

Appendix 13.0

St. Frances of Rome Traffic Impact Analysis

ST. FRANCIS OF ROME TRAFFIC IMPACT ANALYSIS City of Wildomar, California

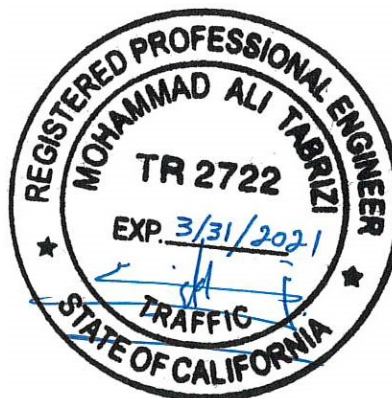
Prepared for:

DIOCESE OF SAN BERNARDINO
1201 E. Highland Ave.
San Bernardino, CA 92404-4607

Prepared by:

RK ENGINEERING GROUP, INC.
4000 Westerly Place, Suite 280
Newport Beach, CA 92660

Alex Tabrizi, P.E., T.E.
Jethro Jay Narciso, E.I.T.
Elias Bandek, E.I.T.



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1.0 Introduction

1.1 Purpose of Report & Study Objectives

The purpose of this traffic study is to assess the impacts of the proposed expansion of the St. Francis of Rome Church.

The project site is located at 21591 Lemon Street, in the City of Wildomar. The proposed church site will be converting the existing church building into a multipurpose room. In addition the project is proposing to construct the following:

- 303 additional seats to the existing 897-seat church (bringing the total capacity to 1,200 seats) (north side of property); and
- Office and Classrooms (southwest side of property).

The following is operational details based on information provided by the project applicant:

- The site includes an existing pre-school with an enrollment of approximately 20 students.
- Phase 3 of the project would include addition of classrooms/meeting rooms for Faith Formation which will be held on Sundays and some evenings.
- No day school is being proposed.
- There are 10 rooms that can hold approximately 20 persons for meetings and Faith Formation.
- Mass times are as follows:
 - o Saturday: 4:00 to 5:00 PM and 6:00 to 7 PM
 - o Sunday: 7:00 to 8 AM, 9:00 to 10:00 AM, 11:00 AM to 12:00 PM., 1:00 to 2:00 PM, AND 5:00 to 6:00 PM
 - o Weekday Masses: 8:00 a.m. (Only about 60 people attend this mass daily)

It is understood that the church, classrooms and multipurpose room will not be in operation at the same time.

The project will be built in two phases; however, the project will be analyzed in one phase for the traffic study. The project is planned to open in 2020.

This traffic study has been prepared in accordance with the traffic study guidelines, requirements and thresholds of significance for the City of Wildomar.

Based on typical activities of the proposed land use, the project is not expected to result in any significant change to weekday conditions or activities of the church. Hence, a weekday conditions analysis is not required for the proposed project.

In order to determine peak hours for Saturday and Sunday conditions, RK conducted 24-hour ADT counts on the roadway segments located adjacent to the project site. The peak hours for the adjacent roadways on Saturday and Sunday are 2:00 PM to 4:00 PM and 11:00 AM to 1:00 PM, respectively. This analysis evaluates the potential traffic impacts associated with the proposed project during peak Saturday roadway activities from 2:00 PM to 4:00 PM, and peak Sunday roadway activities from 11:00 AM to 1:00 PM.

This analysis is considered conservative since it will add the peak traffic generation of the site to peak traffic conditions of the circulation system. In reality, the site and the circulation system might not peak at the same exact time periods.

This study is prepared in accordance with the scope of work approved by the City of Wildomar staff. A copy of the scope of work which was approved via email communication is contained in Appendix H.

1.2 Site Location & Project Description

The project site is located at 21591 Lemon Street, in the City of Wildomar. The proposed church site will be converting the existing church building into a multipurpose room. In addition the project is proposing to construct the following:

- 303 additional seats to the existing 897-seat church (bringing the total capacity to 1,200 seats) (north side of property); and
- Office and Classrooms (southwest side of property).

The project will be built in two phases; however, the project will be analyzed in one phase for the traffic study. The project is planned to open in 2020.

Access for the proposed project will continue to utilize two existing unsignalized driveways on Lemon Street and one existing unsignalized driveway on Mojonnier Way.

The location of the project site is presented on Exhibit 1-1. The site plan is shown on Exhibit 1-2.

1.3 Traffic Study Area & Analysis Scenarios

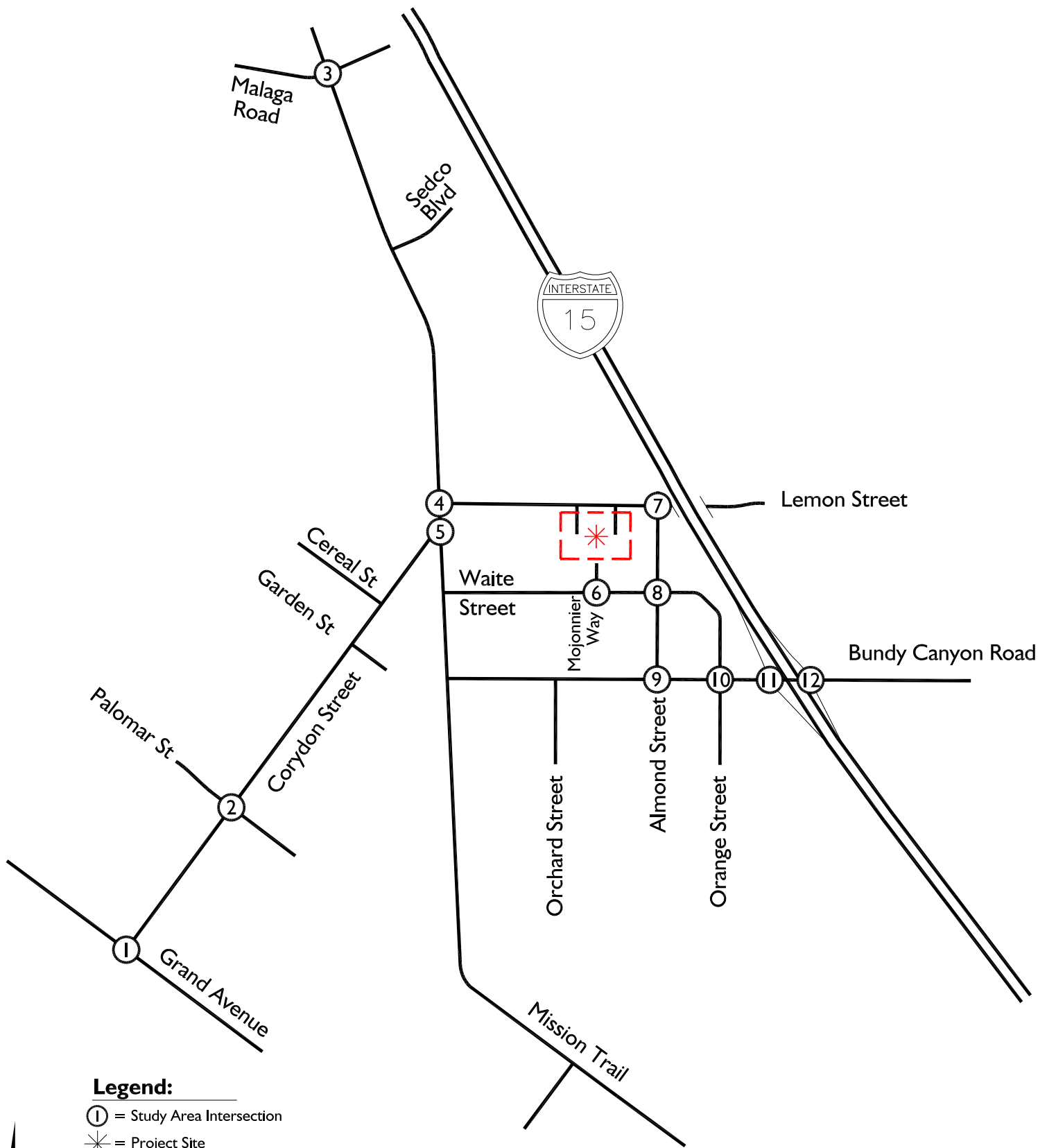
Exhibit 1-1 illustrates the site location map and traffic analysis study area. The study area consists of the following intersections:

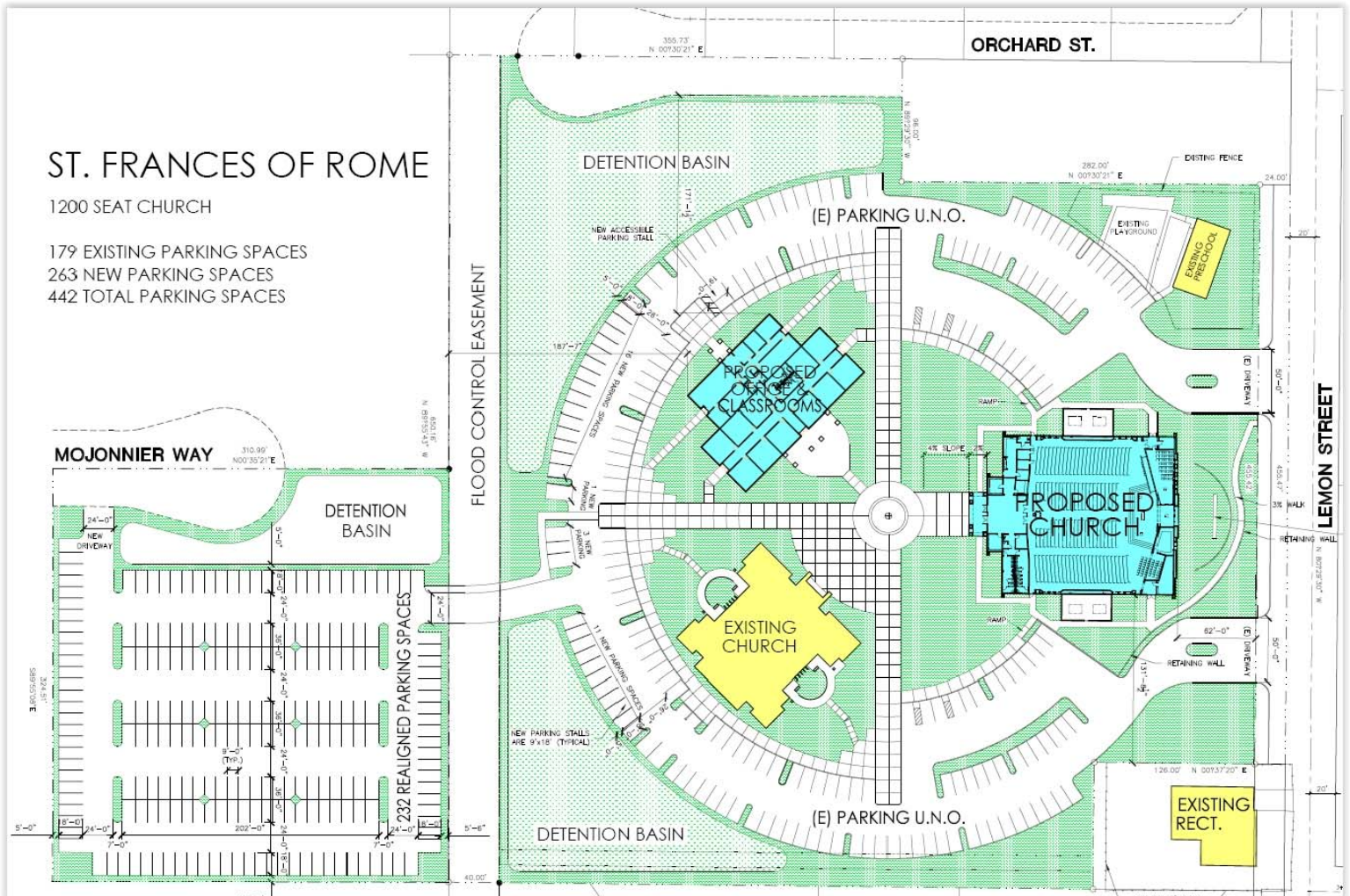
North-South Street	East-West Street
1. Grand Avenue	Corydon Street
2. Palomar Street	Corydon Street
3. Mission Trail	Malaga Road
4. Mission Trail	Lemon Street
5. Mission Trail	Corydon Street
6. Mojonnier Way	Waite Street
7. Almond Street	Lemon Street
8. Almond Street	Waite Street
9. Almond Street	Bundy Canyon Road
10. Orange Street	Bundy Canyon Road
11. I-15 Southbound Ramps	Bundy Canyon Road
12. 1-15 Northbound Ramps	Bundy Canyon Road

The analysis evaluates traffic conditions of the study intersections for the following scenarios in accordance with the City of Wildomar and the approved scope of work. A copy of the scope of work which was approved via email communication is contained in Appendix H.:

- Existing Conditions;
- Existing Plus Project Conditions;
- Opening Year (2020) Cumulative Without Project Conditions (Existing Plus Ambient Growth Plus Cumulative Project); and
- Opening Year (2020) Cumulative With Project Conditions (Existing Plus Ambient Growth Plus Cumulative Projects Plus Proposed Project).

Exhibit I-1 Location Map





2.0 Analysis Methodologies, Performance Criteria, & Thresholds of Significance

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report in accordance with the City of Wildomar requirements.

This section also discusses the agency-established applicable performance criteria and thresholds of significance for the study facilities.

2.1 Intersection Peak Hour Level of Service Analysis Methodology

The current technical guide to the evaluation of traffic operations is the Highway Capacity Manual (HCM2010). The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

The definitions of level of service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS A represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.
- LOS B is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.
- LOS C is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.

- LOS D represents high-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.
- LOS E represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.
- LOS F is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The levels of service determined in this study are calculated using the HCM methodology.

For signalized and all-way stop intersections, average control delay per vehicle is used to determine the level of service. Levels of service at signalized and all-way stop study intersections have been evaluated using the signalized HCM intersection analysis program.

Study area intersections, which are stop sign controlled with stop control on the minor street only, have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected, describing the intersection configuration and traffic volumes at these locations, the level of service has been calculated. The level of service is determined based on the worst individual movement or movements sharing a single lane. The relationship between level of service and delay is different than for signalized intersections.

The levels of service are defined for the various analysis methodologies as follows:

LOS	Intersection LOS Criteria	
	Signalized Delay (Seconds)	Unsignalized Delay (Seconds)
A	0.00 - 10.00	0.00 - 10.00
B	10.01 - 20.00	10.01 - 15.00
C	20.01 - 35.00	15.01 - 25.00
D	35.01 - 55.00	25.01 - 35.00
E	55.01 - 80.00	35.01 - 50.00
F	>80.01	>50.01

For this study, the HCM level of service grades will be determined utilizing the HCM 2010 Methodology and the Synchro analysis software.

All analysis parameters utilized in this analysis are in accordance with the City of Wildomar Traffic Study Guidelines.

Existing conditions peak hour factors have been calculated based upon the traffic counts collected at the study area intersections. Existing peak hour factors have been used for Project Opening Year (2020).

2.2 Level of Service Performance Criteria & Thresholds of Significance

The City of Wildomar has established Level of Service (LOS) D as the minimum LOS for its intersections. *Therefore, any intersection operating at LOS "E" or worse will be considered deficient for the purposes of this analysis.*

In accordance with the *County of Riverside Traffic Impact Analysis Preparation Guide* (dated April 2008), the following type of traffic impacts may be considered to be "significant" under CEQA:

- When existing traffic conditions exceed the General Plan target LOS.
- When project traffic, when added to existing traffic, will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.

- When cumulative traffic exceeds the target LOS, and impacts cannot be mitigated through the TUMF network (or other funding mechanism), project conditions of approval, or other implementation mechanisms. For the case of the proposed project, since the project is a public/institution land use, it is exempt from TUMF and DIF. Hence, any required and identified mitigations would need to be addressed and implemented on a fair-share basis.

3.0 Existing Traffic Volumes & Circulation System

This section provides a discussion of existing study area conditions and traffic volumes.

3.1 Existing Traffic Controls & Intersection Geometrics

Exhibit 3-1 identifies the existing roadway conditions for the study area roadways. The number of through traffic lanes for existing roadways and the existing intersection controls are identified.

3.2 Existing Conditions Traffic Volumes

As previously noted, based on typical church activities, the project is not expected to result in any significant change to weekday conditions. Hence, a weekday conditions analysis is not required for the proposed project.

This analysis evaluates the potential traffic impacts associated with the proposed project during peak Saturday roadway traffic from 2:00 PM to 4:00 PM, and peak Sunday roadway traffic from 11:00 AM to 1:00 PM.

Existing Saturday and Sunday traffic volumes for the study area intersections are shown on Exhibit 3-2. These volumes are based upon manual Saturday and Sunday peak hour turning movement counts compiled for RK in September 2018. The Saturday and Sunday peak hour were determined by counting 24-hour ADT counts on both Saturday and Sunday. The traffic count worksheets are included in Appendix A.

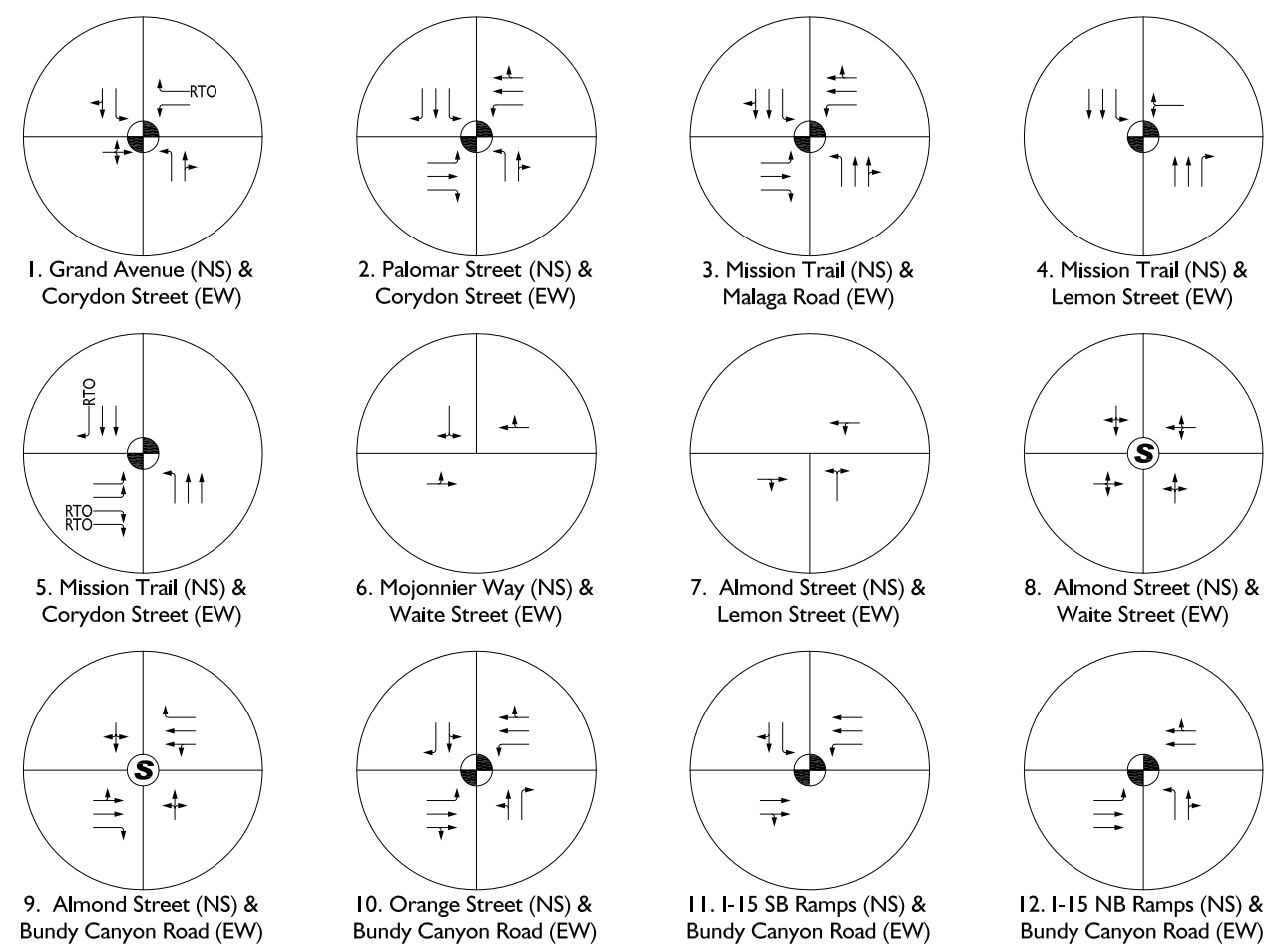
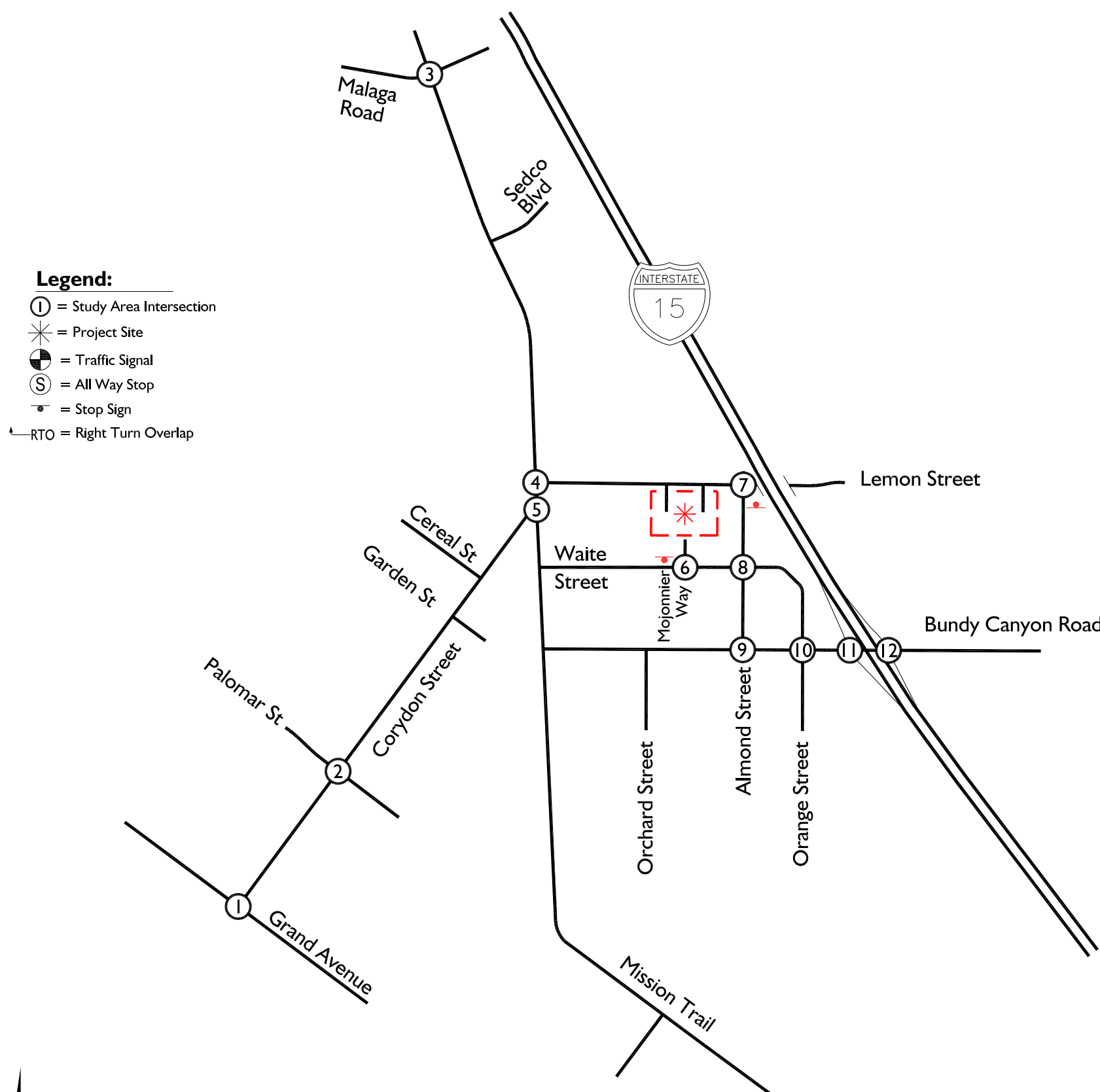
3.3 General Plan Circulation Element

Exhibit 3-3 shows the County of Riverside (Elsinore Area) General Plan Roadway Network and Circulation System.

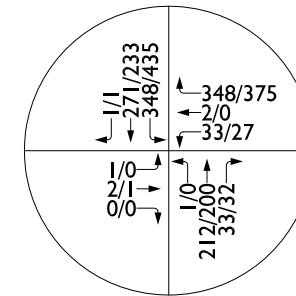
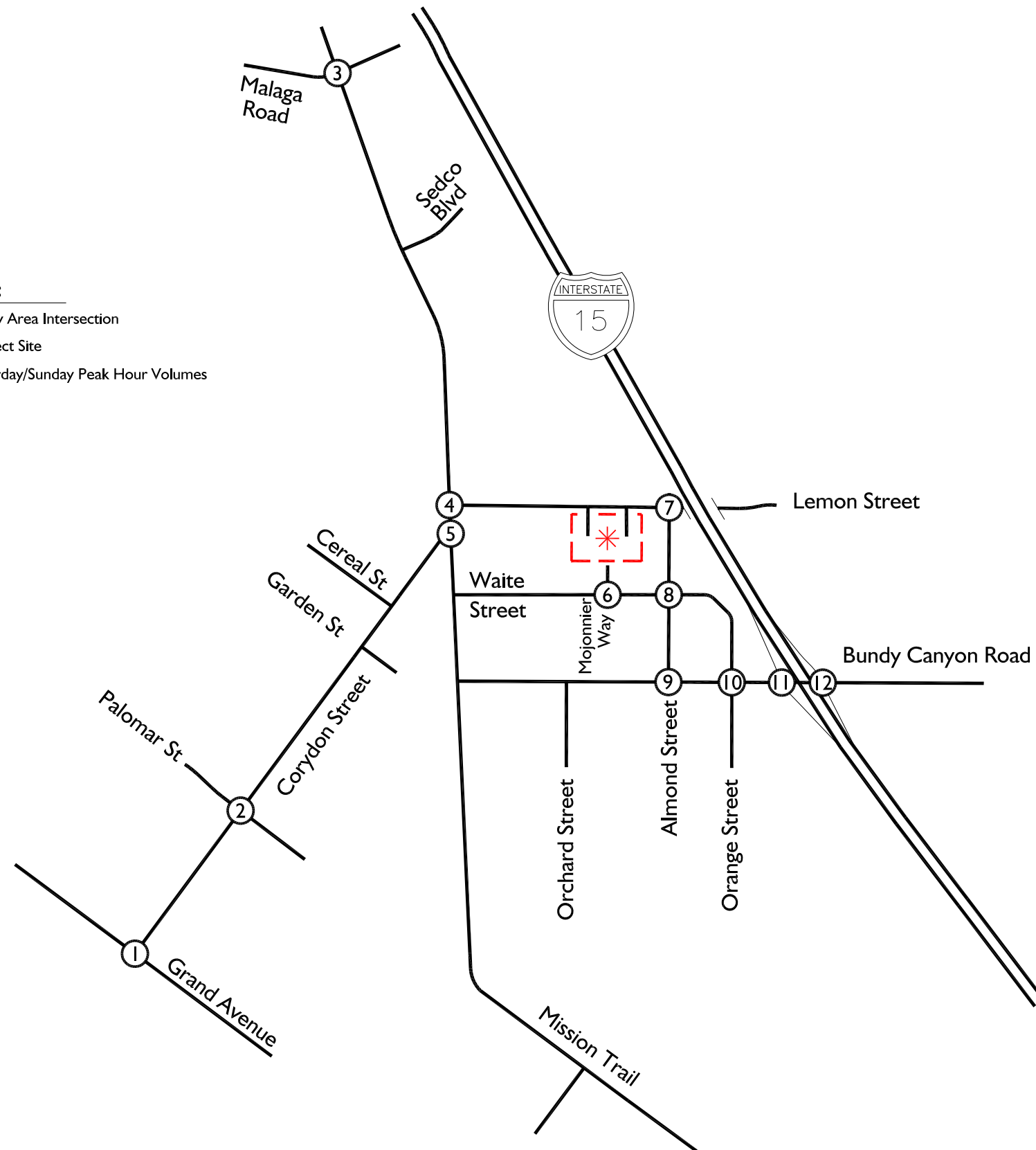
Exhibit 3-4 shows the County of Riverside General Plan Roadway Cross Sections.

Exhibit 3-5 shows the County of Riverside (Elsinore Area) General Plan of Trails System in the project site vicinity.

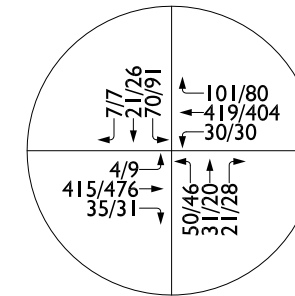
Existing Lane Geometry and Traffic Controls



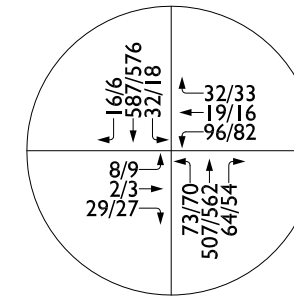
Legend:
 ① = Study Area Intersection
 * = Project Site
 10/20 = Saturday/Sunday Peak Hour Volumes



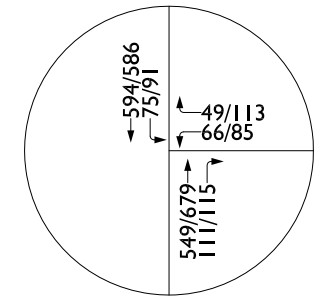
1. Grand Avenue (NS) & Corydon Street (EW)



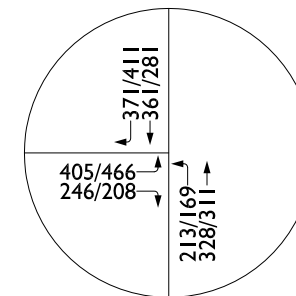
2. Palomar Street (NS) & Corydon Street (EW)



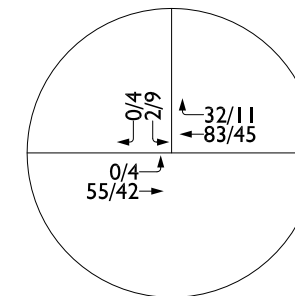
3. Mission Trail (NS) & Malaga Road (EW)



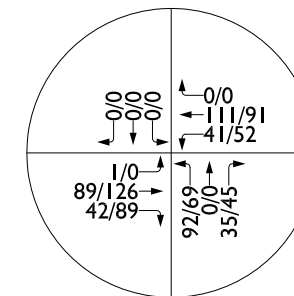
4. Mission Trail (NS) & Lemon Street (EW)



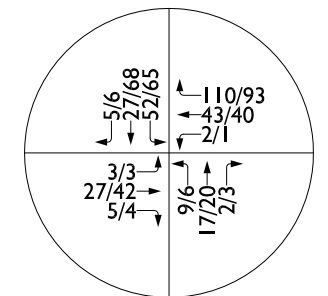
5. Mission Trail (NS) & Corydon Street (EW)



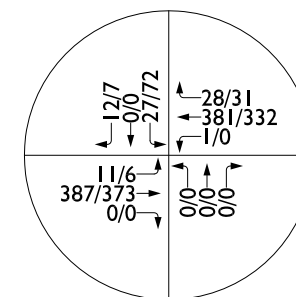
6. Mojonnier Way (NS) & Waite Street (EW)



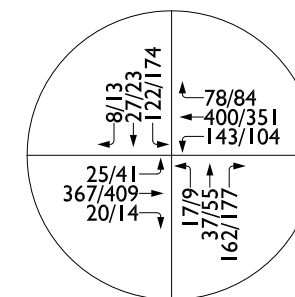
7. Almond Street (NS) & Lemon Street (EW)



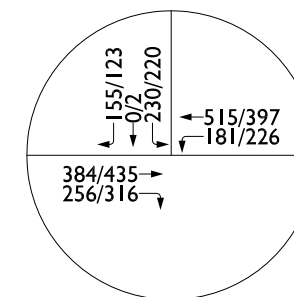
8. Almond Street (NS) & Waite Street (EW)



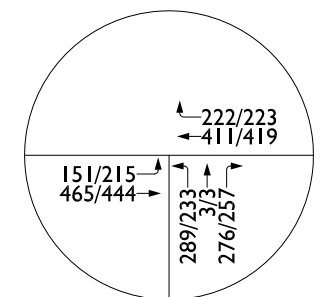
9. Almond Street (NS) & Bundy Canyon Road (EW)



10. Orange Street (NS) & Bundy Canyon Road (EW)



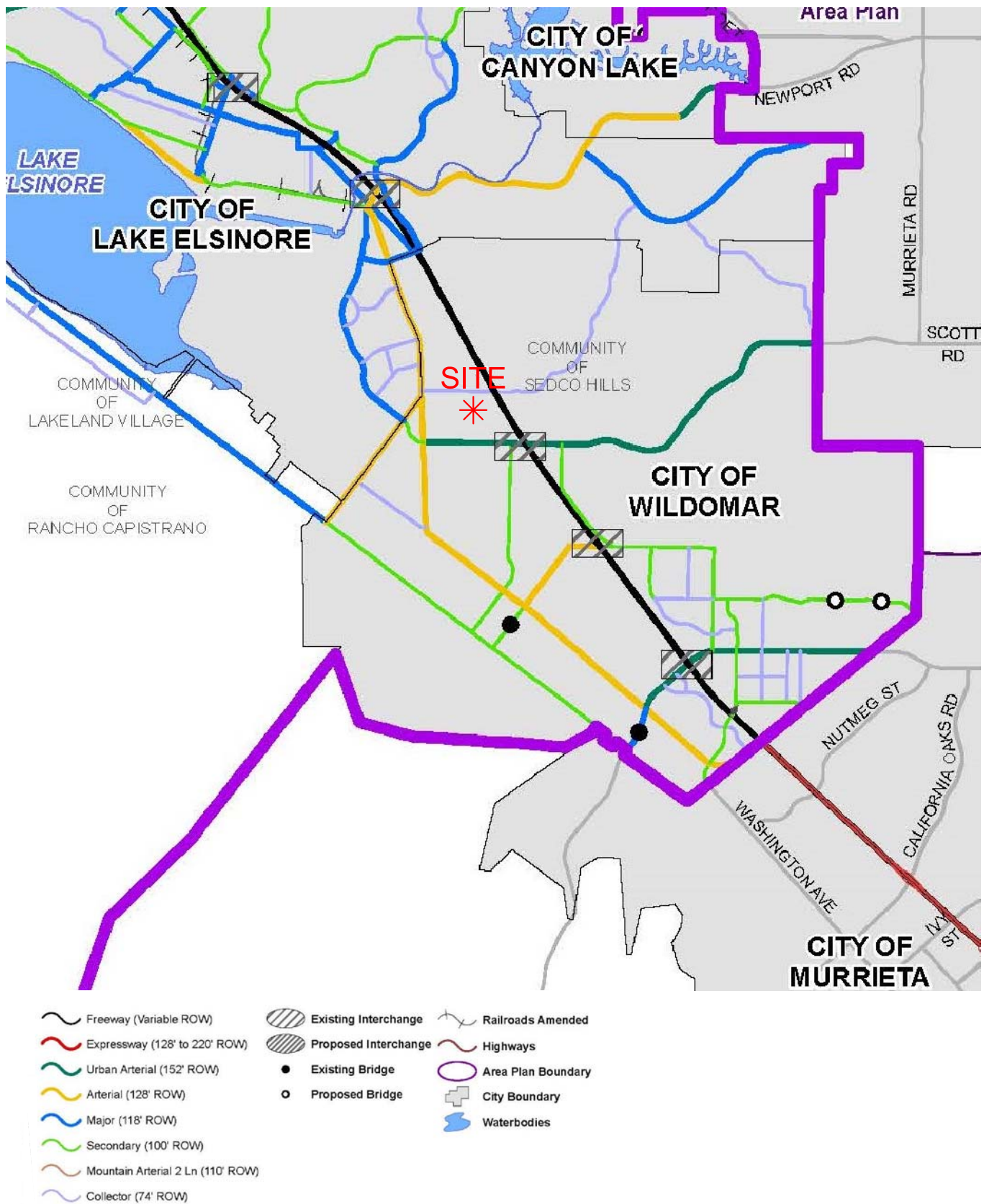
11. I-15 SB Ramps (NS) & Bundy Canyon Road (EW)



12. I-15 NB Ramps (NS) & Bundy Canyon Road (EW)

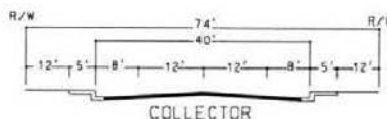
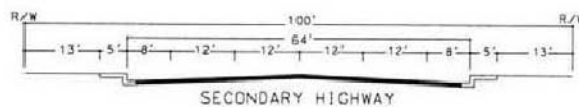
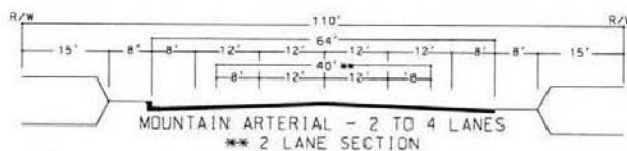
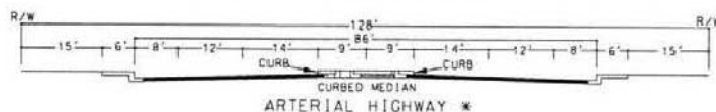
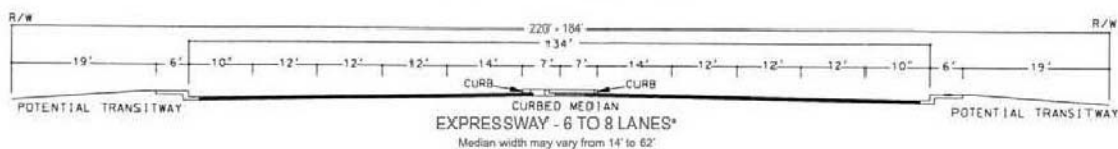


County of Riverside - Elsinore Area Plan Circulation Element



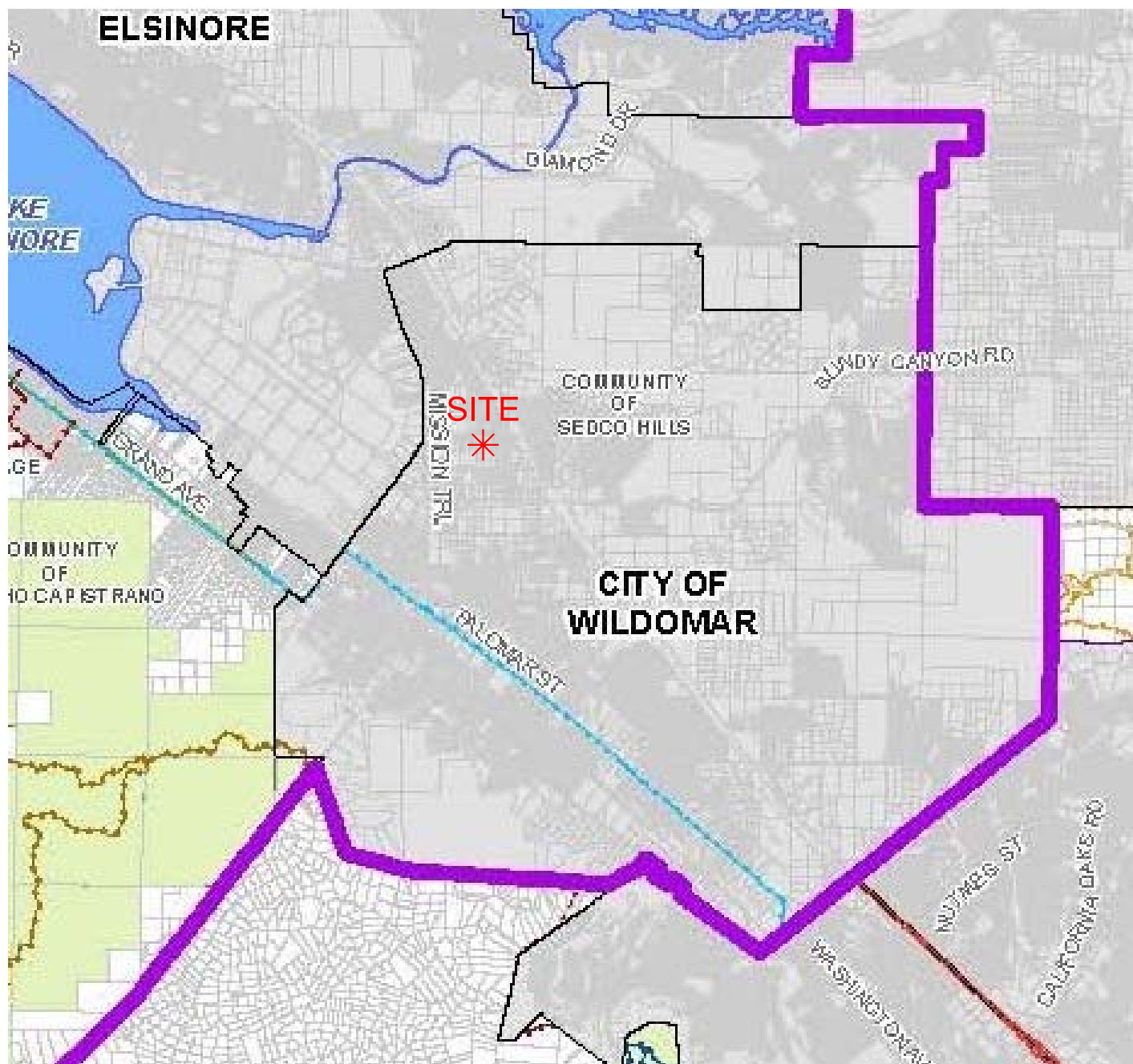
County of Riverside Roadway Cross-Sections

PROPOSED GENERAL PLAN ROADWAY CROSS SECTIONS



*IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE. ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.

County of Riverside - Elsinore Area Plan Trail System



- Regional Trail: Urban/Suburban
- Community Trail
- Combination Trail (Regional Trail / Class I Bike Path)
- Regional Trail: Open Space
- Design Guidelines Trail
- Historic Trail (Southern Immigrant Trail, Juan Bautista De Anza National Historic Trail)
- Non-County Trail (Public and Quasi-Public Lands)
- Private Trail
- Bureau of Land Management (BLM) Lands
- Miscellaneous Public Lands
- Highways
- Area Plan Boundary
- City Boundary
- Waterbodies



4.0 Projected & Future Traffic Volumes

This section provides a discussion on methodologies utilized to derive future traffic volumes for the study area.

4.1. Project Traffic Conditions

4.1.1 Trip Generation

Trip generation represents the amount of traffic that is attracted and produced by a development.

As previously noted, the proposed project is not expected to result in any significant change to the weekday conditions based on typical church activities.

Trip generation for the proposed project is determined based on ITE 10th Edition trip generation rates for the proposed land uses as shown in Table 4-1.

Utilizing the ITE trip generation rates shown in Table 4-1, Table 4-2 summarizes the daily and peak hour trip generation for the proposed project.

As shown in Table 4-2, the proposed project is forecast to generate approximately 300 daily trips during the Saturday conditions, including 133 trips during the peak hour.

As shown in Table 4-2, the proposed project is forecast to generate approximately 367 daily trips during the Sunday conditions, including 164 trips during the peak hour.

4.1.2 Trip Distribution

Trip distribution represents the directional orientation of traffic to and from the project. Trip distribution is heavily influenced by the geographical location of the site, the location of retail, employment, recreational opportunities, and the proximity to the regional freeway system. The directional orientation of traffic was determined by evaluating existing and proposed land uses and highways within the community.

Forecast trip distribution for the proposed project has been developed through discussions with the City during the scoping process.

Exhibit 4-1 shows the trip distribution for the proposed project.

4.1.3 Modal Split

Modal split denotes the proportion of traffic generated by a project that would use any of the transportation modes, namely buses, cars, bicycles, motorcycles, trains, carpools, etc. The traffic reducing potential of public transit and other modes is significant. However, the traffic projections in this study are conservative in that public transit and alternative transportation may be able to reduce the traffic volumes, but, no modal split reduction is applied to the projections. With the implementation of transit service and provision of alternative transportation ideas and incentives, the automobile traffic demand can be reduced significantly.

4.1.4 Project Peak Hour Traffic Volumes/Assignment

The assignment of traffic from the project site to the adjoining roadway system has been based upon the project's trip generation, trip distribution, and proposed arterial highway and local street systems that this traffic study assumes would be in place by the time of occupancy of the site.

Project Saturday and Sunday traffic volumes are shown on Exhibit 4-2.

4.2 Existing Plus Project Traffic Volumes

Existing Plus Project Conditions traffic volumes are derived by adding the project traffic volumes shown in Exhibit 4-2 to the existing traffic volumes shown in Exhibit 3-2.

Existing Plus Project Saturday and Sunday peak hour intersection turning movement volumes are shown in Exhibit 4-3.

4.3 Background Traffic

4.3.1 Method of Projection

To assess future conditions, project traffic is combined with existing traffic, area-wide growth, and cumulative projects' traffic.

For Opening Year (2020) conditions, to account for area wide/ambient growth in the study area, an annual growth rate of two percent (2%) has been applied to existing traffic volumes over a two-year period, as directed by City Staff.

4.3.2 Cumulative Projects Traffic

Information on future projects in the vicinity of study area has been obtained from the City of Wildomar staff for inclusion in this analysis and shown in Table 4-3.

"Probable future projects" include projects that have been filed with the City but are not yet approved or projects that the City reasonably anticipates will be submitted in the foreseeable future.

Table 4-3 shows the proposed land uses for the nearby cumulative projects provided by the City staff.

Exhibit 4-4 shows the location of the cumulative projects.

Table 4-3 also shows the Saturday and Sunday peak hour and daily trip generation for the cumulative projects.

Cumulative Projects traffic volumes are shown on Exhibit 4-5.

In reality, some of the cumulative projects may be downsized or may not be developed by project Opening Year (2020). In addition, many of the related projects have been or will be subject to a variety of mitigation measures that will reduce the potential environmental impacts associated with those projects. However, those mitigation measures have not been taken into account in projecting the environmental impact of the related projects.

Therefore, the cumulative analyses set forth below are conservative and could result in greater impacts than actually anticipated. Additionally, the analysis utilizes a growth rate of two (2) percent per year for project Opening Year (2020) conditions, which would already capture and account for most projects in the area. The growth rate methodology is considered conservative since it is applied to all movements of the study intersections.

4.4 Opening Year (2020) Cumulative Without Project Conditions Traffic Volumes

Opening Year (2020) Cumulative Without Project Conditions traffic volumes consist of existing traffic volumes and a 4% growth rate (to account for two years of annual growth at 2%) and also the traffic associated with cumulative projects in year 2020 as discussed in Section 4.3.2.

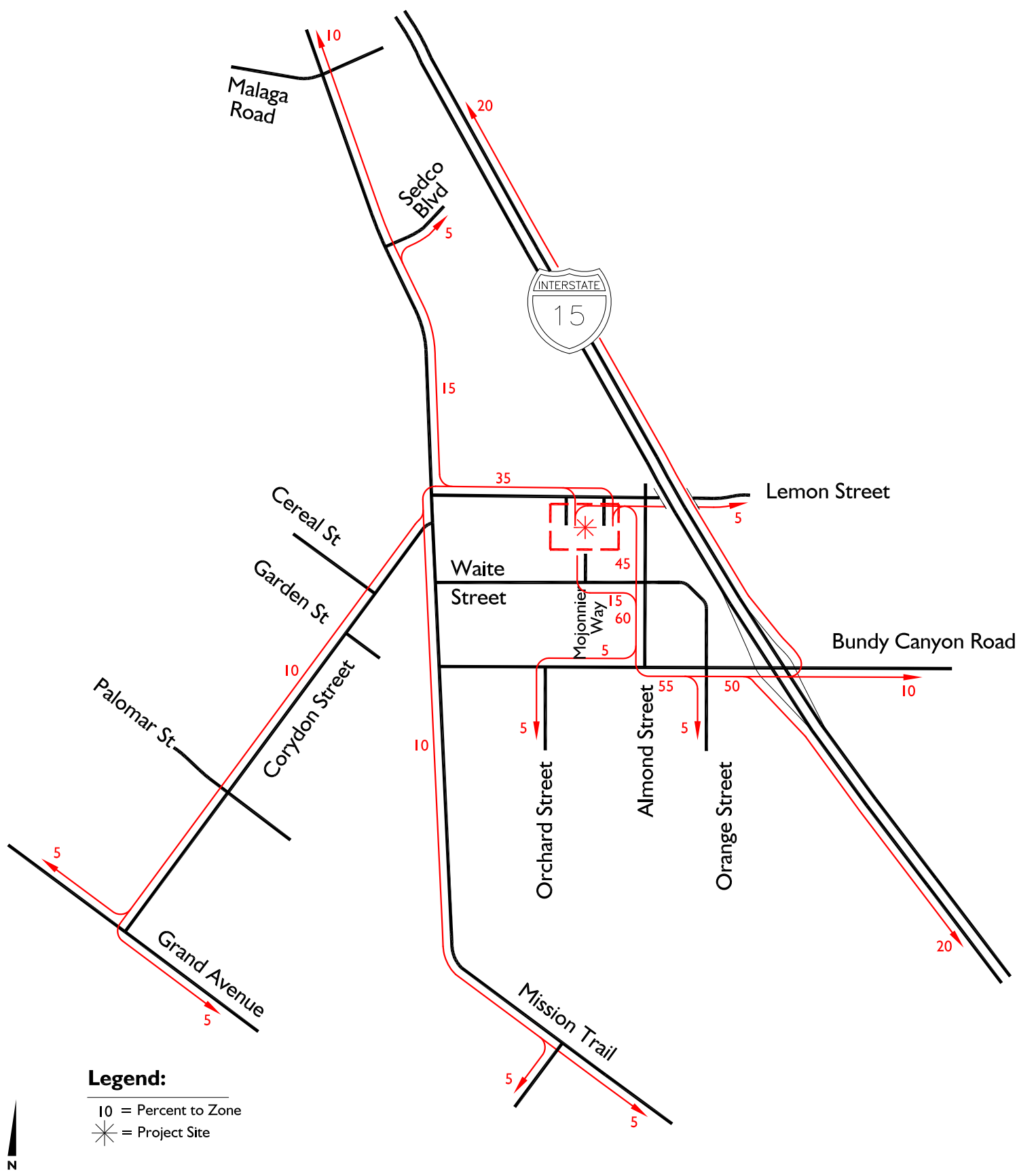
Opening Year (2020) Cumulative Without Project Conditions traffic volumes are shown on Exhibit 4-6.

