veh/h	449	837	870	312	701	719	374	0	0	363	0	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.35	0.35	0.35	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.8	17.5	17.5	31.8	24.0	24.0	29.9	0.0	0.0	31.7	0.0	17.6
Incr Delay (d2), s/veh	12.4	1.3	1.2	0.4	7.3	7.2	0.4	0.0	0.0	0.9	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	9.9	10.3	1.7	14.0	14.3	2.2	0.0	0.0	3.7	0.0	8.0
LnGrp Delay(d),s/veh	45.2	18.8	18.8	32.2	31.4	31.3	30.3	0.0	0.0	32.6	0.0	18.9
LnGrp LOS	D	B	B	C	C	C	C			C		B
Approach Vol, veh/h		1493			1234			105				594
Approach Delay, s/veh		26.2			31.4			30.3				22.7
Approach LOS		C			C			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	20.0	47.0		23.0	27.0	40.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		19.0	16.0	43.0		19.0	23.0	36.0				
Max Q Clear Time (g_c+I1), s		6.9	5.4	22.2		20.1	23.0	28.1				
Green Ext Time (p_c), s		2.6	5.5	7.1		0.0	0.0	4.5				
Intersection Summary												
HCM 2010 Ctrl Delay				27.6								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary
5: 101 NB Ramps & Thompson Avenue

2035 Mitigations
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	246	0	0	51	214	222	3	15	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1810	0	0	1810	1900	1900	1810	1810			
Adj Flow Rate, veh/h	37	259	0	0	54	225	234	3	16			
Adj No. of Lanes	1	1	0	0	1	0	0	1	1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	48	1318	0	0	199	831	293	4	264			
Arrive On Green	0.06	1.00	0.00	0.00	0.65	0.65	0.17	0.17	0.17			
Sat Flow, veh/h	1723	1810	0	0	307	1277	1703	22	1538			
Grp Volume(v), veh/h	37	259	0	0	0	279	237	0	16			
Grp Sat Flow(s),veh/h/ln	1723	1810	0	0	0	1584	1724	0	1538			
Q Serve(g_s), s	1.7	0.0	0.0	0.0	0.0	6.0	10.6	0.0	0.7			
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.0	0.0	6.0	10.6	0.0	0.7			
Prop In Lane	1.00		0.00	0.00		0.81	0.99		1.00			
Lane Grp Cap(c), veh/h	48	1318	0	0	0	1030	296	0	264			
V/C Ratio(X)	0.77	0.20	0.00	0.00	0.00	0.27	0.80	0.00	0.06			
Avail Cap(c_a), veh/h	215	1318	0	0	0	1030	582	0	519			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.94	0.94	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	0.0	5.9	31.8	0.0	27.7			
Incr Delay (d2), s/veh	20.7	0.3	0.0	0.0	0.0	0.6	5.0	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.0	0.0	0.0	2.7	5.4	0.0	0.3			
LnGrp Delay(d),s/veh	58.2	0.3	0.0	0.0	0.0	6.6	36.8	0.0	27.8			
LnGrp LOS	E	A				A	D		C			
Approach Vol, veh/h		296			279			253				
Approach Delay, s/veh		7.5			6.6			36.2				
Approach LOS		A			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.3			6.2	56.0		17.7				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		45.0			10.0	31.0		27.0				
Max Q Clear Time (g_c+I1), s		2.0			3.7	8.0		12.6				
Green Ext Time (p_c), s		3.2			0.0	2.9		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			16.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
6: Los Berros Road & 101 SB Ramps