4.5 Opening Year (2020) Cumulative With Project Conditions Traffic Volumes

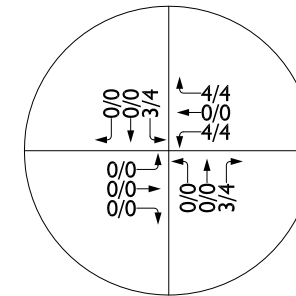
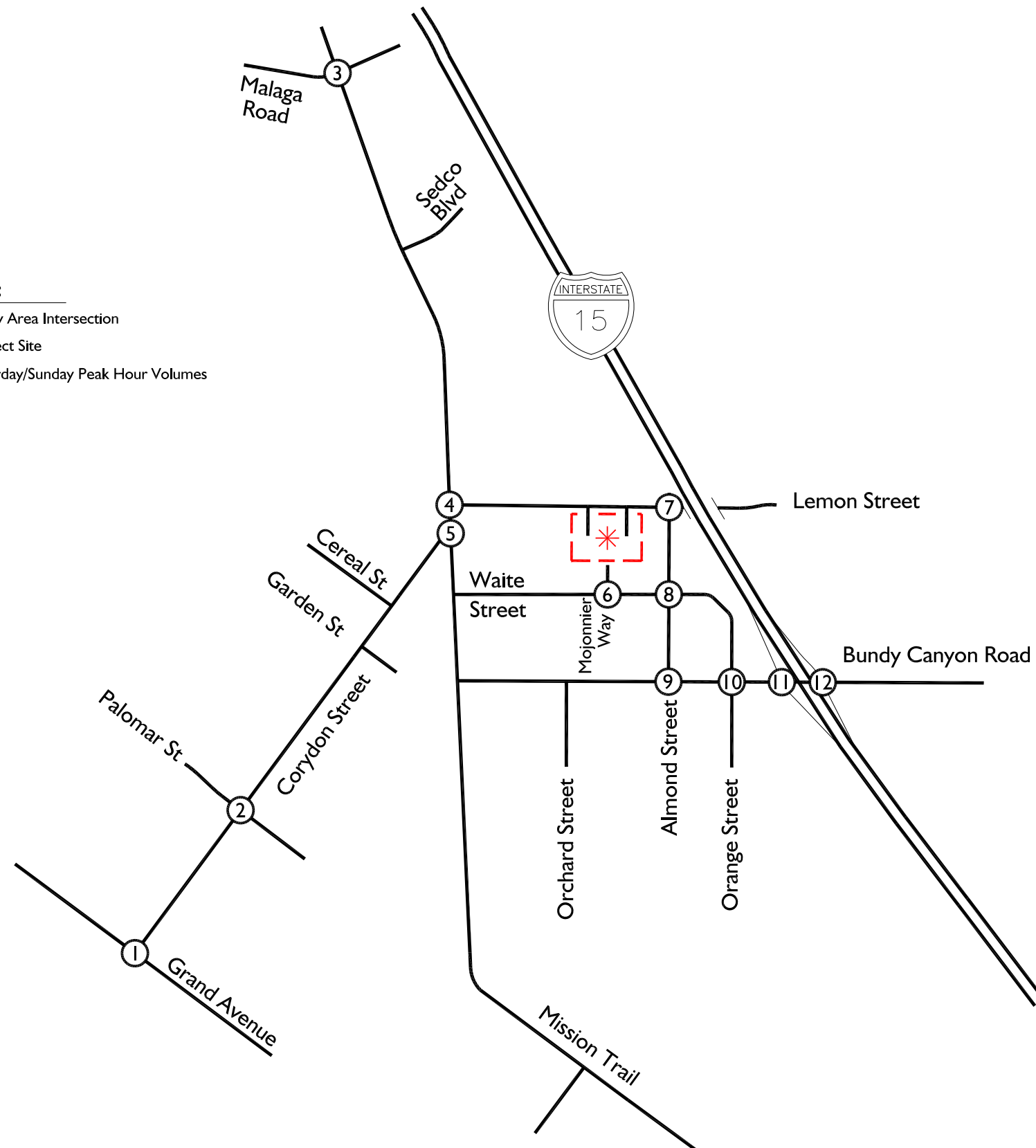
Opening Year (2020) Cumulative With Project Conditions traffic volumes consist of existing traffic volumes and a 4% growth rate (to account for two years of annual growth at 2%) and also the traffic associated with cumulative projects in year 2020 as discussed in Section 4.3.2., and also the traffic generated by the proposed project.

Opening Year (2020) Cumulative With Project Conditions traffic volumes are shown on Exhibit 4-7.

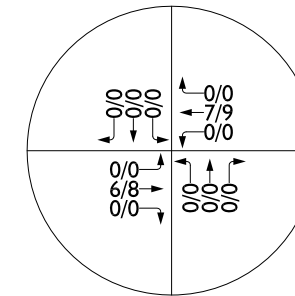
Exhibit 4-I
Project Trip Distribution



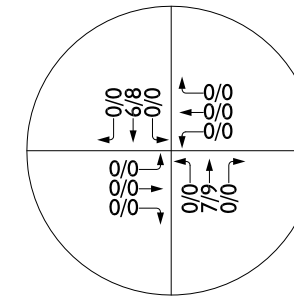
Legend:
 ① = Study Area Intersection
 * = Project Site
 10/20 = Saturday/Sunday Peak Hour Volumes



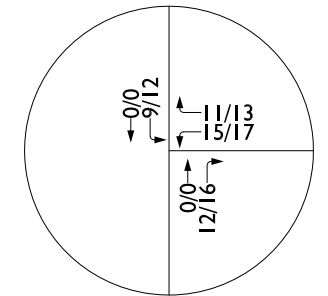
1. Grand Avenue (NS) & Corydon Street (EW)



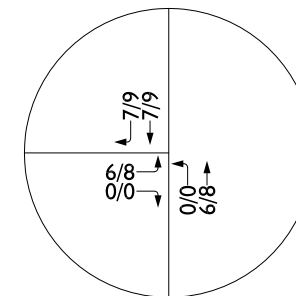
2. Palomar Street (NS) & Corydon Street (EW)



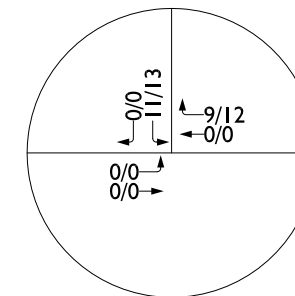
3. Mission Trail (NS) & Malaga Road (EW)



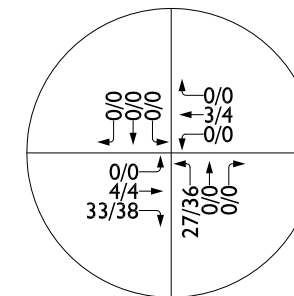
4. Mission Trail (NS) & Lemon Street (EW)



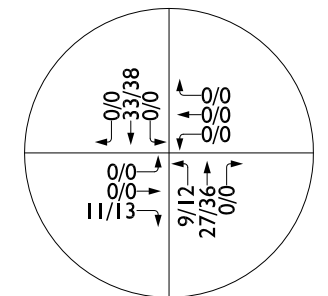
5. Mission Trail (NS) & Corydon Street (EW)



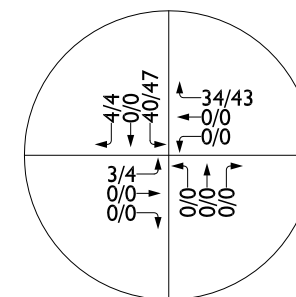
6. Mojonner Way (NS) & Waite Street (EW)



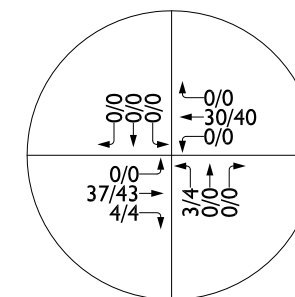
7. Almond Street (NS) & Lemon Street (EW)



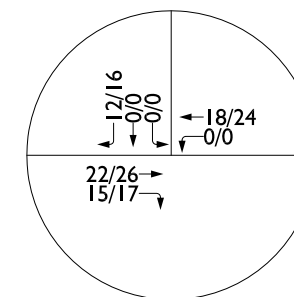
8. Almond Street (NS) & Waite Street (EW)



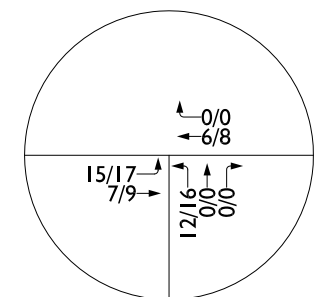
9. Almond Street (NS) & Bundy Canyon Road (EW)



10. Orange Street (NS) & Bundy Canyon Road (EW)



11. I-15 SB Ramps (NS) & Bundy Canyon Road (EW)

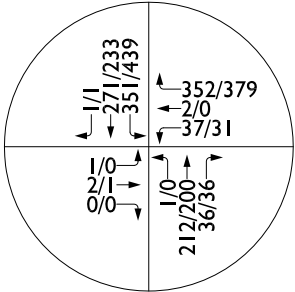
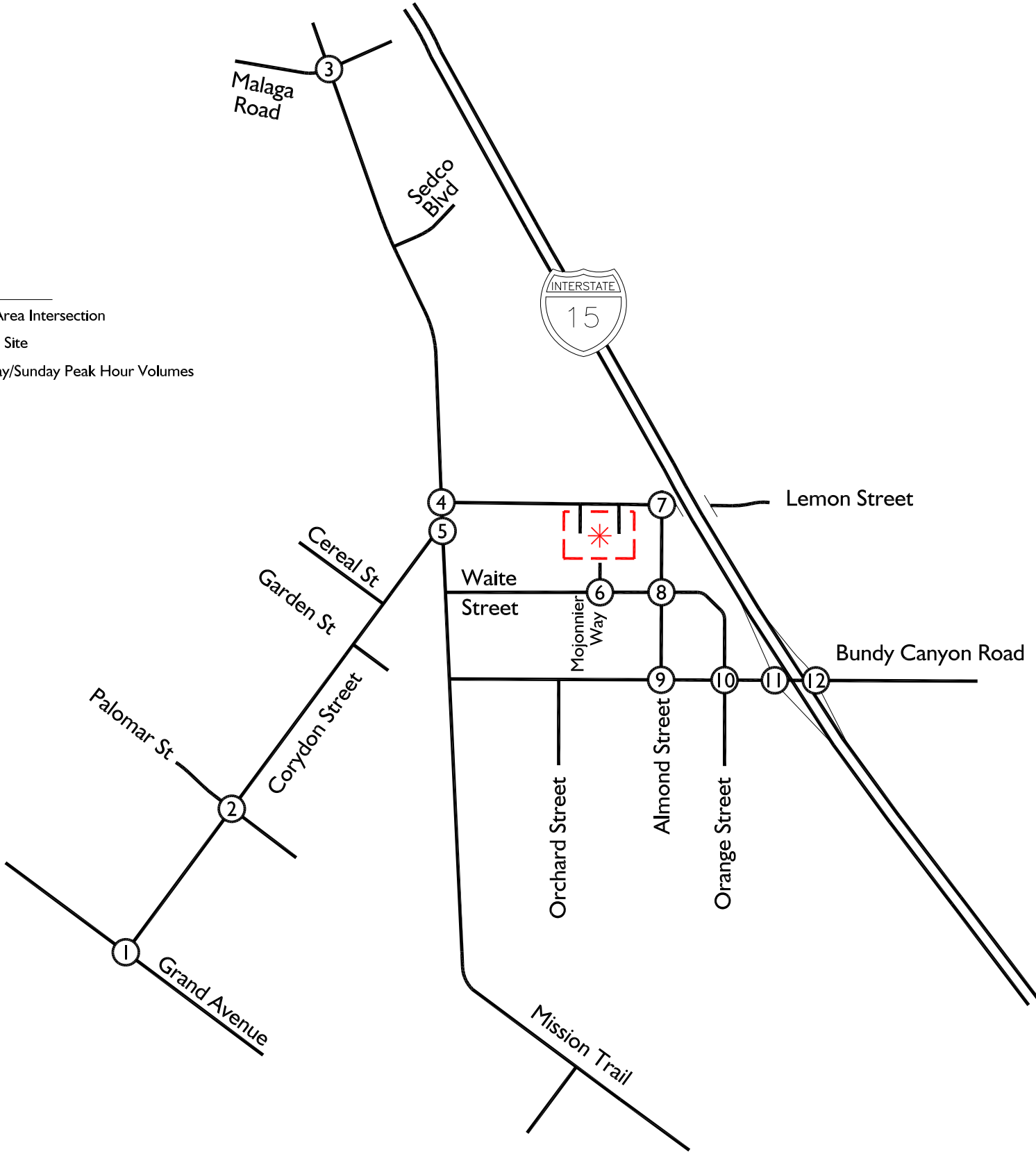


12. I-15 NB Ramps (NS) & Bundy Canyon Road (EW)

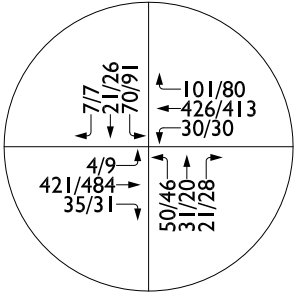


Existing Plus Project Conditions Traffic Volumes

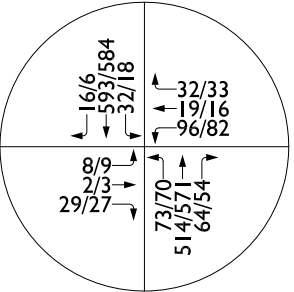
Legend:
① = Study Area Intersection
✱ = Project Site
10/20 = Saturday/Sunday Peak Hour Volumes



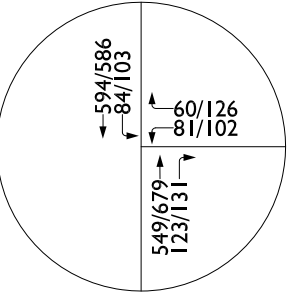
1. Grand Avenue (NS) & Corydon Street (EW)



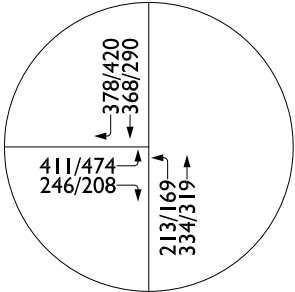
2. Palomar Street (NS) & Corydon Street (EW)



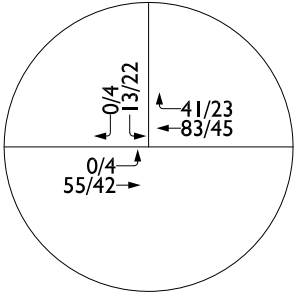
3. Mission Trail (NS) & Malaga Road (EW)



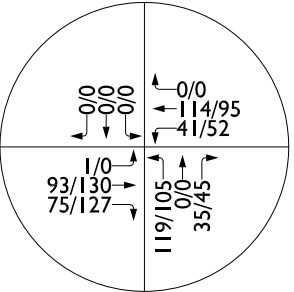
4. Mission Trail (NS) & Lemon Street (EW)



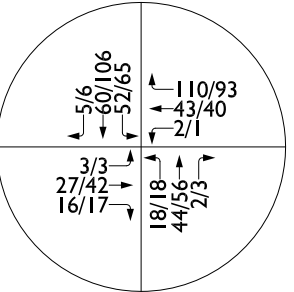
5. Mission Trail (NS) & Corydon Street (EW)



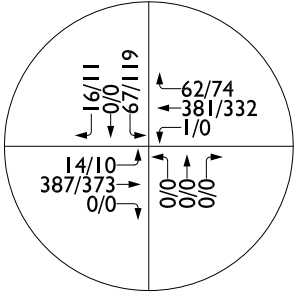
6. Mojonner Way (NS) & Waite Street (EW)



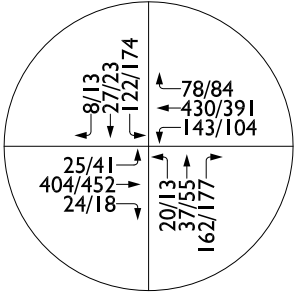
7. Almond Street (NS) & Lemon Street (EW)



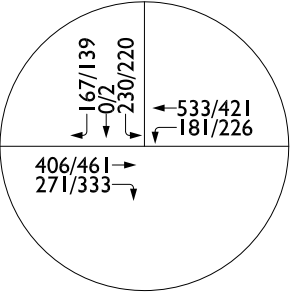
8. Almond Street (NS) & Waite Street (EW)



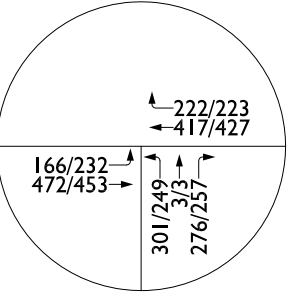
9. Almond Street (NS) & Bundy Canyon Road (EW)



10. Orange Street (NS) & Bundy Canyon Road (EW)



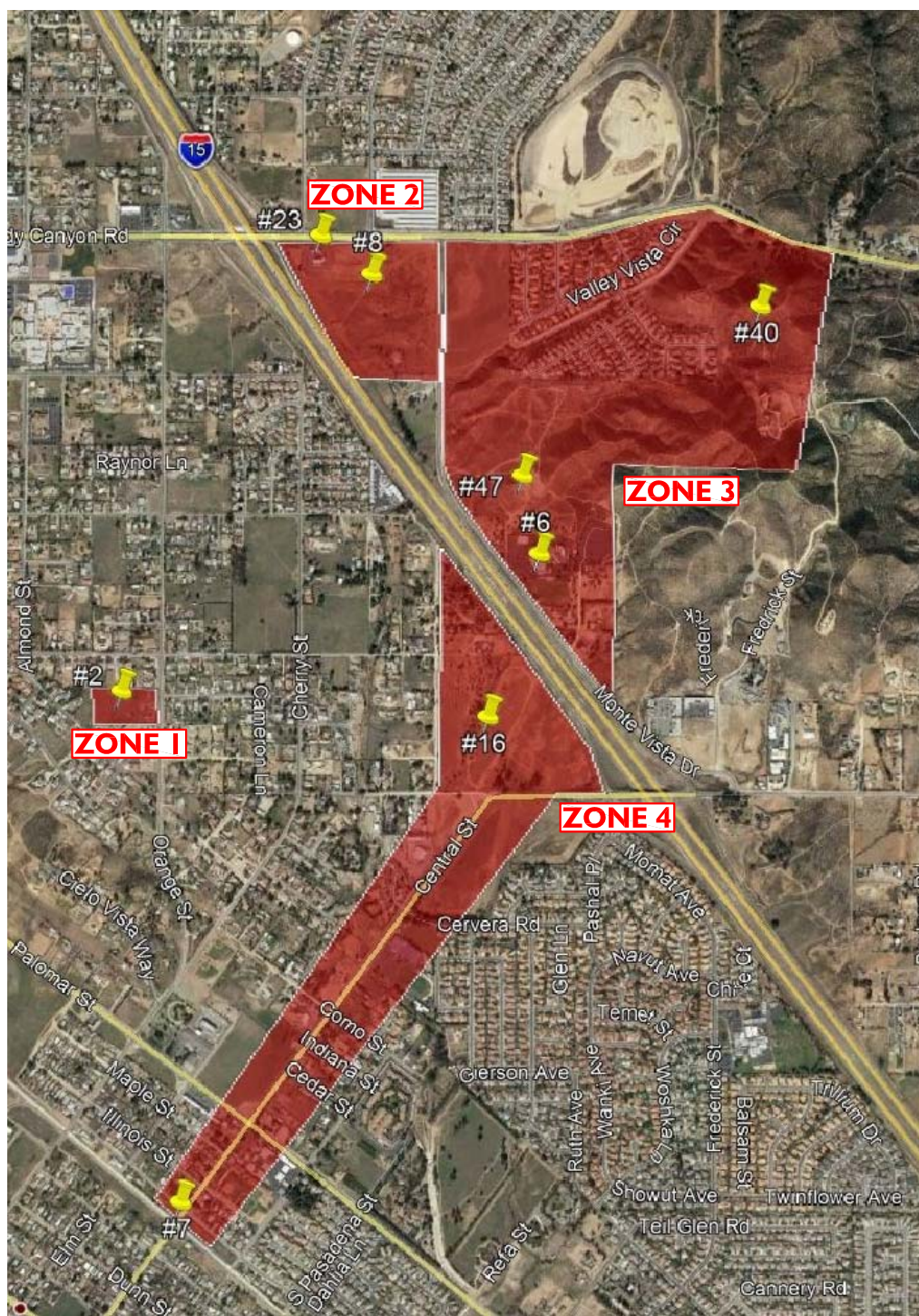
11. I-15 SB Ramps (NS) & Bundy Canyon Road (EW)



12. I-15 NB Ramps (NS) & Bundy Canyon Road (EW)



Cumulative Projects Location Map



Legend:

① = Cumulative Project

Zone 1:

② = 12-0392 (TTM 36519)

Zone 2:

②③ = 08-0179 (PM 32257)

⑧ = PA 13-0086

Zone 3:

④⑦ = PA 18-0034

⑥ = PA 12-0194

④⑩ = PA 16-0006

Zone 4:

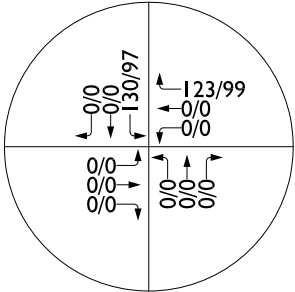
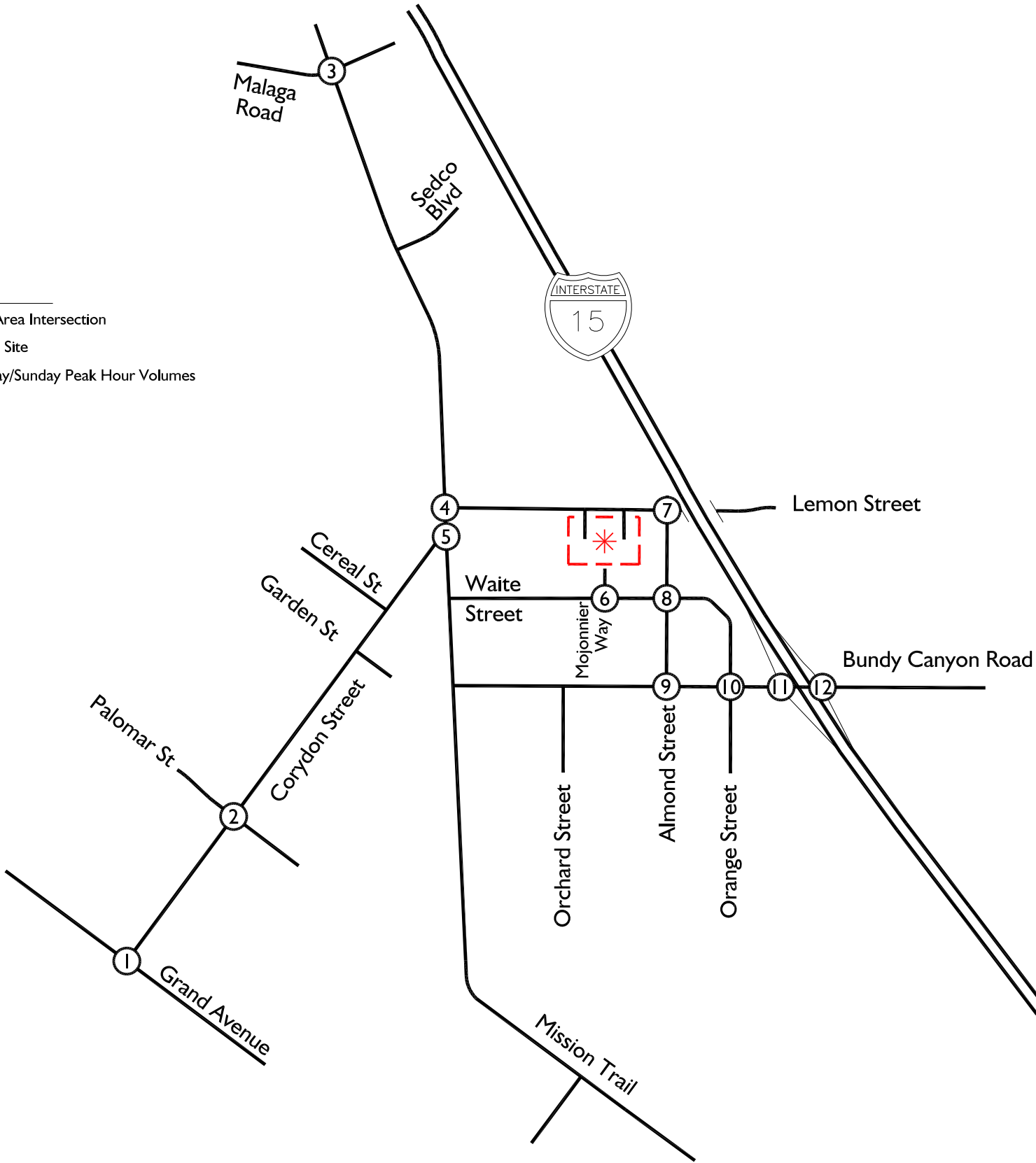
①⑥ = PA 14-0002

⑦ = PA 08-0154

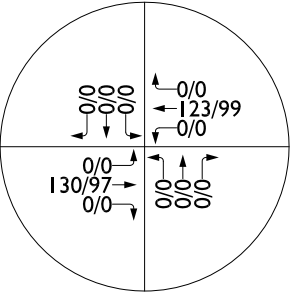


Cumulative Projects Traffic Volumes

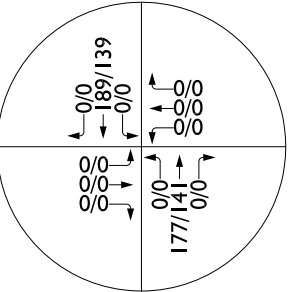
Legend:
① = Study Area Intersection
✱ = Project Site
10/20 = Saturday/Sunday Peak Hour Volumes



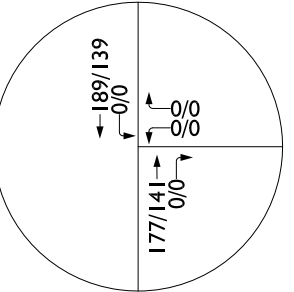
1. Grand Avenue (NS) & Corydon Street (EW)



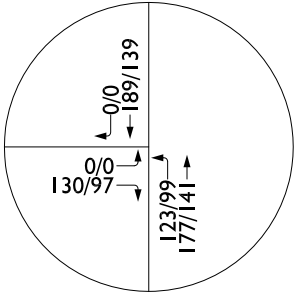
2. Palomar Street (NS) & Corydon Street (EW)



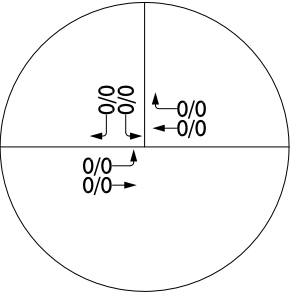
3. Mission Trail (NS) & Malaga Road (EW)



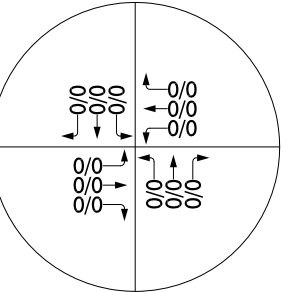
4. Mission Trail (NS) & Lemon Street (EW)



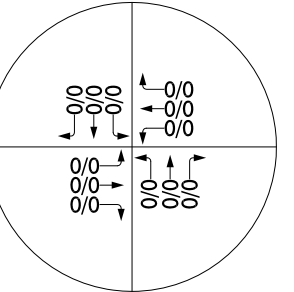
5. Mission Trail (NS) & Corydon Street (EW)



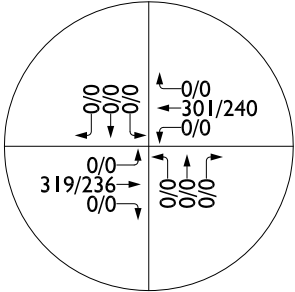
6. Mojonner Way (NS) & Waite Street (EW)



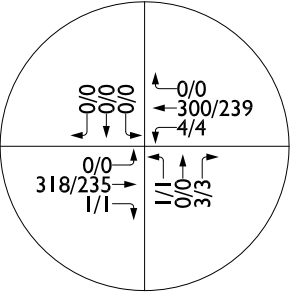
7. Almond Street (NS) & Lemon Street (EW)



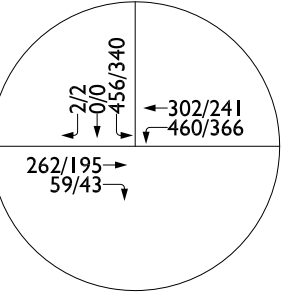
8. Almond Street (NS) & Waite Street (EW)



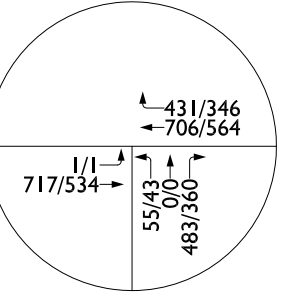
9. Almond Street (NS) & Bundy Canyon Road (EW)



10. Orange Street (NS) & Bundy Canyon Road (EW)



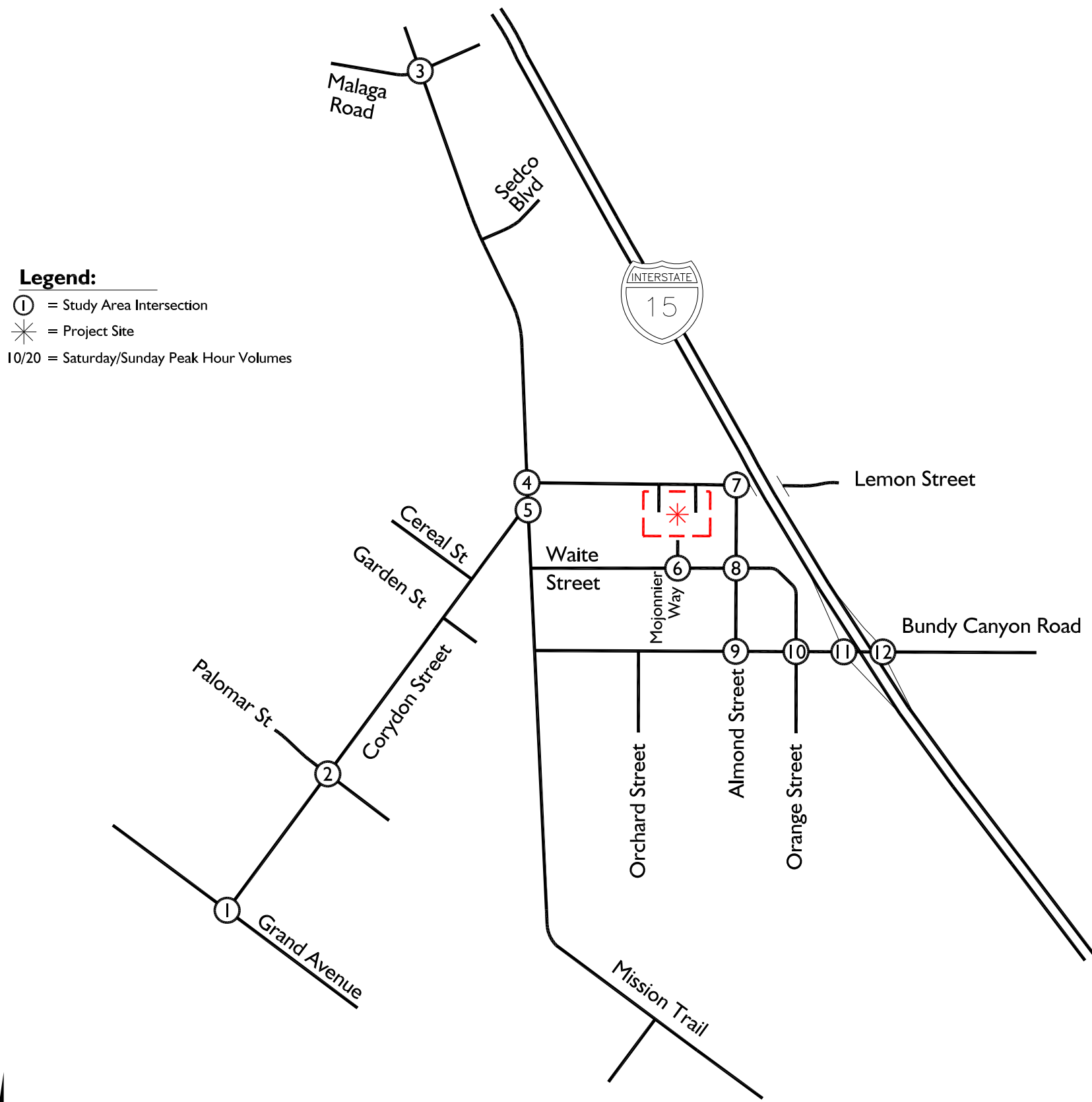
11. I-15 SB Ramps (NS) & Bundy Canyon Road (EW)



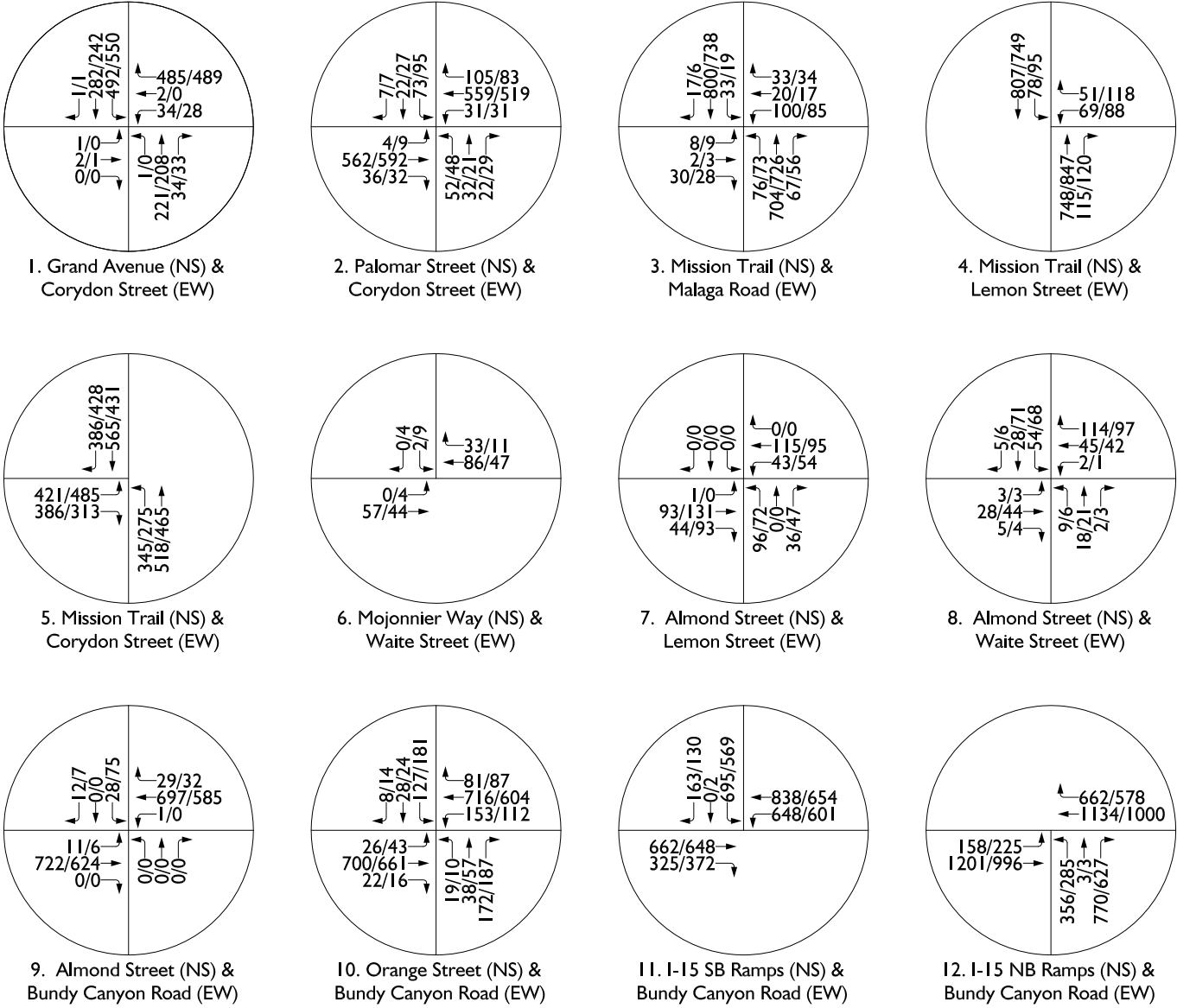
12. I-15 NB Ramps (NS) & Bundy Canyon Road (EW)



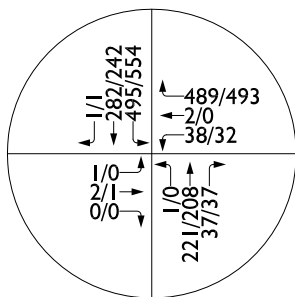
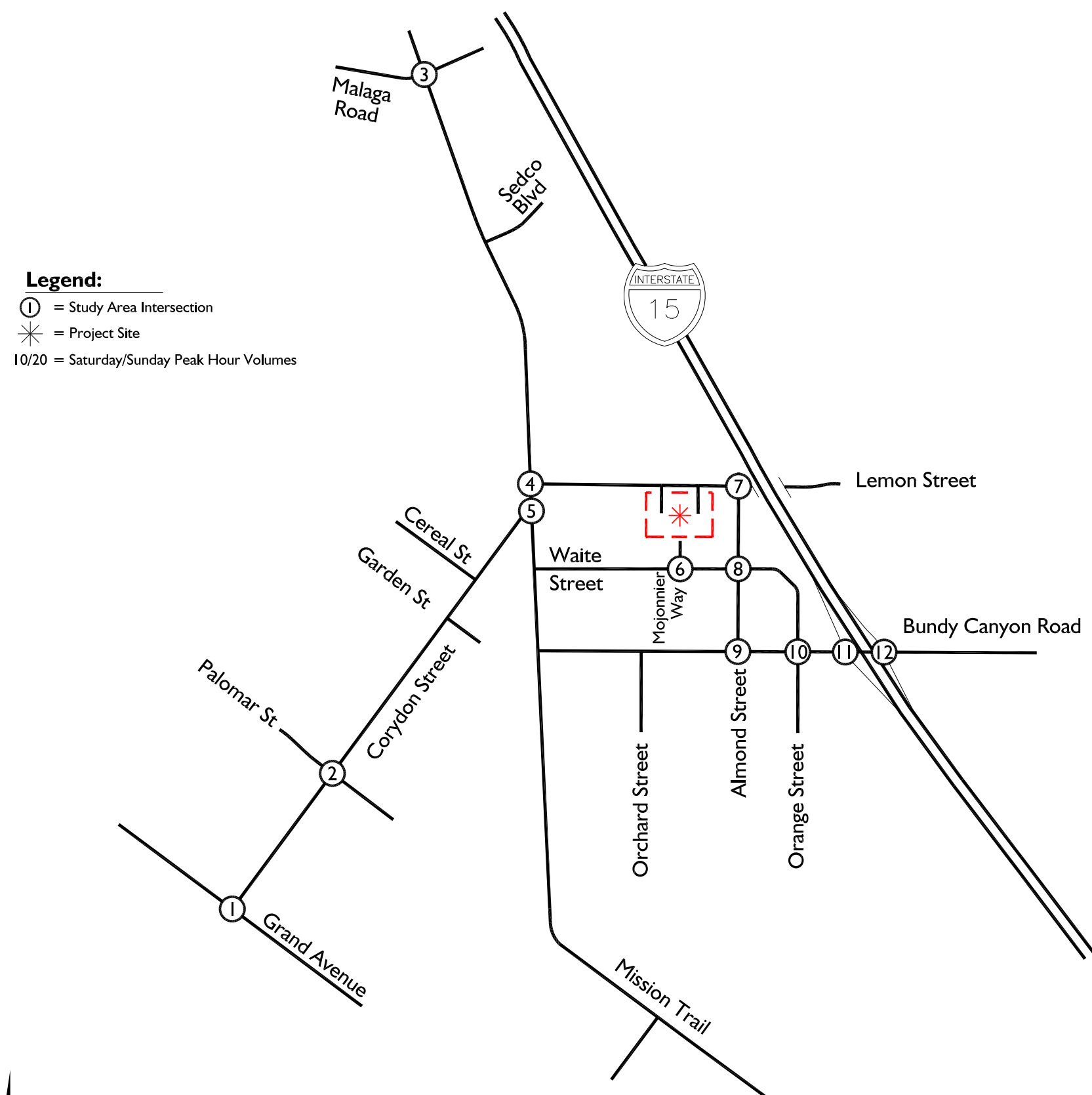
Opening Year (2020) Cumulative Without Project Conditions Traffic Volumes



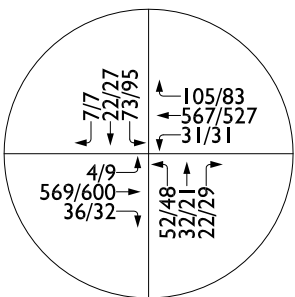
Legend:
① = Study Area Intersection
* = Project Site
10/20 = Saturday/Sunday Peak Hour Volumes



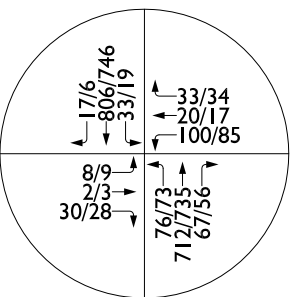
Opening Year (2020) Cumulative With Project Conditions Traffic Volumes



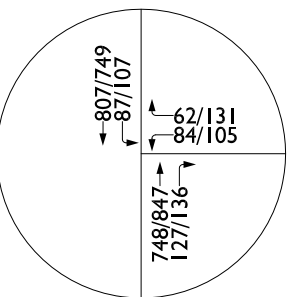
1. Grand Avenue (NS) & Corydon Street (EW)



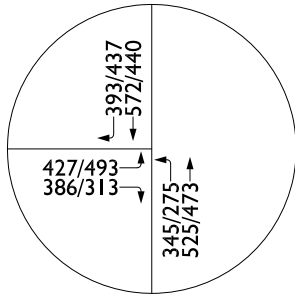
2. Palomar Street (NS) & Corydon Street (EW)



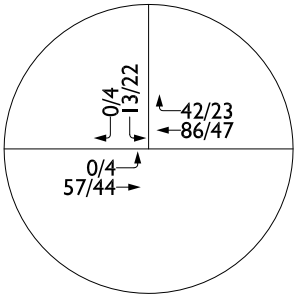
3. Mission Trail (NS) & Malaga Road (EW)



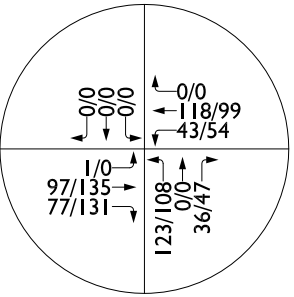
4. Mission Trail (NS) & Lemon Street (EW)



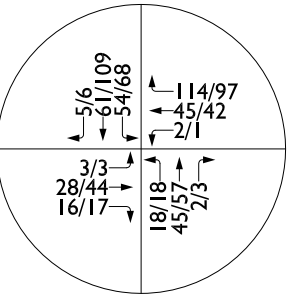
5. Mission Trail (NS) & Corydon Street (EW)



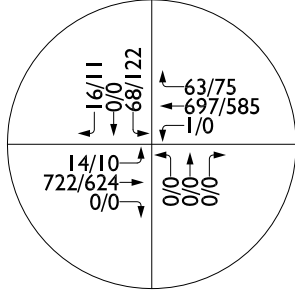
6. Mojonner Way (NS) & Waite Street (EW)



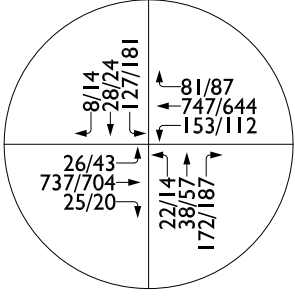
7. Almond Street (NS) & Lemon Street (EW)



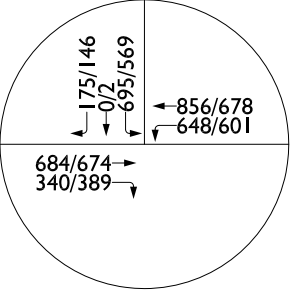
8. Almond Street (NS) & Waite Street (EW)



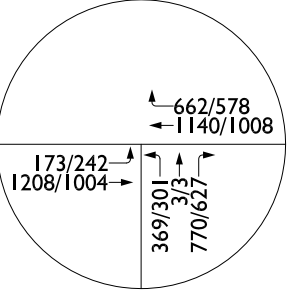
9. Almond Street (NS) & Bundy Canyon Road (EW)



10. Orange Street (NS) & Bundy Canyon Road (EW)



11. I-15 SB Ramps (NS) & Bundy Canyon Road (EW)



12. I-15 NB Ramps (NS) & Bundy Canyon Road (EW)

TABLE 4-1
Project ITE Trip Generation Rates¹

Saturday						
Land Use	Units ²	ITE Code	Peak Hour Generator			Daily
			In	Out	Total	
Church	Seats	560	0.20	0.24	0.44	0.99 ³

Sunday						
Land Use	Units ²	ITE Code	Peak Hour Generator			Daily
			In	Out	Total	
Church	Seats	560	0.26	0.28	0.54	1.21

¹ Source: 2017 ITE Trip Generation Manual (10th Edition)

² TSF = Thousand Square Feet

³ Saturday Daily Rate is estimated to be 2.25 times of Peak Hour Generator Rate based on Sunday Peak Hour Generator Rate to Daily Rate ratio.

TABLE 4-2
Proposed Project Trip Generation¹

Saturday						
Land Use (ITE Code)	Quantity	Units	Peak Hour Generator			Daily
			In	Out	Total	
Church (560)	303	Seats	61	73	133	300

Sunday						
Land Use (ITE Code)	Quantity	Units	Peak Hour Generator			Daily
			In	Out	Total	
Church (560)	303	Seats	79	85	164	367

¹ Source: 2017 ITE Trip Generation Manual (10th Edition)

TABLE 4-3
Cumulative Projects Trip Generation

ID #	Case Number	Land Use	ITE Trip Code	Quantity	Units ²	Saturday				Sunday			
						Peak Hour			Daily	Peak Hour			Daily
						In	Out	Total		In	Out	Total	
TAZ 1													
2	12-0392 (TTM 36519)	Single Family Homes	210	10	DU	5	4	9	95	5	4	9	86
TAZ 1 Total						5	4	9	95	5	4	9	86
TAZ 2													
23	08-0179 (PM 32257)	Super Convenience Market/Gas Station	960	8.120	TSF	259	259	518	5684	259	259	518	5,684
		Shopping Center	820	23.700	TSF	56	51	107	1093	32	34	66	500
		Fast Food with Drive Thru	934	8.140	TSF	228	219	447	5,015	216	233	449	3,847
8	PA 13-0086	Shopping Center	820	193.792	TSF	453	419	872	8,938	265	276	541	4,089
TAZ 2 Total						996	948	1,944	20,730	772	802	1,574	14,120
TAZ 3													
47	PA 18-0034	Single Family Homes	210	80	DU	40	34	74	763	36	32	68	684
		Business Park	770	136	TSF	174	174	348	3,482	74	73	147	1,469
6	PA 12-0194	Daycare Center	565	42.597	TSF	45	27	72	265	41	34	75	249
40	PA 16-0006	Multifamily Housing (Low-Rise)	220	140	DU	49	49	98	1,140	47	47	94	879
TAZ 3 Total						308	284	592	5,650	198	186	384	3,281
TAZ 4													
16	PA 14-0002	Shopping Center	820	75	TSF	176	162	338	3,459	102	107	209	1,583
		Multifamily Housing (Low-Rise)	220	204	DU	72	71	143	1,661	69	68	137	1,281
		Single Family Homes	210	67	DU	33	29	62	639	30	27	57	573
7	PA 08-0154	Single Family Homes	210	14	DU	7	6	13	134	6	6	12	120
TAZ 4 Total						288	268	556	5,893	207	208	415	3,557
Cumulative Trip Generation Total						1,597	1,504	3,101	32,368	1,182	1,200	2,382	21,044

¹ Cumulative Developments provided by the City of Wildomar.