2035 Mitigations
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	80	271	7	268	0	0	0	0	204	1	43
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1827	1900	1827	1827	0				1900	1827	1827
Adj Flow Rate, veh/h	0	86	291	8	288	0				219	1	46
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	4	4	4	4	0				4	4	4
Cap, veh/h	0	190	641	14	1050	0				563	3	505
Arrive On Green	0.00	0.52	0.52	0.02	1.00	0.00				0.32	0.32	0.32
Sat Flow, veh/h	0	367	1241	1740	1827	0				1732	8	1553
Grp Volume(v), veh/h	0	0	377	8	288	0				220	0	46
Grp Sat Flow(s),veh/h/ln	0	0	1608	1740	1827	0				1740	0	1553
Q Serve(g_s), s	0.0	0.0	11.8	0.4	0.0	0.0				7.8	0.0	1.6
Cycle Q Clear(g_c), s	0.0	0.0	11.8	0.4	0.0	0.0				7.8	0.0	1.6
Prop In Lane	0.00		0.77	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	0	831	14	1050	0				566	0	505
V/C Ratio(X)	0.00	0.00	0.45	0.56	0.27	0.00				0.39	0.00	0.09
Avail Cap(c_a), veh/h	0	0	831	130	1050	0				566	0	505
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.97	0.97	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	12.2	39.2	0.0	0.0				20.9	0.0	18.8
Incr Delay (d2), s/veh	0.0	0.0	1.8	30.1	0.6	0.0				2.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.6	0.3	0.2	0.0				4.0	0.0	0.8
LnGrp Delay(d),s/veh	0.0	0.0	14.0	69.3	0.6	0.0				22.9	0.0	19.1
LnGrp LOS			B	E	A					C		B
Approach Vol, veh/h		377			296						266	
Approach Delay, s/veh		14.0			2.5						22.2	
Approach LOS		B			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	4.7	45.3		30.0		50.0						
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0						
Max Green Setting (Gmax), s	6.0	36.0		26.0		46.0						
Max Q Clear Time (g_c+I1), s	2.4	13.8		9.8		2.0						
Green Ext Time (p_c), s	0.0	3.7		1.2		4.1						
Intersection Summary												
HCM 2010 Ctrl Delay			12.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
7: Willow Road & 101 SB Ramps

2035 Mitigations
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	389	186	67	245	0	0	0	0	65	3	352
Number	5	2	12	1	6	16				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1845	1845	1845	0				1900	1845	1845
Adj Flow Rate, veh/h	0	418	200	72	263	0				70	3	378
Adj No. of Lanes	0	1	1	1	1	0				0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	638	542	96	920	0				514	22	478
Arrive On Green	0.00	0.35	0.35	0.05	0.50	0.00				0.30	0.30	0.30
Sat Flow, veh/h	0	1845	1568	1757	1845	0				1688	72	1568
Grp Volume(v), veh/h	0	418	200	72	263	0				73	0	378
Grp Sat Flow(s),veh/h/ln	0	1845	1568	1757	1845	0				1760	0	1568
Q Serve(g_s), s	0.0	7.8	3.9	1.6	3.4	0.0				1.2	0.0	9.0
Cycle Q Clear(g_c), s	0.0	7.8	3.9	1.6	3.4	0.0				1.2	0.0	9.0
Prop In Lane	0.00		1.00	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	638	542	96	920	0				536	0	478
V/C Ratio(X)	0.00	0.66	0.37	0.75	0.29	0.00				0.14	0.00	0.79
Avail Cap(c_a), veh/h	0	1541	1310	432	2175	0				1038	0	925
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.3	10.0	19.0	6.0	0.0				10.3	0.0	13.0
Incr Delay (d2), s/veh	0.0	1.2	0.4	11.0	0.2	0.0				0.1	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.2	1.7	1.1	1.7	0.0				0.6	0.0	4.2
LnGrp Delay(d),s/veh	0.0	12.4	10.4	29.9	6.1	0.0				10.4	0.0	15.9
LnGrp LOS		B	B	C	A					B		B
Approach Vol, veh/h		618			335						451	
Approach Delay, s/veh		11.8			11.3						15.0	
Approach LOS		B			B						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	6.2	18.1				24.3		16.4				
Change Period (Y+Rc), s	4.0	4.0				4.0		4.0				
Max Green Setting (Gmax), s	10.0	34.0				48.0		24.0				
Max Q Clear Time (g_c+I1), s	3.6	9.8				5.4		11.0				
Green Ext Time (p_c), s	0.1	4.3				4.5		1.5				
Intersection Summary												
HCM 2010 Ctrl Delay				12.7								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
8: 101 NB Ramps & Willow Road

2035 Mitigations
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	291	165	0	0	136	5	168	0	56	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1827	0	0	1827	1827	1900	1827	1827			
Adj Flow Rate, veh/h	320	181	0	0	149	5	185	0	62			
Adj No. of Lanes	1	1	0	0	1	1	0	1	1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	4	4	0	0	4	4	4	4	4			
Cap, veh/h	364	1142	0	0	669	568	478	0	427			
Arrive On Green	0.21	0.63	0.00	0.00	0.37	0.37	0.28	0.00	0.28			
Sat Flow, veh/h	1740	1827	0	0	1827	1553	1740	0	1553			
Grp Volume(v), veh/h	320	181	0	0	149	5	185	0	62			
Grp Sat Flow(s),veh/h/ln	1740	1827	0	0	1827	1553	1740	0	1553			
Q Serve(g_s), s	14.3	3.3	0.0	0.0	4.5	0.2	6.9	0.0	2.4			
Cycle Q Clear(g_c), s	14.3	3.3	0.0	0.0	4.5	0.2	6.9	0.0	2.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	364	1142	0	0	669	568	478	0	427			
V/C Ratio(X)	0.88	0.16	0.00	0.00	0.22	0.01	0.39	0.00	0.15			
Avail Cap(c_a), veh/h	478	1142	0	0	669	568	478	0	427			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.80	0.80	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	30.7	6.2	0.0	0.0	17.5	16.1	23.5	0.0	21.9			
Incr Delay (d2), s/veh	11.5	0.2	0.0	0.0	0.8	0.0	2.4	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.0	1.7	0.0	0.0	2.4	0.1	3.6	0.0	2.4			
LnGrp Delay(d),s/veh	42.2	6.5	0.0	0.0	18.3	16.2	25.9	0.0	22.6			
LnGrp LOS	D	A			B	B	C		C			
Approach Vol, veh/h		501			154			247				
Approach Delay, s/veh		29.3			18.2			25.1				
Approach LOS		C			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		54.0		26.0	20.7	33.3						
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0						
Max Green Setting (Gmax), s		50.0		22.0	22.0	24.0						
Max Q Clear Time (g_c+I1), s		5.3		8.9	16.3	6.5						
Green Ext Time (p_c), s		1.7		1.0	0.5	1.4						
Intersection Summary												
HCM 2010 Ctrl Delay				26.2								
HCM 2010 LOS				C								

HCM Signalized Intersection Capacity Analysis

9: 101 NB Ramps & Tefft Street

2035 Mitigations
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	222	1078	0	0	1029	287	137	1	287	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0					
Lane Util. Factor	0.91	0.91			0.95	1.00	0.95	0.95					
Frt	1.00	1.00			1.00	0.85	1.00	0.86					
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00					
Satd. Flow (prot)	1579	3322			3471	1553	1649	1485					
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00					
Satd. Flow (perm)	1579	3322			3471	1553	1649	1485					
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	227	1100	0	0	1050	293	140	1	293	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	63	0	241	0	0	0	0	
Lane Group Flow (vph)	204	1123	0	0	1050	230	126	67	0	0	0	0	
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
Turn Type	Split	NA			NA	Perm	Split	NA					
Protected Phases	4	4			8		2	2					
Permitted Phases						8							
Actuated Green, G (s)	34.0	34.0			28.0	28.0	16.0	16.0					
Effective Green, g (s)	34.0	34.0			28.0	28.0	16.0	16.0					
Actuated g/C Ratio	0.38	0.38			0.31	0.31	0.18	0.18					
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0					
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0					
Lane Grp Cap (vph)	596	1254			1079	483	293	264					
v/s Ratio Prot	0.13	c0.34			c0.30		c0.08	0.05					
v/s Ratio Perm						0.15							
v/c Ratio	0.34	0.90			0.97	0.48	0.43	0.25					
Uniform Delay, d1	20.0	26.3			30.6	25.1	32.9	31.9					
Progression Factor	0.49	0.46			0.40	0.16	1.00	1.00					
Incremental Delay, d2	0.9	6.1			16.5	0.5	4.6	2.3					
Delay (s)	10.6	18.2			28.8	4.6	37.5	34.2					
Level of Service	B	B			C	A	D	C					
Approach Delay (s)		17.1			23.5		35.1				0.0		
Approach LOS		B			C		D				A		
Intersection Summary													
HCM 2000 Control Delay			22.4		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.83										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization			71.1%		ICU Level of Service				C				
Analysis Period (min)			15										

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 10: Tefft Street & 101 SB Off Ramp