² TSF = Thousand Square Feet

DU = Dwelling Units

5.0 Traffic Analysis

This section provides a discussion on the study intersection peak hour level of service analysis and findings.

5.1 Existing Conditions Level of Service

Existing Conditions Level of Service (LOS) calculations for the study intersections are shown in Table 5-1 and are based upon manual peak hour turning movement counts compiled for RK in September 2018 and shown in Exhibit 3-2 and the existing geometry shown in Exhibit 3-1.

As shown in Table 5-1, all study area intersections are currently operating at an acceptable level of service (LOS D or better) during the Saturday and Sunday peak hours for Existing Conditions.

Detailed LOS analysis sheets for Existing Conditions are contained in Appendix B.

5.2 Existing Plus Project Conditions Level of Service

Existing Plus Project Conditions Level of Service (LOS) calculations for the study intersections are shown in Table 5-2 and are based upon the Existing Plus Project Conditions traffic volumes shown in Exhibit 4-3 and the existing geometry shown in Exhibit 3-1.

As shown in Table 5-2, all study area intersections are forecast to continue to operate at an acceptable level of service (LOS D or better) during the Saturday and Sunday peak hours for Existing Plus Project Conditions.

As also shown in Table 5-2, based on agency-established thresholds of significance, the proposed project is forecast to not result in a significant traffic impact at the study intersections for Existing Plus Project Conditions.

Detailed LOS analysis sheets for Existing Plus Project Conditions are contained in Appendix C.

5.3 Opening Year (2020) Cumulative Without Project Conditions Level of Service

Opening Year (2020) Cumulative Without Project Conditions Level of Service (LOS) calculations for the study intersections are shown in Table 5-3 and are based upon the Opening Year (2020) Cumulative Without Project Conditions traffic volumes shown in Exhibit 4-6 and the existing geometry shown in Exhibit 3-1.

As shown in Table 5-3, all study area intersections are forecast to continue to operate at an acceptable level of service (LOS D or better) during the Saturday and Sunday peak hours for Opening Year (2020) Cumulative Without Project Conditions, with the exception of the following intersections during the noted peak hours:

- Int 11 - I-15 Southbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours); and
- Int 12 - I-15 Northbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours).

Detailed LOS analysis sheets for Opening Year (2020) Cumulative Without Project Conditions are contained in Appendix D.

5.4 Opening Year (2020) Cumulative With Project Conditions Level of Service

Opening Year (2020) Cumulative With Project Conditions Level of Service (LOS) calculations for the study intersections are shown in Table 5-4 and are based upon the Opening Year (2020) Cumulative With Project Conditions traffic volumes shown in Exhibit 4-7 and the existing geometry shown in Exhibit 3-1.

As shown in Table 5-4, all study area intersections are forecast to continue to operate at an acceptable level of service (LOS D or better) during the Saturday and Sunday peak hours for Opening Year (2020) Cumulative With Project Conditions, with the exception of the following intersections during the noted peak hours:

- Int 11 - I-15 Southbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours); and

- Int 12 - I-15 Northbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours).

As also shown in Table 5-4, based on agency-established thresholds of significance, the proposed project is forecast to result in a significant traffic impact at the following study intersections for Opening Year (2020) Cumulative With Project Conditions:

- Int 11 - I-15 Southbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours); and
- Int 12 - I-15 Northbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours).

Detailed LOS analysis sheets for Opening Year (2020) Cumulative With Project Conditions are contained in Appendix E.

The following mitigation measures shown in Table 5-4 are identified to eliminate the identified significant traffic impacts at the study intersections for Opening Year (2020) Cumulative With Project Conditions:

Int Mitigation #1

Int 11 – I-15 SB Ramps / Bundy Canyon Rd:

The project applicant shall make a fair share contribution to implement the following:

- a) Widen the southbound off-ramp from one left-turn lane and one shared through/right-turn lane to consist of two left-turn lanes and one shared through/right-turn lane.
- b) Widen the eastbound approach from one through lane and one shared through/right-turn lane to consist of two through lanes and one right-turn lane.

Int Mitigation #2

Int 12 – I-15 NB Ramps / Bundy Canyon Rd:

The project applicant shall make a fair share contribution to implement the following:

- a) Widen the northbound off-ramp from one left-turn lane and one shared through/right-turn lane to consist of one left-turn lane, one shared through/right-turn lane and one right-turn lane.
- b) Widen the westbound approach from one through lane and one shared through/right-turn lane to consist of two through lanes and one right-turn lane.

Table 5-4 summarizes Opening Year (2020) Cumulative With Project Conditions peak hour LOS of the study intersection assuming implementation of the identified feasible mitigation measure. HCM calculation worksheets for Mitigated Opening Year (2020) Cumulative With Project Conditions are contained in Appendix F.

As shown in Table 5-4, assuming implementation of the identified mitigation measure, the study intersections are forecast to operate at an acceptable LOS for Opening Year (2020) Cumulative With Project Conditions and the impacts are reduced to a level considered less than significant.

TABLE 5-2

Existing Plus Project Conditions

Study Intersection LOS Analysis Summary

Intersection		Traffic Control ³	Intersection Approach Lane(s) ¹												Existing Conditions				Existing Plus Project Conditions				Significant Impact?	
			Northbound			Southbound			Eastbound			Westbound			Saturday Peak Hour		Sunday Peak Hour		Saturday Peak Hour		Sunday Peak Hour			
			L	T	R	L	T	R	L	T	R	L	T	R	Delay ² (Secs)	LOS	Delay ² (Secs)	LOS	Delay ² (Secs)	LOS	Delay ² (Secs)	LOS	Saturday	Sunday
1	Grand Avenue (NS) / Corydon Street (EW)	TS	1.0	0.5	0.5	1.0	0.5	0.5	0.0	1.0!	0.0	1.0	0.0	1>	20.5	C	20.8	C	20.8	C	20.7	C	No	No
2	Palomar Street (NS) / Corydon Street (EW)	TS	1.0	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	0.5	15.1	B	16.8	B	15.3	B	17.0	B	No	No
3	Mission Trail (NS) / Malaga Road (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.0	1.0	1.0	1.5	0.5	14.3	B	13.7	B	14.4	B	13.7	B	No	No
4	Mission Trail (NS) / Lemon Street (EW)	TS	0.0	2.0	1.0	1.0	2.0	0.0	--	--	--	0.5	0.0	0.5	7.5	A	12.0	B	8.8	A	15.7	B	No	No
5	Mission Trail (NS) / Corydon Street (EW)	TS	1.0	2.0	0.0	0.0	2.0	1>	2.0	0.0	2>	--	--	--	13.5	B	13.2	B	13.5	B	13.2	B	No	No
6	Mojonnier Way (NS) / Waite Street (EW)	CSS	--	--	--	0.5	0.0	0.5	0.5	0.5	0.0	0.0	0.5	0.5	9.6	A	9.0	A	9.6	A	9.2	A	No	No
7	Almond Street (NS) / Lemon Street (EW)	CSS	0.5	0.0	0.5	--	--	--	0.0	0.5	0.5	0.5	0.5	0.0	12.4	B	13.1	B	13.7	B	15.4	C	No	No
8	Almond Street (NS) / Waite Street (EW)	AWS	0.0	1.0!	0.0	0.0	1.0!	0.0	0.0	1.0!	0.0	0.0	1.0!	0.0	8.1	A	8.3	A	8.5	A	8.9	A	No	No
9	Almond Street (NS) / Bundy Canyon Road (EW)	AWS	0.0	1.0!	0.0	0.0	1.0!	0.0	0.5	1.5	1.0	0.5	1.5	1.0	10.4	B	9.8	A	10.9	B	10.3	B	No	No
10	Orange Street (NS) / Bundy Canyon Road (EW)	TS	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1.5	0.5	1.0	1.5	0.5	25.7	C	16.1	B	26.0	C	40.9	D	No	No
11	I-15 Southbound Ramps (NS) / Bundy Canyon Road (EW)	TS	--	--	--	1.0	0.5	0.5	0.0	1.5	0.5	1.0	2.0	0.0	16.6	B	23.9	C	17.1	B	25.6	C	No	No
12	I-15 Northbound Ramps (NS) / Bundy Canyon Road (EW)	TS	1.0	0.5	0.5	--	--	--	1.0	2.0	0.0	0.0	1.5	0.5	17.5	B	19.3	B	18.2	B	20.2	C	No	No

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1.0!" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

L = Left; T = Thru; R = Right; 1.0! = Shared Left/Thru/Right; > = Right Turn Overlap; >> = Free Right Turn; **Bold** = Deficiency; *Italics* = Improvement

² Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal
CSS = Cross-Street Stop
AWS = All-Way Stop

TABLE 5-3
Opening Year (2020) Cumulative Without Project Conditions
Study Intersection LOS Analysis Summary

Intersection		Traffic Control ³	Intersection Approach Lane(s) ¹												Opening Year (2020) Cumulative Conditions			
			Northbound			Southbound			Eastbound			Westbound			Saturday Peak Hour		Sunday Peak Hour	
			L	T	R	L	T	R	L	T	R	L	T	R	Delay ² (Secs)	LOS	Delay ² (Secs)	LOS
1	Grand Avenue (NS) / Corydon Street (EW)	TS	1.0	0.5	0.5	1.0	0.5	0.5	0.0	1.0!	0.0	1.0	0.0	1>	25.7	C	23.1	C
2	Palomar Street (NS) / Corydon Street (EW)	TS	1.0	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	0.5	17.2	B	19.4	B
3	Mission Trail (NS) / Malaga Road (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.0	1.0	1.0	1.5	0.5	15.8	B	14.8	B
4	Mission Trail (NS) / Lemon Street (EW)	TS	0.0	2.0	1.0	1.0	2.0	0.0	--	--	--	0.5	0.0	0.5	7.4	A	13.3	B
5	Mission Trail (NS) / Corydon Street (EW)	TS	1.0	2.0	0.0	0.0	2.0	1>	2.0	0.0	2>	--	--	--	16.0	B	15.4	B
6	Mojonnier Way (NS) / Waite Street (EW)	CSS	--	--	--	0.5	0.0	0.5	0.5	0.5	0.0	0.0	0.5	0.5	9.5	A	9.0	A
7	Almond Street (NS) / Lemon Street (EW)	CSS	0.5	0.0	0.5	--	--	--	0.0	0.5	0.5	0.5	0.5	0.0	12.8	B	13.5	B
8	Almond Street (NS) / Waite Street (EW)	AWS	0.0	1.0!	0.0	0.0	1.0!	0.0	0.0	1.0!	0.0	0.0	1.0!	0.0	8.1	A	8.5	A
9	Almond Street (NS) / Bundy Canyon Road (EW)	AWS	0.0	1.0!	0.0	0.0	1.0!	0.0	0.5	1.5	1.0	0.5	1.5	1.0	23.7	C	14.2	B
10	Orange Street (NS) / Bundy Canyon Road (EW)	TS	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1.5	0.5	1.0	1.5	0.5	33.3	C	47.6	D
11	I-15 Southbound Ramps (NS) / Bundy Canyon Road (EW)	TS	--	--	--	1.0	0.5	0.5	0.0	1.5	0.5	1.0	2.0	0.0	117.2	F	116.4	F
12	I-15 Northbound Ramps (NS) / Bundy Canyon Road (EW)	TS	1.0	0.5	0.5	--	--	--	1.0	2.0	0.0	0.0	1.5	0.5	147.5	F	101.0	F

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1.0!" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

L = Left; T = Thru; R = Right; 1.0! = Shared Left/Thru/Right; > = Right Turn Overlap; >> = Free Right Turn; **Bold** = Deficiency; *Italics* = Improvement

² Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal
CSS = Cross-Street Stop
AWS = All-Way Stop

TABLE 5-4
Opening Year (2020) Cumulative With Project Conditions
Study Intersection LOS Analysis Summary

Intersection			Traffic Control ³	Intersection Approach Lane(s) ¹												Opening Year (2020) Cumulative Conditions				Opening Year (2020) Cumulative Conditions With				Significant Impact?	
				Northbound			Southbound			Eastbound			Westbound			Saturday Peak Hour		Sunday Peak Hour		Saturday Peak Hour		Sunday Peak Hour			
				L	T	R	L	T	R	L	T	R	L	T	R	Delay ² (Secs)	LOS	Delay ² (Secs)	LOS	Delay ² (Secs)	LOS	Delay ² (Secs)	LOS	Saturday	Sunday
1	Grand Avenue (NS) / Corydon Street (EW)		TS	1.0	0.5	0.5	1.0	0.5	0.5	0.0	1.0!	0.0	1.0	0.0	1>	25.7	C	23.1	C	25.8	C	23.5	C	No	No
2	Palomar Street (NS) / Corydon Street (EW)		TS	1.0	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	0.5	17.2	B	19.4	B	17.3	B	19.7	B	No	No
3	Mission Trail (NS) / Malaga Road (EW)		TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.0	1.0	1.0	1.5	0.5	15.8	B	14.8	B	15.8	B	14.9	B	No	No
4	Mission Trail (NS) / Lemon Street (EW)		TS	0.0	2.0	1.0	1.0	2.0	0.0	--	--	--	0.5	0.0	0.5	7.4	A	13.3	B	8.3	A	13.7	B	No	No
5	Mission Trail (NS) / Corydon Street (EW)		TS	1.0	2.0	0.0	0.0	2.0	1>	2.0	0.0	2>	--	--	--	16.0	B	15.4	B	16.1	B	15.5	B	No	No
6	Mojonnier Way (NS) / Waite Street (EW)		CSS	--	--	--	0.5	0.0	0.5	0.5	0.5	0.0	0.0	0.5	0.5	9.5	A	9.0	A	9.6	A	9.2	A	No	No
7	Almond Street (NS) / Lemon Street (EW)		CSS	0.5	0.0	0.5	--	--	--	0.0	0.5	0.5	0.5	0.5	0.0	12.8	B	13.5	B	14.2	B	16.0	C	No	No
8	Almond Street (NS) / Waite Street (EW)		AWS	0.0	1.0!	0.0	0.0	1.0!	0.0	0.0	1.0!	0.0	0.0	1.0!	0.0	8.1	A	8.5	A	8.6	A	9.0	A	No	No
9	Almond Street (NS) / Bundy Canyon Road (EW)		AWS	0.0	1.0!	0.0	0.0	1.0!	0.0	0.5	1.5	1.0	0.5	1.5	1.0	23.7	C	14.2	B	28.1	D	15.4	C	No	No
10	Orange Street (NS) / Bundy Canyon Road (EW)		TS	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1.5	0.5	1.0	1.5	0.5	33.3	C	47.6	D	34.2	C	49.4	D	No	No
11	I-15 Southbound Ramps (NS) / Bundy Canyon Road (EW)		TS	--	--	--	1.0	0.5	0.5	0.0	1.5	0.5	1.0	2.0	0.0	117.2	F	116.4	F	119.5	F	119.6	F	Yes	Yes
Mitigated			TS	--	--	--	2.0	0.5	0.5	0.0	2.0	1.0	1.0	2.0	0.0					41.2	D	46.7	D	No	No
12	I-15 Northbound Ramps (NS) / Bundy Canyon Road (EW)		TS	1.0	0.5	0.5	--	--	--	1.0	2.0	0.0	0.0	1.5	0.5	147.5	F	101.0	F	149.8	F	106.5	F	Yes	Yes
Mitigated			TS	1.0	0.5	1.5	--	--	--	1.0	2.0	0.0	0.0	2.0	1.0					42.0	D	32.9	C	No	No

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1.0!" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

L = Left; T = Thru; R = Right; 1.0! = Shared Left/Thru/Right; > = Right Turn Overlap; >> = Free Right Turn; **Bold** = Deficiency; *Italics* = Improvement

² Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal
CSS = Cross-Street Stop
AWS = All-Way Stop

6.0 Findings, Recommendations & Conclusions

The purpose of this traffic study is to assess the impacts of the proposed expansion of the St. Francis of Rome Church.

6.1 Proposed Project

The project site is located at 21591 Lemon Street, in the City of Wildomar. The proposed church site will be converting the existing church building into a multipurpose room. In addition the project is proposing to construct the following:

- 303 additional seats to the existing 897-seat church (bringing the total capacity to 1,200 seats) (north side of property); and
- Office and Classrooms (southwest side of property).

Access for the proposed project will continue to utilize two existing unsignalized driveways on Lemon Street and one existing unsignalized driveway on Mojonier Way.

The project will be evaluated in a single phase and is planned to open in 2020.

6.2 Project Trip Generation

Trip generation for the proposed project is determined based on ITE trip generation rates for the proposed land uses.

As previously noted, the proposed project is not expected to result in any significant change to the weekday conditions based on typical church activities.

The proposed project is forecast to generate approximately 300 daily trips during the Saturday conditions, including 133 trips during the peak hour.

The proposed project is forecast to generate approximately 367 daily trips during the Sunday conditions, including 164 trips during the peak hour.

6.3 Study Area & Conditions

This traffic study has been prepared in accordance with the traffic study guidelines, requirements and thresholds of significance for the City of Wildomar.

This study is prepared in accordance with the scope of work approved by the City of Wildomar staff. A copy of the scope of work which was approved via email communication is contained in Appendix H.

The study area consists of the following intersections:

North-South Street	East-West Street
1. Grand Avenue	Corydon Street
2. Palomar Street	Corydon Street
3. Mission Trail	Malaga Road
4. Mission Trail	Lemon Street
5. Mission Trail	Corydon Street
6. Mojonnier Way	Waite Street
7. Almond Street	Lemon Street
8. Almond Street	Waite Street
9. Almond Street	Bundy Canyon Road
10. Orange Street	Bundy Canyon Road
11. I-15 Southbound Ramps	Bundy Canyon Road
12. I-15 Northbound Ramps	Bundy Canyon Road

The analysis evaluates traffic conditions of the study intersections for the following scenarios in accordance with the City of Wildomar and the approved scope of work. A copy of the scope of work which was approved via email communication is contained in Appendix H.:

- Existing Conditions;
- Existing Plus Project Conditions;
- Opening Year (2020) Cumulative Without Project Conditions (Existing Plus Ambient Growth Plus Cumulative Project); and

Opening Year (2020) Cumulative with Project Conditions (Existing Plus Ambient Growth Plus Cumulative Projects Plus Proposed Project).

6.4 LOS Analysis & Significant Impact Summary

Existing Conditions

All study area intersections are currently operating at an acceptable level of service (LOS D or better) during the Saturday and Sunday peak hours for Existing Conditions.

Existing Plus Project Conditions:

All study area intersections are forecast to continue to operate at an acceptable level of service (LOS D or better) during the Saturday and Sunday peak hours for Existing Plus Project Conditions.

Based on agency-established thresholds of significance, the proposed project is forecast to not result in a significant traffic impact at the study intersections for Existing Plus Project Conditions.

Opening Year (2020) Cumulative Without Project Conditions:

All study area intersections are forecast to continue to operate at an acceptable level of service (LOS D or better) during the Saturday and Sunday peak hours for Opening Year (2020) Cumulative Without Project Conditions, with the exception of the following intersections during the noted peak hours:

- Int 11 - I-15 Southbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours); and
- Int 12 - I-15 Northbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours).

Opening Year (2020) Cumulative With Project Conditions:

All study area intersections are forecast to continue to operate at an acceptable level of service (LOS D or better) during the Saturday and Sunday peak hours for Opening Year

(2020) Cumulative With Project Conditions, with the exception of the following intersections during the noted peak hours:

- Int 11 - I-15 Southbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours); and
- Int 12 - I-15 Northbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours).

Based on agency-established thresholds of significance, the proposed project is forecast to result in a significant traffic impact at the following study intersections for Opening Year (2020) Cumulative With Project Conditions:

- Int 11 - I-15 Southbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours); and
- Int 12 - I-15 Northbound Ramps / Bundy Canyon Road (both Saturday & Sunday peak hours).

The following mitigation measures are identified to eliminate the identified significant traffic impacts at the study intersections for Opening Year (2020) Cumulative With Project Conditions:

Int Mitigation #1

Int 11 – I-15 SB Ramps / Bundy Canyon Rd:

The project applicant shall make a fair share contribution to implement the following:

- a) Widen the southbound off-ramp from one left-turn lane and one shared through/right-turn lane to consist of two left-turn lanes and one shared through/right-turn lane.
- b) Widen the eastbound approach from one through lane and one shared through/right-turn lane to consist of two through lanes and one right-turn lane.

Int Mitigation #2

Int 12 – I-15 NB Ramps / Bundy Canyon Rd:

The project applicant shall make a fair share contribution to implement the following:

- a) Widen the northbound off-ramp from one left-turn lane and one shared through/right-turn lane to consist of one left-turn lane, one shared through/right-turn lane and one right-turn lane.
- b) Widen the westbound approach from one through lane and one shared through/right-turn lane to consist of two through lanes and one right-turn lane.

Assuming implementation of the identified mitigation measure, the study intersections are forecast to operate at an acceptable LOS for Opening Year (2020) Cumulative With Project Conditions and the impacts are reduced to a level considered less than significant.

6.5 Fees and Funding

Project fair-share contribution represents the project's traffic contribution at each study area intersection as a percentage of the overall growth in traffic for Opening Year 2020 conditions. This table is for informational purposes only and is not tied to mitigation. The project's fair share contribution is summarized in Table 6-1, and a conceptual cost estimate summary is also provided in Table 6-2.

The City of Wildomar also implements Development Impact Fees (DIF) and participates in the County of Riverside Transportation Uniform Mitigation Fee program (TUMF). Both the DIF and the TUMF programs are designed to provide funding for mitigation of intersections that are forecast to exceed their present capacity. For the case of the proposed project, since the project is a public/institution land use, it is exempt from TUMF and DIF. Hence, the required and identified mitigations would need to be addressed and implemented on a fair-share basis.

Mitigation measures are identified for the following two (2) study area intersections:

- I-15 Southbound Ramps at Bundy Canyon Road; and

- I-15 Northbound Ramps at Bundy Canyon Road.

All two (2) intersections are included within the TUMF roadway network. Therefore, the said intersections may be eligible for funding for mitigation measures through the TUMF program. Since the said intersections are within the County's TUMF roadway network, they are not covered by the City's DIF program. For the case of the proposed project, since the project is a public/institution land use, it is exempt from TUMF and DIF. Hence, the required and identified mitigations would need to be addressed and implemented on a fair-share basis.

6.6 Site Access Recommendations

- I. Sight distance at all project access points should be reviewed with respect to City of Wildomar sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.
- II. Provide appropriate signage and pavement markings at the project site driveways, including stop bars and stop signs.

TABLE 6-1

Project Fair-Share Intersection Contribution

Project Fair-Share Contribution for Opening Year (2020) Cumulative Conditions With Project											
Intersection		Existing Traffic		Opening Year (2020) Cumulative Conditions With Project Traffic		Growth in Traffic		Project Traffic		Project % of Opening Year (2020) Cumulative Conditions With Project Growth in Traffic	
		Saturday	Sunday	Saturday	Sunday	Saturday	Sunday	Saturday	Sunday	Saturday	Sunday
11	I-15 Southbound Ramps (NS) / Bundy Canyon Road (EW)	1,721	1,719	3,398	3,059	1,677	1,340	67	83	4.00%	6.19%
12	I-15 Northbound Ramps (NS) / Bundy Canyon Road (EW)	1,817	1,794	4,325	3,763	2,508	1,969	40	50	1.59%	2.54%

1

Project Fair-Share Contribution represents the project's traffic contribution at each study area intersection as a percentage of the overall growth in traffic for Opening Year 2020 conditions. This table is for informational purposes only and is not tied to mitigation.

TABLE 6-2**Mitigation Measures Conceptual Cost Estimate Summary**

Intersection		Cost of Mitigation Measures	Project Fair Share		Project Share of Cost	
			Saturday	Sunday	Saturday	Sunday
11.	I-15 Southbound Ramps (NS) / Bundy Canyon Road (EW)	\$745,550	4.00%	6.19%	\$29,786	\$46,180
12.	I-15 Northbound Ramps (NS) / Bundy Canyon Road (EW)	\$745,550	1.59%	2.54%	\$11,891	\$18,932
Total		\$1,491,100	---	---	\$41,677	\$65,112

Assumes not right-of way acquisition is required.

Appendix A

Existing Traffic Count Worksheets

City of Wildomar
N/S: Grand Avenue
E/W: Corydon Road
Weather: Clear

File Name : 01_WDM_Grand_Corydon Sat
Site Code : 10518676
Start Date : 9/22/2018
Page No : 1

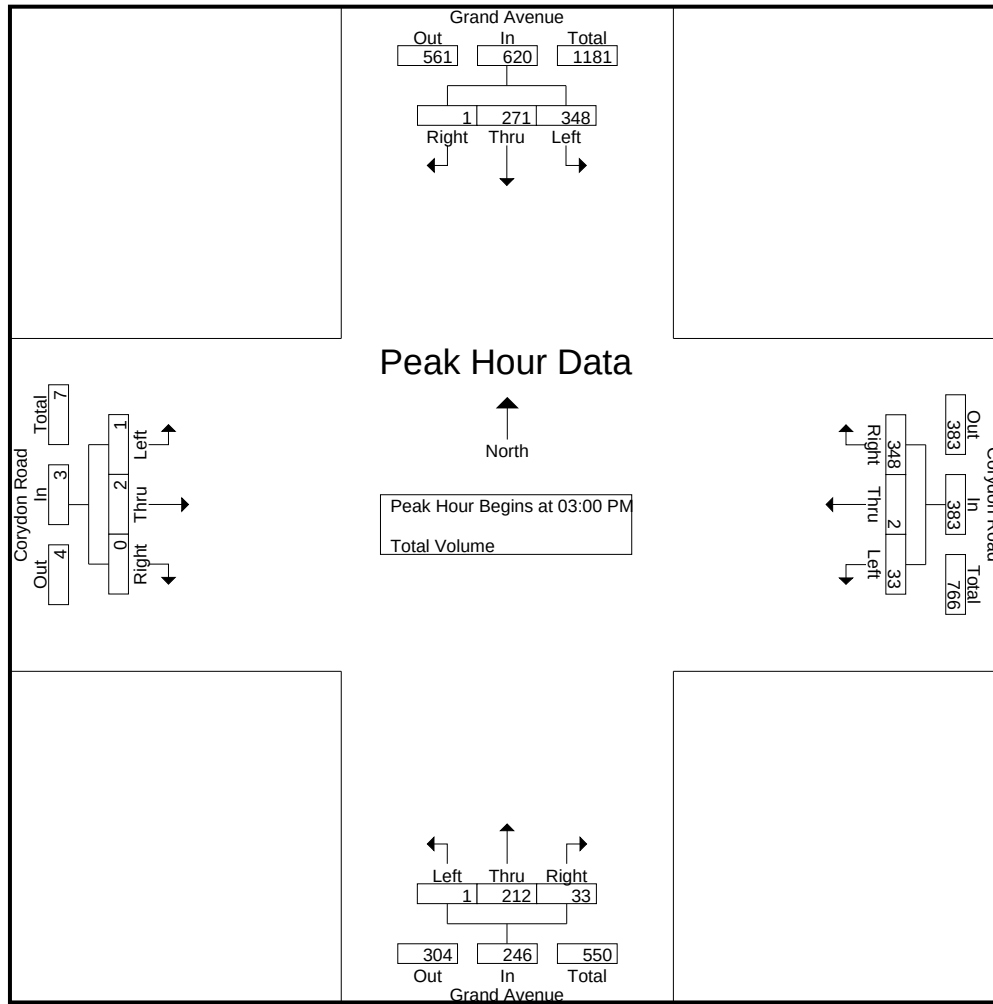
Groups Printed- Total Volume

	Grand Avenue Southbound				Corydon Road Westbound				Grand Avenue Northbound				Corydon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	100	68	0	168	6	0	83	89	0	31	7	38	0	0	0	0	295
02:15 PM	78	64	0	142	10	0	87	97	0	56	8	64	0	0	0	0	303
02:30 PM	84	83	1	168	8	0	98	106	0	48	8	56	0	1	0	1	331
02:45 PM	105	59	0	164	9	1	89	99	0	32	6	38	0	0	0	0	301
Total	367	274	1	642	33	1	357	391	0	167	29	196	0	1	0	1	1230
03:00 PM	79	49	0	128	10	1	87	98	0	46	4	50	0	0	0	0	276
03:15 PM	81	74	1	156	7	0	87	94	0	51	9	60	1	2	0	3	313
03:30 PM	109	88	0	197	8	0	80	88	0	61	8	69	0	0	0	0	354
03:45 PM	79	60	0	139	8	1	94	103	1	54	12	67	0	0	0	0	309
Total	348	271	1	620	33	2	348	383	1	212	33	246	1	2	0	3	1252
Grand Total	715	545	2	1262	66	3	705	774	1	379	62	442	1	3	0	4	2482
Apprch %	56.7	43.2	0.2		8.5	0.4	91.1		0.2	85.7	14		25	75	0		
Total %	28.8	22	0.1	50.8	2.7	0.1	28.4	31.2	0	15.3	2.5	17.8	0	0.1	0	0.2	

	Grand Avenue Southbound				Corydon Road Westbound				Grand Avenue Northbound				Corydon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	79	49	0	128	10	1	87	98	0	46	4	50	0	0	0	0	276
03:15 PM	81	74	1	156	7	0	87	94	0	51	9	60	1	2	0	3	313
03:30 PM	109	88	0	197	8	0	80	88	0	61	8	69	0	0	0	0	354
03:45 PM	79	60	0	139	8	1	94	103	1	54	12	67	0	0	0	0	309
Total Volume	348	271	1	620	33	2	348	383	1	212	33	246	1	2	0	3	1252
% App. Total	56.1	43.7	0.2		8.6	0.5	90.9		0.4	86.2	13.4		33.3	66.7	0		
PHF	.798	.770	.250	.787	.825	.500	.926	.930	.250	.869	.688	.891	.250	.250	.000	.250	.884

City of Wildomar
N/S: Grand Avenue
E/W: Corydon Road
Weather: Clear

File Name : 01_WDM_Grand_Corydon Sat
Site Code : 10518676
Start Date : 9/22/2018
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:45 PM				02:15 PM				03:00 PM				02:30 PM			
+0 mins.	105	59	0	164	10	0	87	97	0	46	4	50	0	1	0	1
+15 mins.	79	49	0	128	8	0	98	106	0	51	9	60	0	0	0	0
+30 mins.	81	74	1	156	9	1	89	99	0	61	8	69	0	0	0	0
+45 mins.	109	88	0	197	10	1	87	98	1	54	12	67	1	2	0	3
Total Volume	374	270	1	645	37	2	361	400	1	212	33	246	1	3	0	4
% App. Total	58	41.9	0.2		9.2	0.5	90.2		0.4	86.2	13.4		25	75	0	
PHF	.858	.767	.250	.819	.925	.500	.921	.943	.250	.869	.688	.891	.250	.375	.000	.333

City of Wildomar
N/S: Grand Avenue
E/W: Corydon Road
Weather: Clear

File Name : 01_WDM_Grand_Corydon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

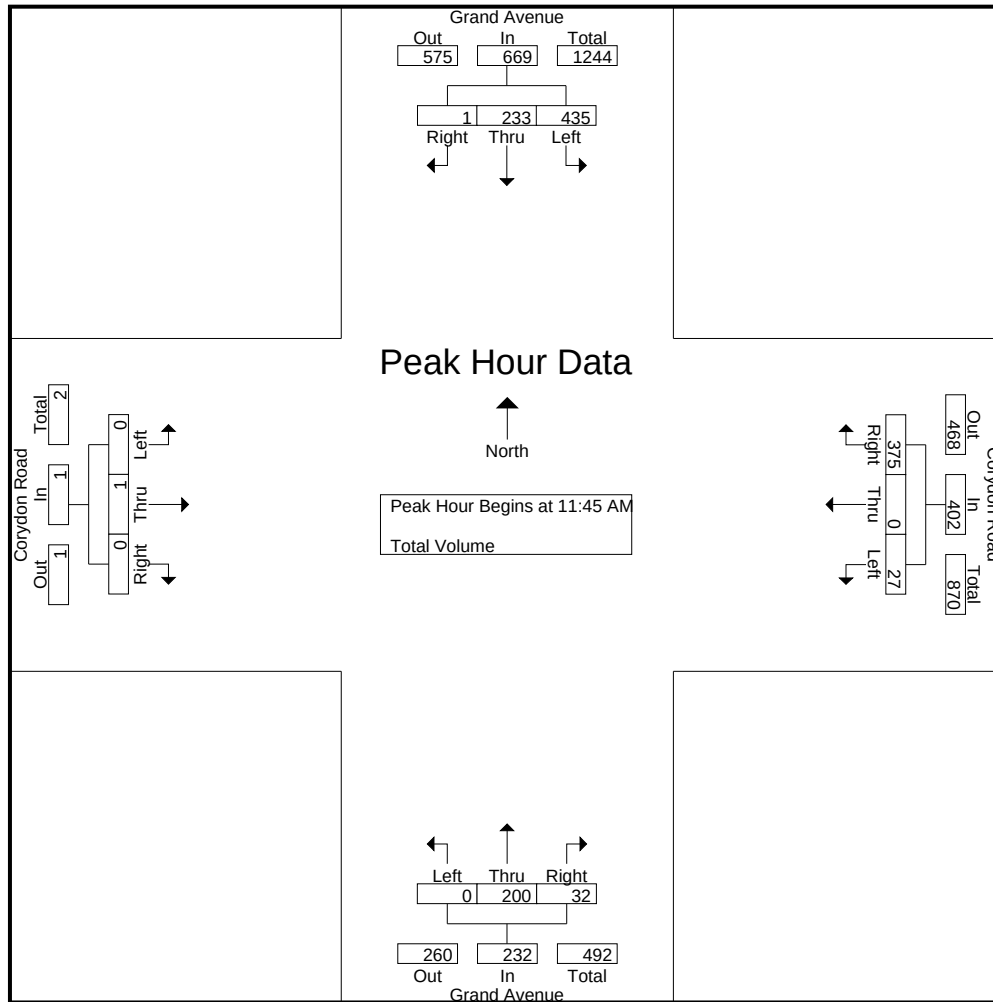
Groups Printed- Total Volume

	Grand Avenue Southbound				Corydon Road Westbound				Grand Avenue Northbound				Corydon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	98	51	0	149	6	0	81	87	0	45	2	47	0	0	0	0	283
11:15 AM	81	42	1	124	9	2	96	107	0	34	6	40	0	0	0	0	271
11:30 AM	65	62	1	128	9	0	86	95	0	43	7	50	0	0	0	0	273
11:45 AM	79	61	0	140	5	0	97	102	0	63	3	66	0	0	0	0	308
Total	323	216	2	541	29	2	360	391	0	185	18	203	0	0	0	0	1135
12:00 PM	106	61	0	167	5	0	91	96	0	42	9	51	0	0	0	0	314
12:15 PM	125	63	1	189	10	0	88	98	0	48	7	55	0	0	0	0	342
12:30 PM	125	48	0	173	7	0	99	106	0	47	13	60	0	1	0	1	340
12:45 PM	79	43	0	122	2	0	83	85	0	55	9	64	0	1	0	1	272
Total	435	215	1	651	24	0	361	385	0	192	38	230	0	2	0	2	1268
Grand Total	758	431	3	1192	53	2	721	776	0	377	56	433	0	2	0	2	2403
Apprch %	63.6	36.2	0.3		6.8	0.3	92.9		0	87.1	12.9		0	100	0		
Total %	31.5	17.9	0.1	49.6	2.2	0.1	30	32.3	0	15.7	2.3	18	0	0.1	0	0.1	

	Grand Avenue Southbound				Corydon Road Westbound				Grand Avenue Northbound				Corydon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	79	61	0	140	5	0	97	102	0	63	3	66	0	0	0	0	308
12:00 PM	106	61	0	167	5	0	91	96	0	42	9	51	0	0	0	0	314
12:15 PM	125	63	1	189	10	0	88	98	0	48	7	55	0	0	0	0	342
12:30 PM	125	48	0	173	7	0	99	106	0	47	13	60	0	1	0	1	340
Total Volume	435	233	1	669	27	0	375	402	0	200	32	232	0	1	0	1	1304
% App. Total	65	34.8	0.1		6.7	0	93.3		0	86.2	13.8		0	100	0		
PHF	.870	.925	.250	.885	.675	.000	.947	.948	.000	.794	.615	.879	.000	.250	.000	.250	.953

City of Wildomar
N/S: Grand Avenue
E/W: Corydon Road
Weather: Clear

File Name : 01_WDM_Grand_Corydon Sun
Site Code : 10518676
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Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:45 AM				12:00 PM			
+0 mins.	79	61	0	140	5	0	97	102	0	63	3	66	0	0	0	0
+15 mins.	106	61	0	167	5	0	91	96	0	42	9	51	0	0	0	0
+30 mins.	125	63	1	189	10	0	88	98	0	48	7	55	0	1	0	1
+45 mins.	125	48	0	173	7	0	99	106	0	47	13	60	0	1	0	1
Total Volume	435	233	1	669	27	0	375	402	0	200	32	232	0	2	0	2
% App. Total	65	34.8	0.1		6.7	0	93.3		0	86.2	13.8		0	100	0	
PHF	.870	.925	.250	.885	.675	.000	.947	.948	.000	.794	.615	.879	.000	.500	.000	.500

City of Wildomar
N/S: Palomar Street
E/W: Corydon Road
Weather: Clear

File Name : 02_WDM_Palomar_Corydon Sat
Site Code : 10518676
Start Date : 9/22/2018
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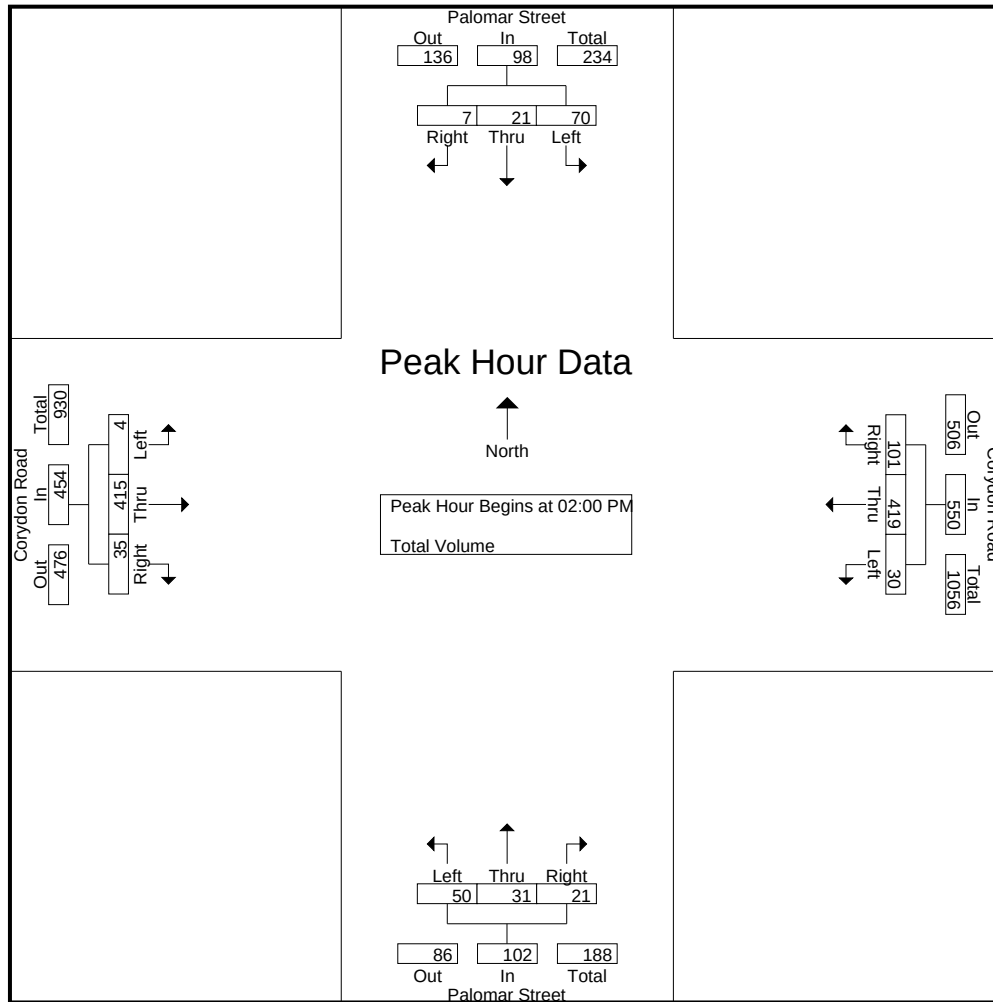
Groups Printed- Total Volume

	Palomar Street Southbound				Corydon Road Westbound				Palomar Street Northbound				Corydon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	18	11	1	30	13	95	30	138	10	7	5	22	2	111	11	124	314
02:15 PM	17	2	1	20	5	90	19	114	8	9	7	24	0	92	7	99	257
02:30 PM	17	4	1	22	7	116	25	148	19	10	5	34	2	97	9	108	312
02:45 PM	18	4	4	26	5	118	27	150	13	5	4	22	0	115	8	123	321
Total	70	21	7	98	30	419	101	550	50	31	21	102	4	415	35	454	1204
03:00 PM	28	3	0	31	5	91	24	120	13	8	4	25	1	91	5	97	273
03:15 PM	15	4	1	20	2	102	13	117	8	5	6	19	0	103	9	112	268
03:30 PM	14	8	3	25	3	95	26	124	13	7	2	22	1	123	9	133	304
03:45 PM	23	5	2	30	3	98	18	119	13	8	6	27	2	94	7	103	279
Total	80	20	6	106	13	386	81	480	47	28	18	93	4	411	30	445	1124
Grand Total	150	41	13	204	43	805	182	1030	97	59	39	195	8	826	65	899	2328
Apprch %	73.5	20.1	6.4		4.2	78.2	17.7		49.7	30.3	20		0.9	91.9	7.2		
Total %	6.4	1.8	0.6	8.8	1.8	34.6	7.8	44.2	4.2	2.5	1.7	8.4	0.3	35.5	2.8	38.6	

	Palomar Street Southbound				Corydon Road Westbound				Palomar Street Northbound				Corydon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	18	11	1	30	13	95	30	138	10	7	5	22	2	111	11	124	314
02:15 PM	17	2	1	20	5	90	19	114	8	9	7	24	0	92	7	99	257
02:30 PM	17	4	1	22	7	116	25	148	19	10	5	34	2	97	9	108	312
02:45 PM	18	4	4	26	5	118	27	150	13	5	4	22	0	115	8	123	321
Total Volume	70	21	7	98	30	419	101	550	50	31	21	102	4	415	35	454	1204
% App. Total	71.4	21.4	7.1		5.5	76.2	18.4		49	30.4	20.6		0.9	91.4	7.7		
PHF	.972	.477	.438	.817	.577	.888	.842	.917	.658	.775	.750	.750	.500	.902	.795	.915	.938

City of Wildomar
N/S: Palomar Street
E/W: Corydon Road
Weather: Clear

File Name : 02_WDM_Palomar_Corydon Sat
Site Code : 10518676
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM				02:00 PM				02:15 PM				02:45 PM			
+0 mins.	28	3	0	31	13	95	30	138	8	9	7	24	0	115	8	123
+15 mins.	15	4	1	20	5	90	19	114	19	10	5	34	1	91	5	97
+30 mins.	14	8	3	25	7	116	25	148	13	5	4	22	0	103	9	112
+45 mins.	23	5	2	30	5	118	27	150	13	8	4	25	1	123	9	133
Total Volume	80	20	6	106	30	419	101	550	53	32	20	105	2	432	31	465
% App. Total	75.5	18.9	5.7		5.5	76.2	18.4		50.5	30.5	19		0.4	92.9	6.7	
PHF	.714	.625	.500	.855	.577	.888	.842	.917	.697	.800	.714	.772	.500	.878	.861	.874

City of Wildomar
N/S: Palomar Street
E/W: Corydon Road
Weather: Clear

File Name : 02_WDM_Palomar_Corydon Sun
Site Code : 10518676
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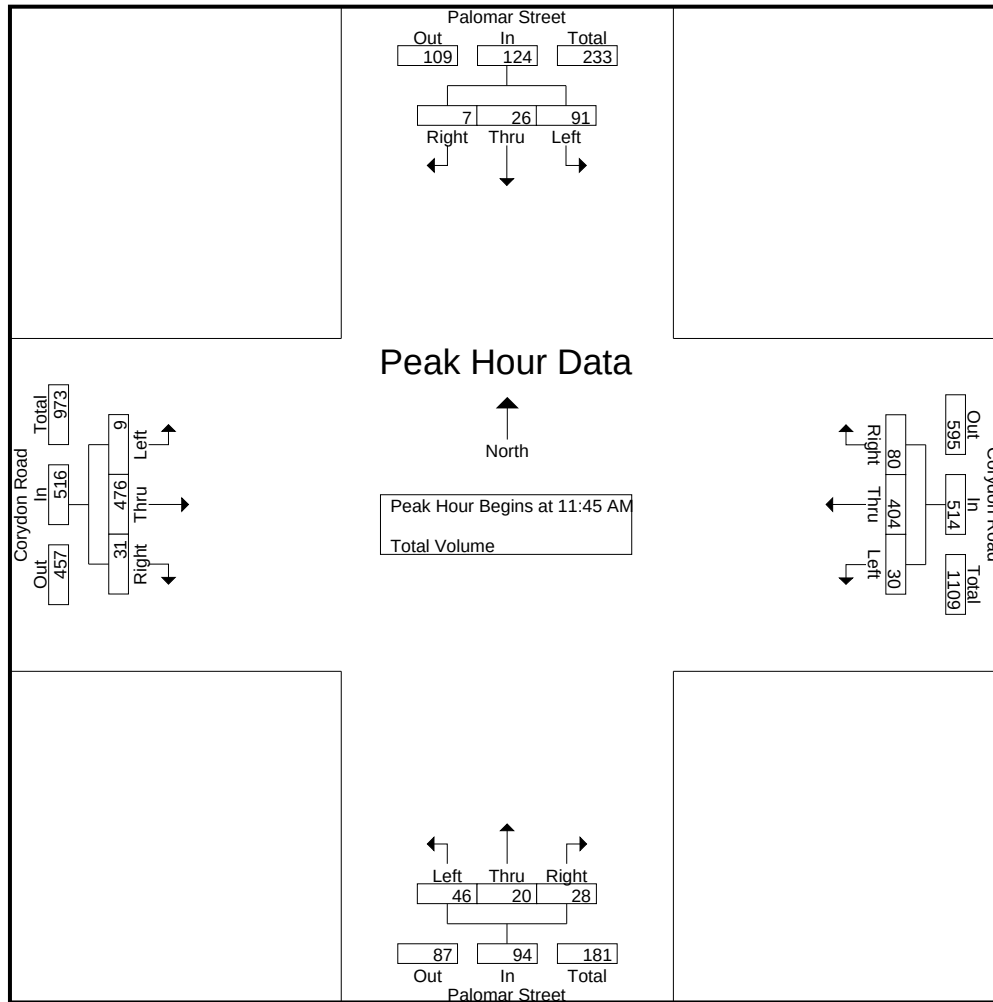
Groups Printed- Total Volume

	Palomar Street Southbound				Corydon Road Westbound				Palomar Street Northbound				Corydon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	23	4	3	30	3	91	16	110	11	4	4	19	1	114	8	123	282
11:15 AM	24	7	0	31	2	95	15	112	12	7	8	27	1	87	9	97	267
11:30 AM	17	7	1	25	4	101	20	125	10	8	3	21	1	82	7	90	261
11:45 AM	16	10	4	30	8	96	15	119	18	10	8	36	4	80	13	97	282
Total	80	28	8	116	17	383	66	466	51	29	23	103	7	363	37	407	1092
12:00 PM	24	5	2	31	9	97	22	128	9	4	6	19	1	119	2	122	300
12:15 PM	21	6	0	27	6	105	22	133	9	4	10	23	0	129	7	136	319
12:30 PM	30	5	1	36	7	106	21	134	10	2	4	16	4	148	9	161	347
12:45 PM	17	7	1	25	3	96	20	119	12	10	7	29	1	101	4	106	279
Total	92	23	4	119	25	404	85	514	40	20	27	87	6	497	22	525	1245
Grand Total	172	51	12	235	42	787	151	980	91	49	50	190	13	860	59	932	2337
Apprch %	73.2	21.7	5.1		4.3	80.3	15.4		47.9	25.8	26.3		1.4	92.3	6.3		
Total %	7.4	2.2	0.5	10.1	1.8	33.7	6.5	41.9	3.9	2.1	2.1	8.1	0.6	36.8	2.5	39.9	