2035 Mitigations
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Volume (veh/h)	0	1010	125	264	944	0	0	0	0	304	32	520
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1900	1863	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	1063	136	287	994	0				320	35	547
Adj No. of Lanes	0	2	1	1	2	0				0	1	1
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95				0.95	0.92	0.95
Percent Heavy Veh, %	0	0	2	2	2	0				2	2	2
Cap, veh/h	0	1203	528	315	1966	0				571	62	563
Arrive On Green	0.00	0.33	0.33	0.18	0.56	0.00				0.36	0.36	0.36
Sat Flow, veh/h	0	3705	1583	1774	3632	0				1607	176	1583
Grp Volume(v), veh/h	0	1063	136	287	994	0				355	0	547
Grp Sat Flow(s),veh/h/ln	0	1805	1583	1774	1770	0				1782	0	1583
Q Serve(g_s), s	0.0	25.0	5.6	14.3	15.6	0.0				14.4	0.0	30.6
Cycle Q Clear(g_c), s	0.0	25.0	5.6	14.3	15.6	0.0				14.4	0.0	30.6
Prop In Lane	0.00		1.00	1.00		0.00				0.90		1.00
Lane Grp Cap(c), veh/h	0	1203	528	315	1966	0				634	0	563
V/C Ratio(X)	0.00	0.88	0.26	0.91	0.51	0.00				0.56	0.00	0.97
Avail Cap(c_a), veh/h	0	1203	528	315	1966	0				634	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.28	0.28	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	28.3	21.9	36.3	12.4	0.0				23.3	0.0	28.6
Incr Delay (d2), s/veh	0.0	9.6	1.2	11.0	0.3	0.0				3.6	0.0	31.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.0	2.6	8.0	7.7	0.0				7.7	0.0	18.3
LnGrp Delay(d),s/veh	0.0	37.9	23.1	47.3	12.6	0.0				26.9	0.0	60.1
LnGrp LOS		D	C	D	B					C		E
Approach Vol, veh/h		1199			1281						902	
Approach Delay, s/veh		36.2			20.4						47.0	
Approach LOS		D			C						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			20.0	34.0		36.0		54.0				
Change Period (Y+Rc), s			4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s			16.0	30.0		32.0		50.0				
Max Q Clear Time (g_c+I1), s			16.3	27.0		32.6		17.6				
Green Ext Time (p_c), s			0.0	2.7		0.0		20.2				
Intersection Summary												
HCM 2010 Ctrl Delay			33.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
22: Tefft Street & Mary Avenue

2035 Mitigations
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	429	69	247	648	123	95	79	53	311	71	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	74	452	73	260	682	129	100	83	56	227	215	52
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	747	334	375	958	181	315	331	616	394	322	78
Arrive On Green	0.10	0.21	0.21	0.14	0.22	0.22	0.18	0.18	0.18	0.22	0.22	0.22
Sat Flow, veh/h	1774	3539	1583	1774	2972	562	1774	1863	1583	1774	1450	351
Grp Volume(v), veh/h	74	452	73	260	406	405	100	83	56	227	0	267
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1764	1774	1863	1583	1774	0	1801
Q Serve(g_s), s	3.5	10.4	3.4	12.6	19.1	19.2	4.4	3.5	0.0	10.3	0.0	12.2
Cycle Q Clear(g_c), s	3.5	10.4	3.4	12.6	19.1	19.2	4.4	3.5	0.0	10.3	0.0	12.2
Prop In Lane	1.00		1.00	1.00		0.32	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	177	747	334	375	570	568	315	331	616	394	0	400
V/C Ratio(X)	0.42	0.60	0.22	0.69	0.71	0.71	0.32	0.25	0.09	0.58	0.00	0.67
Avail Cap(c_a), veh/h	177	747	334	375	570	568	315	331	616	394	0	400
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.0	32.1	29.4	35.9	31.4	31.4	32.2	31.8	17.4	31.2	0.0	32.0
Incr Delay (d2), s/veh	1.6	3.6	1.5	5.5	7.4	7.4	2.6	1.8	0.3	6.0	0.0	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	5.5	1.6	6.7	10.5	10.5	2.4	1.9	0.9	5.7	0.0	7.0
LnGrp Delay(d),s/veh	39.6	35.7	30.9	41.3	38.8	38.9	34.9	33.6	17.7	37.2	0.0	40.5
LnGrp LOS	D	D	C	D	D	D	C	C	B	D		D
Approach Vol, veh/h		599			1071			239			494	
Approach Delay, s/veh		35.6			39.4			30.4			39.0	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.0	23.0	23.0		24.0	13.0	33.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		16.0	19.0	19.0		20.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s		6.4	14.6	12.4		14.2	5.5	21.2				
Green Ext Time (p_c), s		0.6	0.4	1.7		1.2	0.3	3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			37.5									
HCM 2010 LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
 23: Mesa Road & Tefft Street