	Palomar Street Southbound				Corydon Road Westbound				Palomar Street Northbound				Corydon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	16	10	4	30	8	96	15	119	18	10	8	36	4	80	13	97	282
12:00 PM	24	5	2	31	9	97	22	128	9	4	6	19	1	119	2	122	300
12:15 PM	21	6	0	27	6	105	22	133	9	4	10	23	0	129	7	136	319
12:30 PM	30	5	1	36	7	106	21	134	10	2	4	16	4	148	9	161	347
Total Volume	91	26	7	124	30	404	80	514	46	20	28	94	9	476	31	516	1248
% App. Total	73.4	21	5.6		5.8	78.6	15.6		48.9	21.3	29.8		1.7	92.2	6		
PHF	.758	.650	.438	.861	.833	.953	.909	.959	.639	.500	.700	.653	.563	.804	.596	.801	.899

City of Wildomar
N/S: Palomar Street
E/W: Corydon Road
Weather: Clear

File Name : 02_WDM_Palomar_Corydon Sun
Site Code : 10518676
Start Date : 9/23/2018
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Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:45 AM				11:00 AM				12:00 PM			
+0 mins.	16	10	4	30	8	96	15	119	11	4	4	19	1	119	2	122
+15 mins.	24	5	2	31	9	97	22	128	12	7	8	27	0	129	7	136
+30 mins.	21	6	0	27	6	105	22	133	10	8	3	21	4	148	9	161
+45 mins.	30	5	1	36	7	106	21	134	18	10	8	36	1	101	4	106
Total Volume	91	26	7	124	30	404	80	514	51	29	23	103	6	497	22	525
% App. Total	73.4	21	5.6		5.8	78.6	15.6		49.5	28.2	22.3		1.1	94.7	4.2	
PHF	.758	.650	.438	.861	.833	.953	.909	.959	.708	.725	.719	.715	.375	.840	.611	.815

City of Wildomar
N/S: Mission Trail
E/W: Malaga Road
Weather: Clear

File Name : 05_WDM_Mission Trail_Malaga Sat
Site Code : 10518676
Start Date : 9/22/2018
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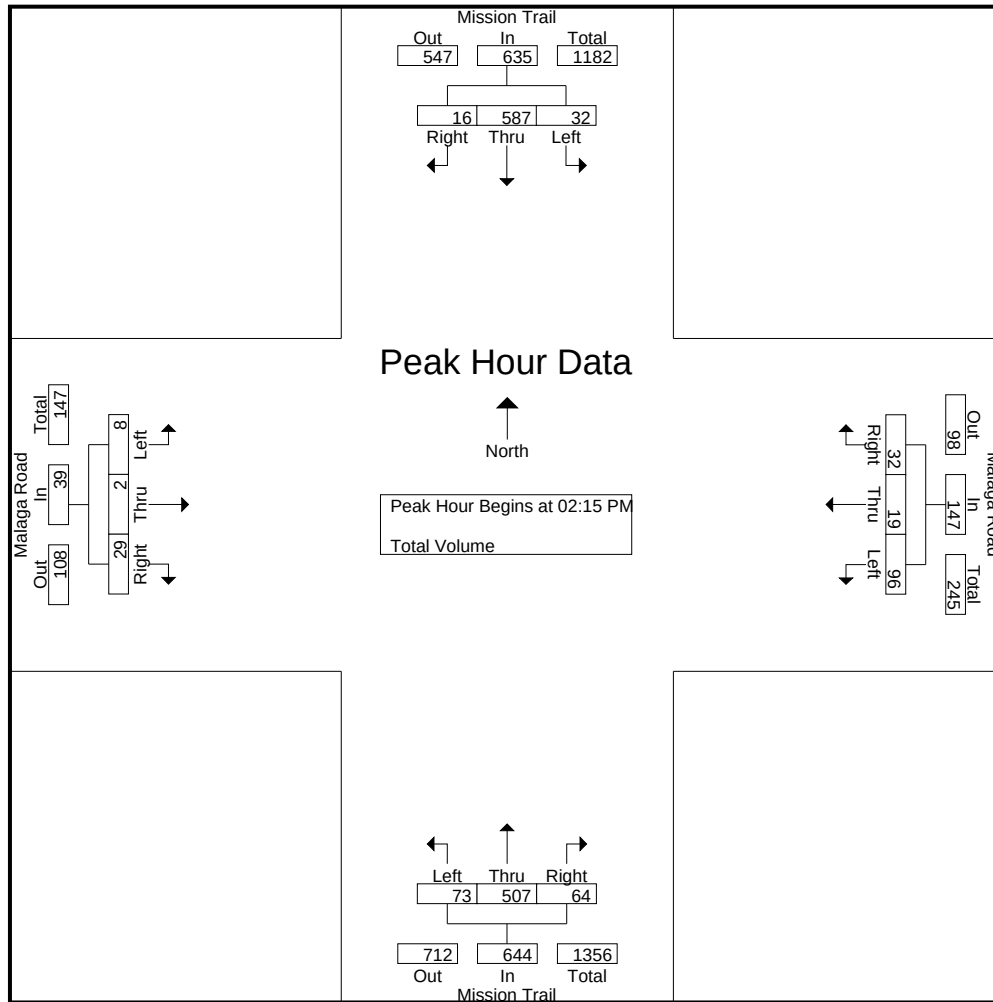
Groups Printed- Total Volume

	Mission Trail Southbound				Malaga Road Westbound				Mission Trail Northbound				Malaga Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	5	139	3	147	20	3	6	29	16	140	12	168	5	0	5	10	354
02:15 PM	10	170	3	183	25	4	4	33	17	129	13	159	3	0	5	8	383
02:30 PM	2	144	4	150	23	3	11	37	19	125	15	159	2	0	9	11	357
02:45 PM	10	147	5	162	27	4	5	36	17	120	22	159	1	1	4	6	363
Total	27	600	15	642	95	14	26	135	69	514	62	645	11	1	23	35	1457
03:00 PM	10	126	4	140	21	8	12	41	20	133	14	167	2	1	11	14	362
03:15 PM	5	144	4	153	10	2	8	20	17	132	9	158	4	0	3	7	338
03:30 PM	4	129	6	139	9	3	18	30	13	114	15	142	2	0	6	8	319
03:45 PM	9	142	1	152	24	4	13	41	13	117	16	146	0	2	6	8	347
Total	28	541	15	584	64	17	51	132	63	496	54	613	8	3	26	37	1366
Grand Total	55	1141	30	1226	159	31	77	267	132	1010	116	1258	19	4	49	72	2823
Apprch %	4.5	93.1	2.4		59.6	11.6	28.8		10.5	80.3	9.2		26.4	5.6	68.1		
Total %	1.9	40.4	1.1	43.4	5.6	1.1	2.7	9.5	4.7	35.8	4.1	44.6	0.7	0.1	1.7	2.6	

	Mission Trail Southbound				Malaga Road Westbound				Mission Trail Northbound				Malaga Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:15 PM																	
02:15 PM	10	170	3	183	25	4	4	33	17	129	13	159	3	0	5	8	383
02:30 PM	2	144	4	150	23	3	11	37	19	125	15	159	2	0	9	11	357
02:45 PM	10	147	5	162	27	4	5	36	17	120	22	159	1	1	4	6	363
03:00 PM	10	126	4	140	21	8	12	41	20	133	14	167	2	1	11	14	362
Total Volume	32	587	16	635	96	19	32	147	73	507	64	644	8	2	29	39	1465
% App. Total	5	92.4	2.5		65.3	12.9	21.8		11.3	78.7	9.9		20.5	5.1	74.4		
PHF	.800	.863	.800	.867	.889	.594	.667	.896	.913	.953	.727	.964	.667	.500	.659	.696	.956

City of Wildomar
N/S: Mission Trail
E/W: Malaga Road
Weather: Clear

File Name : 05_WDM_Mission Trail_Malaga Sat
Site Code : 10518676
Start Date : 9/22/2018
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:15 PM				02:00 PM				02:15 PM			
+0 mins.	5	139	3	147	25	4	4	33	16	140	12	168	3	0	5	8
+15 mins.	10	170	3	183	23	3	11	37	17	129	13	159	2	0	9	11
+30 mins.	2	144	4	150	27	4	5	36	19	125	15	159	1	1	4	6
+45 mins.	10	147	5	162	21	8	12	41	17	120	22	159	2	1	11	14
Total Volume	27	600	15	642	96	19	32	147	69	514	62	645	8	2	29	39
% App. Total	4.2	93.5	2.3		65.3	12.9	21.8		10.7	79.7	9.6		20.5	5.1	74.4	
PHF	.675	.882	.750	.877	.889	.594	.667	.896	.908	.918	.705	.960	.667	.500	.659	.696

City of Wildomar
N/S: Mission Trail
E/W: Malaga Road
Weather: Clear

File Name : 05_WDM_Mission Trail_Malaga Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

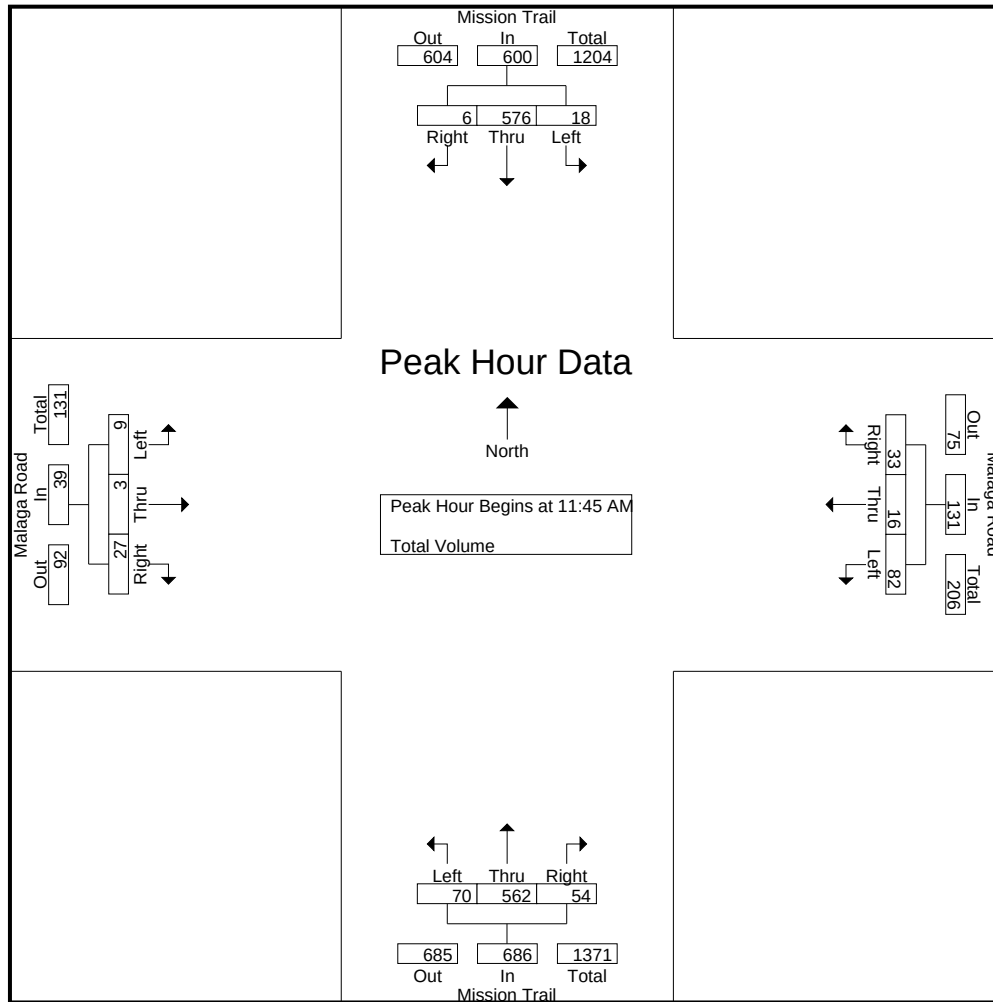
Groups Printed- Total Volume

	Mission Trail Southbound				Malaga Road Westbound				Mission Trail Northbound				Malaga Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	5	99	0	104	19	2	10	31	15	136	19	170	5	0	8	13	318
11:15 AM	7	104	4	115	22	6	5	33	15	122	12	149	5	0	4	9	306
11:30 AM	4	106	1	111	13	5	6	24	15	134	16	165	1	1	7	9	309
11:45 AM	3	140	1	144	19	2	6	27	14	121	16	151	1	1	7	9	331
Total	19	449	6	474	73	15	27	115	59	513	63	635	12	2	26	40	1264
12:00 PM	3	126	0	129	17	8	12	37	24	152	10	186	1	1	6	8	360
12:15 PM	5	142	2	149	22	3	8	33	19	157	16	192	3	1	8	12	386
12:30 PM	7	168	3	178	24	3	7	34	13	132	12	157	4	0	6	10	379
12:45 PM	5	145	0	150	15	0	10	25	13	120	14	147	2	2	3	7	329
Total	20	581	5	606	78	14	37	129	69	561	52	682	10	4	23	37	1454
Grand Total	39	1030	11	1080	151	29	64	244	128	1074	115	1317	22	6	49	77	2718
Apprch %	3.6	95.4	1		61.9	11.9	26.2		9.7	81.5	8.7		28.6	7.8	63.6		
Total %	1.4	37.9	0.4	39.7	5.6	1.1	2.4	9	4.7	39.5	4.2	48.5	0.8	0.2	1.8	2.8	

	Mission Trail Southbound				Malaga Road Westbound				Mission Trail Northbound				Malaga Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	3	140	1	144	19	2	6	27	14	121	16	151	1	1	7	9	331
12:00 PM	3	126	0	129	17	8	12	37	24	152	10	186	1	1	6	8	360
12:15 PM	5	142	2	149	22	3	8	33	19	157	16	192	3	1	8	12	386
12:30 PM	7	168	3	178	24	3	7	34	13	132	12	157	4	0	6	10	379
Total Volume	18	576	6	600	82	16	33	131	70	562	54	686	9	3	27	39	1456
% App. Total	3	96	1		62.6	12.2	25.2		10.2	81.9	7.9		23.1	7.7	69.2		
PHF	.643	.857	.500	.843	.854	.500	.688	.885	.729	.895	.844	.893	.563	.750	.844	.813	.943

City of Wildomar
N/S: Mission Trail
E/W: Malaga Road
Weather: Clear

File Name : 05_WDM_Mission Trail_Malaga Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM				11:45 AM				11:30 AM				11:00 AM			
+0 mins.	3	126	0	129	19	2	6	27	15	134	16	165	5	0	8	13
+15 mins.	5	142	2	149	17	8	12	37	14	121	16	151	5	0	4	9
+30 mins.	7	168	3	178	22	3	8	33	24	152	10	186	1	1	7	9
+45 mins.	5	145	0	150	24	3	7	34	19	157	16	192	1	1	7	9
Total Volume	20	581	5	606	82	16	33	131	72	564	58	694	12	2	26	40
% App. Total	3.3	95.9	0.8		62.6	12.2	25.2		10.4	81.3	8.4		30	5	65	
PHF	.714	.865	.417	.851	.854	.500	.688	.885	.750	.898	.906	.904	.600	.500	.813	.769

City of Wildomar
N/S: Mission Trail
E/W: Lemon Street
Weather: Clear

File Name : 06_WDM_Mission Trail_Lemon Sat
Site Code : 10518676
Start Date : 10/6/2018
Page No : 1

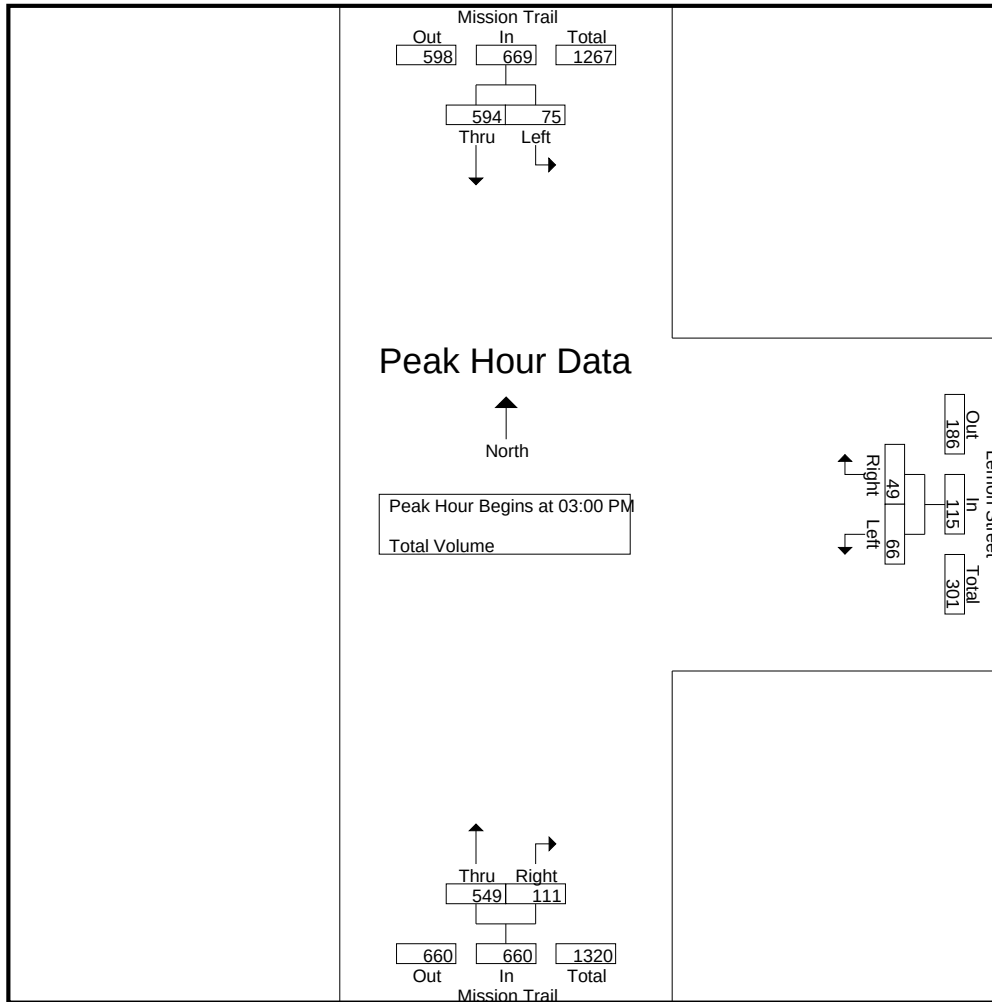
Groups Printed- Total Volume

	Mission Trail Southbound			Lemon Street Westbound			Mission Trail Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
02:00 PM	15	162	177	15	14	29	145	14	159	365
02:15 PM	11	158	169	6	13	19	144	21	165	353
02:30 PM	11	155	166	14	12	26	145	23	168	360
02:45 PM	13	151	164	12	8	20	130	23	153	337
Total	50	626	676	47	47	94	564	81	645	1415
03:00 PM	18	144	162	17	12	29	137	16	153	344
03:15 PM	14	153	167	15	10	25	123	27	150	342
03:30 PM	20	146	166	19	8	27	142	34	176	369
03:45 PM	23	151	174	15	19	34	147	34	181	389
Total	75	594	669	66	49	115	549	111	660	1444
Grand Total	125	1220	1345	113	96	209	1113	192	1305	2859
Apprch %	9.3	90.7		54.1	45.9		85.3	14.7		
Total %	4.4	42.7	47	4	3.4	7.3	38.9	6.7	45.6	

	Mission Trail Southbound			Lemon Street Westbound			Mission Trail Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	18	144	162	17	12	29	137	16	153	344
03:15 PM	14	153	167	15	10	25	123	27	150	342
03:30 PM	20	146	166	19	8	27	142	34	176	369
03:45 PM	23	151	174	15	19	34	147	34	181	389
Total Volume	75	594	669	66	49	115	549	111	660	1444
% App. Total	11.2	88.8		57.4	42.6		83.2	16.8		
PHF	.815	.971	.961	.868	.645	.846	.934	.816	.912	.928

City of Wildomar
N/S: Mission Trail
E/W: Lemon Street
Weather: Clear

File Name : 06_WDM_Mission Trail_Lemon Sat
Site Code : 10518676
Start Date : 10/6/2018
Page No : 2



Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	02:00 PM			03:00 PM			03:00 PM		
+0 mins.	15	162	177	17	12	29	137	16	153
+15 mins.	11	158	169	15	10	25	123	27	150
+30 mins.	11	155	166	19	8	27	142	34	176
+45 mins.	13	151	164	15	19	34	147	34	181
Total Volume	50	626	676	66	49	115	549	111	660
% App. Total	7.4	92.6		57.4	42.6		83.2	16.8	
PHF	.833	.966	.955	.868	.645	.846	.934	.816	.912

City of Wildomar
N/S: Mission Trail
E/W: Lemon Street
Weather: Clear

File Name : 06_WDM_Mission Trail_Lemon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

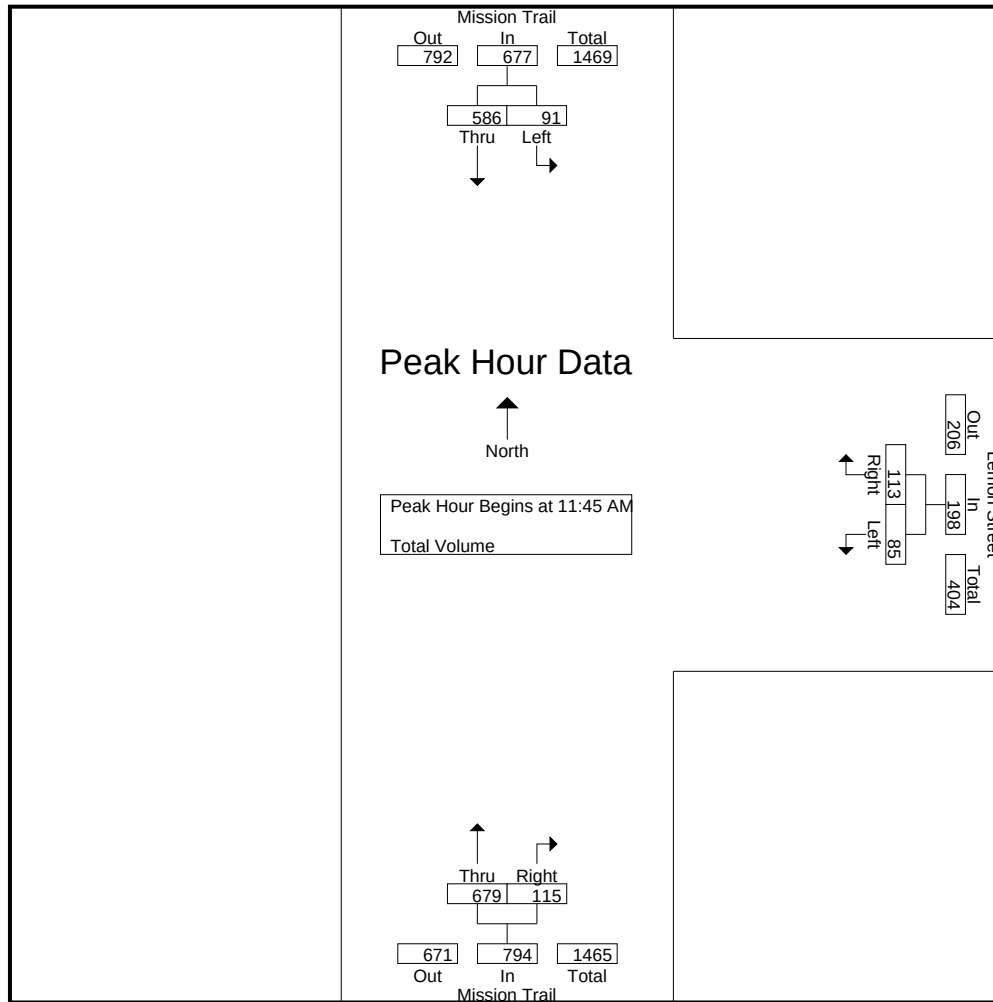
Groups Printed- Total Volume

	Mission Trail Southbound			Lemon Street Westbound			Mission Trail Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
11:00 AM	13	142	155	21	7	28	148	19	167	350
11:15 AM	19	154	173	17	10	27	170	26	196	396
11:30 AM	9	120	129	8	8	16	135	17	152	297
11:45 AM	13	139	152	22	12	34	188	21	209	395
Total	54	555	609	68	37	105	641	83	724	1438
12:00 PM	10	133	143	12	20	32	179	17	196	371
12:15 PM	34	184	218	32	61	93	169	39	208	519
12:30 PM	34	130	164	19	20	39	143	38	181	384
12:45 PM	26	137	163	14	18	32	135	29	164	359
Total	104	584	688	77	119	196	626	123	749	1633
Grand Total	158	1139	1297	145	156	301	1267	206	1473	3071
Apprch %	12.2	87.8		48.2	51.8		86	14		
Total %	5.1	37.1	42.2	4.7	5.1	9.8	41.3	6.7	48	

	Mission Trail Southbound			Lemon Street Westbound			Mission Trail Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	13	139	152	22	12	34	188	21	209	395
12:00 PM	10	133	143	12	20	32	179	17	196	371
12:15 PM	34	184	218	32	61	93	169	39	208	519
12:30 PM	34	130	164	19	20	39	143	38	181	384
Total Volume	91	586	677	85	113	198	679	115	794	1669
% App. Total	13.4	86.6		42.9	57.1		85.5	14.5		
PHF	.669	.796	.776	.664	.463	.532	.903	.737	.950	.804

City of Wildomar
N/S: Mission Trail
E/W: Lemon Street
Weather: Clear

File Name : 06_WDM_Mission Trail_Lemon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM			11:45 AM			11:45 AM		
+0 mins.	10	133	143	22	12	34	188	21	209
+15 mins.	34	184	218	12	20	32	179	17	196
+30 mins.	34	130	164	32	61	93	169	39	208
+45 mins.	26	137	163	19	20	39	143	38	181
Total Volume	104	584	688	85	113	198	679	115	794
% App. Total	15.1	84.9		42.9	57.1		85.5	14.5	
PHF	.765	.793	.789	.664	.463	.532	.903	.737	.950

City of Wildomar
N/S: Mission Trail
E/W: Corydon Road
Weather: Clear

File Name : 07_WDM_Mission Trail_Corydon Sat
Site Code : 10518676
Start Date : 9/22/2018
Page No : 1

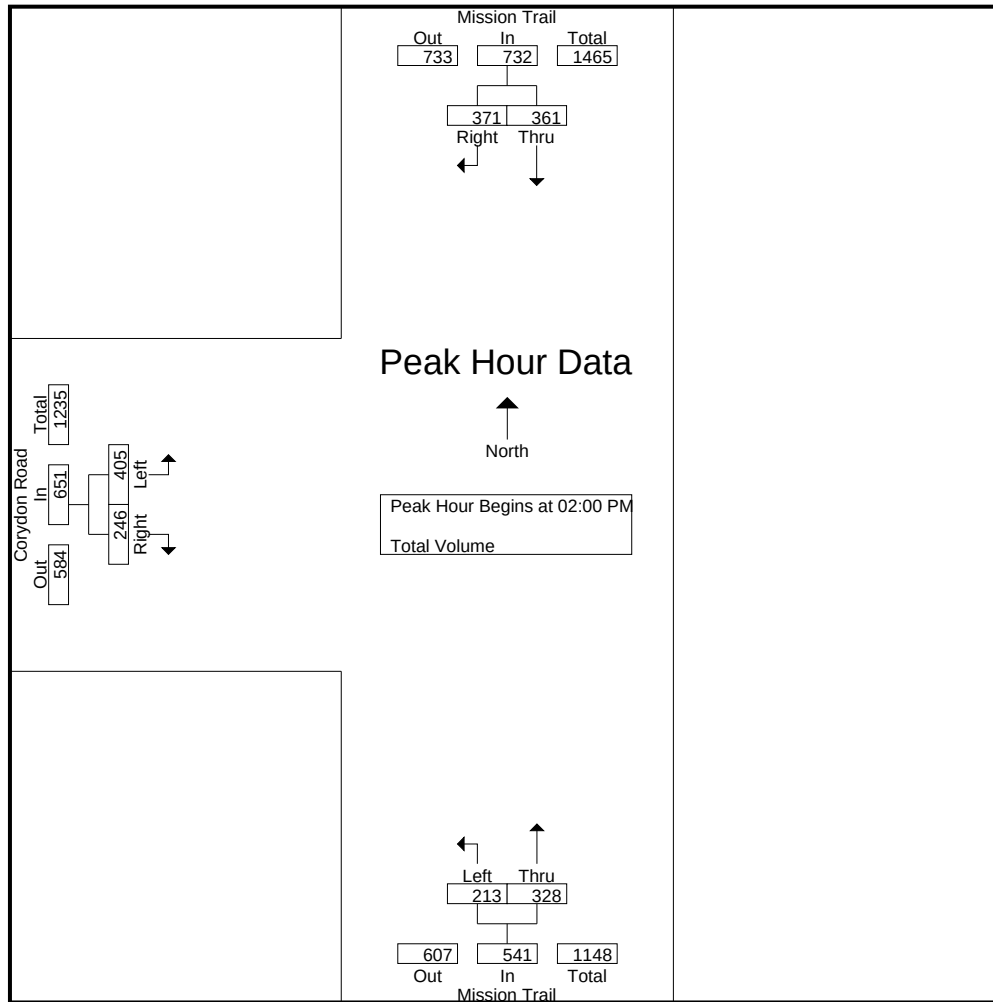
Groups Printed- Total Volume

	Mission Trail Southbound			Mission Trail Northbound			Corydon Road Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
02:00 PM	88	82	170	54	62	116	115	67	182	468
02:15 PM	91	85	176	49	92	141	96	45	141	458
02:30 PM	95	105	200	47	81	128	107	66	173	501
02:45 PM	87	99	186	63	93	156	87	68	155	497
Total	361	371	732	213	328	541	405	246	651	1924
03:00 PM	74	90	164	32	106	138	97	50	147	449
03:15 PM	81	80	161	49	96	145	92	52	144	450
03:30 PM	66	66	132	51	111	162	101	61	162	456
03:45 PM	82	101	183	52	102	154	83	51	134	471
Total	303	337	640	184	415	599	373	214	587	1826
Grand Total	664	708	1372	397	743	1140	778	460	1238	3750
Apprch %	48.4	51.6		34.8	65.2		62.8	37.2		
Total %	17.7	18.9	36.6	10.6	19.8	30.4	20.7	12.3	33	

	Mission Trail Southbound			Mission Trail Northbound			Corydon Road Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:00 PM										
02:00 PM	88	82	170	54	62	116	115	67	182	468
02:15 PM	91	85	176	49	92	141	96	45	141	458
02:30 PM	95	105	200	47	81	128	107	66	173	501
02:45 PM	87	99	186	63	93	156	87	68	155	497
Total Volume	361	371	732	213	328	541	405	246	651	1924
% App. Total	49.3	50.7		39.4	60.6		62.2	37.8		
PHF	.950	.883	.915	.845	.882	.867	.880	.904	.894	.960

City of Wildomar
N/S: Mission Trail
E/W: Corydon Road
Weather: Clear

File Name : 07_WDM_Mission Trail_Corydon Sat
Site Code : 10518676
Start Date : 9/22/2018
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM			02:45 PM			02:00 PM		
+0 mins.	88	82	170	63	93	156	115	67	182
+15 mins.	91	85	176	32	106	138	96	45	141
+30 mins.	95	105	200	49	96	145	107	66	173
+45 mins.	87	99	186	51	111	162	87	68	155
Total Volume	361	371	732	195	406	601	405	246	651
% App. Total	49.3	50.7		32.4	67.6		62.2	37.8	
PHF	.950	.883	.915	.774	.914	.927	.880	.904	.894

City of Wildomar
N/S: Mission Trail
E/W: Corydon Road
Weather: Clear

File Name : 07_WDM_Mission Trail_Corydon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

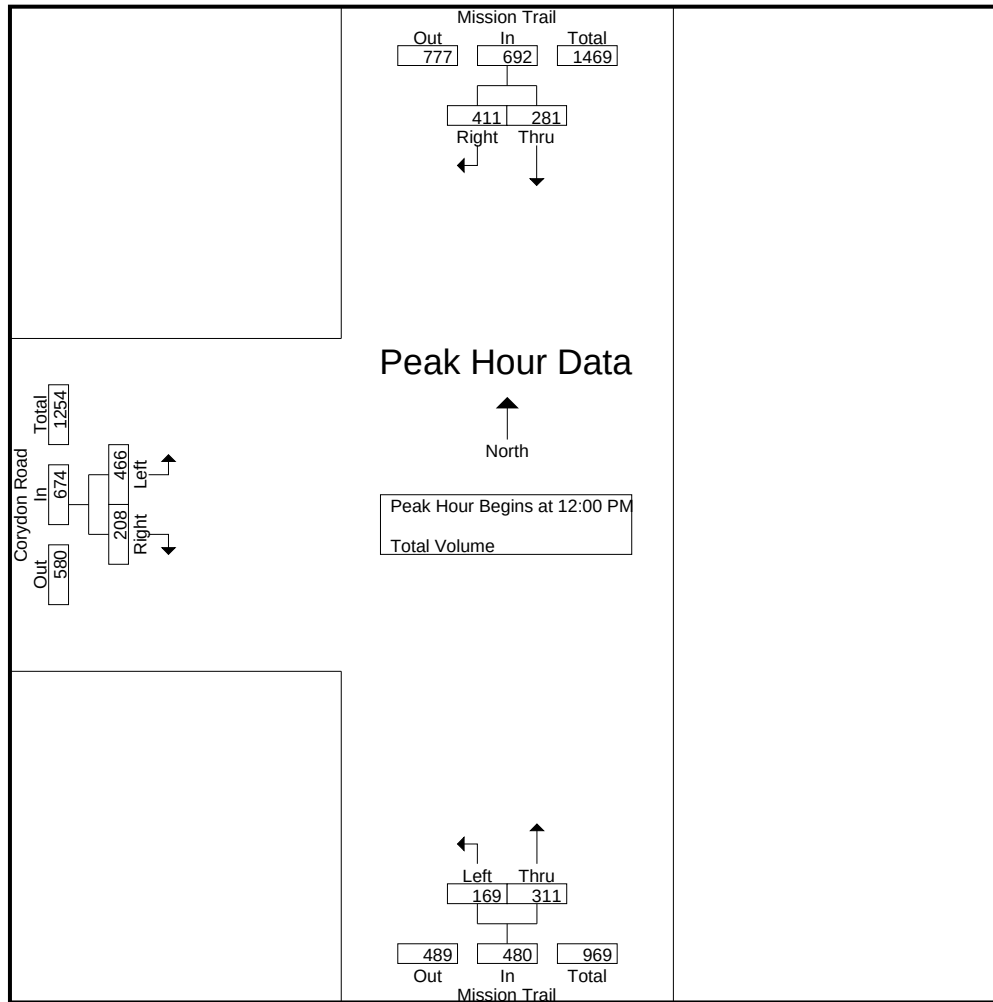
Groups Printed- Total Volume

	Mission Trail Southbound			Mission Trail Northbound			Corydon Road Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
11:00 AM	42	83	125	27	79	106	104	44	148	379
11:15 AM	59	96	155	45	69	114	87	44	131	400
11:30 AM	65	87	152	51	82	133	85	36	121	406
11:45 AM	79	91	170	43	78	121	76	44	120	411
Total	245	357	602	166	308	474	352	168	520	1596
12:00 PM	73	103	176	37	78	115	106	44	150	441
12:15 PM	81	106	187	44	87	131	124	57	181	499
12:30 PM	57	97	154	46	71	117	139	61	200	471
12:45 PM	70	105	175	42	75	117	97	46	143	435
Total	281	411	692	169	311	480	466	208	674	1846
Grand Total	526	768	1294	335	619	954	818	376	1194	3442
Apprch %	40.6	59.4		35.1	64.9		68.5	31.5		
Total %	15.3	22.3	37.6	9.7	18	27.7	23.8	10.9	34.7	

	Mission Trail Southbound			Mission Trail Northbound			Corydon Road Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:00 PM										
12:00 PM	73	103	176	37	78	115	106	44	150	441
12:15 PM	81	106	187	44	87	131	124	57	181	499
12:30 PM	57	97	154	46	71	117	139	61	200	471
12:45 PM	70	105	175	42	75	117	97	46	143	435
Total Volume	281	411	692	169	311	480	466	208	674	1846
% App. Total	40.6	59.4		35.2	64.8		69.1	30.9		
PHF	.867	.969	.925	.918	.894	.916	.838	.852	.843	.925

City of Wildomar
N/S: Mission Trail
E/W: Corydon Road
Weather: Clear

File Name : 07_WDM_Mission Trail_Corydon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:00 PM			11:30 AM			12:00 PM		
+0 mins.	73	103	176	51	82	133	106	44	150
+15 mins.	81	106	187	43	78	121	124	57	181
+30 mins.	57	97	154	37	78	115	139	61	200
+45 mins.	70	105	175	44	87	131	97	46	143
Total Volume	281	411	692	175	325	500	466	208	674
% App. Total	40.6	59.4		35	65		69.1	30.9	
PHF	.867	.969	.925	.858	.934	.940	.838	.852	.843

City of Wildomar
N/S: Mojonnier Way
E/W: Waite Street
Weather: Clear

File Name : 08_WDM_Mojonnier Way_Waite Sat
Site Code : 10518676
Start Date : 10/6/2018
Page No : 1

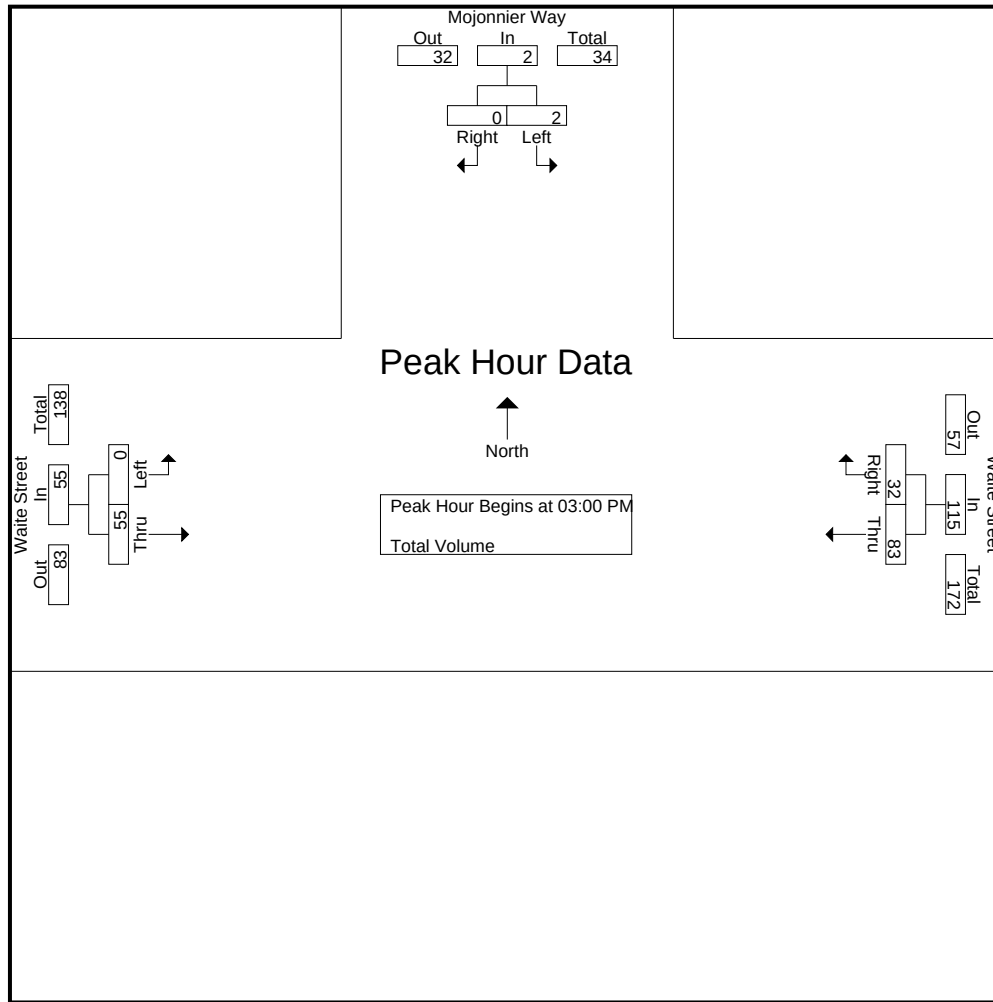
Groups Printed- Total Volume

	Mojonnier Way Southbound			Waite Street Westbound			Waite Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
02:00 PM	0	1	1	21	1	22	0	19	19	42
02:15 PM	0	0	0	26	1	27	0	12	12	39
02:30 PM	0	0	0	18	0	18	0	21	21	39
02:45 PM	1	0	1	28	1	29	0	13	13	43
Total	1	1	2	93	3	96	0	65	65	163
03:00 PM	0	0	0	14	6	20	0	13	13	33
03:15 PM	1	0	1	22	5	27	0	11	11	39
03:30 PM	0	0	0	23	11	34	0	15	15	49
03:45 PM	1	0	1	24	10	34	0	16	16	51
Total	2	0	2	83	32	115	0	55	55	172
Grand Total	3	1	4	176	35	211	0	120	120	335
Apprch %	75	25		83.4	16.6		0	100		
Total %	0.9	0.3	1.2	52.5	10.4	63	0	35.8	35.8	

	Mojonnier Way Southbound			Waite Street Westbound			Waite Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	0	0	14	6	20	0	13	13	33
03:15 PM	1	0	1	22	5	27	0	11	11	39
03:30 PM	0	0	0	23	11	34	0	15	15	49
03:45 PM	1	0	1	24	10	34	0	16	16	51
Total Volume	2	0	2	83	32	115	0	55	55	172
% App. Total	100	0		72.2	27.8		0	100		
PHF	.500	.000	.500	.865	.727	.846	.000	.859	.859	.843

City of Wildomar
N/S: Mojonnier Way
E/W: Waite Street
Weather: Clear

File Name : 08_WDM_Mojonnier Way_Waite Sat
Site Code : 10518676
Start Date : 10/6/2018
Page No : 2



Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM			03:00 PM			02:00 PM		
+0 mins.	0	1	1	14	6	20	0	19	19
+15 mins.	0	0	0	22	5	27	0	12	12
+30 mins.	0	0	0	23	11	34	0	21	21
+45 mins.	1	0	1	24	10	34	0	13	13
Total Volume	1	1	2	83	32	115	0	65	65
% App. Total	50	50		72.2	27.8		0	100	
PHF	.250	.250	.500	.865	.727	.846	.000	.774	.774

City of Wildomar
N/S: Mojonnier Way
E/W: Waite Street
Weather: Clear

File Name : 08_WDM_Mojonnier Way_Waite Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

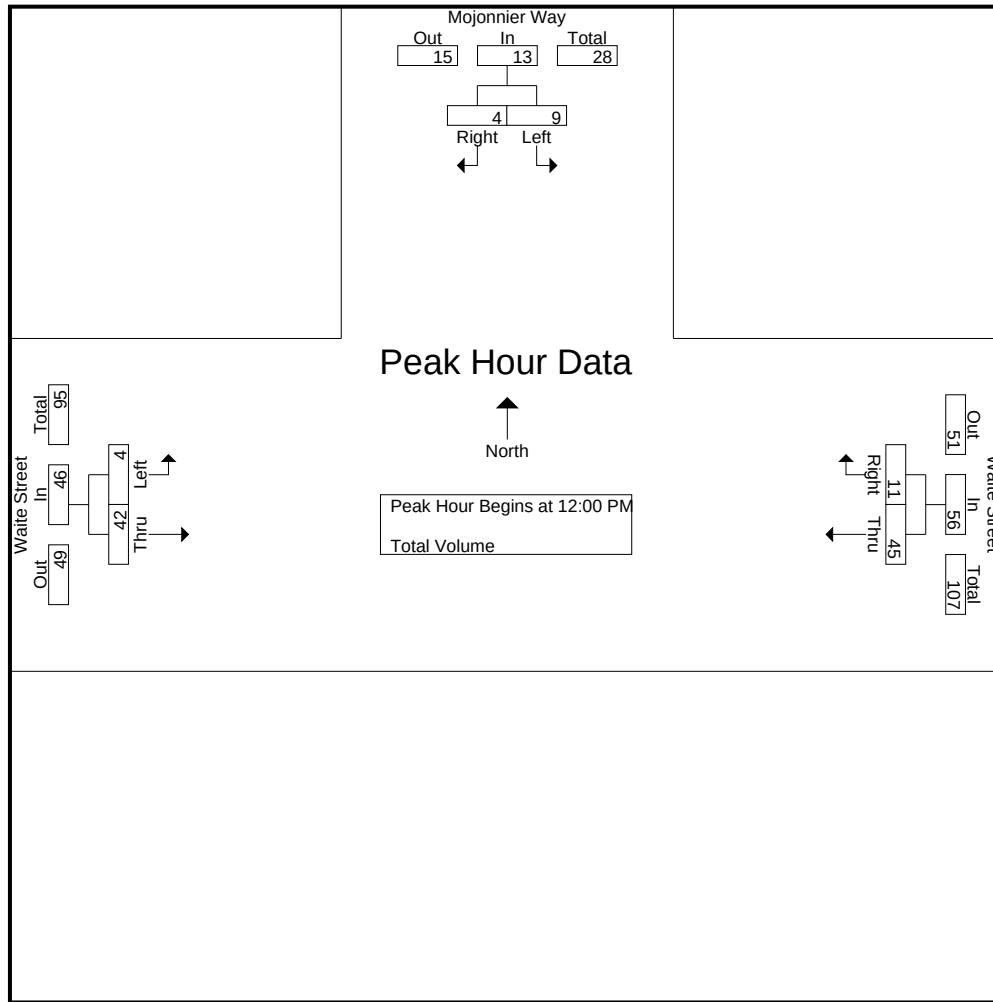
Groups Printed- Total Volume

	Mojonnier Way Southbound			Waite Street Westbound			Waite Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
11:00 AM	0	2	2	10	1	11	1	7	8	21
11:15 AM	0	0	0	15	0	15	1	5	6	21
11:30 AM	0	0	0	11	0	11	0	8	8	19
11:45 AM	0	0	0	10	0	10	0	7	7	17
Total	0	2	2	46	1	47	2	27	29	78
12:00 PM	6	3	9	13	1	14	1	7	8	31
12:15 PM	2	0	2	13	2	15	0	15	15	32
12:30 PM	1	0	1	12	2	14	0	11	11	26
12:45 PM	0	1	1	7	6	13	3	9	12	26
Total	9	4	13	45	11	56	4	42	46	115
Grand Total	9	6	15	91	12	103	6	69	75	193
Apprch %	60	40		88.3	11.7		8	92		
Total %	4.7	3.1	7.8	47.2	6.2	53.4	3.1	35.8	38.9	

	Mojonnier Way Southbound			Waite Street Westbound			Waite Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:00 PM										
12:00 PM	6	3	9	13	1	14	1	7	8	31
12:15 PM	2	0	2	13	2	15	0	15	15	32
12:30 PM	1	0	1	12	2	14	0	11	11	26
12:45 PM	0	1	1	7	6	13	3	9	12	26
Total Volume	9	4	13	45	11	56	4	42	46	115
% App. Total	69.2	30.8		80.4	19.6		8.7	91.3		
PHF	.375	.333	.361	.865	.458	.933	.333	.700	.767	.898

City of Wildomar
N/S: Mojonnier Way
E/W: Waite Street
Weather: Clear

File Name : 08_WDM_Mojonnier Way_Waite Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:00 PM			12:00 PM			12:00 PM		
+0 mins.	6	3	9	13	1	14	1	7	8
+15 mins.	2	0	2	13	2	15	0	15	15
+30 mins.	1	0	1	12	2	14	0	11	11
+45 mins.	0	1	1	7	6	13	3	9	12
Total Volume	9	4	13	45	11	56	4	42	46
% App. Total	69.2	30.8		80.4	19.6		8.7	91.3	
PHF	.375	.333	.361	.865	.458	.933	.333	.700	.767

City of Wildomar
N/S: Almond Street
E/W: Lemon Street
Weather: Clear

File Name : 09_WDM_Almond_Lemon SAT
Site Code : 10518676
Start Date : 10/6/2018
Page No : 1

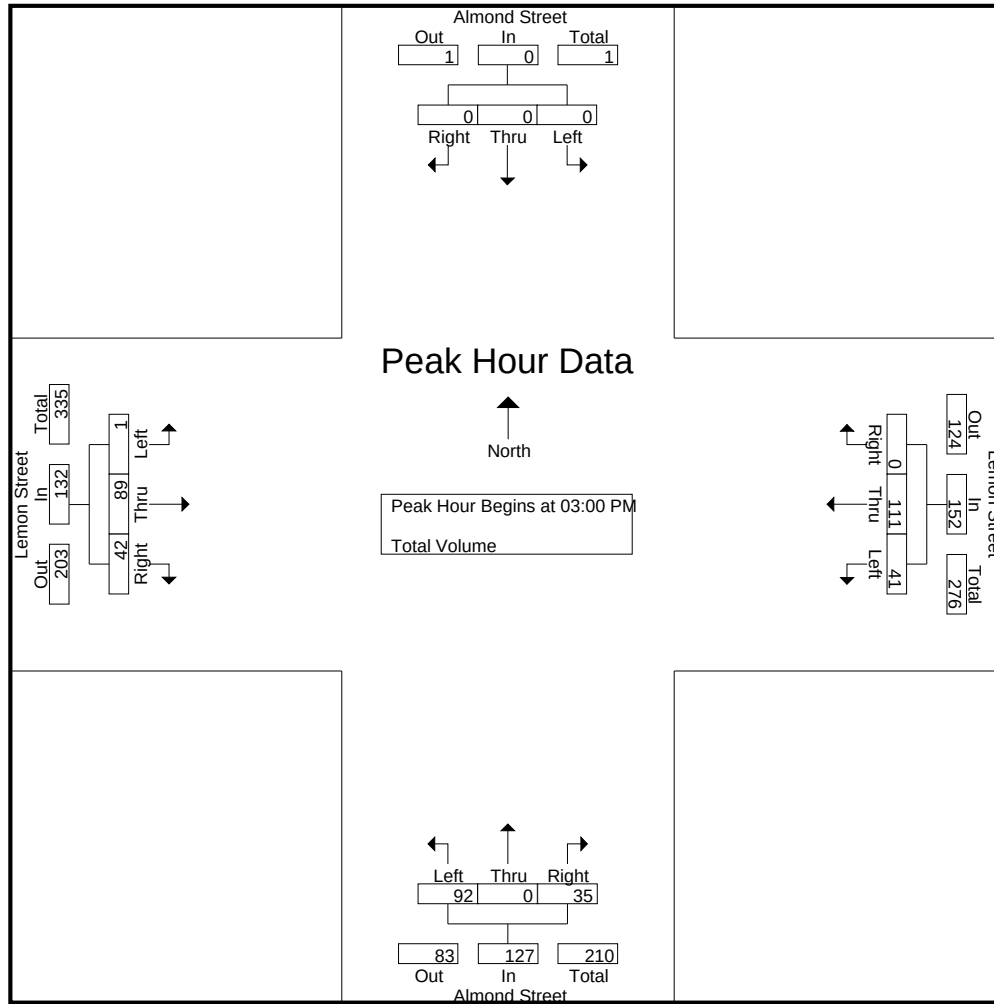
Groups Printed- Total Volume

	Almond Street Southbound				Lemon Street Westbound				Almond Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	14	24	0	38	8	0	17	25	0	17	11	28	91
02:15 PM	0	0	0	0	14	12	0	26	14	1	7	22	0	28	11	39	87
02:30 PM	0	1	0	1	14	20	0	34	12	1	9	22	0	23	11	34	91
02:45 PM	1	0	0	1	17	22	0	39	16	3	7	26	0	29	7	36	102
Total	1	1	0	2	59	78	0	137	50	5	40	95	0	97	40	137	371
03:00 PM	0	0	0	0	6	19	0	25	16	0	7	23	0	23	12	35	83
03:15 PM	0	0	0	0	11	21	0	32	25	0	11	36	0	17	6	23	91
03:30 PM	0	0	0	0	16	42	0	58	27	0	9	36	1	26	12	39	133
03:45 PM	0	0	0	0	8	29	0	37	24	0	8	32	0	23	12	35	104
Total	0	0	0	0	41	111	0	152	92	0	35	127	1	89	42	132	411
Grand Total	1	1	0	2	100	189	0	289	142	5	75	222	1	186	82	269	782
Apprch %	50	50	0		34.6	65.4	0		64	2.3	33.8		0.4	69.1	30.5		
Total %	0.1	0.1	0	0.3	12.8	24.2	0	37	18.2	0.6	9.6	28.4	0.1	23.8	10.5	34.4	

	Almond Street Southbound				Lemon Street Westbound				Almond Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	0	0	6	19	0	25	16	0	7	23	0	23	12	35	83
03:15 PM	0	0	0	0	11	21	0	32	25	0	11	36	0	17	6	23	91
03:30 PM	0	0	0	0	16	42	0	58	27	0	9	36	1	26	12	39	133
03:45 PM	0	0	0	0	8	29	0	37	24	0	8	32	0	23	12	35	104
Total Volume	0	0	0	0	41	111	0	152	92	0	35	127	1	89	42	132	411
% App. Total	0	0	0		27	73	0		72.4	0	27.6		0.8	67.4	31.8		
PHF	.000	.000	.000	.000	.641	.661	.000	.655	.852	.000	.795	.882	.250	.856	.875	.846	.773

City of Wildomar
N/S: Almond Street
E/W: Lemon Street
Weather: Clear

File Name : 09_WDM_Almond_Lemon SAT
Site Code : 10518676
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:45 PM				03:00 PM				03:15 PM			
+0 mins.	0	0	0	0	17	22	0	39	16	0	7	23	0	28	11	39
+15 mins.	0	0	0	0	6	19	0	25	25	0	11	36	0	23	11	34
+30 mins.	0	1	0	1	11	21	0	32	27	0	9	36	0	29	7	36
+45 mins.	1	0	0	1	16	42	0	58	24	0	8	32	0	23	12	35
Total Volume	1	1	0	2	50	104	0	154	92	0	35	127	0	103	41	144
% App. Total	50	50	0		32.5	67.5	0		72.4	0	27.6		0	71.5	28.5	
PHF	.250	.250	.000	.500	.735	.619	.000	.664	.852	.000	.795	.882	.000	.888	.854	.923

City of Wildomar
N/S: Almond Street
E/W: Lemon Street
Weather: Clear

File Name : 09_WDM_Almond_Lemon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

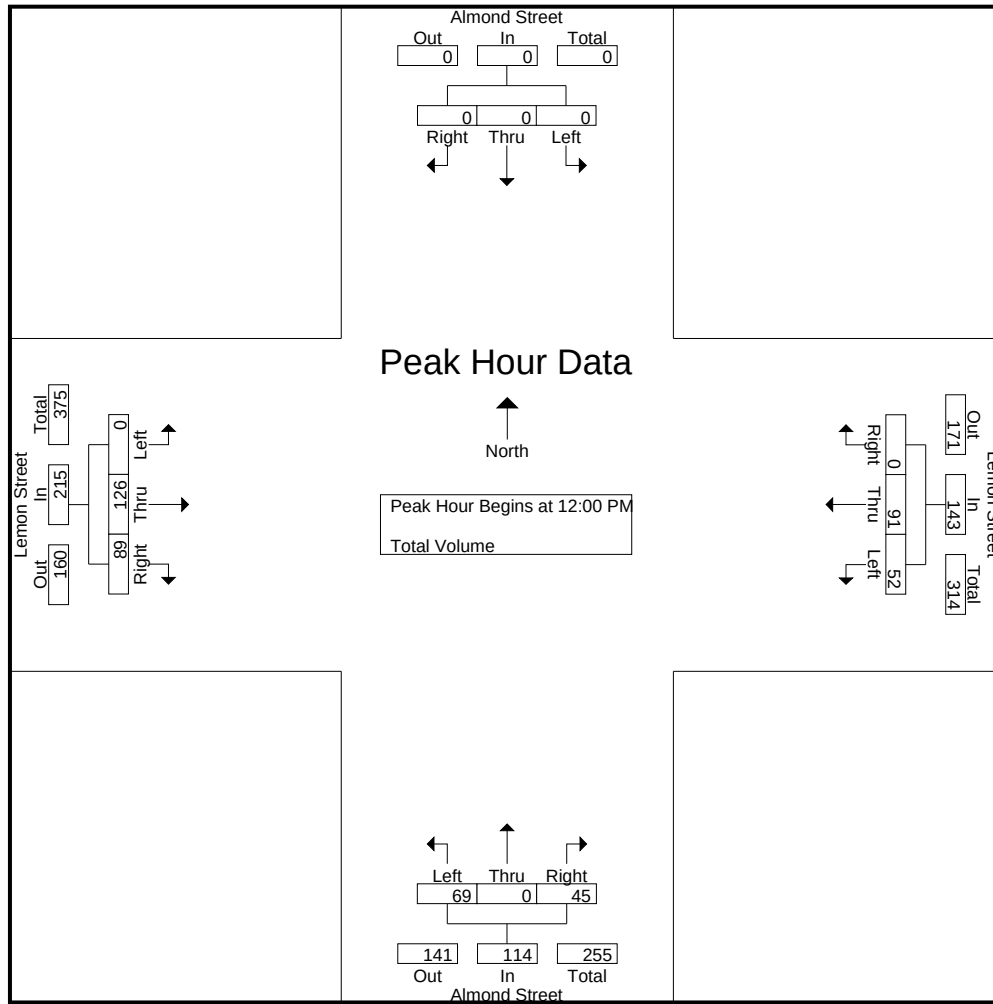
Groups Printed- Total Volume

	Almond Street Southbound				Lemon Street Westbound				Almond Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	0	0	0	0	16	19	0	35	18	0	12	30	0	20	10	30	95
11:15 AM	0	0	0	0	8	12	0	20	5	0	6	11	0	14	5	19	50
11:30 AM	0	0	0	0	15	24	0	39	5	0	6	11	0	14	10	24	74
11:45 AM	0	0	0	0	7	12	0	19	10	0	8	18	0	26	15	41	78
Total	0	0	0	0	46	67	0	113	38	0	32	70	0	74	40	114	297
12:00 PM	0	0	0	0	10	20	0	30	8	0	8	16	0	59	53	112	158
12:15 PM	0	0	0	0	13	21	0	34	17	0	13	30	0	25	12	37	101
12:30 PM	0	0	0	0	15	17	0	32	25	0	14	39	0	19	11	30	101
12:45 PM	0	0	0	0	14	33	0	47	19	0	10	29	0	23	13	36	112
Total	0	0	0	0	52	91	0	143	69	0	45	114	0	126	89	215	472
Grand Total	0	0	0	0	98	158	0	256	107	0	77	184	0	200	129	329	769
Apprch %	0	0	0		38.3	61.7	0		58.2	0	41.8		0	60.8	39.2		
Total %	0	0	0	0	12.7	20.5	0	33.3	13.9	0	10	23.9	0	26	16.8	42.8	

	Almond Street Southbound				Lemon Street Westbound				Almond Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	10	20	0	30	8	0	8	16	0	59	53	112	158
12:15 PM	0	0	0	0	13	21	0	34	17	0	13	30	0	25	12	37	101
12:30 PM	0	0	0	0	15	17	0	32	25	0	14	39	0	19	11	30	101
12:45 PM	0	0	0	0	14	33	0	47	19	0	10	29	0	23	13	36	112
Total Volume	0	0	0	0	52	91	0	143	69	0	45	114	0	126	89	215	472
% App. Total	0	0	0		36.4	63.6	0		60.5	0	39.5		0	58.6	41.4		
PHF	.000	.000	.000	.000	.867	.689	.000	.761	.690	.000	.804	.731	.000	.534	.420	.480	.747

City of Wildomar
N/S: Almond Street
E/W: Lemon Street
Weather: Clear

File Name : 09_WDM_Almond_Lemon Sun
Site Code : 10518676
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Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				12:00 PM				12:00 PM				11:45 AM			
+0 mins.	0	0	0	0	10	20	0	30	8	0	8	16	0	26	15	41
+15 mins.	0	0	0	0	13	21	0	34	17	0	13	30	0	59	53	112
+30 mins.	0	0	0	0	15	17	0	32	25	0	14	39	0	25	12	37
+45 mins.	0	0	0	0	14	33	0	47	19	0	10	29	0	19	11	30
Total Volume	0	0	0	0	52	91	0	143	69	0	45	114	0	129	91	220
% App. Total	0	0	0	0	36.4	63.6	0		60.5	0	39.5		0	58.6	41.4	
PHF	.000	.000	.000	.000	.867	.689	.000	.761	.690	.000	.804	.731	.000	.547	.429	.491

City of Wildomar
N/S: Almond Street
E/W: Waite Street
Weather: Clear

File Name : 10_WDM_Almond_Waite SAT
Site Code : 10518676
Start Date : 10/6/2018
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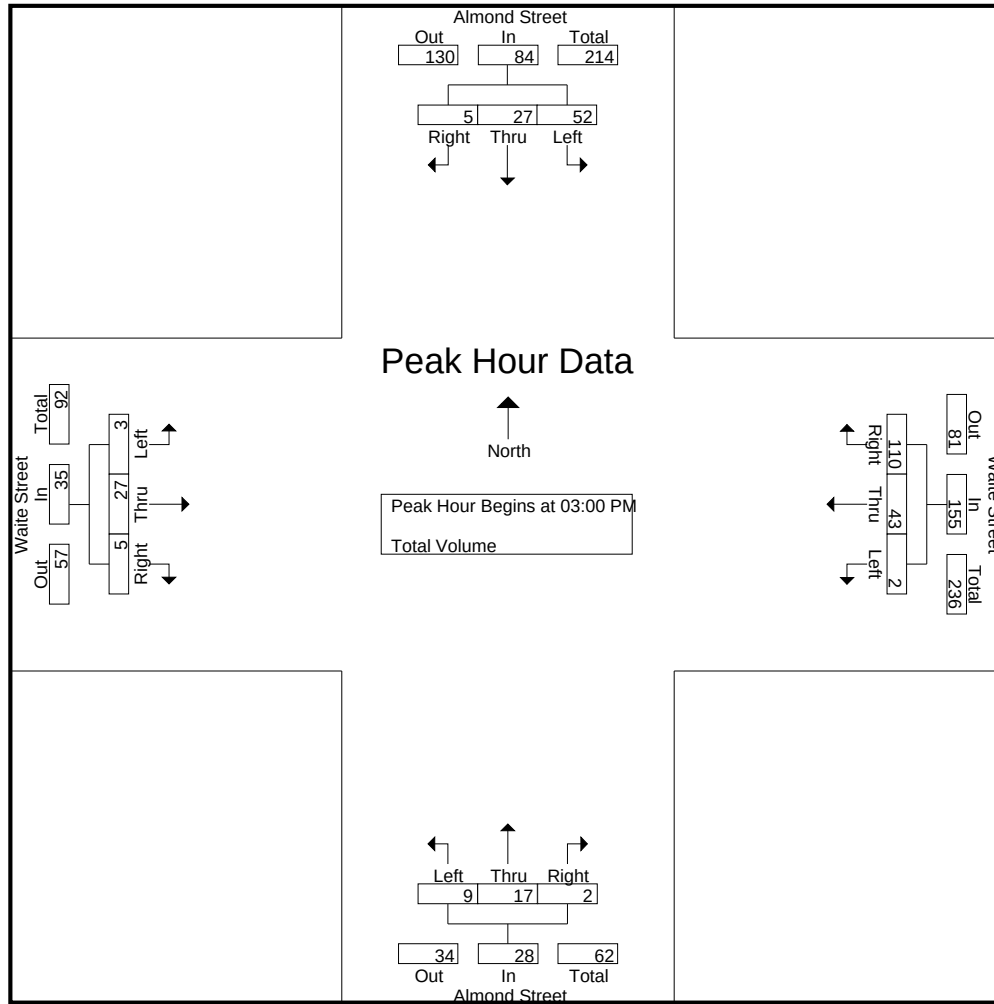
Groups Printed- Total Volume

	Almond Street Southbound				Waite Street Westbound				Almond Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	14	10	2	26	0	9	19	28	0	3	0	3	5	9	1	15	72
02:15 PM	10	14	2	26	0	8	15	23	4	6	1	11	1	8	3	12	72
02:30 PM	14	13	1	28	0	8	13	21	1	7	1	9	1	7	0	8	66
02:45 PM	11	10	2	23	1	16	15	32	0	5	0	5	3	9	2	14	74
Total	49	47	7	103	1	41	62	104	5	21	2	28	10	33	6	49	284
03:00 PM	13	4	1	18	2	9	18	29	4	3	1	8	0	3	0	3	58
03:15 PM	10	10	2	22	0	6	30	36	0	3	1	4	2	5	1	8	70
03:30 PM	15	11	2	28	0	13	37	50	3	8	0	11	1	6	3	10	99
03:45 PM	14	2	0	16	0	15	25	40	2	3	0	5	0	13	1	14	75
Total	52	27	5	84	2	43	110	155	9	17	2	28	3	27	5	35	302
Grand Total	101	74	12	187	3	84	172	259	14	38	4	56	13	60	11	84	586
Apprch %	54	39.6	6.4		1.2	32.4	66.4		25	67.9	7.1		15.5	71.4	13.1		
Total %	17.2	12.6	2	31.9	0.5	14.3	29.4	44.2	2.4	6.5	0.7	9.6	2.2	10.2	1.9	14.3	

	Almond Street Southbound				Waite Street Westbound				Almond Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	13	4	1	18	2	9	18	29	4	3	1	8	0	3	0	3	58
03:15 PM	10	10	2	22	0	6	30	36	0	3	1	4	2	5	1	8	70
03:30 PM	15	11	2	28	0	13	37	50	3	8	0	11	1	6	3	10	99
03:45 PM	14	2	0	16	0	15	25	40	2	3	0	5	0	13	1	14	75
Total Volume	52	27	5	84	2	43	110	155	9	17	2	28	3	27	5	35	302
% App. Total	61.9	32.1	6		1.3	27.7	71		32.1	60.7	7.1		8.6	77.1	14.3		
PHF	.867	.614	.625	.750	.250	.717	.743	.775	.563	.531	.500	.636	.375	.519	.417	.625	.763

City of Wildomar
N/S: Almond Street
E/W: Waite Street
Weather: Clear

File Name : 10_WDM_Almond_Waite SAT
Site Code : 10518676
Start Date : 10/6/2018
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				03:00 PM				02:15 PM				02:00 PM			
+0 mins.	14	10	2	26	2	9	18	29	4	6	1	11	5	9	1	15
+15 mins.	10	14	2	26	0	6	30	36	1	7	1	9	1	8	3	12
+30 mins.	14	13	1	28	0	13	37	50	0	5	0	5	1	7	0	8
+45 mins.	11	10	2	23	0	15	25	40	4	3	1	8	3	9	2	14
Total Volume	49	47	7	103	2	43	110	155	9	21	3	33	10	33	6	49
% App. Total	47.6	45.6	6.8		1.3	27.7	71		27.3	63.6	9.1		20.4	67.3	12.2	
PHF	.875	.839	.875	.920	.250	.717	.743	.775	.563	.750	.750	.750	.500	.917	.500	.817

City of Wildomar
N/S: Almond Street
E/W: Waite Street
Weather: Clear

File Name : 10_WDM_Almond_Waite Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

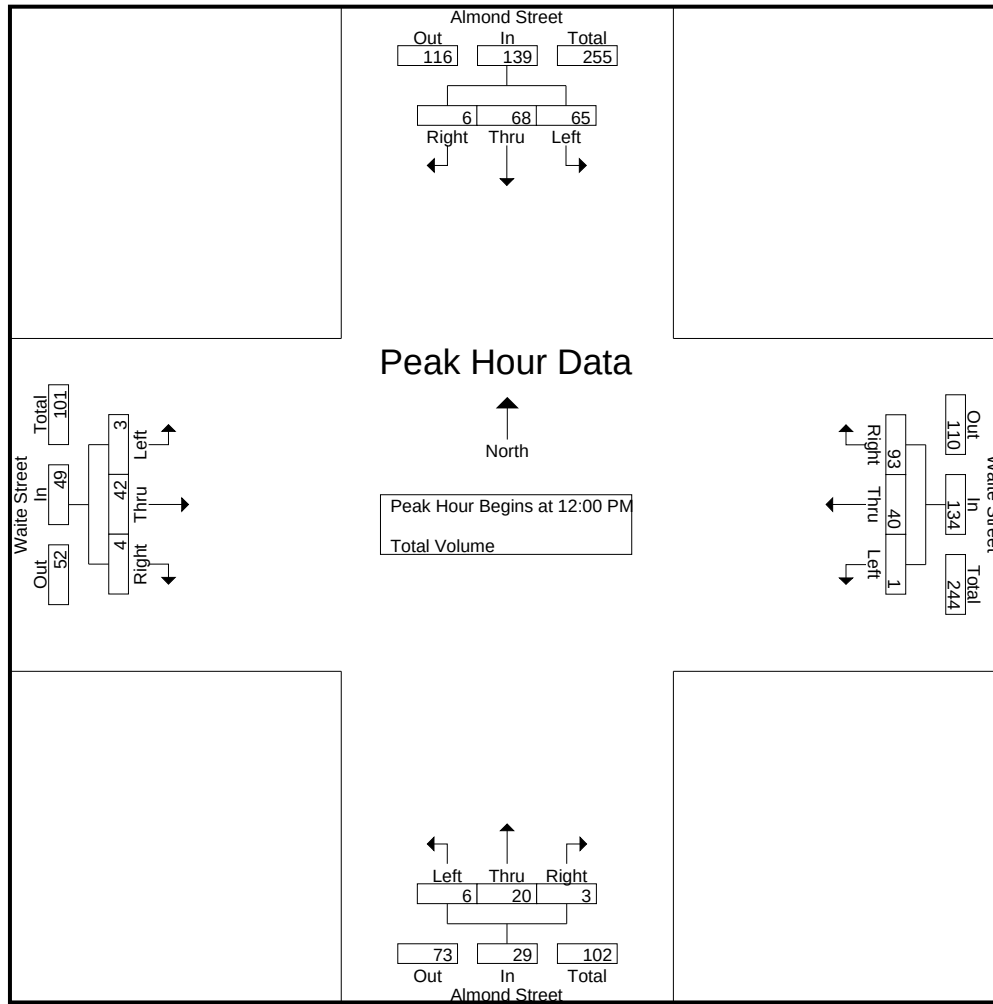
Groups Printed- Total Volume

	Almond Street Southbound				Waite Street Westbound				Almond Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	14	13	0	27	0	11	23	34	2	6	1	9	0	4	1	5	75
11:15 AM	4	10	0	14	0	15	7	22	0	4	1	5	0	8	0	8	49
11:30 AM	10	9	1	20	0	8	11	19	2	3	0	5	0	7	0	7	51
11:45 AM	15	12	0	27	0	7	11	18	2	7	0	9	2	3	0	5	59
Total	43	44	1	88	0	41	52	93	6	20	2	28	2	22	1	25	234
12:00 PM	32	33	2	67	0	10	14	24	2	3	1	6	0	12	1	13	110
12:15 PM	14	11	1	26	0	11	24	35	1	8	0	9	1	10	2	13	83
12:30 PM	8	16	1	25	0	9	28	37	1	6	1	8	1	13	0	14	84
12:45 PM	11	8	2	21	1	10	27	38	2	3	1	6	1	7	1	9	74
Total	65	68	6	139	1	40	93	134	6	20	3	29	3	42	4	49	351
Grand Total	108	112	7	227	1	81	145	227	12	40	5	57	5	64	5	74	585
Apprch %	47.6	49.3	3.1		0.4	35.7	63.9		21.1	70.2	8.8		6.8	86.5	6.8		
Total %	18.5	19.1	1.2	38.8	0.2	13.8	24.8	38.8	2.1	6.8	0.9	9.7	0.9	10.9	0.9	12.6	

	Almond Street Southbound				Waite Street Westbound				Almond Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	32	33	2	67	0	10	14	24	2	3	1	6	0	12	1	13	110
12:15 PM	14	11	1	26	0	11	24	35	1	8	0	9	1	10	2	13	83
12:30 PM	8	16	1	25	0	9	28	37	1	6	1	8	1	13	0	14	84
12:45 PM	11	8	2	21	1	10	27	38	2	3	1	6	1	7	1	9	74
Total Volume	65	68	6	139	1	40	93	134	6	20	3	29	3	42	4	49	351
% App. Total	46.8	48.9	4.3		0.7	29.9	69.4		20.7	69	10.3		6.1	85.7	8.2		
PHF	.508	.515	.750	.519	.250	.909	.830	.882	.750	.625	.750	.806	.750	.808	.500	.875	.798

City of Wildomar
N/S: Almond Street
E/W: Waite Street
Weather: Clear

File Name : 10_WDM_Almond_Waite Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				12:00 PM				11:45 AM				12:00 PM			
+0 mins.	15	12	0	27	0	10	14	24	2	7	0	9	0	12	1	13
+15 mins.	32	33	2	67	0	11	24	35	2	3	1	6	1	10	2	13
+30 mins.	14	11	1	26	0	9	28	37	1	8	0	9	1	13	0	14
+45 mins.	8	16	1	25	1	10	27	38	1	6	1	8	1	7	1	9
Total Volume	69	72	4	145	1	40	93	134	6	24	2	32	3	42	4	49
% App. Total	47.6	49.7	2.8		0.7	29.9	69.4		18.8	75	6.2		6.1	85.7	8.2	
PHF	.539	.545	.500	.541	.250	.909	.830	.882	.750	.750	.500	.889	.750	.808	.500	.875

City of Wildomar
N/S: Almond Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 11_WDM_Almond_Bundy Canyon SAT
Site Code : 10518676
Start Date : 9/22/2018
Page No : 1

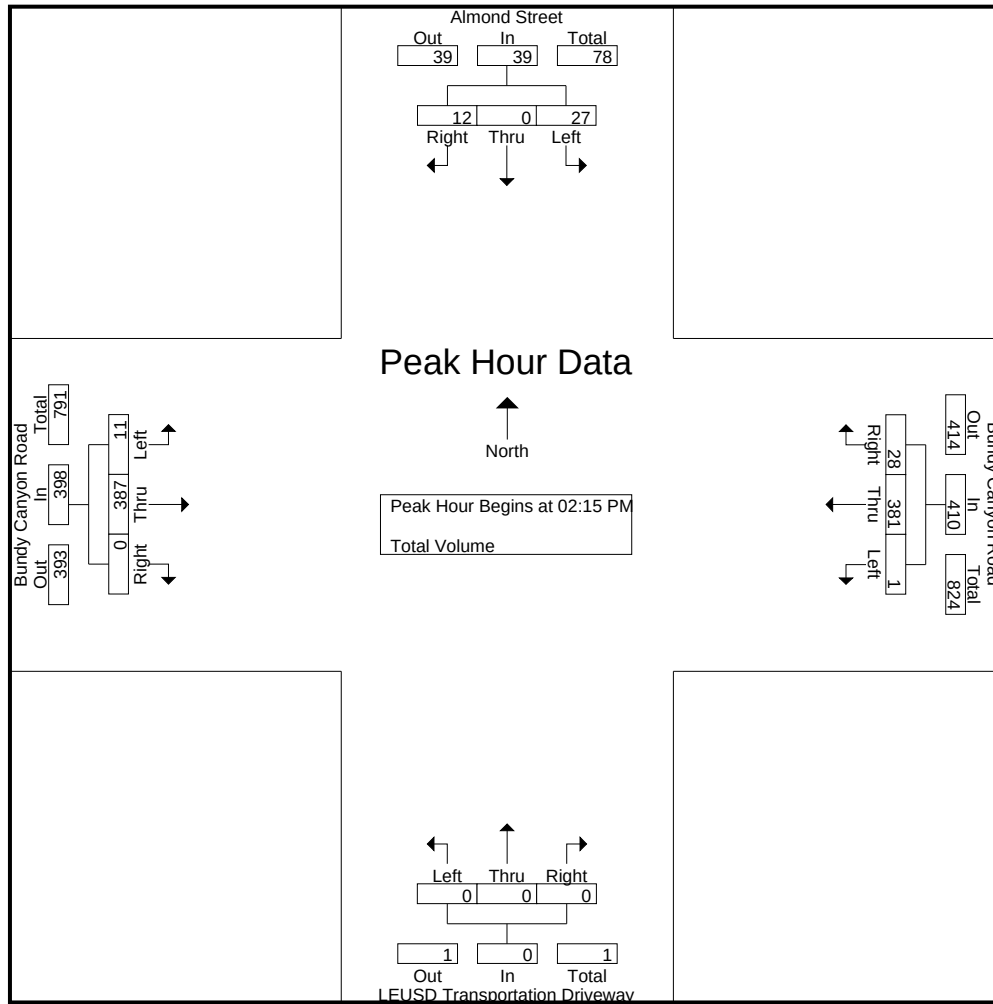
Groups Printed- Total Volume

	Almond Street Southbound				Bundy Canyon Road Westbound				LEUSD Transportation Driveway Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	8	0	5	13	0	77	4	81	0	0	0	0	4	91	0	95	189
02:15 PM	3	0	3	6	0	90	8	98	0	0	0	0	3	99	0	102	206
02:30 PM	7	0	4	11	0	97	10	107	0	0	0	0	2	91	0	93	211
02:45 PM	10	0	4	14	0	104	6	110	0	0	0	0	2	113	0	115	239
Total	28	0	16	44	0	368	28	396	0	0	0	0	11	394	0	405	845
03:00 PM	7	0	1	8	1	90	4	95	0	0	0	0	4	84	0	88	191
03:15 PM	2	0	5	7	0	83	10	93	0	0	0	0	3	91	0	94	194
03:30 PM	6	0	5	11	0	99	10	109	0	1	0	1	6	92	0	98	219
03:45 PM	7	0	3	10	0	99	10	109	0	0	0	0	2	71	0	73	192
Total	22	0	14	36	1	371	34	406	0	1	0	1	15	338	0	353	796
Grand Total	50	0	30	80	1	739	62	802	0	1	0	1	26	732	0	758	1641
Apprch %	62.5	0	37.5		0.1	92.1	7.7		0	100	0		3.4	96.6	0		
Total %	3	0	1.8	4.9	0.1	45	3.8	48.9	0	0.1	0	0.1	1.6	44.6	0	46.2	

	Almond Street Southbound				Bundy Canyon Road Westbound				LEUSD Transportation Driveway Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:15 PM																	
02:15 PM	3	0	3	6	0	90	8	98	0	0	0	0	3	99	0	102	206
02:30 PM	7	0	4	11	0	97	10	107	0	0	0	0	2	91	0	93	211
02:45 PM	10	0	4	14	0	104	6	110	0	0	0	0	2	113	0	115	239
03:00 PM	7	0	1	8	1	90	4	95	0	0	0	0	4	84	0	88	191
Total Volume	27	0	12	39	1	381	28	410	0	0	0	0	11	387	0	398	847
% App. Total	69.2	0	30.8		0.2	92.9	6.8		0	0	0		2.8	97.2	0		
PHF	.675	.000	.750	.696	.250	.916	.700	.932	.000	.000	.000	.000	.688	.856	.000	.865	.886

City of Wildomar
N/S: Almond Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 11_WDM_Almond_Bundy Canyon SAT
Site Code : 10518676
Start Date : 9/22/2018
Page No : 2



Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:15 PM				02:45 PM				03:00 PM			
+0 mins.	8	0	5	13	0	90	8	98	0	0	0	0	4	91	0	95
+15 mins.	3	0	3	6	0	97	10	107	0	0	0	0	3	99	0	102
+30 mins.	7	0	4	11	0	104	6	110	0	0	0	0	2	91	0	93
+45 mins.	10	0	4	14	1	90	4	95	0	1	0	1	2	113	0	115
Total Volume	28	0	16	44	1	381	28	410	0	1	0	1	11	394	0	405
% App. Total	63.6	0	36.4		0.2	92.9	6.8		0	100	0		2.7	97.3	0	
PHF	.700	.000	.800	.786	.250	.916	.700	.932	.000	.250	.000	.250	.688	.872	.000	.880

City of Wildomar
N/S: Almond Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 11_WDM_Almond_Bundy Canyon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

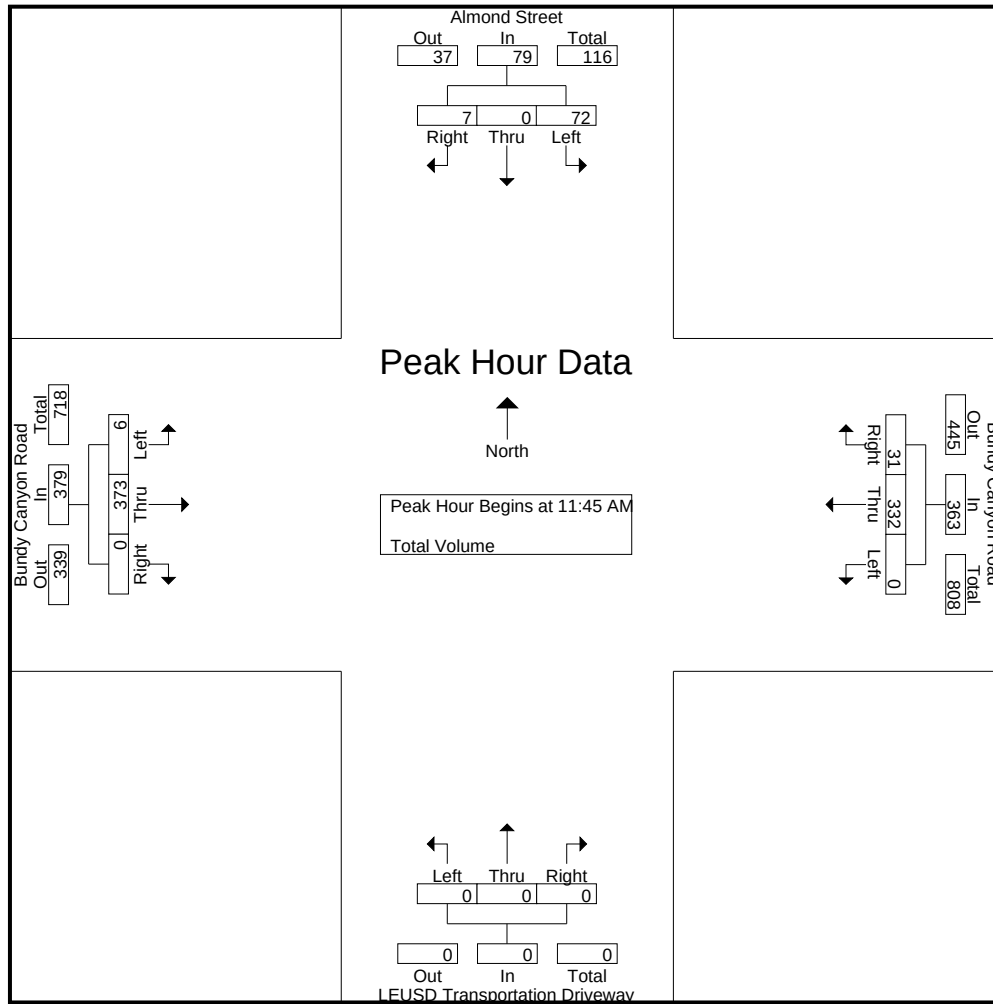
Groups Printed- Total Volume

	Almond Street Southbound				Bundy Canyon Road Westbound				LEUSD Transportation Driveway Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	11	0	5	16	0	69	6	75	0	0	0	0	3	82	0	85	176
11:15 AM	11	0	2	13	0	69	5	74	0	0	0	0	2	76	0	78	165
11:30 AM	12	0	0	12	0	93	4	97	0	0	0	0	4	86	0	90	199
11:45 AM	16	0	0	16	0	82	11	93	0	0	0	0	2	99	0	101	210
Total	50	0	7	57	0	313	26	339	0	0	0	0	11	343	0	354	750
12:00 PM	32	0	2	34	0	79	5	84	0	0	0	0	2	85	0	87	205
12:15 PM	10	0	2	12	0	83	7	90	0	0	0	0	2	93	0	95	197
12:30 PM	14	0	3	17	0	88	8	96	0	0	0	0	0	96	0	96	209
12:45 PM	9	0	2	11	1	80	8	89	0	0	1	1	1	87	1	89	190
Total	65	0	9	74	1	330	28	359	0	0	1	1	5	361	1	367	801
Grand Total	115	0	16	131	1	643	54	698	0	0	1	1	16	704	1	721	1551
Apprch %	87.8	0	12.2		0.1	92.1	7.7		0	0	100		2.2	97.6	0.1		
Total %	7.4	0	1	8.4	0.1	41.5	3.5	45	0	0	0.1	0.1	1	45.4	0.1	46.5	

	Almond Street Southbound				Bundy Canyon Road Westbound				LEUSD Transportation Driveway Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	16	0	0	16	0	82	11	93	0	0	0	0	2	99	0	101	210
12:00 PM	32	0	2	34	0	79	5	84	0	0	0	0	2	85	0	87	205
12:15 PM	10	0	2	12	0	83	7	90	0	0	0	0	2	93	0	95	197
12:30 PM	14	0	3	17	0	88	8	96	0	0	0	0	0	96	0	96	209
Total Volume	72	0	7	79	0	332	31	363	0	0	0	0	6	373	0	379	821
% App. Total	91.1	0	8.9		0	91.5	8.5		0	0	0		1.6	98.4	0		
PHF	.563	.000	.583	.581	.000	.943	.705	.945	.000	.000	.000	.000	.750	.942	.000	.938	.977

City of Wildomar
N/S: Almond Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 11_WDM_Almond_Bundy Canyon Sun
Site Code : 10518676
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Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM				11:30 AM				12:00 PM				11:45 AM			
+0 mins.	16	0	0	16	0	93	4	97	0	0	0	0	2	99	0	101
+15 mins.	32	0	2	34	0	82	11	93	0	0	0	0	2	85	0	87
+30 mins.	10	0	2	12	0	79	5	84	0	0	0	0	2	93	0	95
+45 mins.	14	0	3	17	0	83	7	90	0	0	1	1	0	96	0	96
Total Volume	72	0	7	79	0	337	27	364	0	0	1	1	6	373	0	379
% App. Total	91.1	0	8.9		0	92.6	7.4		0	0	100		1.6	98.4	0	
PHF	.563	.000	.583	.581	.000	.906	.614	.938	.000	.000	.250	.250	.750	.942	.000	.938

City of Wildomar
N/S: Orange Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 12_WDM_Orange_Bundy Canyon Sat
Site Code : 10518676
Start Date : 9/22/2018
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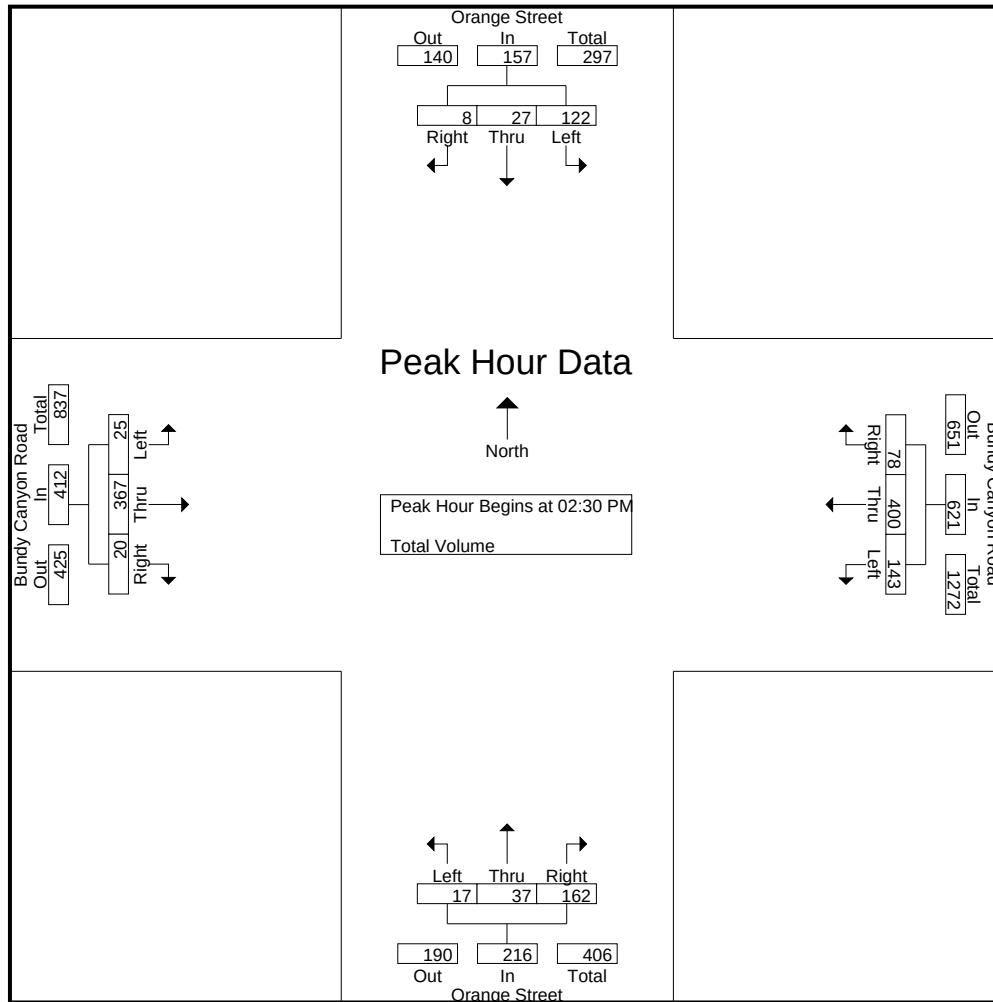
Groups Printed- Total Volume

	Orange Street Southbound				Bundy Canyon Road Westbound				Orange Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	34	5	3	42	31	88	21	140	0	8	22	30	7	92	6	105	317
02:15 PM	26	6	2	34	44	93	31	168	3	11	24	38	3	92	4	99	339
02:30 PM	28	7	2	37	30	105	21	156	4	5	32	41	8	89	4	101	335
02:45 PM	36	8	1	45	44	108	19	171	5	8	35	48	6	114	5	125	389
Total	124	26	8	158	149	394	92	635	12	32	113	157	24	387	19	430	1380
03:00 PM	30	8	2	40	40	89	11	140	5	11	54	70	5	82	4	91	341
03:15 PM	28	4	3	35	29	98	27	154	3	13	41	57	6	82	7	95	341
03:30 PM	21	6	6	33	22	105	29	156	5	9	30	44	7	90	3	100	333
03:45 PM	30	7	1	38	34	102	29	165	3	13	31	47	6	65	3	74	324
Total	109	25	12	146	125	394	96	615	16	46	156	218	24	319	17	360	1339
Grand Total	233	51	20	304	274	788	188	1250	28	78	269	375	48	706	36	790	2719
Apprch %	76.6	16.8	6.6		21.9	63	15		7.5	20.8	71.7		6.1	89.4	4.6		
Total %	8.6	1.9	0.7	11.2	10.1	29	6.9	46	1	2.9	9.9	13.8	1.8	26	1.3	29.1	

	Orange Street Southbound				Bundy Canyon Road Westbound				Orange Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	28	7	2	37	30	105	21	156	4	5	32	41	8	89	4	101	335
02:45 PM	36	8	1	45	44	108	19	171	5	8	35	48	6	114	5	125	389
03:00 PM	30	8	2	40	40	89	11	140	5	11	54	70	5	82	4	91	341
03:15 PM	28	4	3	35	29	98	27	154	3	13	41	57	6	82	7	95	341
Total Volume	122	27	8	157	143	400	78	621	17	37	162	216	25	367	20	412	1406
% App. Total	77.7	17.2	5.1		23	64.4	12.6		7.9	17.1	75		6.1	89.1	4.9		
PHF	.847	.844	.667	.872	.813	.926	.722	.908	.850	.712	.750	.771	.781	.805	.714	.824	.904

City of Wildomar
N/S: Orange Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 12_WDM_Orange_Bundy Canyon Sat
Site Code : 10518676
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:45 PM				02:00 PM			
+0 mins.	34	5	3	42	31	88	21	140	5	8	35	48	7	92	6	105
+15 mins.	26	6	2	34	44	93	31	168	5	11	54	70	3	92	4	99
+30 mins.	28	7	2	37	30	105	21	156	3	13	41	57	8	89	4	101
+45 mins.	36	8	1	45	44	108	19	171	5	9	30	44	6	114	5	125
Total Volume	124	26	8	158	149	394	92	635	18	41	160	219	24	387	19	430
% App. Total	78.5	16.5	5.1		23.5	62	14.5		8.2	18.7	73.1		5.6	90	4.4	
PHF	.861	.813	.667	.878	.847	.912	.742	.928	.900	.788	.741	.782	.750	.849	.792	.860

City of Wildomar
N/S: Orange Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 12_WDM_Orange_Bundy Canyon Sun
Site Code : 10518676
Start Date : 9/23/2018
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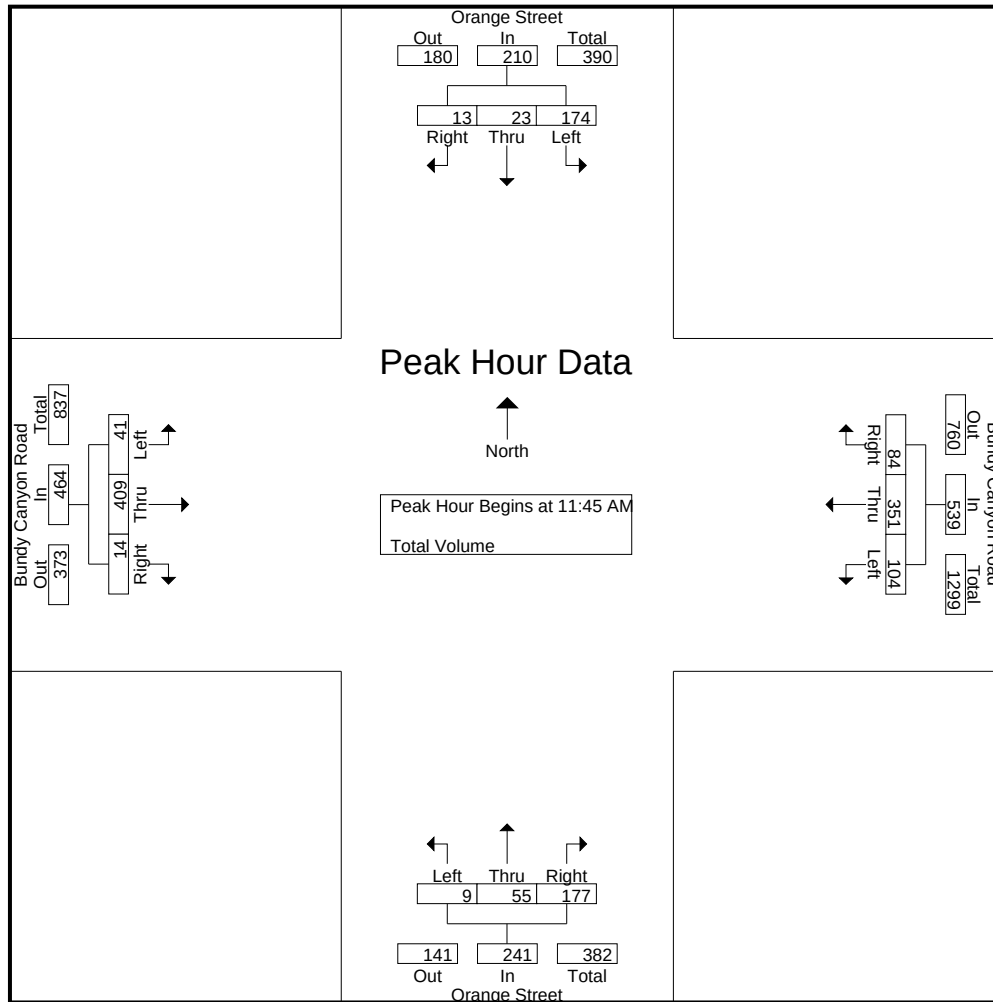
Groups Printed- Total Volume

	Orange Street Southbound				Bundy Canyon Road Westbound				Orange Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	37	6	2	45	25	69	27	121	5	12	38	55	8	77	5	90	311
11:15 AM	28	3	4	35	41	69	23	133	3	8	38	49	8	72	5	85	302
11:30 AM	38	6	3	47	25	101	19	145	2	3	32	37	3	93	2	98	327
11:45 AM	41	5	4	50	24	88	11	123	4	13	40	57	12	97	5	114	344
Total	144	20	13	177	115	327	80	522	14	36	148	198	31	339	17	387	1284
12:00 PM	46	7	2	55	35	75	15	125	1	14	41	56	9	114	4	127	363
12:15 PM	37	6	3	46	23	92	25	140	2	16	73	91	10	94	2	106	383
12:30 PM	50	5	4	59	22	96	33	151	2	12	23	37	10	104	3	117	364
12:45 PM	42	9	4	55	32	92	28	152	4	11	23	38	7	87	3	97	342
Total	175	27	13	215	112	355	101	568	9	53	160	222	36	399	12	447	1452
Grand Total	319	47	26	392	227	682	181	1090	23	89	308	420	67	738	29	834	2736
Apprch %	81.4	12	6.6		20.8	62.6	16.6		5.5	21.2	73.3		8	88.5	3.5		
Total %	11.7	1.7	1	14.3	8.3	24.9	6.6	39.8	0.8	3.3	11.3	15.4	2.4	27	1.1	30.5	

	Orange Street Southbound				Bundy Canyon Road Westbound				Orange Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	41	5	4	50	24	88	11	123	4	13	40	57	12	97	5	114	344
12:00 PM	46	7	2	55	35	75	15	125	1	14	41	56	9	114	4	127	363
12:15 PM	37	6	3	46	23	92	25	140	2	16	73	91	10	94	2	106	383
12:30 PM	50	5	4	59	22	96	33	151	2	12	23	37	10	104	3	117	364
Total Volume	174	23	13	210	104	351	84	539	9	55	177	241	41	409	14	464	1454
% App. Total	82.9	11	6.2		19.3	65.1	15.6		3.7	22.8	73.4		8.8	88.1	3		
PHF	.870	.821	.813	.890	.743	.914	.636	.892	.563	.859	.606	.662	.854	.897	.700	.913	.949

City of Wildomar
N/S: Orange Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 12_WDM_Orange_Bundy Canyon Sun
Site Code : 10518676
Start Date : 9/23/2018
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Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM				12:00 PM				11:30 AM				11:45 AM			
+0 mins.	46	7	2	55	35	75	15	125	2	3	32	37	12	97	5	114
+15 mins.	37	6	3	46	23	92	25	140	4	13	40	57	9	114	4	127
+30 mins.	50	5	4	59	22	96	33	151	1	14	41	56	10	94	2	106
+45 mins.	42	9	4	55	32	92	28	152	2	16	73	91	10	104	3	117
Total Volume	175	27	13	215	112	355	101	568	9	46	186	241	41	409	14	464
% App. Total	81.4	12.6	6		19.7	62.5	17.8		3.7	19.1	77.2		8.8	88.1	3	
PHF	.875	.750	.813	.911	.800	.924	.765	.934	.563	.719	.637	.662	.854	.897	.700	.913