2035 Mitigations
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	181	5	37	1	1	4	49	192	2	7	304	161
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	203	6	42	1	1	4	55	216	2	8	342	181
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	8	56	2	2	7	79	788	7	15	449	238
Arrive On Green	0.19	0.19	0.19	0.01	0.01	0.01	0.04	0.43	0.43	0.01	0.39	0.39
Sat Flow, veh/h	1408	42	291	276	276	1103	1774	1843	17	1774	1148	608
Grp Volume(v), veh/h	251	0	0	6	0	0	55	0	218	8	0	523
Grp Sat Flow(s),veh/h/ln	1741	0	0	1654	0	0	1774	0	1860	1774	0	1756
Q Serve(g_s), s	5.9	0.0	0.0	0.2	0.0	0.0	1.3	0.0	3.3	0.2	0.0	11.3
Cycle Q Clear(g_c), s	5.9	0.0	0.0	0.2	0.0	0.0	1.3	0.0	3.3	0.2	0.0	11.3
Prop In Lane	0.81		0.17	0.17		0.67	1.00		0.01	1.00		0.35
Lane Grp Cap(c), veh/h	332	0	0	11	0	0	79	0	795	15	0	687
V/C Ratio(X)	0.76	0.00	0.00	0.56	0.00	0.00	0.69	0.00	0.27	0.53	0.00	0.76
Avail Cap(c_a), veh/h	639	0	0	607	0	0	163	0	1194	163	0	1127
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	0.0	21.6	0.0	0.0	20.5	0.0	8.1	21.5	0.0	11.5
Incr Delay (d2), s/veh	3.5	0.0	0.0	39.4	0.0	0.0	10.4	0.0	0.2	26.2	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0	0.2	0.0	0.0	0.9	0.0	1.7	0.2	0.0	5.7
LnGrp Delay(d),s/veh	20.2	0.0	0.0	61.0	0.0	0.0	31.0	0.0	8.3	47.7	0.0	13.3
LnGrp LOS	C			E			C		A	D		B
Approach Vol, veh/h		251			6			273			531	
Approach Delay, s/veh		20.2			61.0			12.9			13.8	
Approach LOS		C			E			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.4	22.6		12.3	5.9	21.1		4.3				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	28.0		16.0	4.0	28.0		16.0				
Max Q Clear Time (g_c+I1), s	2.2	5.3		7.9	3.3	13.3		2.2				
Green Ext Time (p_c), s	0.0	4.4		0.8	0.0	3.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			15.3									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 24: Tefft Street & Oakglen Avenue

2035 Mitigations
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	359	761	30	62	837	119	5	15	61	98	15	358
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	382	810	32	66	890	127	5	16	65	104	16	381
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	335	1311	52	354	1208	172	6	21	83	275	42	581
Arrive On Green	0.38	0.76	0.76	0.20	0.39	0.39	0.07	0.07	0.07	0.18	0.18	0.18
Sat Flow, veh/h	1774	3471	137	1774	3110	444	95	305	1239	1547	238	1583
Grp Volume(v), veh/h	382	413	429	66	506	511	86	0	0	120	0	381
Grp Sat Flow(s),veh/h/ln	1774	1770	1839	1774	1770	1784	1639	0	0	1785	0	1583
Q Serve(g_s), s	17.0	9.6	9.6	2.8	22.1	22.1	4.6	0.0	0.0	5.3	0.0	16.0
Cycle Q Clear(g_c), s	17.0	9.6	9.6	2.8	22.1	22.1	4.6	0.0	0.0	5.3	0.0	16.0
Prop In Lane	1.00		0.07	1.00		0.25	0.06		0.76	0.87		1.00
Lane Grp Cap(c), veh/h	335	669	695	354	687	693	110	0	0	317	0	581
V/C Ratio(X)	1.14	0.62	0.62	0.19	0.74	0.74	0.78	0.00	0.00	0.38	0.00	0.66
Avail Cap(c_a), veh/h	335	669	695	354	687	693	291	0	0	317	0	581
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.32	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.0	8.0	8.0	30.0	23.6	23.6	41.3	0.0	0.0	32.6	0.0	23.8
Incr Delay (d2), s/veh	74.9	1.4	1.3	0.3	6.9	6.9	11.2	0.0	0.0	0.7	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	4.6	4.8	1.4	12.0	12.1	2.4	0.0	0.0	2.7	0.0	8.3
LnGrp Delay(d),s/veh	102.9	9.4	9.4	30.2	30.5	30.5	52.5	0.0	0.0	33.4	0.0	26.5
LnGrp LOS	F	A	A	C	C	C	D			C		C
Approach Vol, veh/h		1224			1083			86			501	
Approach Delay, s/veh		38.6			30.5			52.5			28.1	
Approach LOS		D			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.1	21.9	38.0		20.0	21.0	38.9				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		16.0	8.0	34.0		16.0	17.0	25.0				
Max Q Clear Time (g_c+I1), s		6.6	4.8	11.6		18.0	19.0	24.1				
Green Ext Time (p_c), s		0.2	1.9	5.3		0.0	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			34.1									
HCM 2010 LOS			C									