City of Wildomar
N/S: I-15 Southbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 13_WDM_15S_Bundy Canyon Sat
Site Code : 10518676
Start Date : 9/22/2018
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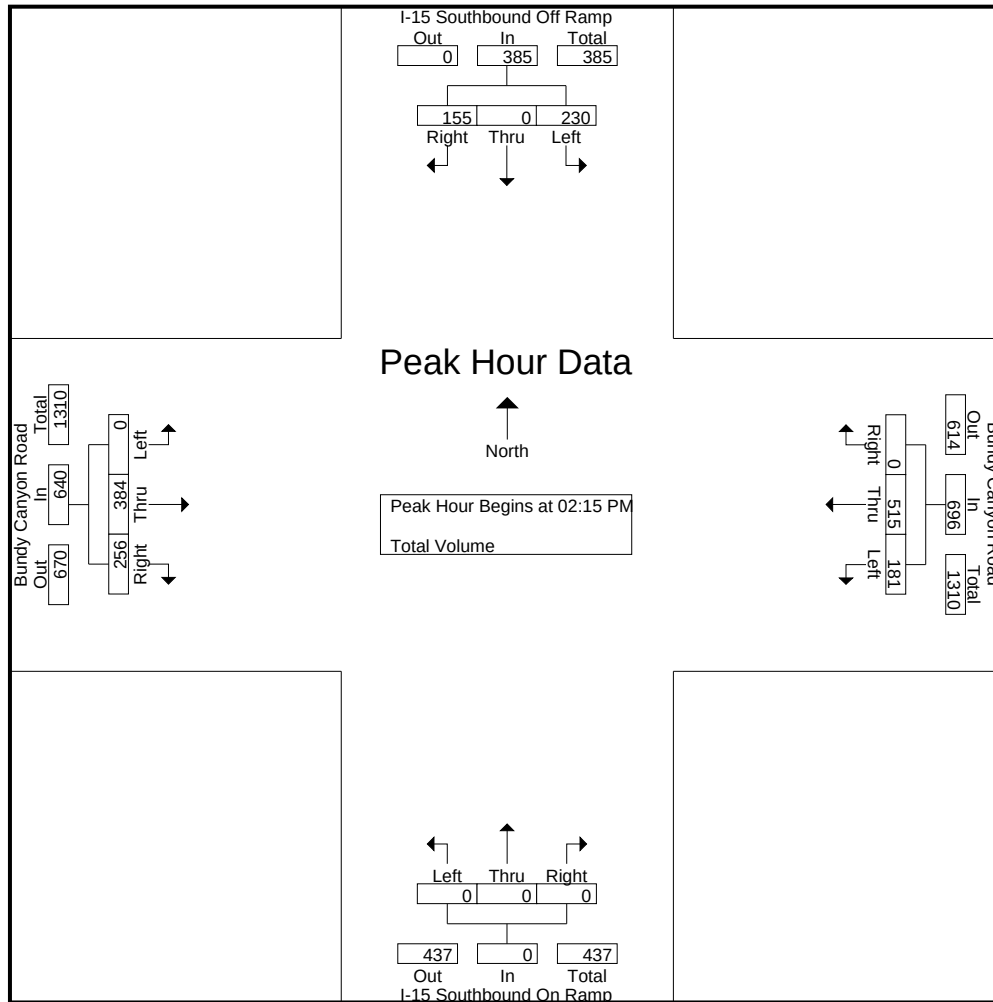
Groups Printed- Total Volume

	I-15 Southbound Off Ramp Southbound				Bundy Canyon Road Westbound				I-15 Southbound On Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	62	0	38	100	46	117	0	163	0	0	0	0	0	76	65	141	404
02:15 PM	64	0	37	101	49	143	0	192	0	0	0	0	0	90	58	148	441
02:30 PM	68	0	43	111	44	127	0	171	0	0	0	0	0	81	61	142	424
02:45 PM	34	0	39	73	41	138	0	179	0	0	0	0	0	110	81	191	443
Total	228	0	157	385	180	525	0	705	0	0	0	0	0	357	265	622	1712
03:00 PM	64	0	36	100	47	107	0	154	0	0	0	0	0	103	56	159	413
03:15 PM	63	0	35	98	42	138	0	180	0	0	0	0	0	96	66	162	440
03:30 PM	61	2	33	96	44	129	0	173	0	0	0	0	0	77	64	141	410
03:45 PM	76	2	43	121	45	131	0	176	0	0	0	0	0	78	54	132	429
Total	264	4	147	415	178	505	0	683	0	0	0	0	0	354	240	594	1692
Grand Total	492	4	304	800	358	1030	0	1388	0	0	0	0	0	711	505	1216	3404
Apprch %	61.5	0.5	38		25.8	74.2	0		0	0	0		0	58.5	41.5		
Total %	14.5	0.1	8.9	23.5	10.5	30.3	0	40.8	0	0	0	0	0	20.9	14.8	35.7	

	I-15 Southbound Off Ramp Southbound				Bundy Canyon Road Westbound				I-15 Southbound On Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:15 PM																	
02:15 PM	64	0	37	101	49	143	0	192	0	0	0	0	0	90	58	148	441
02:30 PM	68	0	43	111	44	127	0	171	0	0	0	0	0	81	61	142	424
02:45 PM	34	0	39	73	41	138	0	179	0	0	0	0	0	110	81	191	443
03:00 PM	64	0	36	100	47	107	0	154	0	0	0	0	0	103	56	159	413
Total Volume	230	0	155	385	181	515	0	696	0	0	0	0	0	384	256	640	1721
% App. Total	59.7	0	40.3		26	74	0		0	0	0		0	60	40		
PHF	.846	.000	.901	.867	.923	.900	.000	.906	.000	.000	.000	.000	.000	.873	.790	.838	.971

City of Wildomar
N/S: I-15 Southbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 13_WDM_15S_Bundy Canyon Sat
Site Code : 10518676
Start Date : 9/22/2018
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM				02:00 PM				02:00 PM				02:30 PM			
+0 mins.	64	0	36	100	46	117	0	163	0	0	0	0	0	81	61	142
+15 mins.	63	0	35	98	49	143	0	192	0	0	0	0	0	110	81	191
+30 mins.	61	2	33	96	44	127	0	171	0	0	0	0	0	103	56	159
+45 mins.	76	2	43	121	41	138	0	179	0	0	0	0	0	96	66	162
Total Volume	264	4	147	415	180	525	0	705	0	0	0	0	0	390	264	654
% App. Total	63.6	1	35.4		25.5	74.5	0		0	0	0	0	0	59.6	40.4	
PHF	.868	.500	.855	.857	.918	.918	.000	.918	.000	.000	.000	.000	.000	.886	.815	.856

City of Wildomar
N/S: I-15 Southbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 13_WDM_15S_Bundy Canyon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

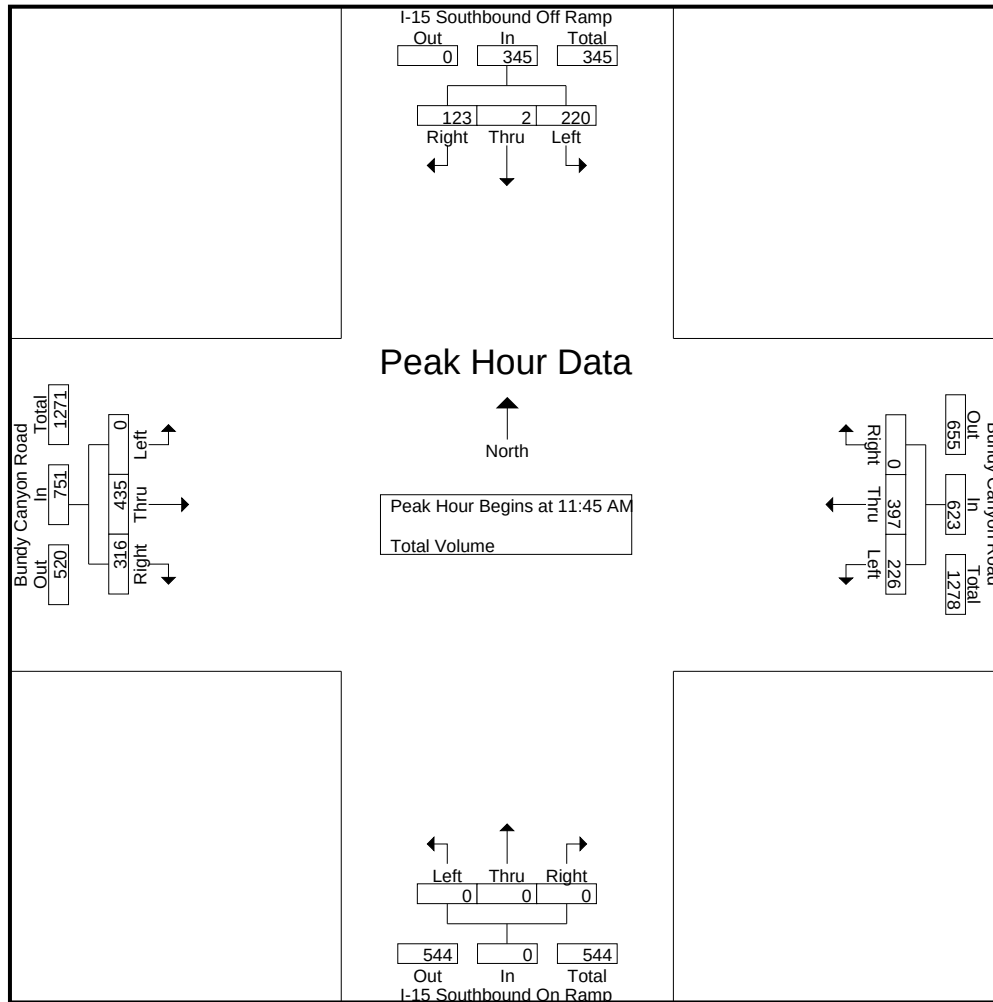
Groups Printed- Total Volume

	I-15 Southbound Off Ramp Southbound				Bundy Canyon Road Westbound				I-15 Southbound On Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	48	0	20	68	50	100	0	150	0	0	0	0	0	83	56	139	357
11:15 AM	41	0	23	64	49	125	0	174	0	0	0	0	0	81	56	137	375
11:30 AM	52	0	35	87	43	112	0	155	0	0	0	0	0	85	73	158	400
11:45 AM	68	1	18	87	64	101	0	165	0	0	0	0	0	96	80	176	428
Total	209	1	96	306	206	438	0	644	0	0	0	0	0	345	265	610	1560
12:00 PM	48	0	21	69	55	86	0	141	0	0	0	0	0	108	80	188	398
12:15 PM	62	1	51	114	57	102	0	159	0	0	0	0	0	121	77	198	471
12:30 PM	42	0	33	75	50	108	0	158	0	0	0	0	0	110	79	189	422
12:45 PM	51	1	39	91	61	110	0	171	0	0	0	0	0	80	59	139	401
Total	203	2	144	349	223	406	0	629	0	0	0	0	0	419	295	714	1692
Grand Total	412	3	240	655	429	844	0	1273	0	0	0	0	0	764	560	1324	3252
Apprch %	62.9	0.5	36.6		33.7	66.3	0		0	0	0		0	57.7	42.3		
Total %	12.7	0.1	7.4	20.1	13.2	26	0	39.1	0	0	0	0	0	23.5	17.2	40.7	

	I-15 Southbound Off Ramp Southbound				Bundy Canyon Road Westbound				I-15 Southbound On Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	68	1	18	87	64	101	0	165	0	0	0	0	0	96	80	176	428
12:00 PM	48	0	21	69	55	86	0	141	0	0	0	0	0	108	80	188	398
12:15 PM	62	1	51	114	57	102	0	159	0	0	0	0	0	121	77	198	471
12:30 PM	42	0	33	75	50	108	0	158	0	0	0	0	0	110	79	189	422
Total Volume	220	2	123	345	226	397	0	623	0	0	0	0	0	435	316	751	1719
% App. Total	63.8	0.6	35.7		36.3	63.7	0		0	0	0		0	57.9	42.1		
PHF	.809	.500	.603	.757	.883	.919	.000	.944	.000	.000	.000	.000	.000	.899	.988	.948	.912

City of Wildomar
N/S: I-15 Southbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 13_WDM_15S_Bundy Canyon Sun
Site Code : 10518676
Start Date : 9/23/2018
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Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM				11:00 AM				11:00 AM				11:45 AM			
+0 mins.	52	0	35	87	50	100	0	150	0	0	0	0	0	96	80	176
+15 mins.	68	1	18	87	49	125	0	174	0	0	0	0	0	108	80	188
+30 mins.	48	0	21	69	43	112	0	155	0	0	0	0	0	121	77	198
+45 mins.	62	1	51	114	64	101	0	165	0	0	0	0	0	110	79	189
Total Volume	230	2	125	357	206	438	0	644	0	0	0	0	0	435	316	751
% App. Total	64.4	0.6	35		32	68	0		0	0	0	0	0	57.9	42.1	
PHF	.846	.500	.613	.783	.805	.876	.000	.925	.000	.000	.000	.000	.000	.899	.988	.948

City of Wildomar
N/S: I-15 Northbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 14_WDM_15N_Bundy Canyon Sat
Site Code : 10518676
Start Date : 9/22/2018
Page No : 1

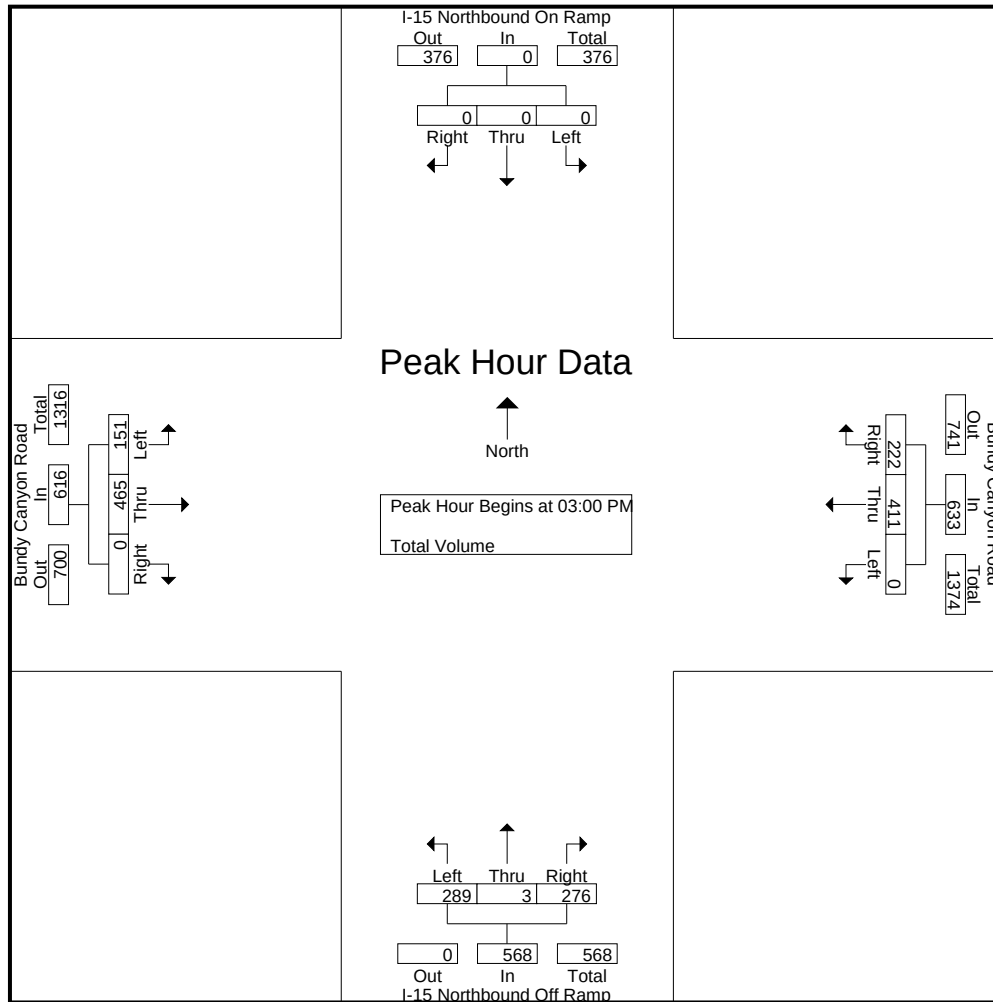
Groups Printed- Total Volume

	I-15 Northbound On Ramp Southbound				Bundy Canyon Road Westbound				I-15 Northbound Off Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	107	51	158	66	1	86	153	25	106	0	131	442
02:15 PM	0	0	0	0	0	98	48	146	85	1	78	164	32	129	0	161	471
02:30 PM	0	0	0	0	0	95	47	142	80	0	67	147	24	127	0	151	440
02:45 PM	0	0	0	0	0	99	46	145	81	0	61	142	36	102	0	138	425
Total	0	0	0	0	0	399	192	591	312	2	292	606	117	464	0	581	1778
03:00 PM	0	0	0	0	0	101	57	158	56	1	61	118	39	130	0	169	445
03:15 PM	0	0	0	0	0	102	72	174	81	1	83	165	51	102	0	153	492
03:30 PM	0	0	0	0	0	101	43	144	73	0	80	153	30	110	0	140	437
03:45 PM	0	0	0	0	0	107	50	157	79	1	52	132	31	123	0	154	443
Total	0	0	0	0	0	411	222	633	289	3	276	568	151	465	0	616	1817
Grand Total	0	0	0	0	0	810	414	1224	601	5	568	1174	268	929	0	1197	3595
Apprch %	0	0	0		0	66.2	33.8		51.2	0.4	48.4		22.4	77.6	0		
Total %	0	0	0	0	0	22.5	11.5	34	16.7	0.1	15.8	32.7	7.5	25.8	0	33.3	

	I-15 Northbound On Ramp Southbound				Bundy Canyon Road Westbound				I-15 Northbound Off Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	0	0	0	101	57	158	56	1	61	118	39	130	0	169	445
03:15 PM	0	0	0	0	0	102	72	174	81	1	83	165	51	102	0	153	492
03:30 PM	0	0	0	0	0	101	43	144	73	0	80	153	30	110	0	140	437
03:45 PM	0	0	0	0	0	107	50	157	79	1	52	132	31	123	0	154	443
Total Volume	0	0	0	0	0	411	222	633	289	3	276	568	151	465	0	616	1817
% App. Total	0	0	0		0	64.9	35.1		50.9	0.5	48.6		24.5	75.5	0		
PHF	.000	.000	.000	.000	.000	.960	.771	.909	.892	.750	.831	.861	.740	.894	.000	.911	.923

City of Wildomar
N/S: I-15 Northbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 14_WDM_15N_Bundy Canyon Sat
Site Code : 10518676
Start Date : 9/22/2018
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				03:00 PM				02:00 PM				02:15 PM			
+0 mins.	0	0	0	0	0	101	57	158	66	1	86	153	32	129	0	161
+15 mins.	0	0	0	0	0	102	72	174	85	1	78	164	24	127	0	151
+30 mins.	0	0	0	0	0	101	43	144	80	0	67	147	36	102	0	138
+45 mins.	0	0	0	0	0	107	50	157	81	0	61	142	39	130	0	169
Total Volume	0	0	0	0	0	411	222	633	312	2	292	606	131	488	0	619
% App. Total	0	0	0	0	0	64.9	35.1		51.5	0.3	48.2		21.2	78.8	0	
PHF	.000	.000	.000	.000	.000	.960	.771	.909	.918	.500	.849	.924	.840	.938	.000	.916

City of Wildomar
N/S: I-15 Northbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 14_WDM_15N_Bundy Canyon Sun
Site Code : 10518676
Start Date : 9/23/2018
Page No : 1

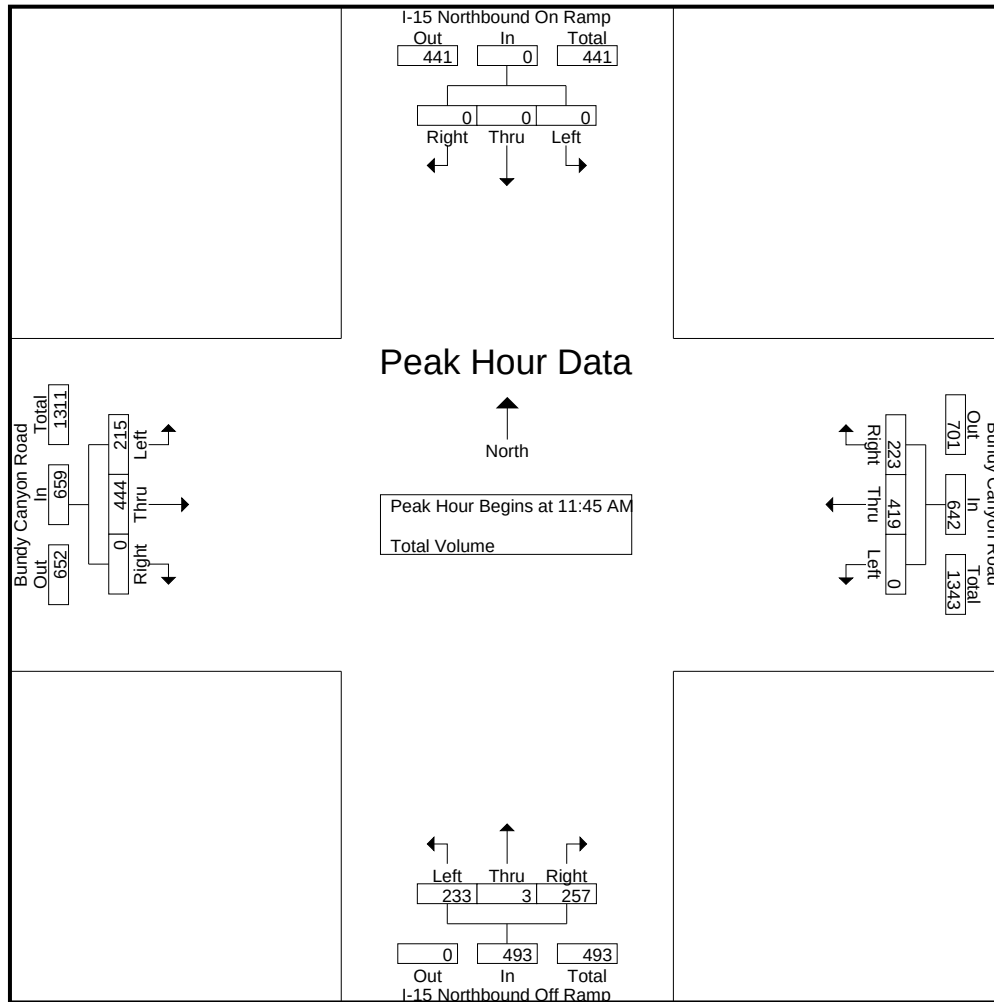
Groups Printed- Total Volume

	I-15 Northbound On Ramp Southbound				Bundy Canyon Road Westbound				I-15 Northbound Off Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	0	0	0	0	0	97	51	148	49	0	49	98	49	90	0	139	385
11:15 AM	0	0	0	0	0	115	74	189	54	0	54	108	32	91	0	123	420
11:30 AM	0	0	0	0	0	107	80	187	53	0	56	109	35	90	0	125	421
11:45 AM	0	0	0	0	0	105	61	166	57	0	71	128	42	128	0	170	464
Total	0	0	0	0	0	424	266	690	213	0	230	443	158	399	0	557	1690
12:00 PM	0	0	0	0	0	105	55	160	50	0	56	106	44	96	0	140	406
12:15 PM	0	0	0	0	0	109	53	162	59	1	65	125	78	120	0	198	485
12:30 PM	0	0	0	0	0	100	54	154	67	2	65	134	51	100	0	151	439
12:45 PM	0	0	0	0	0	125	67	192	55	1	65	121	28	98	0	126	439
Total	0	0	0	0	0	439	229	668	231	4	251	486	201	414	0	615	1769
Grand Total	0	0	0	0	0	863	495	1358	444	4	481	929	359	813	0	1172	3459
Apprch %	0	0	0		0	63.5	36.5		47.8	0.4	51.8		30.6	69.4	0		
Total %	0	0	0	0	0	24.9	14.3	39.3	12.8	0.1	13.9	26.9	10.4	23.5	0	33.9	

	I-15 Northbound On Ramp Southbound				Bundy Canyon Road Westbound				I-15 Northbound Off Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	0	0	0	0	105	61	166	57	0	71	128	42	128	0	170	464
12:00 PM	0	0	0	0	0	105	55	160	50	0	56	106	44	96	0	140	406
12:15 PM	0	0	0	0	0	109	53	162	59	1	65	125	78	120	0	198	485
12:30 PM	0	0	0	0	0	100	54	154	67	2	65	134	51	100	0	151	439
Total Volume	0	0	0	0	0	419	223	642	233	3	257	493	215	444	0	659	1794
% App. Total	0	0	0		0	65.3	34.7		47.3	0.6	52.1		32.6	67.4	0		
PHF	.000	.000	.000	.000	.000	.961	.914	.967	.869	.375	.905	.920	.689	.867	.000	.832	.925

City of Wildomar
N/S: I-15 Northbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 14_WDM_15N_Bundy Canyon Sun
Site Code : 10518676
Start Date : 9/23/2018
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Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				11:15 AM				11:45 AM				12:15 AM			
+0 mins.	0	0	0	0	0	115	74	189	57	0	71	128	42	128	0	170
+15 mins.	0	0	0	0	0	107	80	187	50	0	56	106	44	96	0	140
+30 mins.	0	0	0	0	0	105	61	166	59	1	65	125	78	120	0	198
+45 mins.	0	0	0	0	0	105	55	160	67	2	65	134	51	100	0	151
Total Volume	0	0	0	0	0	432	270	702	233	3	257	493	215	444	0	659
% App. Total	0	0	0	0	0	61.5	38.5		47.3	0.6	52.1		32.6	67.4	0	
PHF	.000	.000	.000	.000	.000	.939	.844	.929	.869	.375	.905	.920	.689	.867	.000	.832

Appendix B

Existing Conditions Intersection Analysis Worksheets

Lanes and Geometrics
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0		0	150		0	100		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.850						0.980					
Flt Protected	0.984		0.950				0.950				0.950	
Satd. Flow (prot)	0	1833	0	1770	0	1583	1770	1825	0	1770	1863	0
Flt Permitted	0.905		0.756				0.572				0.950	
Satd. Flow (perm)	0	1686	0	1408	0	1583	1065	1825	0	1770	1863	0
Right Turn on Red	Yes					Yes			Yes			Yes
Satd. Flow (RTOR)	353						12					
Link Speed (mph)	30				30				30			
Link Distance (ft)	209				495				473			
Travel Time (s)	4.8				11.3				10.8			

Intersection Summary

Area Type: Other

Volume
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	1	2	0	33	2	348	1	212	33	348	271	1
Future Volume (vph)	1	2	0	33	2	348	1	212	33	348	271	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	1	2	0	38	2	395	1	241	38	395	308	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	38	2	395	1	279	0	395	309	0
Intersection Summary												

Timings
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	2	33	2	348	1	212	348	271
Future Volume (vph)	1	2	33	2	348	1	212	348	271
Turn Type	Perm	NA	Perm	NA	pm+ov	Perm	NA	Prot	NA
Protected Phases		4		8	1		2	1	6
Permitted Phases	4		8		8	2			
Detector Phase	4	4	8	8	1	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	20.0	22.5	22.5	20.0	42.5
Total Split (%)	34.6%	34.6%	34.6%	34.6%	30.8%	34.6%	34.6%	30.8%	65.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		9.7	12.8	0.0	22.8	19.3	19.3	15.6	42.9
Actuated g/C Ratio		0.19	0.25	0.00	0.44	0.37	0.37	0.30	0.83
v/c Ratio		0.01	0.11	no cap	0.44	0.00	0.40	0.74	0.20
Control Delay		17.0	16.6		3.0	17.0	17.0	31.2	4.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		17.0	16.6	Error	3.0	17.0	17.0	31.2	4.5
LOS		B	B	F	A	B	B	C	A
Approach Delay		17.0		Err			17.0		19.4
Approach LOS		B		F			B		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 51.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: Err

Intersection Signal Delay: Err

Intersection LOS: F

Intersection Capacity Utilization Err%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Grand Ave & Corydon St



Queues
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	38	2	395	1	279	395	309
v/c Ratio	0.01	0.11	no cap	0.44	0.00	0.40	0.74	0.20
Control Delay	17.0	16.6		3.0	17.0	17.0	31.2	4.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	16.6	Error	3.0	17.0	17.0	31.2	4.5
Queue Length 50th (ft)	1	5	0	6	0	40	74	0
Queue Length 95th (ft)	6	30	0	35	3	153	#297	90
Internal Link Dist (ft)	129		415			393		268
Turn Bay Length (ft)		150			100		100	
Base Capacity (vph)	615	513	1	909	400	693	556	1553
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.07	2.00	0.43	0.00	0.40	0.71	0.20

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	0	33	2	348	1	212	33	348	271	1
Future Volume (veh/h)	1	2	0	33	2	348	1	212	33	348	271	1
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	1863	1900	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	1	2	0	38	2	395	1	241	38	395	308	1
Adj No. of Lanes	0	1	0	1	0	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	268	0	432	0	746	445	480	76	442	1168	4
Arrive On Green	0.22	0.22	0.00	0.22	0.22	0.22	0.31	0.31	0.31	0.25	0.63	0.63
Sat Flow, veh/h	345	1209	0	1409	0	1583	1066	1571	248	1774	1856	6
Grp Volume(v), veh/h	3	0	0	38	0	395	1	0	279	395	0	309
Grp Sat Flow(s),veh/h/ln	1554	0	0	1409	0	1583	1066	0	1819	1774	0	1862
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	10.6	0.0	0.0	7.6	13.0	0.0	4.5
Cycle Q Clear(g_c), s	0.1	0.0	0.0	1.3	0.0	10.6	0.0	0.0	7.6	13.0	0.0	4.5
Prop In Lane	0.33		0.00	1.00		1.00	1.00		0.14	1.00		0.00
Lane Grp Cap(c), veh/h	424	0	0	432	0	746	445	0	556	442	0	1171
V/C Ratio(X)	0.01	0.00	0.00	0.09	0.00	0.53	0.00	0.00	0.50	0.89	0.00	0.26
Avail Cap(c_a), veh/h	534	0	0	540	0	866	445	0	556	455	0	1171
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	0.0	18.8	0.0	11.3	14.6	0.0	17.2	21.9	0.0	5.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.0	3.2	19.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.5	0.0	4.7	0.0	0.0	4.3	8.7	0.0	2.4
LnGrp Delay(d),s/veh	18.3	0.0	0.0	18.9	0.0	11.8	14.6	0.0	20.4	41.2	0.0	5.5
LnGrp LOS	B			B		B	B		C	D		A
Approach Vol, veh/h		3			433			280			704	
Approach Delay, s/veh		18.3			12.5			20.4			25.5	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	19.6	22.9		17.9		42.5		17.9				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	15.5	18.0		18.0		38.0		18.0				
Max Q Clear Time (g_c+I1), s	15.0	9.6		2.1		6.5		12.6				
Green Ext Time (p_c), s	0.1	1.0		0.0		2.0		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay				20.5								
HCM 2010 LOS				C								
Notes												

Existing Conditions
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%		0%		
Storage Length (ft)	95		95	145		0	100		0	100		100	
Storage Lanes	1		1	1		0	1		0	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt			0.850		0.971				0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1770	1863	1583	1770	3437	0	1770	1751	0	1770	1863	1583	
Flt Permitted	0.950			0.950			0.743			0.721			
Satd. Flow (perm)	1770	1863	1583	1770	3437	0	1384	1751	0	1343	1863	1583	
Right Turn on Red			Yes				Yes				Yes		Yes
Satd. Flow (RTOR)			109		56				22				109
Link Speed (mph)	30				30				30		30		
Link Distance (ft)	495				474				343		250		
Travel Time (s)	11.3				10.8				7.8		5.7		

Intersection Summary

Area Type: Other

Volume
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	4	415	35	30	419	101	50	31	21	70	21	7
Future Volume (vph)	4	415	35	30	419	101	50	31	21	70	21	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	441	37	32	446	107	53	33	22	74	22	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	441	37	32	553	0	53	55	0	74	22	7
Intersection Summary												

Timings
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	4	415	35	30	419	50	31	70	21	7
Future Volume (vph)	4	415	35	30	419	50	31	70	21	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4		3	8		2		6	
Permitted Phases			4			2		6		6
Detector Phase	7	4	4	3	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	27.0	27.0	9.6	27.1	23.4	23.4	23.4	23.4	23.4
Total Split (%)	15.8%	45.0%	45.0%	16.0%	45.2%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	5.2	16.2	16.2	5.3	17.8	19.6	19.6	19.6	19.6	19.6
Actuated g/C Ratio	0.11	0.34	0.34	0.11	0.37	0.41	0.41	0.41	0.41	0.41
v/c Ratio	0.02	0.70	0.06	0.16	0.42	0.09	0.08	0.14	0.03	0.01
Control Delay	24.8	21.3	0.2	26.2	11.1	13.5	9.8	13.7	13.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	21.3	0.2	26.2	11.1	13.5	9.8	13.7	13.3	0.0
LOS	C	C	A	C	B	B	A	B	B	A
Approach Delay		19.7			11.9		11.6		12.7	
Approach LOS		B			B		B		B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 48.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 14.9

Intersection LOS: B

Intersection Capacity Utilization 43.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Palomar St & Corydon St

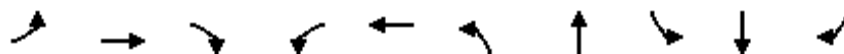
		
23.4 s	9.6 s	27 s
		
23.4 s	9.5 s	27.1 s

Queues

St. Francis of Rome Church TIA

2: Palomar St & Corydon St

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	4	441	37	32	553	53	55	74	22	7
v/c Ratio	0.02	0.70	0.06	0.16	0.42	0.09	0.08	0.14	0.03	0.01
Control Delay	24.8	21.3	0.2	26.2	11.1	13.5	9.8	13.7	13.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	21.3	0.2	26.2	11.1	13.5	9.8	13.7	13.3	0.0
Queue Length 50th (ft)	1	88	0	7	46	7	4	10	3	0
Queue Length 95th (ft)	9	212	0	34	103	35	29	46	19	0
Internal Link Dist (ft)		415			394		263		170	
Turn Bay Length (ft)	95		95	145		100		100		100
Base Capacity (vph)	190	901	821	194	1802	562	724	545	756	707
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.49	0.05	0.16	0.31	0.09	0.08	0.14	0.03	0.01
Intersection Summary										

HCM 2010 Signalized Intersection Summary
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	415	35	30	419	101	50	31	21	70	21	7
Future Volume (veh/h)	4	415	35	30	419	101	50	31	21	70	21	7
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	1900	1863	1863	1863
Adj Flow Rate, veh/h	4	441	37	32	446	107	53	33	22	74	22	7
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	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	10	559	475	64	938	223	670	404	270	641	721	613
Arrive On Green	0.01	0.30	0.30	0.04	0.33	0.33	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	2837	676	1375	1044	696	1343	1863	1583
Grp Volume(v), veh/h	4	441	37	32	277	276	53	0	55	74	22	7
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1744	1375	0	1740	1343	1863	1583
Q Serve(g_s), s	0.1	10.6	0.8	0.9	6.1	6.1	1.2	0.0	1.0	1.8	0.4	0.1
Cycle Q Clear(g_c), s	0.1	10.6	0.8	0.9	6.1	6.1	1.6	0.0	1.0	2.8	0.4	0.1
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	10	559	475	64	585	576	670	0	674	641	721	613
V/C Ratio(X)	0.42	0.79	0.08	0.50	0.47	0.48	0.08	0.00	0.08	0.12	0.03	0.01
Avail Cap(c_a), veh/h	182	859	730	185	820	808	670	0	674	641	721	613
HCM Platoon Ratio	1.00	1.00	1.00	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	24.2	15.7	12.2	23.1	13.0	13.0	9.8	0.0	9.5	10.3	9.3	9.2
Incr Delay (d2), s/veh	26.3	2.8	0.1	5.9	0.6	0.6	0.2	0.0	0.2	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.8	0.4	0.5	3.0	3.0	0.5	0.0	0.5	0.7	0.2	0.1
LnGrp Delay(d),s/veh	50.5	18.4	12.3	29.0	13.6	13.6	10.0	0.0	9.7	10.7	9.3	9.2
LnGrp LOS	D	B	B	C	B	B	A		A	B	A	A
Approach Vol, veh/h		482			585			108			103	
Approach Delay, s/veh		18.2			14.4			9.8			10.3	
Approach LOS		B			B			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.4	6.3	19.1		23.4	4.8	20.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.9	5.1	22.5		18.9	5.0	22.6				
Max Q Clear Time (g_c+I1), s		3.6	2.9	12.6		4.8	2.1	8.1				
Green Ext Time (p_c), s		0.3	0.0	2.0		0.2	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			15.1									
HCM 2010 LOS			B									

Existing Conditions
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	350		0	100		0	90		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.907				0.983		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3210	0	1770	3479	0	1770	3525	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3210	0	1770	3479	0	1770	3525	0
Right Turn on Red			Yes				Yes				Yes	
Satd. Flow (RTOR)			176		33				21		4	
Link Speed (mph)	30				30				30		30	
Link Distance (ft)	560				435				423		314	
Travel Time (s)	12.7				9.9				9.6		7.1	

Intersection Summary

Area Type: Other

Volume
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	8	2	29	96	19	32	73	507	64	32	587	16
Future Volume (vph)	8	2	29	96	19	32	73	507	64	32	587	16
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	8	2	30	100	20	33	76	528	67	33	611	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	2	30	100	53	0	76	595	0	33	628	0
Intersection Summary												

Timings
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	8	2	29	96	19	73	507	32	587
Future Volume (vph)	8	2	29	96	19	73	507	32	587
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	9.5	23.0	9.5	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	14.6%	35.4%	14.6%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
Act Effect Green (s)	5.1	5.8	5.8	5.7	7.6	5.1	27.0	5.1	25.0
Actuated g/C Ratio	0.11	0.13	0.13	0.13	0.17	0.11	0.60	0.11	0.55
v/c Ratio	0.04	0.01	0.08	0.45	0.09	0.38	0.29	0.17	0.32
Control Delay	21.9	20.5	0.4	29.6	11.0	27.5	8.9	23.4	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.5	0.4	29.6	11.0	27.5	8.9	23.4	10.3
LOS	C	C	A	C	B	C	A	C	B
Approach Delay		5.7			23.1		11.0		11.0
Approach LOS		A			C		B		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 45.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 12.1

Intersection LOS: B

Intersection Capacity Utilization 44.1%

ICU Level of Service A

Analysis Period (min) 15

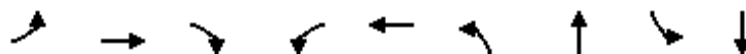
Splits and Phases: 3: Mission Trail & Malaga Rd

			
Ø1	Ø2	Ø3	Ø4
9.5 s	23 s	10 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
9.5 s	23 s	9.5 s	23 s

Queues
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	2	30	100	53	76	595	33	628
v/c Ratio	0.04	0.01	0.08	0.45	0.09	0.38	0.29	0.17	0.32
Control Delay	21.9	20.5	0.4	29.6	11.0	27.5	8.9	23.4	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.5	0.4	29.6	11.0	27.5	8.9	23.4	10.3
Queue Length 50th (ft)	2	1	0	23	2	17	22	7	50
Queue Length 95th (ft)	12	5	0	#83	15	#63	112	31	121
Internal Link Dist (ft)		480			355		343		234
Turn Bay Length (ft)	350			100		90		220	
Base Capacity (vph)	199	757	747	221	1359	199	2084	199	1948
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.00	0.04	0.45	0.04	0.38	0.29	0.17	0.32

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	29	96	19	32	73	507	64	32	587	16
Future Volume (veh/h)	8	2	29	96	19	32	73	507	64	32	587	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	2	30	100	20	33	76	528	67	33	611	17
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	140	119	138	252	225	119	1345	170	66	1391	39
Arrive On Green	0.01	0.07	0.07	0.08	0.14	0.14	0.07	0.43	0.43	0.04	0.40	0.40
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3162	400	1774	3517	98
Grp Volume(v), veh/h	8	2	30	100	20	33	76	295	300	33	307	321
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1792	1774	1770	1845
Q Serve(g_s), s	0.2	0.0	0.8	2.6	0.5	0.9	2.0	5.4	5.4	0.9	5.9	5.9
Cycle Q Clear(g_c), s	0.2	0.0	0.8	2.6	0.5	0.9	2.0	5.4	5.4	0.9	5.9	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.05
Lane Grp Cap(c), veh/h	19	140	119	138	252	225	119	753	762	66	700	730
V/C Ratio(X)	0.43	0.01	0.25	0.73	0.08	0.15	0.64	0.39	0.39	0.50	0.44	0.44
Avail Cap(c_a), veh/h	190	717	609	209	700	626	190	753	762	190	700	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	20.0	20.4	21.1	17.4	17.6	21.3	9.3	9.3	22.1	10.3	10.3
Incr Delay (d2), s/veh	14.7	0.0	1.1	7.0	0.1	0.3	5.6	1.5	1.5	5.7	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.5	0.2	0.4	1.1	2.9	3.0	0.5	3.3	3.4
LnGrp Delay(d),s/veh	37.7	20.1	21.5	28.1	17.5	17.9	26.9	10.8	10.8	27.8	12.3	12.3
LnGrp LOS	D	C	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		40			153			671			661	
Approach Delay, s/veh		24.7			24.5			12.6			13.1	
Approach LOS		C			C			B			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	6.2	24.4	8.1	8.0	7.6	23.0	5.0	11.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	2.9	7.4	4.6	2.8	4.0	7.9	2.2	2.9				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.0	0.0	2.8	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				14.3								
HCM 2010 LOS				B								

Existing Conditions
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		70	105	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.942			0.850		
Flt Protected	0.972				0.950	
Satd. Flow (prot)	1706	0	3539	1583	1770	3539
Flt Permitted	0.972				0.950	
Satd. Flow (perm)	1706	0	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	53			119		
Link Speed (mph)	30		30			30
Link Distance (ft)	332		405			423
Travel Time (s)	7.5		9.2			9.6
Intersection Summary						
Area Type:	Other					

Volume
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	66	49	549	111	75	594
Future Volume (vph)	66	49	549	111	75	594
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	71	53	590	119	81	639
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	0	590	119	81	639
Intersection Summary						

Timings
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	66	549	111	75	594
Future Volume (vph)	66	549	111	75	594
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	8	2		1	6
Permitted Phases			2		
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	23.0	25.0	25.0	12.0	37.0
Total Split (%)	38.3%	41.7%	41.7%	20.0%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max
Act Effect Green (s)	7.8	30.8	30.8	7.0	38.3
Actuated g/C Ratio	0.15	0.59	0.59	0.13	0.73
v/c Ratio	0.41	0.28	0.12	0.34	0.25
Control Delay	16.4	9.0	3.0	24.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	9.0	3.0	24.3	3.7
LOS	B	A	A	C	A
Approach Delay	16.4	8.0			6.0
Approach LOS	B	A			A

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 52.2

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 7.7

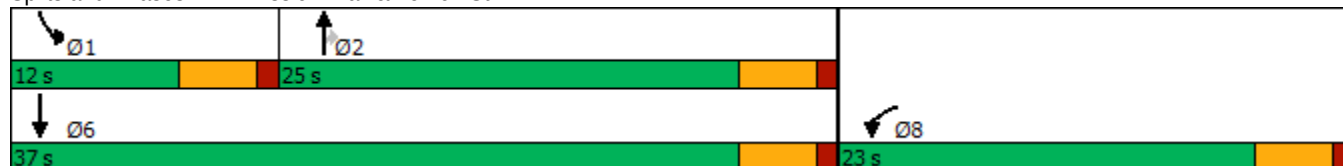
Intersection LOS: A

Intersection Capacity Utilization 37.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Mission Trail & Lemon St



Queues

St. Francis of Rome Church TIA

4: Mission Trail & Lemon St

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	590	119	81	639
v/c Ratio	0.41	0.28	0.12	0.34	0.25
Control Delay	16.4	9.0	3.0	24.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	9.0	3.0	24.3	3.7
Queue Length 50th (ft)	18	57	0	21	30
Queue Length 95th (ft)	54	102	24	56	60
Internal Link Dist (ft)	252	325			343
Turn Bay Length (ft)			70	105	
Base Capacity (vph)	640	2089	983	254	2594
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.28	0.12	0.32	0.25
Intersection Summary					

HCM 2010 Signalized Intersection Summary

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	66	49	549	111	75	594		
Future Volume (veh/h)	66	49	549	111	75	594		
Number	3	18	2	12	1	6		
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	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	71	53	590	119	81	639		
Adj No. of Lanes	0	0	2	1	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	0	0	2	2	2	2		
Cap, veh/h	93	69	1909	854	124	2504		
Arrive On Green	0.10	0.10	0.54	0.54	0.07	0.71		
Sat Flow, veh/h	959	716	3632	1583	1774	3632		
Grp Volume(v), veh/h	125	0	590	119	81	639		
Grp Sat Flow(s),veh/h/ln	1688	0	1770	1583	1774	1770		
Q Serve(g_s), s	3.3	0.0	4.2	1.7	2.0	3.0		
Cycle Q Clear(g_c), s	3.3	0.0	4.2	1.7	2.0	3.0		
Prop In Lane	0.57	0.42		1.00	1.00			
Lane Grp Cap(c), veh/h	163	0	1909	854	124	2504		
V/C Ratio(X)	0.77	0.00	0.31	0.14	0.65	0.26		
Avail Cap(c_a), veh/h	680	0	1909	854	290	2504		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.2	0.0	5.8	5.3	20.8	2.4		
Incr Delay (d2), s/veh	7.3	0.0	0.4	0.3	5.6	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.9	0.0	2.2	0.8	1.2	1.5		
LnGrp Delay(d),s/veh	27.6	0.0	6.3	5.6	26.4	2.6		
LnGrp LOS	C		A	A	C	A		
Approach Vol, veh/h	125		709			720		
Approach Delay, s/veh	27.6		6.2			5.3		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.7	29.3				37.0		8.9
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	7.5	20.5				32.5		18.5
Max Q Clear Time (g_c+I1), s	4.0	6.2				5.0		5.3
Green Ext Time (p_c), s	0.0	3.8				4.8		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			7.5					
HCM 2010 LOS			A					
Notes								

Existing Conditions
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	270	260	125			115
Storage Lanes	2	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.88	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	2787	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		256				207
Link Speed (mph)	30			30	30	
Link Distance (ft)	463			424	405	
Travel Time (s)	10.5			9.6	9.2	
Intersection Summary						
Area Type:	Other					

Volume
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	405	246	213	328	361	371
Future Volume (vph)	405	246	213	328	361	371
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	422	256	222	342	376	386
Shared Lane Traffic (%)						
Lane Group Flow (vph)	422	256	222	342	376	386
Intersection Summary						

Timings
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA

09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Traffic Volume (vph)	405	246	213	328	361	371
Future Volume (vph)	405	246	213	328	361	371
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	Max	Max	None
Act Effect Green (s)	12.5	27.0	10.0	33.1	18.6	35.6
Actuated g/C Ratio	0.23	0.49	0.18	0.61	0.34	0.65
v/c Ratio	0.54	0.17	0.69	0.16	0.31	0.35
Control Delay	21.0	1.4	35.1	5.5	15.1	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	1.4	35.1	5.5	15.1	2.9
LOS	C	A	D	A	B	A
Approach Delay	13.6			17.1	8.9	
Approach LOS	B			B	A	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 54.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 12.8

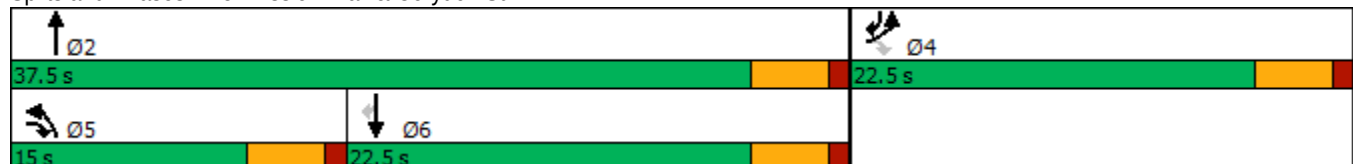
Intersection LOS: B

Intersection Capacity Utilization 44.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Mission Trail & Corydon St



Queues
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	422	256	222	342	376	386
v/c Ratio	0.54	0.17	0.69	0.16	0.31	0.35
Control Delay	21.0	1.4	35.1	5.5	15.1	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	1.4	35.1	5.5	15.1	2.9
Queue Length 50th (ft)	61	0	68	22	47	19
Queue Length 95th (ft)	96	14	#166	45	86	45
Internal Link Dist (ft)	383			344	325	
Turn Bay Length (ft)	270	260	125			115
Base Capacity (vph)	1135	1531	341	2145	1206	1245
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.17	0.65	0.16	0.31	0.31

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

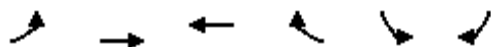
								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	405	246	213	328	361	371		
Future Volume (veh/h)	405	246	213	328	361	371		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	422	256	222	342	376	386		
Adj No. of Lanes	2	2	1	2	2	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	655	963	276	2252	1395	925		
Arrive On Green	0.19	0.19	0.16	0.64	0.39	0.39		
Sat Flow, veh/h	3442	2787	1774	3632	3632	1583		
Grp Volume(v), veh/h	422	256	222	342	376	386		
Grp Sat Flow(s),veh/h/ln	1721	1393	1774	1770	1770	1583		
Q Serve(g_s), s	5.9	3.4	6.3	2.0	3.7	7.0		
Cycle Q Clear(g_c), s	5.9	3.4	6.3	2.0	3.7	7.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	655	963	276	2252	1395	925		
V/C Ratio(X)	0.64	0.27	0.80	0.15	0.27	0.42		
Avail Cap(c_a), veh/h	1194	1400	359	2252	1395	925		
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	19.4	12.2	21.1	3.8	10.7	5.9		
Incr Delay (d2), s/veh	1.1	0.1	9.7	0.1	0.5	1.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.9	3.0	3.8	1.0	1.9	4.8		
LnGrp Delay(d),s/veh	20.5	12.4	30.9	3.9	11.1	7.3		
LnGrp LOS	C	B	C	A	B	A		
Approach Vol, veh/h	678			564	762			
Approach Delay, s/veh	17.4			14.5	9.2			
Approach LOS	B			B	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.5		14.4	12.6	24.9		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		33.0		18.0	10.5	18.0		
Max Q Clear Time (g_c+I1), s		4.0		7.9	8.3	9.0		
Green Ext Time (p_c), s		2.3		2.0	0.1	2.7		
Intersection Summary								
HCM 2010 Ctrl Delay			13.5					
HCM 2010 LOS			B					

Existing Conditions
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
6: Orange St & Monjonner Way

St. Francis of Rome Church TIA
09/24/2019



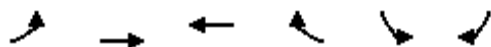
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.963				
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	1855	1794	0	1770	0
Flt Permitted		0.996			0.950	
Satd. Flow (perm)	0	1855	1794	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		439	221		241	
Travel Time (s)		10.0	5.0		5.5	

Intersection Summary

Area Type: Other

Volume
6: Orange St & Monjonnier Way

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	4	55	83	32	2	0
Future Volume (vph)	4	55	83	32	2	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	5	65	99	38	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	70	137	0	2	0
Intersection Summary						

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	55	83	32	2	0
Future Vol, veh/h	4	55	83	32	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	65	99	38	2	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	137	0	0 193 118
Stage 1	-	-	- 118 -
Stage 2	-	-	- 75 -
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	1447	-	- 796 934
Stage 1	-	-	- 907 -
Stage 2	-	-	- 948 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1447	-	- 793 934
Mov Cap-2 Maneuver	-	-	- 793 -
Stage 1	-	-	- 903 -
Stage 2	-	-	- 948 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1447	-	-	-	793
HCM Lane V/C Ratio	0.003	-	-	-	0.003
HCM Control Delay (s)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes and Geometrics
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.957				0.963	
Flt Protected				0.987	0.965	
Satd. Flow (prot)	1783	0	0	1839	1731	0
Flt Permitted				0.987	0.965	
Satd. Flow (perm)	1783	0	0	1839	1731	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	167			136	829	
Travel Time (s)	3.8			3.1	18.8	
Intersection Summary						
Area Type:	Other					

Volume
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	89	42	41	111	92	35
Future Volume (vph)	89	42	41	111	92	35
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	116	55	53	144	119	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	171	0	0	197	164	0
Intersection Summary						

Intersection

Int Delay, s/veh 4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	89	42	41	111	92	35
Future Vol, veh/h	89	42	41	111	92	35
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	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	55	53	144	119	45

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	171
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	-	-	1406
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1406
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	649	-	-	1406	-
HCM Lane V/C Ratio	0.254	-	-	0.038	-
HCM Control Delay (s)	12.4	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.1	-

Lanes and Geometrics
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980			0.905			0.989			0.991	
Flt Protected		0.996			0.999			0.984			0.970	
Satd. Flow (prot)	0	1818	0	0	1684	0	0	1813	0	0	1791	0
Flt Permitted		0.996			0.999			0.984			0.970	
Satd. Flow (perm)	0	1818	0	0	1684	0	0	1813	0	0	1791	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		221			312			464			829	
Travel Time (s)		5.0			7.1			10.5			18.8	
Intersection Summary												
Area Type:	Other											

Volume
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	3	27	5	2	43	110	9	17	2	52	27	5
Future Volume (vph)	3	27	5	2	43	110	9	17	2	52	27	5
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	36	7	3	57	145	12	22	3	68	36	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	205	0	0	37	0	0	111	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	27	5	2	43	110	9	17	2	52	27	5
Future Vol, veh/h	3	27	5	2	43	110	9	17	2	52	27	5
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	36	7	3	57	145	12	22	3	68	36	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	8	7.9	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	9%	1%	62%
Vol Thru, %	61%	77%	28%	32%
Vol Right, %	7%	14%	71%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	35	155	84
LT Vol	9	3	2	52
Through Vol	17	27	43	27
RT Vol	2	5	110	5
Lane Flow Rate	37	46	204	111
Geometry Grp	1	1	1	1
Degree of Util (X)	0.047	0.057	0.222	0.141
Departure Headway (Hd)	4.61	4.419	3.916	4.588
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	778	813	920	784
Service Time	2.63	2.434	1.926	2.606
HCM Lane V/C Ratio	0.048	0.057	0.222	0.142
HCM Control Delay	7.9	7.7	8	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.8	0.5

Lanes and Geometrics
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850						0.959
Flt Protected		0.999										0.966
Satd. Flow (prot)	0	3536	1863	0	3539	1583	0	1863	0	0	1726	0
Flt Permitted		0.999										0.966
Satd. Flow (perm)	0	3536	1863	0	3539	1583	0	1863	0	0	1726	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		660			309			203			464	
Travel Time (s)		15.0			7.0			4.6			10.5	
Intersection Summary												
Area Type:	Other											

Volume
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	11	387	0	1	381	28	0	0	0	27	0	12
Future Volume (vph)	11	387	0	1	381	28	0	0	0	27	0	12
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	12	435	0	1	428	31	0	0	0	30	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	447	0	0	429	31	0	0	0	0	43	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗		↔↔	↗		↔			↔	
Traffic Vol, veh/h	11	387	0	1	381	28	0	0	0	27	0	12
Future Vol, veh/h	11	387	0	1	381	28	0	0	0	27	0	12
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	435	0	1	428	31	0	0	0	30	0	13
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.6	10.3	0	9.9
HCM LOS	B	B	-	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	8%	0%	0%	1%	0%	0%	69%
Vol Thru, %	100%	92%	100%	100%	99%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	100%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	140	258	0	128	254	28	39
LT Vol	0	11	0	0	1	0	0	27
Through Vol	0	129	258	0	127	254	0	0
RT Vol	0	0	0	0	0	0	28	12
Lane Flow Rate	0	157	290	0	144	285	31	44
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.223	0.408	0	0.203	0.402	0.038	0.08
Departure Headway (Hd)	6.52	5.109	5.07	5.07	5.079	5.075	4.372	6.555
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	702	710	0	706	708	817	544
Service Time	4.298	2.846	2.807	2.807	2.814	2.81	2.107	4.323
HCM Lane V/C Ratio	0	0.224	0.408	0	0.204	0.403	0.038	0.081
HCM Control Delay	9.3	9.3	11.3	7.8	9.1	11.2	7.3	9.9
HCM Lane LOS	N	A	B	N	A	B	A	A
HCM 95th-tile Q	0	0.9	2	0	0.8	1.9	0.1	0.3

Lanes and Geometrics
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%			0%			0%	
Storage Length (ft)	100		0	200		0	100		0	100		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.992				0.975				0.850			0.850
Flt Protected	0.950			0.950				0.984			0.961	
Satd. Flow (prot)	1770	3511	0	1770	3451	0	0	1833	1583	0	1790	1583
Flt Permitted	0.950			0.950				0.905			0.730	
Satd. Flow (perm)	1770	3511	0	1770	3451	0	0	1686	1583	0	1360	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	9				45				191			191
Link Speed (mph)	30				30				30			30
Link Distance (ft)	309				320				221			464
Travel Time (s)	7.0				7.3				5.0			10.5

Intersection Summary

Area Type: Other

Volume
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	25	367	20	143	400	78	17	37	162	122	27	8
Future Volume (vph)	25	367	20	143	400	78	17	37	162	122	27	8
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	28	408	22	159	444	87	19	41	180	136	30	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	430	0	159	531	0	0	60	180	0	166	9
Intersection Summary												

Timings
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	367	143	400	17	37	162	122	27	8
Future Volume (vph)	25	367	143	400	17	37	162	122	27	8
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	3	8		2			6	
Permitted Phases					2		2	6		6
Detector Phase	7	4	3	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	15.0	28.0	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	37.5%	25.0%	46.7%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	5.2	12.0	9.0	19.2		18.6	18.6		18.6	18.6
Actuated g/C Ratio	0.10	0.24	0.18	0.38		0.37	0.37		0.37	0.37
v/c Ratio	0.15	0.51	0.50	0.40		0.10	0.26		0.33	0.01
Control Delay	26.3	19.4	26.9	11.6		14.2	3.8		17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	26.3	19.4	26.9	11.6		14.2	3.8		17.0	0.0
LOS	C	B	C	B		B	A		B	A
Approach Delay		19.9		15.1		6.4			16.2	
Approach LOS		B		B		A			B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 50.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 15.3

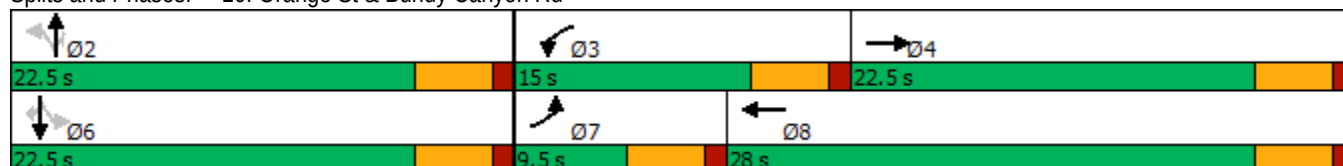
Intersection LOS: B

Intersection Capacity Utilization 44.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Orange St & Bundy Canyon Rd

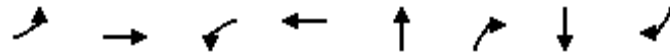


Queues

St. Francis of Rome Church TIA

10: Orange St & Bundy Canyon Rd

09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	28	430	159	531	60	180	166	9
v/c Ratio	0.15	0.51	0.50	0.40	0.10	0.26	0.33	0.01
Control Delay	26.3	19.4	26.9	11.6	14.2	3.8	17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	19.4	26.9	11.6	14.2	3.8	17.0	0.0
Queue Length 50th (ft)	8	62	45	43	13	0	38	0
Queue Length 95th (ft)	30	98	102	98	38	34	94	0
Internal Link Dist (ft)		229		240	141		384	
Turn Bay Length (ft)	100		200					
Base Capacity (vph)	181	1300	380	1715	621	704	501	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.33	0.42	0.31	0.10	0.26	0.33	0.01
Intersection Summary								

HCM 2010 Signalized Intersection Summary
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	367	20	143	400	78	17	37	162	122	27	8
Future Volume (veh/h)	25	367	20	143	400	78	17	37	162	122	27	8
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	1863	1900	1863	1863
Adj Flow Rate, veh/h	28	408	22	159	444	87	19	41	180	136	30	9
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	665	36	206	822	160	104	170	623	143	18	623
Arrive On Green	0.03	0.19	0.19	0.12	0.28	0.28	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1774	3416	184	1774	2956	575	0	432	1583	0	46	1583
Grp Volume(v), veh/h	28	211	219	159	265	266	60	0	180	166	0	9
Grp Sat Flow(s),veh/h/ln	1774	1770	1830	1774	1770	1761	432	0	1583	46	0	1583
Q Serve(g_s), s	0.7	5.0	5.0	4.0	5.8	5.9	0.0	0.0	3.6	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.7	5.0	5.0	4.0	5.8	5.9	18.0	0.0	3.6	18.0	0.0	0.2
Prop In Lane	1.00		0.10	1.00		0.33	0.32		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	58	344	356	206	492	490	274	0	623	161	0	623
V/C Ratio(X)	0.48	0.61	0.62	0.77	0.54	0.54	0.22	0.00	0.29	1.03	0.00	0.01
Avail Cap(c_a), veh/h	194	697	721	408	910	905	274	0	623	161	0	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	16.8	16.8	19.6	14.0	14.0	10.8	0.0	9.5	20.9	0.0	8.4
Incr Delay (d2), s/veh	6.1	1.8	1.7	6.0	0.9	0.9	1.8	0.0	1.2	78.8	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	0.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.6	2.7	2.3	2.9	2.9	0.6	0.0	1.8	5.5	0.0	0.1
LnGrp Delay(d),s/veh	27.8	18.6	18.6	25.6	14.9	15.0	12.6	0.0	10.6	100.0	0.0	8.5
LnGrp LOS	C	B	B	C	B	B	B		B	F		A
Approach Vol, veh/h		458			690			240			175	
Approach Delay, s/veh		19.2			17.4			11.1			95.3	
Approach LOS		B			B			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	9.8	13.4		22.5	6.0	17.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	10.5	18.0		18.0	5.0	23.5				
Max Q Clear Time (g_c+I1), s		20.0	6.0	7.0		20.0	2.7	7.9				
Green Ext Time (p_c), s		0.0	0.2	1.9		0.0	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay				25.7								
HCM 2010 LOS				C								

Existing Conditions
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.940						0.850					
Flt Protected				0.950							0.950	
Satd. Flow (prot)	0	3327	0	1770	3539	0	0	0	0	1770	1583	0
Flt Permitted				0.950							0.950	
Satd. Flow (perm)	0	3327	0	1770	3539	0	0	0	0	1770	1583	0
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				264								311
Link Speed (mph)				30				30				30
Link Distance (ft)				320				695				508
Travel Time (s)				7.3				15.8				11.5

Intersection Summary

Area Type: Other

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	384	256	181	515	0	0	0	0	230	0	155
Future Volume (vph)	0	384	256	181	515	0	0	0	0	230	0	155
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	396	264	187	531	0	0	0	0	237	0	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	660	0	187	531	0	0	0	0	237	160	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

	→	↙	←	↘	↓
Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	384	181	515	230	0
Future Volume (vph)	384	181	515	230	0
Turn Type	NA	Prot	NA	Perm	NA
Protected Phases	4	3	8		6
Permitted Phases				6	
Detector Phase	4	3	8	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	13.3	9.5	24.2	18.7	18.7
Actuated g/C Ratio	0.25	0.18	0.46	0.36	0.36
v/c Ratio	0.63	0.58	0.32	0.37	0.21
Control Delay	13.5	30.1	8.6	17.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	30.1	8.6	17.5	0.6
LOS	B	C	A	B	A
Approach Delay	13.5		14.2		10.7
Approach LOS	B		B		B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 52.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.2

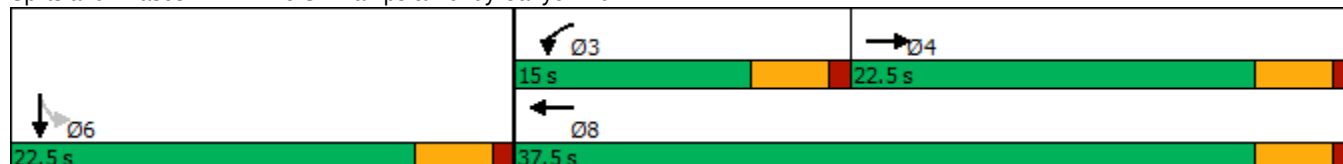
Intersection LOS: B

Intersection Capacity Utilization 55.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd

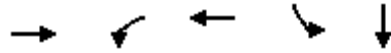


Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	660	187	531	237	160
v/c Ratio	0.63	0.58	0.32	0.37	0.21
Control Delay	13.5	30.1	8.6	17.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	30.1	8.6	17.5	0.6
Queue Length 50th (ft)	59	57	47	61	0
Queue Length 95th (ft)	104	#132	72	125	0
Internal Link Dist (ft)	240		615		428
Turn Bay Length (ft)		260			
Base Capacity (vph)	1360	369	2322	633	766
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.51	0.23	0.37	0.21

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	384	256	181	515	0	0	0	0	230	0	155
Future Volume (veh/h)	0	384	256	181	515	0	0	0	0	230	0	155
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	1863	1900	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	396	264	187	531	0				237	0	160
Adj No. of Lanes	0	2	0	1	2	0				1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	536	353	237	1706	0				613	0	547
Arrive On Green	0.00	0.26	0.26	0.13	0.48	0.00				0.35	0.00	0.35
Sat Flow, veh/h	0	2139	1348	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	342	318	187	531	0				237	0	160
Grp Sat Flow(s),veh/h/ln	0	1770	1625	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	9.2	9.4	5.3	4.8	0.0				5.3	0.0	3.8
Cycle Q Clear(g_c), s	0.0	9.2	9.4	5.3	4.8	0.0				5.3	0.0	3.8
Prop In Lane	0.00		0.83	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	464	426	237	1706	0				613	0	547
V/C Ratio(X)	0.00	0.74	0.75	0.79	0.31	0.00				0.39	0.00	0.29
Avail Cap(c_a), veh/h	0	611	561	357	2240	0				613	0	547
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	17.6	17.7	21.9	8.2	0.0				12.9	0.0	12.4
Incr Delay (d2), s/veh	0.0	3.3	3.9	6.7	0.1	0.0				1.8	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
%ile BackOfQ(50%),veh/ln	0.0	4.9	4.6	3.0	2.3	0.0				2.9	0.0	1.9
LnGrp Delay(d),s/veh	0.0	20.9	21.5	28.5	8.3	0.0				14.7	0.0	13.8
LnGrp LOS		C	C	C	A					B		B
Approach Vol, veh/h		660			718						397	
Approach Delay, s/veh		21.2			13.6						14.4	
Approach LOS		C			B						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			11.5	18.2		22.5		29.6				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.5	18.0		18.0		33.0				
Max Q Clear Time (g_c+I1), s			7.3	11.4		7.3		6.8				
Green Ext Time (p_c), s			0.1	2.3		1.3		3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			16.6									
HCM 2010 LOS			B									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.947			0.851				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3352	0	1770	1585	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3352	0	1770	1585	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					171			300				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	
Intersection Summary												
Area Type:	Other											

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	151	465	0	0	411	222	289	3	276	0	0	0
Future Volume (vph)	151	465	0	0	411	222	289	3	276	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	164	505	0	0	447	241	314	3	300	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	505	0	0	688	0	314	303	0	0	0	0
Intersection Summary												

Timings
12: I-15 NB Ramps & Bundy Canyon Rd

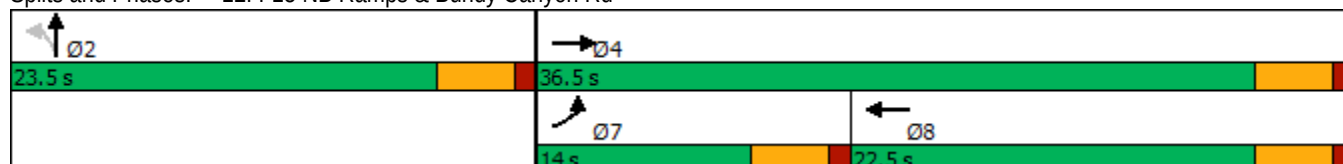
St. Francis of Rome Church TIA
09/24/2019

					
Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Configurations					
Traffic Volume (vph)	151	465	411	289	3
Future Volume (vph)	151	465	411	289	3
Turn Type	Prot	NA	NA	Perm	NA
Protected Phases	7	4	8		2
Permitted Phases				2	
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5
Total Split (s)	14.0	36.5	22.5	23.5	23.5
Total Split (%)	23.3%	60.8%	37.5%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	8.8	24.6	14.4	19.7	19.7
Actuated g/C Ratio	0.16	0.46	0.27	0.37	0.37
v/c Ratio	0.57	0.31	0.67	0.48	0.39
Control Delay	31.9	8.9	17.0	18.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	8.9	17.0	18.9	4.2
LOS	C	A	B	B	A
Approach Delay		14.5	17.0		11.7
Approach LOS		B	B		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 53.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 55.3%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd

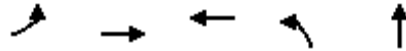


Queues

St. Francis of Rome Church TIA

09/24/2019

12: I-15 NB Ramps & Bundy Canyon Rd



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	164	505	688	314	303
v/c Ratio	0.57	0.31	0.67	0.48	0.39
Control Delay	31.9	8.9	17.0	18.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	8.9	17.0	18.9	4.2
Queue Length 50th (ft)	53	47	81	88	1
Queue Length 95th (ft)	#120	71	131	163	47
Internal Link Dist (ft)		615	78		321
Turn Bay Length (ft)	185				
Base Capacity (vph)	325	2189	1278	650	771
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.50	0.23	0.54	0.48	0.39

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	465	0	0	411	222	289	3	276	0	0	0
Future Volume (veh/h)	151	465	0	0	411	222	289	3	276	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	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	164	505	0	0	447	241	314	3	300			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	209	1663	0	0	594	318	638	6	565			
Arrive On Green	0.12	0.47	0.00	0.00	0.27	0.27	0.36	0.36	0.36			
Sat Flow, veh/h	1774	3632	0	0	2322	1193	1774	16	1570			
Grp Volume(v), veh/h	164	505	0	0	354	334	314	0	303			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1652	1774	0	1586			
Q Serve(g_s), s	4.7	4.7	0.0	0.0	9.7	9.8	7.3	0.0	8.0			
Cycle Q Clear(g_c), s	4.7	4.7	0.0	0.0	9.7	9.8	7.3	0.0	8.0			
Prop In Lane	1.00		0.00	0.00		0.72	1.00		0.99			
Lane Grp Cap(c), veh/h	209	1663	0	0	472	440	638	0	570			
V/C Ratio(X)	0.78	0.30	0.00	0.00	0.75	0.76	0.49	0.00	0.53			
Avail Cap(c_a), veh/h	319	2144	0	0	603	563	638	0	570			
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	22.6	8.7	0.0	0.0	17.8	17.8	13.2	0.0	13.4			
Incr Delay (d2), s/veh	6.9	0.1	0.0	0.0	3.9	4.4	2.7	0.0	3.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.7	2.3	0.0	0.0	5.2	5.0	4.0	0.0	4.0			
LnGrp Delay(d),s/veh	29.5	8.8	0.0	0.0	21.7	22.3	15.9	0.0	16.9			
LnGrp LOS	C	A			C	C	B		B			
Approach Vol, veh/h		669			688			617				
Approach Delay, s/veh		13.9			22.0			16.4				
Approach LOS		B			C			B				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		23.5		29.3			10.7	18.6				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		19.0		32.0			9.5	18.0				
Max Q Clear Time (g_c+I1), s		10.0		6.7			6.7	11.8				
Green Ext Time (p_c), s		2.1		3.5			0.1	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay				17.5								
HCM 2010 LOS				B								

Lanes and Geometrics
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%		0%		
Storage Length (ft)	0		0	150		0	100		0	100		0	
Storage Lanes	0		0	0		1	1		0	1		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt						0.850	0.979				0.999		
Flt Protected				0.950							0.950		
Satd. Flow (prot)	0	1863	0	1770	0	1583	1863	1824	0	1770	1861	0	
Flt Permitted				0.950							0.950		
Satd. Flow (perm)	0	1863	0	1770	0	1583	1863	1824	0	1770	1861	0	
Right Turn on Red	Yes					Yes	Yes				Yes		
Satd. Flow (RTOR)						395	9						
Link Speed (mph)	30				30	30				30			
Link Distance (ft)	209				495	473				348			
Travel Time (s)	4.8				11.3	10.8				7.9			

Intersection Summary

Area Type: Other

Volume
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1	0	27	0	375	0	200	32	435	233	1
Future Volume (vph)	0	1	0	27	0	375	0	200	32	435	233	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1	0	28	0	395	0	211	34	458	245	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	28	0	395	0	245	0	458	246	0
Intersection Summary												

Timings
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA
09/24/2019

	→	↖	↗	↑	↘	↓
Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↔	↖	↗	↑	↘	↘
Traffic Volume (vph)	1	27	375	200	435	233
Future Volume (vph)	1	27	375	200	435	233
Turn Type	NA	Prot	pm+ov	NA	Prot	NA
Protected Phases	4	3	1	2	1	6
Permitted Phases			3			
Detector Phase	4	3	1	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	9.5	25.2	22.8	25.2	48.0
Total Split (%)	28.1%	11.9%	31.5%	28.5%	31.5%	60.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Max	None	Max
Act Effect Green (s)	5.7	5.1	23.7	18.7	21.1	47.4
Actuated g/C Ratio	0.11	0.09	0.44	0.35	0.39	0.88
v/c Ratio	0.01	0.17	0.43	0.38	0.66	0.15
Control Delay	26.0	28.6	2.6	17.1	22.4	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	28.6	2.6	17.1	22.4	2.5
LOS	C	C	A	B	C	A
Approach Delay	26.0			17.1		15.5
Approach LOS	C			B		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 53.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.3

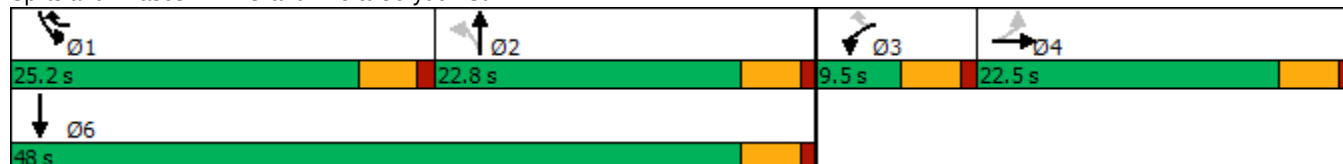
Intersection LOS: B

Intersection Capacity Utilization 55.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Grand Ave & Corydon St



Queues
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1	28	395	245	458	246
v/c Ratio	0.01	0.17	0.43	0.38	0.66	0.15
Control Delay	26.0	28.6	2.6	17.1	22.4	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	28.6	2.6	17.1	22.4	2.5
Queue Length 50th (ft)	0	7	0	45	91	0
Queue Length 95th (ft)	5	34	29	146	#332	63
Internal Link Dist (ft)	129			393		268
Turn Bay Length (ft)		150			100	
Base Capacity (vph)	634	167	917	637	693	1637
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.17	0.43	0.38	0.66	0.15

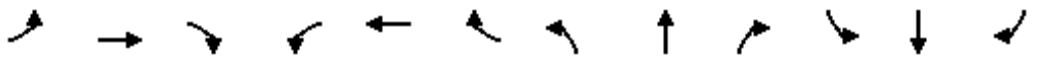
Intersection Summary

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

HCM 2010 Signalized Intersection Summary
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	0	27	0	375	0	200	32	435	233	1
Future Volume (veh/h)	0	1	0	27	0	375	0	200	32	435	233	1
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	1863	0	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	1	0	28	0	395	0	211	34	458	245	1
Adj No. of Lanes	0	1	0	1	0	1	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	0	2	2	2	2	2	2	2
Cap, veh/h	0	3	0	55	0	0	122	580	93	517	1369	6
Arrive On Green	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.37	0.37	0.29	0.74	0.74
Sat Flow, veh/h	0	1512	0	1774	28		1129	1566	252	1774	1854	8
Grp Volume(v), veh/h	0	1	0	28	35.1		0	0	245	458	0	246
Grp Sat Flow(s),veh/h/ln	0	1863	0	1774	D		1129	0	1818	1774	0	1861
Q Serve(g_s), s	0.0	0.0	0.0	0.9			0.0	0.0	5.8	14.5	0.0	2.3
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.9			0.0	0.0	5.8	14.5	0.0	2.3
Prop In Lane	0.00		0.00	1.00			1.00		0.14	1.00		0.00
Lane Grp Cap(c), veh/h	0	3	0	55			122	0	674	517	0	1374
V/C Ratio(X)	0.00	0.32	0.00	0.51			0.00	0.00	0.36	0.89	0.00	0.18
Avail Cap(c_a), veh/h	0	569	0	151			122	0	674	623	0	1374
HCM Platoon Ratio	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00			0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.4	0.0	28.1			0.0	0.0	13.5	19.9	0.0	2.3
Incr Delay (d2), s/veh	0.0	49.1	0.0	7.0			0.0	0.0	1.5	12.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.6			0.0	0.0	3.1	8.8	0.0	1.3
LnGrp Delay(d),s/veh	0.0	78.5	0.0	35.1			0.0	0.0	15.0	32.6	0.0	2.6
LnGrp LOS		E		D					B	C		A
Approach Vol, veh/h		1						245			704	
Approach Delay, s/veh		78.5						15.0			22.1	
Approach LOS		E						B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4		6						
Phs Duration (G+Y+Rc), s	21.7	26.3	6.3	4.6		48.0						
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	20.7	18.3	5.0	18.0		43.5						
Max Q Clear Time (g_c+I1), s	16.5	7.8	2.9	2.0		4.3						
Green Ext Time (p_c), s	0.6	1.0	0.0	0.0		1.5						
Intersection Summary												
HCM 2010 Ctrl Delay				20.8								
HCM 2010 LOS				C								

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%		0%		
Storage Length (ft)	95		95	145		0	100		0	100		100	
Storage Lanes	1		1	1		0	1		0	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt			0.850		0.975				0.912				0.850
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1770	1863	1583	1770	3451	0	1770	1699	0	1770	1863	1583	
Flt Permitted	0.950			0.950			0.738			0.722			
Satd. Flow (perm)	1770	1863	1583	1770	3451	0	1375	1699	0	1345	1863	1583	
Right Turn on Red			Yes				Yes				Yes		Yes
Satd. Flow (RTOR)			109		44				31				109
Link Speed (mph)	30				30				30		30		
Link Distance (ft)	495				474				343		250		
Travel Time (s)	11.3				10.8				7.8		5.7		

Intersection Summary

Area Type: Other

Volume
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	9	476	31	30	404	80	46	20	28	91	26	7
Future Volume (vph)	9	476	31	30	404	80	46	20	28	91	26	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	529	34	33	449	89	51	22	31	101	29	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	529	34	33	538	0	51	53	0	101	29	8
Intersection Summary												

Timings 2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	476	31	30	404	46	20	91	26	7
Future Volume (vph)	9	476	31	30	404	46	20	91	26	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4		3	8		2		6	
Permitted Phases			4			2		6		6
Detector Phase	7	4	4	3	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	27.0	27.0	9.5	27.0	23.5	23.5	23.5	23.5	23.5
Total Split (%)	15.8%	45.0%	45.0%	15.8%	45.0%	39.2%	39.2%	39.2%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	5.1	18.1	18.1	5.1	19.7	19.5	19.5	19.5	19.5	19.5
Actuated g/C Ratio	0.10	0.36	0.36	0.10	0.39	0.39	0.39	0.39	0.39	0.39
v/c Ratio	0.06	0.78	0.05	0.18	0.39	0.10	0.08	0.19	0.04	0.01
Control Delay	25.3	25.0	0.2	27.0	10.9	13.8	8.6	14.6	13.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	25.0	0.2	27.0	10.9	13.8	8.6	14.6	13.5	0.0
LOS	C	C	A	C	B	B	A	B	B	A
Approach Delay		23.5			11.8		11.1		13.5	
Approach LOS		C			B		B		B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 50.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 16.8

Intersection LOS: B

Intersection Capacity Utilization 44.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Palomar St & Corydon St

 Ø2	 Ø3	 Ø4
23.5 s	9.5 s	27 s
 Ø6	 Ø7	 Ø8
23.5 s	9.5 s	27 s

Existing Conditions
Sunday Peak Hour

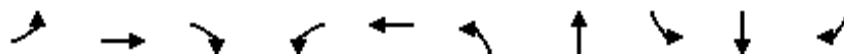
Synchro 10 Report

Queues

St. Francis of Rome Church TIA

2: Palomar St & Corydon St

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	10	529	34	33	538	51	53	101	29	8
v/c Ratio	0.06	0.78	0.05	0.18	0.39	0.10	0.08	0.19	0.04	0.01
Control Delay	25.3	25.0	0.2	27.0	10.9	13.8	8.6	14.6	13.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	25.0	0.2	27.0	10.9	13.8	8.6	14.6	13.5	0.0
Queue Length 50th (ft)	3	113	0	9	46	8	3	17	5	0
Queue Length 95th (ft)	16	#304	0	34	103	34	26	59	22	0
Internal Link Dist (ft)		415			394		263		170	
Turn Bay Length (ft)	95		95	145		100		100		100
Base Capacity (vph)	181	860	789	181	1725	536	681	524	726	683
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.62	0.04	0.18	0.31	0.10	0.08	0.19	0.04	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary

2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	476	31	30	404	80	46	20	28	91	26	7
Future Volume (veh/h)	9	476	31	30	404	80	46	20	28	91	26	7
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	1900	1863	1863	1863
Adj Flow Rate, veh/h	10	529	34	33	449	89	51	22	31	101	29	8
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	631	536	65	1068	210	623	256	361	602	680	578
Arrive On Green	0.01	0.34	0.34	0.04	0.36	0.36	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	1774	2949	581	1365	701	988	1346	1863	1583
Grp Volume(v), veh/h	10	529	34	33	268	270	51	0	53	101	29	8
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1760	1365	0	1688	1346	1863	1583
Q Serve(g_s), s	0.3	13.6	0.8	1.0	5.9	6.0	1.3	0.0	1.1	2.8	0.5	0.2
Cycle Q Clear(g_c), s	0.3	13.6	0.8	1.0	5.9	6.0	1.8	0.0	1.1	3.8	0.5	0.2
Prop In Lane	1.00		1.00	1.00		0.33	1.00		0.58	1.00		1.00
Lane Grp Cap(c), veh/h	23	631	536	65	641	638	623	0	617	602	680	578
V/C Ratio(X)	0.44	0.84	0.06	0.51	0.42	0.42	0.08	0.00	0.09	0.17	0.04	0.01
Avail Cap(c_a), veh/h	171	806	685	171	765	761	623	0	617	602	680	578
HCM Platoon Ratio	1.00	1.00	1.00	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	25.5	15.9	11.6	24.6	12.5	12.5	11.2	0.0	10.8	12.1	10.6	10.5
Incr Delay (d2), s/veh	12.5	6.3	0.0	6.1	0.4	0.4	0.3	0.0	0.3	0.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	8.0	0.3	0.6	2.9	3.0	0.5	0.0	0.5	1.1	0.3	0.1
LnGrp Delay(d),s/veh	38.0	22.2	11.7	30.7	12.9	12.9	11.5	0.0	11.1	12.7	10.8	10.6
LnGrp LOS	D	C	B	C	B	B	B		B	B	B	B
Approach Vol, veh/h		573			571			104			138	
Approach Delay, s/veh		21.8			13.9			11.3			12.2	
Approach LOS		C			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	6.4	22.1		23.5	5.2	23.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	5.0	22.5		19.0	5.0	22.5				
Max Q Clear Time (g_c+I1), s		3.8	3.0	15.6		5.8	2.3	8.0				
Green Ext Time (p_c), s		0.3	0.0	2.0		0.3	0.0	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay				16.8								
HCM 2010 LOS				B								

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	350		0	100		0	90		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.899				0.987		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3182	0	1770	3493	0	1770	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3182	0	1770	3493	0	1770	3536	0
Right Turn on Red			Yes				Yes				Yes	
Satd. Flow (RTOR)			176		35				15		1	
Link Speed (mph)	30				30				30		30	
Link Distance (ft)	560				435				423		314	
Travel Time (s)	12.7				9.9				9.6		7.1	

Intersection Summary

Area Type: Other

Volume
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	9	3	27	82	16	33	70	562	54	18	576	6
Future Volume (vph)	9	3	27	82	16	33	70	562	54	18	576	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	3	29	87	17	35	74	598	57	19	613	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	3	29	87	52	0	74	655	0	19	619	0
Intersection Summary												

Timings
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	3	27	82	16	70	562	18	576
Future Volume (vph)	9	3	27	82	16	70	562	18	576
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	9.5	22.6	9.5	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	14.6%	34.8%	14.6%	34.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
Act Effect Green (s)	5.2	5.8	5.8	6.0	7.8	5.2	31.0	5.2	27.4
Actuated g/C Ratio	0.12	0.13	0.13	0.14	0.18	0.12	0.70	0.12	0.62
v/c Ratio	0.05	0.01	0.08	0.36	0.09	0.36	0.27	0.09	0.28
Control Delay	21.9	20.7	0.4	24.9	10.4	26.3	7.1	22.4	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.7	0.4	24.9	10.4	26.3	7.1	22.4	9.9
LOS	C	C	A	C	B	C	A	C	A
Approach Delay		7.0			19.4		9.0		10.3
Approach LOS		A			B		A		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 44.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 10.4

Intersection LOS: B

Intersection Capacity Utilization 43.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Mission Trail & Malaga Rd

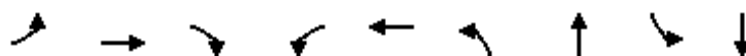
			
Ø1	Ø2	Ø3	Ø4
9.5 s	22.6 s	10.4 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
9.5 s	22.6 s	9.5 s	23.4 s

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Queues
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	3	29	87	52	74	655	19	619
v/c Ratio	0.05	0.01	0.08	0.36	0.09	0.36	0.27	0.09	0.28
Control Delay	21.9	20.7	0.4	24.9	10.4	26.3	7.1	22.4	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.7	0.4	24.9	10.4	26.3	7.1	22.4	9.9
Queue Length 50th (ft)	2	1	0	19	2	17	25	4	50
Queue Length 95th (ft)	14	7	0	62	15	#58	125	21	120
Internal Link Dist (ft)		480			355		343		234
Turn Bay Length (ft)	350			100		90		220	
Base Capacity (vph)	206	783	767	244	1425	206	2459	206	2200
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.00	0.04	0.36	0.04	0.36	0.27	0.09	0.28

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	3	27	82	16	33	70	562	54	18	576	6
Future Volume (veh/h)	9	3	27	82	16	33	70	562	54	18	576	6
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	1900	1863	1863	1900
Adj Flow Rate, veh/h	10	3	29	87	17	35	74	598	57	19	613	6
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	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	23	142	120	129	240	215	118	1426	136	42	1413	14
Arrive On Green	0.01	0.08	0.08	0.07	0.14	0.14	0.07	0.44	0.44	0.02	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3267	311	1774	3591	35
Grp Volume(v), veh/h	10	3	29	87	17	35	74	323	332	19	302	317
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1808	1774	1770	1857
Q Serve(g_s), s	0.3	0.1	0.8	2.2	0.4	0.9	1.9	5.8	5.8	0.5	5.7	5.7
Cycle Q Clear(g_c), s	0.3	0.1	0.8	2.2	0.4	0.9	1.9	5.8	5.8	0.5	5.7	5.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.02
Lane Grp Cap(c), veh/h	23	142	120	129	240	215	118	772	789	42	696	730
V/C Ratio(X)	0.43	0.02	0.24	0.67	0.07	0.16	0.63	0.42	0.42	0.46	0.43	0.43
Avail Cap(c_a), veh/h	193	729	619	227	727	650	193	772	789	193	696	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	19.7	20.0	20.8	17.3	17.6	20.9	8.9	8.9	22.2	10.2	10.2
Incr Delay (d2), s/veh	12.2	0.1	1.0	5.9	0.1	0.4	5.4	1.7	1.6	7.6	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.3	0.2	0.4	1.1	3.1	3.2	0.3	3.1	3.3
LnGrp Delay(d),s/veh	34.8	19.7	21.0	26.7	17.5	17.9	26.3	10.6	10.6	29.8	12.2	12.1
LnGrp LOS	C	B	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		42			139			729			638	
Approach Delay, s/veh		24.2			23.4			12.2			12.7	
Approach LOS		C			C			B			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	5.6	24.6	7.9	8.0	7.6	22.6	5.1	10.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.1	5.9	18.0	5.0	18.1	5.0	18.9				
Max Q Clear Time (g_c+I1), s	2.5	7.8	4.2	2.8	3.9	7.7	2.3	2.9				
Green Ext Time (p_c), s	0.0	2.9	0.0	0.0	0.0	2.8	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				13.7								
HCM 2010 LOS				B								

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		70	105	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.923			0.850		
Flt Protected	0.979				0.950	
Satd. Flow (prot)	1683	0	3539	1583	1770	3539
Flt Permitted	0.979				0.950	
Satd. Flow (perm)	1683	0	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	104			119		
Link Speed (mph)	30		30			30
Link Distance (ft)	332		405			423
Travel Time (s)	7.5		9.2			9.6
Intersection Summary						
Area Type:	Other					

Volume
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	85	113	679	115	91	586
Future Volume (vph)	85	113	679	115	91	586
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	106	141	849	144	114	733
Shared Lane Traffic (%)						
Lane Group Flow (vph)	247	0	849	144	114	733
Intersection Summary						

Timings

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	85	679	115	91	586
Future Volume (vph)	85	679	115	91	586
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	3	2		1	6
Permitted Phases			2		
Detector Phase	3	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5
Total Split (s)	18.4	27.6	27.6	14.0	41.6
Total Split (%)	30.7%	46.0%	46.0%	23.3%	69.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max
Act Effect Green (s)	10.2	28.7	28.7	8.3	39.7
Actuated g/C Ratio	0.17	0.49	0.49	0.14	0.67
v/c Ratio	0.66	0.49	0.17	0.46	0.31
Control Delay	21.0	13.3	4.5	28.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	13.3	4.5	28.9	4.8
LOS	C	B	A	C	A
Approach Delay	21.0	12.0			8.1
Approach LOS	C	B			A

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 58.9

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 11.5

Intersection LOS: B

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Mission Trail & Lemon St



Queues

St. Francis of Rome Church TIA

4: Mission Trail & Lemon St

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	247	849	144	114	733
v/c Ratio	0.66	0.49	0.17	0.46	0.31
Control Delay	21.0	13.3	4.5	28.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	13.3	4.5	28.9	4.8
Queue Length 50th (ft)	44	108	5	35	45
Queue Length 95th (ft)	84	152	28	70	70
Internal Link Dist (ft)	252	325			343
Turn Bay Length (ft)			70	105	
Base Capacity (vph)	478	1725	833	286	2384
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.49	0.17	0.40	0.31
Intersection Summary					

HCM 2010 Signalized Intersection Summary

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	85	113	679	115	91	586		
Future Volume (veh/h)	85	113	679	115	91	586		
Number	3	18	2	12	1	6		
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	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	106	141	849	144	114	732		
Adj No. of Lanes	0	0	2	1	1	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80		
Percent Heavy Veh, %	0	0	2	2	2	2		
Cap, veh/h	128	170	1757	786	148	2334		
Arrive On Green	0.18	0.18	0.50	0.50	0.08	0.66		
Sat Flow, veh/h	710	944	3632	1583	1774	3632		
Grp Volume(v), veh/h	248	0	849	144	114	732		
Grp Sat Flow(s),veh/h/ln	1661	0	1770	1583	1774	1770		
Q Serve(g_s), s	8.1	0.0	8.9	2.8	3.5	5.0		
Cycle Q Clear(g_c), s	8.1	0.0	8.9	2.8	3.5	5.0		
Prop In Lane	0.43	0.57		1.00	1.00			
Lane Grp Cap(c), veh/h	300	0	1757	786	148	2334		
V/C Ratio(X)	0.83	0.00	0.48	0.18	0.77	0.31		
Avail Cap(c_a), veh/h	410	0	1757	786	300	2334		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.2	0.0	9.4	7.8	25.3	4.1		
Incr Delay (d2), s/veh	9.7	0.0	1.0	0.5	8.3	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.5	0.0	4.6	1.4	2.1	2.5		
LnGrp Delay(d),s/veh	31.9	0.0	10.3	8.4	33.5	4.5		
LnGrp LOS	C		B	A	C	A		
Approach Vol, veh/h	248		993			846		
Approach Delay, s/veh	31.9		10.1			8.4		
Approach LOS	C		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.2	32.4				41.6		14.7
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	9.5	23.1				37.1		13.9
Max Q Clear Time (g_c+I1), s	5.5	10.9				7.0		10.1
Green Ext Time (p_c), s	0.1	5.1				5.7		0.3
Intersection Summary								
HCM 2010 Ctrl Delay		12.0						
HCM 2010 LOS		B						
Notes								

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	270	260	125			115
Storage Lanes	2	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.88	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	2787	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		224				281
Link Speed (mph)	30			30	30	
Link Distance (ft)	463			424	405	
Travel Time (s)	10.5			9.6	9.2	
Intersection Summary						
Area Type:	Other					

Volume
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	466	208	169	311	281	411
Future Volume (vph)	466	208	169	311	281	411
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	501	224	182	334	302	442
Shared Lane Traffic (%)						
Lane Group Flow (vph)	501	224	182	334	302	442
Intersection Summary						

Timings
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA

09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Traffic Volume (vph)	466	208	169	311	281	411
Future Volume (vph)	466	208	169	311	281	411
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	Max	Max	None
Act Effect Green (s)	14.0	28.0	9.4	33.1	19.1	37.6
Actuated g/C Ratio	0.25	0.50	0.17	0.59	0.34	0.67
v/c Ratio	0.59	0.15	0.61	0.16	0.25	0.38
Control Delay	21.3	1.4	31.9	6.0	15.2	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	1.4	31.9	6.0	15.2	2.5
LOS	C	A	C	A	B	A
Approach Delay	15.2			15.1	7.7	
Approach LOS	B			B	A	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 12.4

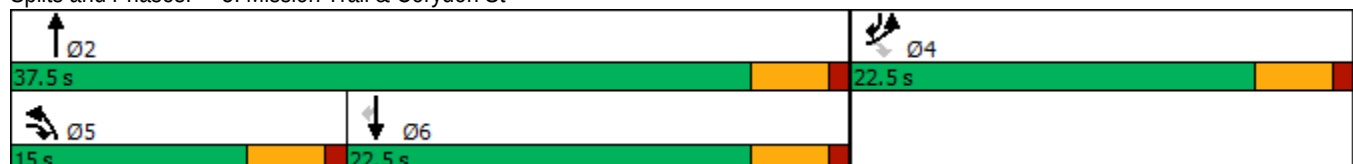
Intersection LOS: B

Intersection Capacity Utilization 42.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Mission Trail & Corydon St



Queues
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	501	224	182	334	302	442
v/c Ratio	0.59	0.15	0.61	0.16	0.25	0.38
Control Delay	21.3	1.4	31.9	6.0	15.2	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	1.4	31.9	6.0	15.2	2.5
Queue Length 50th (ft)	75	0	56	23	38	17
Queue Length 95th (ft)	114	13	#122	45	71	43
Internal Link Dist (ft)	383			344	325	
Turn Bay Length (ft)	270	260	125			115
Base Capacity (vph)	1103	1550	332	2086	1206	1247
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.14	0.55	0.16	0.25	0.35

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

5: Mission Trail & Corydon St

St. Francis of Rome Church TIA

09/24/2019

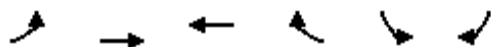
								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	466	208	169	311	281	411		
Future Volume (veh/h)	466	208	169	311	281	411		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	501	224	182	334	302	442		
Adj No. of Lanes	2	2	1	2	2	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	722	948	231	2197	1437	975		
Arrive On Green	0.21	0.21	0.13	0.62	0.41	0.41		
Sat Flow, veh/h	3442	2787	1774	3632	3632	1583		
Grp Volume(v), veh/h	501	224	182	334	302	442		
Grp Sat Flow(s),veh/h/ln	1721	1393	1774	1770	1770	1583		
Q Serve(g_s), s	7.2	3.1	5.3	2.1	2.9	7.9		
Cycle Q Clear(g_c), s	7.2	3.1	5.3	2.1	2.9	7.9		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	722	948	231	2197	1437	975		
V/C Ratio(X)	0.69	0.24	0.79	0.15	0.21	0.45		
Avail Cap(c_a), veh/h	1165	1307	350	2197	1437	975		
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	19.4	12.6	22.4	4.2	10.3	5.4		
Incr Delay (d2), s/veh	1.2	0.1	6.7	0.1	0.3	1.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.5	2.8	3.0	1.1	1.5	5.7		
LnGrp Delay(d),s/veh	20.6	12.7	29.1	4.4	10.6	7.0		
LnGrp LOS	C	B	C	A	B	A		
Approach Vol, veh/h	725			516	744			
Approach Delay, s/veh	18.2			13.1	8.4			
Approach LOS	B			B	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.5		15.7	11.4	26.1		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		33.0		18.0	10.5	18.0		
Max Q Clear Time (g_c+I1), s		4.1		9.2	7.3	9.9		
Green Ext Time (p_c), s		2.3		2.0	0.1	2.4		
Intersection Summary								
HCM 2010 Ctrl Delay			13.2					
HCM 2010 LOS			B					

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
6: Orange St & Monjonner Way

St. Francis of Rome Church TIA
09/24/2019



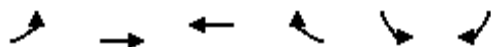
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.974		0.961	
Flt Protected		0.996			0.966	
Satd. Flow (prot)	0	1855	1814	0	1729	0
Flt Permitted		0.996			0.966	
Satd. Flow (perm)	0	1855	1814	0	1729	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		439	221		241	
Travel Time (s)		10.0	5.0		5.5	

Intersection Summary

Area Type: Other

Volume
6: Orange St & Monjonnier Way

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	4	42	45	11	9	4
Future Volume (vph)	4	42	45	11	9	4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	4	47	50	12	10	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	51	62	0	14	0
Intersection Summary						

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	42	45	11	9	4
Future Vol, veh/h	4	42	45	11	9	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	47	50	12	10	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	62	0	0 111 56
Stage 1	-	-	- 56 -
Stage 2	-	-	- 55 -
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	1541	-	- 886 1011
Stage 1	-	-	- 967 -
Stage 2	-	-	- 968 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1541	-	- 883 1011
Mov Cap-2 Maneuver	-	-	- 883 -
Stage 1	-	-	- 964 -
Stage 2	-	-	- 968 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1541	-	-	-	919
HCM Lane V/C Ratio	0.003	-	-	-	0.016
HCM Control Delay (s)	7.3	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes and Geometrics
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.944				0.947	
Flt Protected				0.982	0.971	
Satd. Flow (prot)	1758	0	0	1829	1713	0
Flt Permitted				0.982	0.971	
Satd. Flow (perm)	1758	0	0	1829	1713	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	167			136	829	
Travel Time (s)	3.8			3.1	18.8	
Intersection Summary						
Area Type:	Other					

Volume
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	126	89	52	91	69	45
Future Volume (vph)	126	89	52	91	69	45
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	168	119	69	121	92	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	0	0	190	152	0
Intersection Summary						

Intersection

Int Delay, s/veh 4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	126	89	52	91	69	45
Future Vol, veh/h	126	89	52	91	69	45
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	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	119	69	121	92	60

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	287
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	-	-	1275
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1275
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	597	-	-	1275	-
HCM Lane V/C Ratio	0.255	-	-	0.054	-
HCM Control Delay (s)	13.1	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.2	-

Lanes and Geometrics
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.989			0.906			0.985			0.994	
Flt Protected		0.997						0.989			0.977	
Satd. Flow (prot)	0	1837	0	0	1688	0	0	1815	0	0	1809	0
Flt Permitted		0.997						0.989			0.977	
Satd. Flow (perm)	0	1837	0	0	1688	0	0	1815	0	0	1809	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		221			312			464			829	
Travel Time (s)		5.0			7.1			10.5			18.8	
Intersection Summary												
Area Type:	Other											

Volume
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	3	42	4	1	40	93	6	20	3	65	68	6
Future Volume (vph)	3	42	4	1	40	93	6	20	3	65	68	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	53	5	1	50	116	8	25	4	81	85	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	62	0	0	167	0	0	37	0	0	174	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	42	4	1	40	93	6	20	3	65	68	6
Future Vol, veh/h	3	42	4	1	40	93	6	20	3	65	68	6
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	53	5	1	50	116	8	25	4	81	85	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8.1	7.9	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	6%	1%	47%
Vol Thru, %	69%	86%	30%	49%
Vol Right, %	10%	8%	69%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	49	134	139
LT Vol	6	3	1	65
Through Vol	20	42	40	68
RT Vol	3	4	93	6
Lane Flow Rate	36	61	168	174
Geometry Grp	1	1	1	1
Degree of Util (X)	0.046	0.078	0.19	0.219
Departure Headway (Hd)	4.615	4.573	4.09	4.541
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	776	785	879	792
Service Time	2.639	2.592	2.104	2.561
HCM Lane V/C Ratio	0.046	0.078	0.191	0.22
HCM Control Delay	7.9	8	8.1	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.7	0.8

Lanes and Geometrics
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850						0.988
Flt Protected		0.999										0.956
Satd. Flow (prot)	0	3536	1863	0	3539	1583	0	1863	0	0	1759	0
Flt Permitted		0.999										0.956
Satd. Flow (perm)	0	3536	1863	0	3539	1583	0	1863	0	0	1759	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		660			309			203			464	
Travel Time (s)		15.0			7.0			4.6			10.5	
Intersection Summary												
Area Type:	Other											

Volume
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	6	373	0	0	332	31	0	0	0	72	0	7
Future Volume (vph)	6	373	0	0	332	31	0	0	0	72	0	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	6	381	0	0	339	32	0	0	0	73	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	387	0	0	339	32	0	0	0	0	80	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	373	0	0	332	31	0	0	0	72	0	7
Future Vol, veh/h	6	373	0	0	332	31	0	0	0	72	0	7
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	381	0	0	339	32	0	0	0	73	0	7
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.2	9.2	0	10.4
HCM LOS	B	A	-	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	5%	0%	0%	0%	0%	0%	91%
Vol Thru, %	100%	95%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	100%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	130	249	0	166	166	31	79
LT Vol	0	6	0	0	0	0	0	72
Through Vol	0	124	249	0	166	166	0	0
RT Vol	0	0	0	0	0	0	31	7
Lane Flow Rate	0	133	254	0	169	169	32	81
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.19	0.361	0	0.243	0.243	0.024	0.146
Departure Headway (Hd)	6.306	5.15	5.127	5.127	5.161	5.161	2.712	6.536
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	696	700	0	694	694	1308	546
Service Time	4.094	2.893	2.87	2.87	2.903	2.903	0.453	4.308
HCM Lane V/C Ratio	0	0.191	0.363	0	0.244	0.244	0.024	0.148
HCM Control Delay	9.1	9.1	10.8	7.9	9.6	9.6	5.5	10.4
HCM Lane LOS	N	A	B	N	A	A	A	B
HCM 95th-tile Q	0	0.7	1.6	0	0.9	0.9	0.1	0.5

Lanes and Geometrics
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%			0%	
Storage Length (ft)	100		0	200		0	100		0	100		0	
Storage Lanes	1		0	1		0	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt	0.995				0.971				0.850			0.850	
Flt Protected	0.950			0.950				0.993			0.958		
Satd. Flow (prot)	1770	3522	0	1770	3437	0	0	1850	1583	0	1785	1583	
Flt Permitted	0.950			0.950				0.961			0.703		
Satd. Flow (perm)	1770	3522	0	1770	3437	0	0	1790	1583	0	1310	1583	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		6			54				186			109	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		309			320			221			464		
Travel Time (s)		7.0			7.3			5.0			10.5		

Intersection Summary

Area Type: Other

Volume
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	41	409	14	104	351	84	9	55	177	174	23	13
Future Volume (vph)	41	409	14	104	351	84	9	55	177	174	23	13
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	43	431	15	109	369	88	9	58	186	183	24	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	446	0	109	457	0	0	67	186	0	207	14
Intersection Summary												

Timings
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	41	409	104	351	9	55	177	174	23	13
Future Volume (vph)	41	409	104	351	9	55	177	174	23	13
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	3	8		2			6	
Permitted Phases					2		2	6		6
Detector Phase	7	4	3	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.2	22.5	13.8	26.1	23.7	23.7	23.7	23.7	23.7	23.7
Total Split (%)	17.0%	37.5%	23.0%	43.5%	39.5%	39.5%	39.5%	39.5%	39.5%	39.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	5.8	12.1	7.9	18.2		19.8	19.8		19.8	19.8
Actuated g/C Ratio	0.11	0.24	0.16	0.36		0.39	0.39		0.39	0.39
v/c Ratio	0.21	0.53	0.40	0.36		0.10	0.26		0.41	0.02
Control Delay	26.5	19.8	26.1	11.8		13.4	3.9		17.3	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	26.5	19.8	26.1	11.8		13.4	3.9		17.3	0.1
LOS	C	B	C	B		B	A		B	A
Approach Delay		20.4		14.6		6.5			16.2	
Approach LOS		C		B		A			B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 50.9

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 15.3

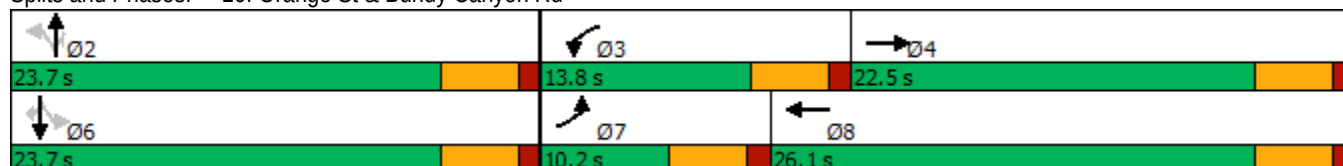
Intersection LOS: B

Intersection Capacity Utilization 46.3%

ICU Level of Service A

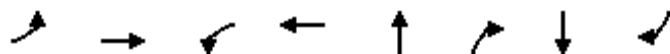
Analysis Period (min) 15

Splits and Phases: 10: Orange St & Bundy Canyon Rd



Queues
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	43	446	109	457	67	186	207	14
v/c Ratio	0.21	0.53	0.40	0.36	0.10	0.26	0.41	0.02
Control Delay	26.5	19.8	26.1	11.8	13.4	3.9	17.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	19.8	26.1	11.8	13.4	3.9	17.3	0.1
Queue Length 50th (ft)	13	64	31	36	13	0	48	0
Queue Length 95th (ft)	41	102	77	86	40	36	115	0
Internal Link Dist (ft)		229		240	141		384	
Turn Bay Length (ft)	100		200					
Base Capacity (vph)	204	1288	333	1579	696	729	509	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.35	0.33	0.29	0.10	0.26	0.41	0.02
Intersection Summary								

HCM 2010 Signalized Intersection Summary
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	409	14	104	351	84	9	55	177	174	23	13
Future Volume (veh/h)	41	409	14	104	351	84	9	55	177	174	23	13
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	1863	1900	1863	1863
Adj Flow Rate, veh/h	43	431	15	109	369	88	9	58	186	183	24	14
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	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	82	697	24	146	670	158	140	717	668	568	66	668
Arrive On Green	0.05	0.20	0.20	0.08	0.24	0.24	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1774	3490	121	1774	2843	671	118	1701	1583	994	156	1583
Grp Volume(v), veh/h	43	218	228	109	228	229	67	0	186	207	0	14
Grp Sat Flow(s),veh/h/ln	1774	1770	1841	1774	1770	1744	1819	0	1583	1150	0	1583
Q Serve(g_s), s	1.1	5.1	5.1	2.7	5.1	5.3	0.0	0.0	3.5	5.3	0.0	0.2
Cycle Q Clear(g_c), s	1.1	5.1	5.1	2.7	5.1	5.3	1.0	0.0	3.5	6.3	0.0	0.2
Prop In Lane	1.00		0.07	1.00		0.38	0.13		1.00	0.88		1.00
Lane Grp Cap(c), veh/h	82	353	368	146	417	411	857	0	668	634	0	668
V/C Ratio(X)	0.53	0.62	0.62	0.75	0.55	0.56	0.08	0.00	0.28	0.33	0.00	0.02
Avail Cap(c_a), veh/h	222	700	728	362	839	828	857	0	668	634	0	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.2	16.6	16.6	20.4	15.3	15.3	7.9	0.0	8.6	9.6	0.0	7.7
Incr Delay (d2), s/veh	5.2	1.8	1.7	7.4	1.1	1.2	0.2	0.0	1.0	1.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.7	2.8	1.6	2.6	2.6	0.5	0.0	1.7	2.1	0.0	0.1
LnGrp Delay(d),s/veh	26.4	18.4	18.3	27.9	16.4	16.5	8.1	0.0	9.7	11.0	0.0	7.7
LnGrp LOS	C	B	B	C	B	B	A		A	B		A
Approach Vol, veh/h		489			566			253			221	
Approach Delay, s/veh		19.1			18.6			9.2			10.8	
Approach LOS		B			B			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.7	8.2	13.6		23.7	6.6	15.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.2	9.3	18.0		19.2	5.7	21.6				
Max Q Clear Time (g_c+I1), s		5.5	4.7	7.1		8.3	3.1	7.3				
Green Ext Time (p_c), s		0.8	0.1	1.9		1.0	0.0	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay				16.1								
HCM 2010 LOS				B								

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.937						0.852					
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3316	0	1770	3539	0	0	0	0	1770	1587	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3316	0	1770	3539	0	0	0	0	1770	1587	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)	313									135		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	320			695			332			508		
Travel Time (s)	7.3			15.8			7.5			11.5		

Intersection Summary

Area Type: Other

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	435	316	226	397	0	0	0	0	220	2	123
Future Volume (vph)	0	435	316	226	397	0	0	0	0	220	2	123
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	478	347	248	436	0	0	0	0	242	2	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	825	0	248	436	0	0	0	0	242	137	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

	→	↖	←	↘	↓
Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	435	226	397	220	2
Future Volume (vph)	435	226	397	220	2
Turn Type	NA	Prot	NA	Perm	NA
Protected Phases	4	3	8		6
Permitted Phases				6	
Detector Phase	4	3	8	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	15.4	10.2	30.2	18.1	18.1
Actuated g/C Ratio	0.27	0.18	0.53	0.32	0.32
v/c Ratio	0.74	0.79	0.23	0.43	0.23
Control Delay	15.9	44.1	7.5	19.5	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	44.1	7.5	19.5	4.9
LOS	B	D	A	B	A
Approach Delay	15.9		20.8		14.2
Approach LOS	B		C		B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 57.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 17.3

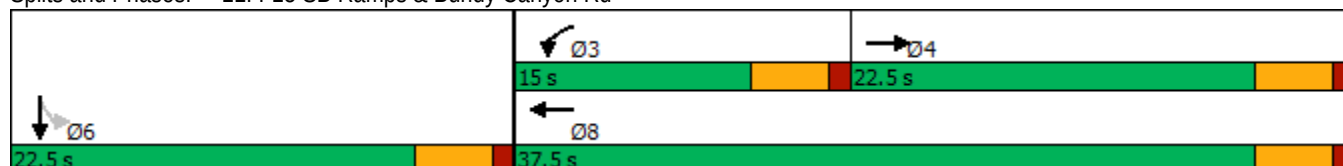
Intersection LOS: B

Intersection Capacity Utilization 58.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd

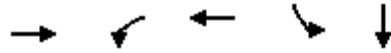


Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	825	248	436	242	137
v/c Ratio	0.74	0.79	0.23	0.43	0.23
Control Delay	15.9	44.1	7.5	19.5	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	44.1	7.5	19.5	4.9
Queue Length 50th (ft)	80	86	38	69	1
Queue Length 95th (ft)	137	#194	58	128	33
Internal Link Dist (ft)	240		615		428
Turn Bay Length (ft)		260			
Base Capacity (vph)	1260	325	2048	558	593
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.76	0.21	0.43	0.23

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Volume (veh/h)	0	435	316	226	397	0	0	0	0	220	2	123
Future Volume (veh/h)	0	435	316	226	397	0	0	0	0	220	2	123
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	1863	1900	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	478	347	248	436	0				242	2	135
Adj No. of Lanes	0	2	0	1	2	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
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	566	409	297	1889	0				552	7	486
Arrive On Green	0.00	0.29	0.29	0.17	0.53	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	2055	1420	1774	3632	0				1774	23	1564
Grp Volume(v), veh/h	0	431	394	248	436	0				242	0	137
Grp Sat Flow(s),veh/h/ln	0	1770	1612	1774	1770	0				1774	0	1587
Q Serve(g_s), s	0.0	13.3	13.3	7.8	3.8	0.0				6.3	0.0	3.8
Cycle Q Clear(g_c), s	0.0	13.3	13.3	7.8	3.8	0.0				6.3	0.0	3.8
Prop In Lane	0.00		0.88	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	510	465	297	1889	0				552	0	493
V/C Ratio(X)	0.00	0.84	0.85	0.83	0.23	0.00				0.44	0.00	0.28
Avail Cap(c_a), veh/h	0	550	501	322	2017	0				552	0	493
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	19.4	19.4	23.3	7.2	0.0				15.9	0.0	15.0
Incr Delay (d2), s/veh	0.0	11.0	12.1	16.1	0.1	0.0				2.5	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
%ile BackOfQ(50%),veh/ln	0.0	8.0	7.5	5.1	1.8	0.0				3.5	0.0	1.8
LnGrp Delay(d),s/veh	0.0	30.4	31.6	39.4	7.2	0.0				18.4	0.0	16.4
LnGrp LOS		C	C	D	A					B		B
Approach Vol, veh/h		825			684						379	
Approach Delay, s/veh		30.9			18.9						17.7	
Approach LOS		C			B						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			14.2	21.2		22.5		35.4				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.5	18.0		18.0		33.0				
Max Q Clear Time (g_c+I1), s			9.8	15.3		8.3		5.8				
Green Ext Time (p_c), s			0.1	1.4		1.1		3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			23.9									
HCM 2010 LOS			C									

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.948			0.852				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3355	0	1770	1587	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3355	0	1770	1587	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					166			276				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	

Intersection Summary

Area Type: Other

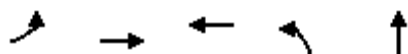
Volume
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	215	444	0	0	419	223	233	3	257	0	0	0
Future Volume (vph)	215	444	0	0	419	223	233	3	257	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	231	477	0	0	451	240	251	3	276	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	477	0	0	691	0	251	279	0	0	0	0
Intersection Summary												

Timings 12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Configurations					
Traffic Volume (vph)	215	444	419	233	3
Future Volume (vph)	215	444	419	233	3
Turn Type	Prot	NA	NA	Perm	NA
Protected Phases	7	4	8		2
Permitted Phases				2	
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5
Total Split (s)	15.0	37.5	22.5	22.5	22.5
Total Split (%)	25.0%	62.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	10.0	29.3	14.8	18.1	18.1
Actuated g/C Ratio	0.18	0.52	0.26	0.32	0.32
v/c Ratio	0.74	0.26	0.69	0.44	0.40
Control Delay	39.6	7.8	18.0	19.4	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	7.8	18.0	19.4	4.6
LOS	D	A	B	B	A
Approach Delay		18.2	18.0		11.6
Approach LOS		B	B		B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 16.3

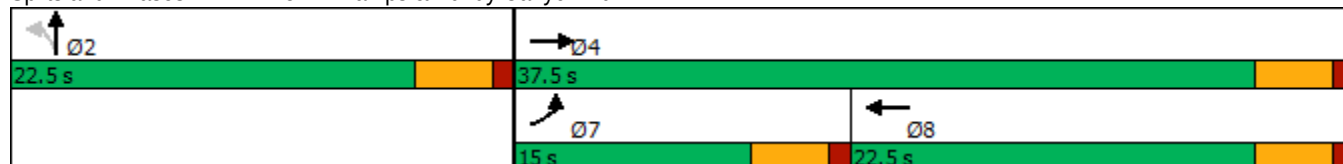
Intersection LOS: B

Intersection Capacity Utilization 58.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd



Existing Conditions
Sunday Peak Hour

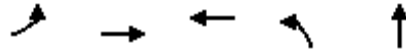
Synchro 10 Report

Queues

St. Francis of Rome Church TIA

09/24/2019

12: I-15 NB Ramps & Bundy Canyon Rd



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	231	477	691	251	279
v/c Ratio	0.74	0.26	0.69	0.44	0.40
Control Delay	39.6	7.8	18.0	19.4	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	7.8	18.0	19.4	4.6
Queue Length 50th (ft)	77	42	82	69	1
Queue Length 95th (ft)	#178	64	132	132	47
Internal Link Dist (ft)		615	78		321
Turn Bay Length (ft)	185				
Base Capacity (vph)	330	2079	1188	567	696
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.23	0.58	0.44	0.40

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	444	0	0	419	223	233	3	257	0	0	0
Future Volume (veh/h)	215	444	0	0	419	223	233	3	257	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	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	231	477	0	0	451	240	251	3	276			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	283	1789	0	0	590	312	585	6	517			
Arrive On Green	0.16	0.51	0.00	0.00	0.26	0.26	0.33	0.33	0.33			
Sat Flow, veh/h	1774	3632	0	0	2333	1183	1774	17	1569			
Grp Volume(v), veh/h	231	477	0	0	356	335	251	0	279			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1654	1774	0	1586			
Q Serve(g_s), s	6.9	4.2	0.0	0.0	10.1	10.2	6.0	0.0	7.8			
Cycle Q Clear(g_c), s	6.9	4.2	0.0	0.0	10.1	10.2	6.0	0.0	7.8			
Prop In Lane	1.00		0.00	0.00		0.72	1.00		0.99			
Lane Grp Cap(c), veh/h	283	1789	0	0	466	436	585	0	523			
V/C Ratio(X)	0.82	0.27	0.00	0.00	0.76	0.77	0.43	0.00	0.53			
Avail Cap(c_a), veh/h	341	2139	0	0	583	545	585	0	523			
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	22.2	7.7	0.0	0.0	18.5	18.6	14.3	0.0	14.9			
Incr Delay (d2), s/veh	12.2	0.1	0.0	0.0	4.6	5.2	2.3	0.0	3.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.3	2.1	0.0	0.0	5.5	5.3	3.3	0.0	4.0			
LnGrp Delay(d),s/veh	34.3	7.8	0.0	0.0	23.1	23.8	16.6	0.0	18.8			
LnGrp LOS	C	A			C	C	B		B			
Approach Vol, veh/h		708			691			530				
Approach Delay, s/veh		16.5			23.4			17.7				
Approach LOS		B			C			B				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		22.5		32.1			13.2	18.9				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.0		33.0			10.5	18.0				
Max Q Clear Time (g_c+I1), s		9.8		6.2			8.9	12.2				
Green Ext Time (p_c), s		1.7		3.4			0.1	2.2				
Intersection Summary												
HCM 2010 Ctrl Delay				19.3								
HCM 2010 LOS				B								

Existing Conditions
Sunday Peak Hour

Synchro 10 Report

Appendix C

Existing Plus Project Conditions Intersection Analysis Worksheets

Lanes and Geometrics
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	0		0	150		0	100		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.850						0.978					
Flt Protected	0.984			0.950			0.950			0.950		
Satd. Flow (prot)	0	1833	0	1770	0	1583	1770	1822	0	1770	1863	0
Flt Permitted	0.905			0.756			0.572			0.950		
Satd. Flow (perm)	0	1686	0	1408	0	1583	1065	1822	0	1770	1863	0
Right Turn on Red	Yes						Yes					
Satd. Flow (RTOR)	353						13					
Link Speed (mph)	30				30				30			
Link Distance (ft)	209				495				473			
Travel Time (s)	4.8				11.3				10.8			

Intersection Summary

Area Type: Other

Volume
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	1	2	0	37	2	352	1	212	36	351	271	1
Future Volume (vph)	1	2	0	37	2	352	1	212	36	351	271	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	1	2	0	42	2	400	1	241	41	399	308	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	42	2	400	1	282	0	399	309	0
Intersection Summary												

Timings
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	2	37	2	352	1	212	351	271
Future Volume (vph)	1	2	37	2	352	1	212	351	271
Turn Type	Perm	NA	Perm	NA	pm+ov	Perm	NA	Prot	NA
Protected Phases		4		8	1		2	1	6
Permitted Phases	4		8		8	2			
Detector Phase	4	4	8	8	1	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	20.0	22.5	22.5	20.0	42.5
Total Split (%)	34.6%	34.6%	34.6%	34.6%	30.8%	34.6%	34.6%	30.8%	65.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		9.7	12.8	0.0	22.8	19.3	19.3	15.7	42.9
Actuated g/C Ratio		0.19	0.25	0.00	0.44	0.37	0.37	0.30	0.83
v/c Ratio		0.01	0.12	no cap	0.45	0.00	0.41	0.74	0.20
Control Delay		17.0	16.7		3.1	17.0	17.0	31.4	4.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		17.0	16.7	Error	3.1	17.0	17.0	31.4	4.5
LOS		B	B	F	A	B	B	C	A
Approach Delay		17.0		Err			17.0		19.6
Approach LOS		B		F			B		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 51.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: Err

Intersection Signal Delay: Err

Intersection LOS: F

Intersection Capacity Utilization Err%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Grand Ave & Corydon St



Queues
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	42	2	400	1	282	399	309
v/c Ratio	0.01	0.12	no cap	0.45	0.00	0.41	0.74	0.20
Control Delay	17.0	16.7		3.1	17.0	17.0	31.4	4.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	16.7	Error	3.1	17.0	17.0	31.4	4.5
Queue Length 50th (ft)	1	6	0	7	0	40	75	0
Queue Length 95th (ft)	6	33	0	36	3	154	#302	90
Internal Link Dist (ft)	129		415			393		268
Turn Bay Length (ft)		150			100		100	
Base Capacity (vph)	615	513	1	909	398	690	556	1553
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.08	2.00	0.44	0.00	0.41	0.72	0.20

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	0	37	2	352	1	212	36	351	271	1
Future Volume (veh/h)	1	2	0	37	2	352	1	212	36	351	271	1
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	1863	1900	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	1	2	0	42	2	400	1	241	41	399	308	1
Adj No. of Lanes	0	1	0	1	0	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	270	0	434	0	751	441	469	80	445	1165	4
Arrive On Green	0.22	0.22	0.00	0.22	0.22	0.22	0.30	0.30	0.30	0.25	0.63	0.63
Sat Flow, veh/h	345	1206	0	1409	0	1583	1066	1552	264	1774	1856	6
Grp Volume(v), veh/h	3	0	0	42	0	400	1	0	282	399	0	309
Grp Sat Flow(s),veh/h/ln	1551	0	0	1409	0	1583	1066	0	1816	1774	0	1862
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	10.8	0.0	0.0	7.8	13.2	0.0	4.5
Cycle Q Clear(g_c), s	0.1	0.0	0.0	1.4	0.0	10.8	0.0	0.0	7.8	13.2	0.0	4.5
Prop In Lane	0.33		0.00	1.00		1.00	1.00		0.15	1.00		0.00
Lane Grp Cap(c), veh/h	426	0	0	434	0	751	441	0	549	445	0	1169
V/C Ratio(X)	0.01	0.00	0.00	0.10	0.00	0.53	0.00	0.00	0.51	0.90	0.00	0.26
Avail Cap(c_a), veh/h	532	0	0	538	0	868	441	0	549	454	0	1169
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	0.0	18.8	0.0	11.2	14.7	0.0	17.4	21.9	0.0	5.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.0	3.4	19.8	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	0.0	0.0	0.0	0.6	0.0	4.8	0.0	0.0	4.4	8.9	0.0	2.4
LnGrp Delay(d),s/veh	18.3	0.0	0.0	18.9	0.0	11.8	14.8	0.0	20.8	41.7	0.0	5.6
LnGrp LOS	B			B		B	B		C	D		A
Approach Vol, veh/h	3			442			283			708		
Approach Delay, s/veh	18.3			12.4			20.8			25.9		
Approach LOS	B			B			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	19.7	22.8	18.0		42.5		18.0					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5		4.5					
Max Green Setting (Gmax), s	15.5	18.0	18.0		38.0		18.0					
Max Q Clear Time (g_c+I1), s	15.2	9.8	2.1		6.5		12.8					
Green Ext Time (p_c), s	0.1	1.0	0.0		2.0		0.8					
Intersection Summary												
HCM 2010 Ctrl Delay			20.8									
HCM 2010 LOS			C									
Notes												

Existing Plus Project Conditions
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%				
Storage Length (ft)	95			95	145			0	100			0	100
Storage Lanes	1			1	1			0	1			0	1
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt			0.850		0.971				0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1770	1863	1583	1770	3437	0	1770	1751	0	1770	1863	1583	
Flt Permitted	0.950			0.950			0.743			0.721			
Satd. Flow (perm)	1770	1863	1583	1770	3437	0	1384	1751	0	1343	1863	1583	
Right Turn on Red			Yes				Yes				Yes		Yes
Satd. Flow (RTOR)			109		55				22				109
Link Speed (mph)	30				30				30				30
Link Distance (ft)	495				474				343				250
Travel Time (s)	11.3				10.8				7.8				5.7

Intersection Summary

Area Type: Other

Volume
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	4	421	35	30	426	101	50	31	21	70	21	7
Future Volume (vph)	4	421	35	30	426	101	50	31	21	70	21	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	448	37	32	453	107	53	33	22	74	22	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	448	37	32	560	0	53	55	0	74	22	7
Intersection Summary												

Timings
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	4	421	35	30	426	50	31	70	21	7
Future Volume (vph)	4	421	35	30	426	50	31	70	21	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4		3	8		2		6	
Permitted Phases			4			2		6		6
Detector Phase	7	4	4	3	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	27.0	27.0	9.5	27.0	23.5	23.5	23.5	23.5	23.5
Total Split (%)	15.8%	45.0%	45.0%	15.8%	45.0%	39.2%	39.2%	39.2%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	5.2	16.4	16.4	5.2	18.0	19.7	19.7	19.7	19.7	19.7
Actuated g/C Ratio	0.11	0.34	0.34	0.11	0.37	0.41	0.41	0.41	0.41	0.41
v/c Ratio	0.02	0.71	0.06	0.17	0.43	0.09	0.08	0.14	0.03	0.01
Control Delay	24.8	21.5	0.2	26.5	11.2	13.5	9.8	13.7	13.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	21.5	0.2	26.5	11.2	13.5	9.8	13.7	13.3	0.0
LOS	C	C	A	C	B	B	A	B	B	A
Approach Delay		19.9			12.0		11.6		12.7	
Approach LOS		B			B		B		B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 48.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 15.0

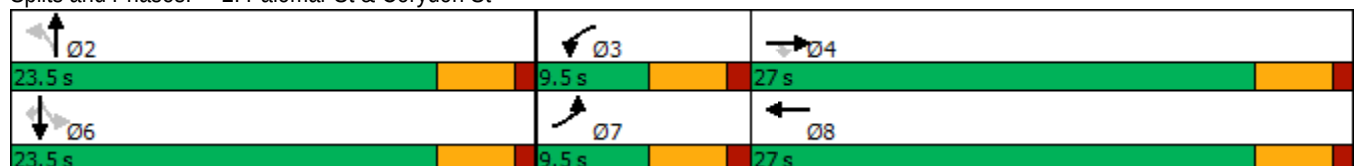
Intersection LOS: B

Intersection Capacity Utilization 43.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Palomar St & Corydon St

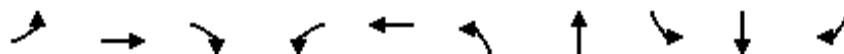


Queues

St. Francis of Rome Church TIA

2: Palomar St & Corydon St

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	4	448	37	32	560	53	55	74	22	7
v/c Ratio	0.02	0.71	0.06	0.17	0.43	0.09	0.08	0.14	0.03	0.01
Control Delay	24.8	21.5	0.2	26.5	11.2	13.5	9.8	13.7	13.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	21.5	0.2	26.5	11.2	13.5	9.8	13.7	13.3	0.0
Queue Length 50th (ft)	1	90	0	8	47	7	5	10	3	0
Queue Length 95th (ft)	9	217	0	34	105	35	29	46	19	0
Internal Link Dist (ft)		415			394		263		170	
Turn Bay Length (ft)	95		95	145		100		100		100
Base Capacity (vph)	189	896	818	189	1789	562	724	545	756	707
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.50	0.05	0.17	0.31	0.09	0.08	0.14	0.03	0.01
Intersection Summary										

HCM 2010 Signalized Intersection Summary
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	421	35	30	426	101	50	31	21	70	21	7
Future Volume (veh/h)	4	421	35	30	426	101	50	31	21	70	21	7
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	1900	1863	1863	1863
Adj Flow Rate, veh/h	4	448	37	32	453	107	53	33	22	74	22	7
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	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	10	564	480	64	950	223	668	403	269	639	720	612
Arrive On Green	0.01	0.30	0.30	0.04	0.33	0.33	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	2847	668	1375	1044	696	1343	1863	1583
Grp Volume(v), veh/h	4	448	37	32	280	280	53	0	55	74	22	7
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1745	1375	0	1740	1343	1863	1583
Q Serve(g_s), s	0.1	10.9	0.8	0.9	6.2	6.3	1.2	0.0	1.0	1.8	0.4	0.1
Cycle Q Clear(g_c), s	0.1	10.9	0.8	0.9	6.2	6.3	1.6	0.0	1.0	2.8	0.4	0.1
Prop In Lane	1.00		1.00	1.00		0.38	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	10	564	480	64	590	582	668	0	672	639	720	612
V/C Ratio(X)	0.42	0.79	0.08	0.50	0.47	0.48	0.08	0.00	0.08	0.12	0.03	0.01
Avail Cap(c_a), veh/h	180	852	725	180	810	798	668	0	672	639	720	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	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	24.4	15.7	12.2	23.3	13.0	13.0	9.9	0.0	9.6	10.4	9.4	9.3
Incr Delay (d2), s/veh	26.4	3.0	0.1	6.0	0.6	0.6	0.2	0.0	0.2	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.0	0.4	0.5	3.1	3.1	0.5	0.0	0.5	0.7	0.2	0.1
LnGrp Delay(d),s/veh	50.7	18.8	12.3	29.2	13.6	13.6	10.1	0.0	9.8	10.8	9.4	9.3
LnGrp LOS	D	B	B	C	B	B	B		A	B	A	A
Approach Vol, veh/h		489			592			108			103	
Approach Delay, s/veh		18.5			14.4			9.9			10.4	
Approach LOS		B			B			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	6.3	19.4		23.5	4.8	20.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	5.0	22.5		19.0	5.0	22.5				
Max Q Clear Time (g_c+I1), s		3.6	2.9	12.9		4.8	2.1	8.3				
Green Ext Time (p_c), s		0.3	0.0	2.0		0.2	0.0	3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			15.3									
HCM 2010 LOS			B									

Lanes and Geometrics
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	350		0	100		0	90		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt	0.850			0.907			0.983			0.996		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3210	0	1770	3479	0	1770	3525	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3210	0	1770	3479	0	1770	3525	0
Right Turn on Red	Yes						Yes			Yes		
Satd. Flow (RTOR)	176			33			21			4		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	560			435			423			314		
Travel Time (s)	12.7			9.9			9.6			7.1		

Intersection Summary

Area Type: Other

Volume
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	8	2	29	96	19	32	73	514	64	32	593	16
Future Volume (vph)	8	2	29	96	19	32	73	514	64	32	593	16
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	8	2	30	100	20	33	76	535	67	33	618	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	2	30	100	53	0	76	602	0	33	635	0
Intersection Summary												

Timings
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	8	2	29	96	19	73	514	32	593
Future Volume (vph)	8	2	29	96	19	73	514	32	593
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	9.5	23.0	9.5	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	14.6%	35.4%	14.6%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
Act Effect Green (s)	5.1	5.8	5.8	5.7	7.6	5.1	27.0	5.1	25.0
Actuated g/C Ratio	0.11	0.13	0.13	0.13	0.17	0.11	0.60	0.11	0.55
v/c Ratio	0.04	0.01	0.08	0.45	0.09	0.38	0.29	0.17	0.33
Control Delay	21.9	20.5	0.4	29.6	11.0	27.5	8.9	23.4	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.5	0.4	29.6	11.0	27.5	8.9	23.4	10.4
LOS	C	C	A	C	B	C	A	C	B
Approach Delay		5.7			23.1		11.0		11.0
Approach LOS		A			C		B		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 45.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 12.1

Intersection LOS: B

Intersection Capacity Utilization 44.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Mission Trail & Malaga Rd

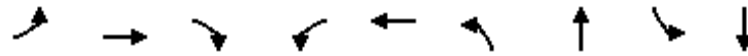
			
Ø1	Ø2	Ø3	Ø4
9.5 s	23 s	10 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
9.5 s	23 s	9.5 s	23 s

Queues

St. Francis of Rome Church TIA

3: Mission Trail & Malaga Rd

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	2	30	100	53	76	602	33	635
v/c Ratio	0.04	0.01	0.08	0.45	0.09	0.38	0.29	0.17	0.33
Control Delay	21.9	20.5	0.4	29.6	11.0	27.5	8.9	23.4	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.5	0.4	29.6	11.0	27.5	8.9	23.4	10.4
Queue Length 50th (ft)	2	1	0	23	2	17	22	7	51
Queue Length 95th (ft)	12	5	0	#83	15	#63	113	31	122
Internal Link Dist (ft)		480			355		343		234
Turn Bay Length (ft)	350			100		90		220	
Base Capacity (vph)	199	757	747	221	1359	199	2084	199	1948
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.00	0.04	0.45	0.04	0.38	0.29	0.17	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary

3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	29	96	19	32	73	514	64	32	593	16
Future Volume (veh/h)	8	2	29	96	19	32	73	514	64	32	593	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	2	30	100	20	33	76	535	67	33	618	17
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	140	119	138	252	225	119	1347	168	66	1391	38
Arrive On Green	0.01	0.07	0.07	0.08	0.14	0.14	0.07	0.43	0.43	0.04	0.40	0.40
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3167	395	1774	3519	97
Grp Volume(v), veh/h	8	2	30	100	20	33	76	298	304	33	311	324
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1793	1774	1770	1846
Q Serve(g_s), s	0.2	0.0	0.8	2.6	0.5	0.9	2.0	5.4	5.5	0.9	6.0	6.0
Cycle Q Clear(g_c), s	0.2	0.0	0.8	2.6	0.5	0.9	2.0	5.4	5.5	0.9	6.0	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.05
Lane Grp Cap(c), veh/h	19	140	119	138	252	225	119	753	762	66	700	730
V/C Ratio(X)	0.43	0.01	0.25	0.73	0.08	0.15	0.64	0.40	0.40	0.50	0.44	0.44
Avail Cap(c_a), veh/h	190	717	609	209	700	626	190	753	762	190	700	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	20.0	20.4	21.1	17.4	17.6	21.3	9.3	9.3	22.1	10.4	10.4
Incr Delay (d2), s/veh	14.7	0.0	1.1	7.0	0.1	0.3	5.6	1.6	1.6	5.7	2.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.5	0.2	0.4	1.1	3.0	3.0	0.5	3.3	3.5
LnGrp Delay(d),s/veh	37.7	20.1	21.5	28.1	17.5	17.9	26.9	10.9	10.9	27.8	12.4	12.3
LnGrp LOS	D	C	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		40			153			678			668	
Approach Delay, s/veh		24.7			24.5			12.6			13.1	
Approach LOS		C			C			B			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	6.2	24.4	8.1	8.0	7.6	23.0	5.0	11.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	2.9	7.5	4.6	2.8	4.0	8.0	2.2	2.9				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.0	0.0	2.9	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				14.4								
HCM 2010 LOS				B								

Lanes and Geometrics
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		70	105	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.942			0.850		
Flt Protected	0.972				0.950	
Satd. Flow (prot)	1706	0	3539	1583	1770	3539
Flt Permitted	0.972				0.950	
Satd. Flow (perm)	1706	0	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	55			132		
Link Speed (mph)	30		30			30
Link Distance (ft)	332		405			423
Travel Time (s)	7.5		9.2			9.6
Intersection Summary						
Area Type:	Other					

Volume
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	81	60	549	123	84	594
Future Volume (vph)	81	60	549	123	84	594
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	87	65	590	132	90	639
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	590	132	90	639
Intersection Summary						

Timings

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	81	549	123	84	594
Future Volume (vph)	81	549	123	84	594
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	3	2		1	6
Permitted Phases			2		
Detector Phase	3	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5
Total Split (s)	16.0	29.0	29.0	15.0	44.0
Total Split (%)	26.7%	48.3%	48.3%	25.0%	73.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max
Act Effect Green (s)	8.6	32.7	32.7	8.1	43.4
Actuated g/C Ratio	0.15	0.56	0.56	0.14	0.75
v/c Ratio	0.51	0.30	0.14	0.36	0.24
Control Delay	21.0	10.2	3.0	26.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	10.2	3.0	26.5	3.6
LOS	C	B	A	C	A
Approach Delay	21.0	8.9			6.4
Approach LOS	C	A			A

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 58.1

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 8.9

Intersection LOS: A

Intersection Capacity Utilization 39.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Mission Trail & Lemon St



Queues

St. Francis of Rome Church TIA

4: Mission Trail & Lemon St

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	152	590	132	90	639
v/c Ratio	0.51	0.30	0.14	0.36	0.24
Control Delay	21.0	10.2	3.0	26.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	10.2	3.0	26.5	3.6
Queue Length 50th (ft)	30	62	0	28	33
Queue Length 95th (ft)	76	113	26	64	61
Internal Link Dist (ft)	252	325			343
Turn Bay Length (ft)			70	105	
Base Capacity (vph)	382	1993	949	320	2642
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.30	0.14	0.28	0.24
Intersection Summary					

HCM 2010 Signalized Intersection Summary

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	81	60	549	123	84	594		
Future Volume (veh/h)	81	60	549	123	84	594		
Number	3	18	2	12	1	6		
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	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	87	65	590	132	90	639		
Adj No. of Lanes	0	0	2	1	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	0	0	2	2	2	2		
Cap, veh/h	111	83	2019	903	121	2550		
Arrive On Green	0.12	0.12	0.57	0.57	0.07	0.72		
Sat Flow, veh/h	960	717	3632	1583	1774	3632		
Grp Volume(v), veh/h	153	0	590	132	90	639		
Grp Sat Flow(s),veh/h/ln	1688	0	1770	1583	1774	1770		
Q Serve(g_s), s	4.8	0.0	4.7	2.1	2.7	3.4		
Cycle Q Clear(g_c), s	4.8	0.0	4.7	2.1	2.7	3.4		
Prop In Lane	0.57	0.42		1.00	1.00			
Lane Grp Cap(c), veh/h	194	0	2019	903	121	2550		
V/C Ratio(X)	0.79	0.00	0.29	0.15	0.75	0.25		
Avail Cap(c_a), veh/h	354	0	2019	903	340	2550		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.6	0.0	6.1	5.5	25.1	2.6		
Incr Delay (d2), s/veh	6.9	0.0	0.4	0.3	8.8	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.6	0.0	2.4	1.0	1.6	1.7		
LnGrp Delay(d),s/veh	30.5	0.0	6.4	5.9	33.8	2.8		
LnGrp LOS	C		A	A	C	A		
Approach Vol, veh/h	153		722			729		
Approach Delay, s/veh	30.5		6.3			6.7		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.2	35.8				44.0		10.8
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	10.5	24.5				39.5		11.5
Max Q Clear Time (g_c+I1), s	4.7	6.7				5.4		6.8
Green Ext Time (p_c), s	0.1	4.2				5.0		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			8.8					
HCM 2010 LOS			A					
Notes								

Existing Plus Project Conditions
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	270	260	125			115
Storage Lanes	2	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.88	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	2787	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		256				207
Link Speed (mph)	30			30	30	
Link Distance (ft)	463			424	405	
Travel Time (s)	10.5			9.6	9.2	
Intersection Summary						
Area Type:	Other					

Volume
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	411	246	213	334	368	378
Future Volume (vph)	411	246	213	334	368	378
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	428	256	222	348	383	394
Shared Lane Traffic (%)						
Lane Group Flow (vph)	428	256	222	348	383	394
Intersection Summary						

Timings
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA

09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Traffic Volume (vph)	411	246	213	334	368	378
Future Volume (vph)	411	246	213	334	368	378
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	Max	Max	None
Act Effect Green (s)	12.8	27.3	10.0	33.1	18.6	36.0
Actuated g/C Ratio	0.23	0.50	0.18	0.60	0.34	0.65
v/c Ratio	0.53	0.17	0.69	0.16	0.32	0.36
Control Delay	20.8	1.4	35.7	5.7	15.4	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	1.4	35.7	5.7	15.4	2.9
LOS	C	A	D	A	B	A
Approach Delay	13.5			17.4	9.1	
Approach LOS	B			B	A	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 55

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 12.9

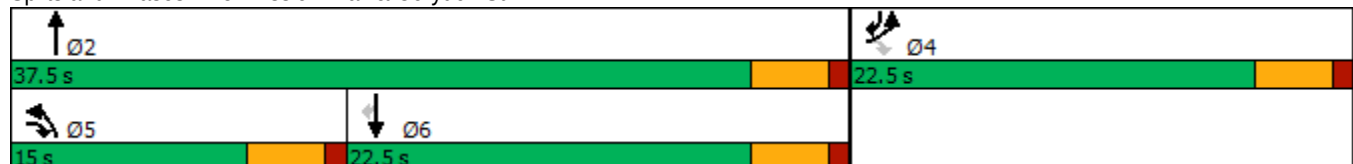
Intersection LOS: B

Intersection Capacity Utilization 44.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Mission Trail & Corydon St



Queues
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	428	256	222	348	383	394
v/c Ratio	0.53	0.17	0.69	0.16	0.32	0.36
Control Delay	20.8	1.4	35.7	5.7	15.4	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	1.4	35.7	5.7	15.4	2.9
Queue Length 50th (ft)	62	0	68	22	48	20
Queue Length 95th (ft)	98	13	#168	47	89	46
Internal Link Dist (ft)	383			344	325	
Turn Bay Length (ft)	270	260	125			115
Base Capacity (vph)	1127	1539	339	2131	1198	1238
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.17	0.65	0.16	0.32	0.32

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

5: Mission Trail & Corydon St

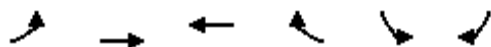
St. Francis of Rome Church TIA

09/24/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	411	246	213	334	368	378		
Future Volume (veh/h)	411	246	213	334	368	378		
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	428	256	222	348	383	394		
Adj No. of Lanes	2	2	1	2	2	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	660	968	276	2247	1391	926		
Arrive On Green	0.19	0.19	0.16	0.63	0.39	0.39		
Sat Flow, veh/h	3442	2787	1774	3632	3632	1583		
Grp Volume(v), veh/h	428	256	222	348	383	394		
Grp Sat Flow(s),veh/h/ln	1721	1393	1774	1770	1770	1583		
Q Serve(g_s), s	6.0	3.4	6.3	2.1	3.8	7.1		
Cycle Q Clear(g_c), s	6.0	3.4	6.3	2.1	3.8	7.1		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	660	968	276	2247	1391	926		
V/C Ratio(X)	0.65	0.26	0.81	0.15	0.28	0.43		
Avail Cap(c_a), veh/h	1192	1398	358	2247	1391	926		
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	19.4	12.2	21.2	3.8	10.7	6.0		
Incr Delay (d2), s/veh	1.1	0.1	9.8	0.1	0.5	1.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.9	3.0	3.8	1.0	2.0	4.9		
LnGrp Delay(d),s/veh	20.5	12.3	31.0	4.0	11.2	7.4		
LnGrp LOS	C	B	C	A	B	A		
Approach Vol, veh/h	684			570	777			
Approach Delay, s/veh	17.4			14.5	9.3			
Approach LOS	B			B	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.5		14.5	12.6	24.9		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		33.0		18.0	10.5	18.0		
Max Q Clear Time (g_c+I1), s		4.1		8.0	8.3	9.1		
Green Ext Time (p_c), s		2.4		2.0	0.1	2.7		
Intersection Summary								
HCM 2010 Ctrl Delay			13.5					
HCM 2010 LOS			B					

Lanes and Geometrics
6: Orange St & Monjonner Way

St. Francis of Rome Church TIA
09/24/2019

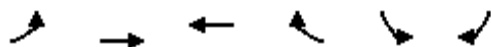


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.955				
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1779	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1779	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		439	221		241	
Travel Time (s)		10.0	5.0		5.5	
Intersection Summary						

Area Type: Other

Volume
6: Orange St & Monjonnier Way

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	55	83	41	13	0
Future Volume (vph)	0	55	83	41	13	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	65	99	49	15	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	65	148	0	15	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	55	83	41	13	0
Future Vol, veh/h	0	55	83	41	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	65	99	49	15	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	148	0	-	0	189	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	65	-
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	1434	-	-	-	800	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	958	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1434	-	-	-	800	927
Mov Cap-2 Maneuver	-	-	-	-	800	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	958	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		9.6		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1434	-	-	-	800	
HCM Lane V/C Ratio	-	-	-	-	0.019	
HCM Control Delay (s)	0	-	-	-	9.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Lanes and Geometrics
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.940				0.970	
Flt Protected				0.987	0.963	
Satd. Flow (prot)	1751	0	0	1839	1740	0
Flt Permitted				0.987	0.963	
Satd. Flow (perm)	1751	0	0	1839	1740	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	167			136	829	
Travel Time (s)	3.8			3.1	18.8	
Intersection Summary						
Area Type:	Other					

Volume
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	93	75	41	114	119	35
Future Volume (vph)	93	75	41	114	119	35
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	121	97	53	148	155	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	218	0	0	201	200	0
Intersection Summary						

Intersection

Int Delay, s/veh 5.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	75	41	114	119	35
Future Vol, veh/h	93	75	41	114	119	35
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	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	97	53	148	155	45

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	218
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	-	-	1352
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1352
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	612	-	-	1352	-
HCM Lane V/C Ratio	0.327	-	-	0.039	-
HCM Control Delay (s)	13.7	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

Lanes and Geometrics
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.954			0.905			0.995			0.994	
Flt Protected		0.997			0.999			0.986			0.978	
Satd. Flow (prot)	0	1772	0	0	1684	0	0	1827	0	0	1811	0
Flt Permitted		0.997			0.999			0.986			0.978	
Satd. Flow (perm)	0	1772	0	0	1684	0	0	1827	0	0	1811	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		221			312			464			829	
Travel Time (s)		5.0			7.1			10.5			18.8	
Intersection Summary												
Area Type:	Other											

Volume
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	3	27	16	2	43	110	18	44	2	52	60	5
Future Volume (vph)	3	27	16	2	43	110	18	44	2	52	60	5
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	36	21	3	57	145	24	58	3	68	79	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	61	0	0	205	0	0	85	0	0	154	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	27	16	2	43	110	18	44	2	52	60	5
Future Vol, veh/h	3	27	16	2	43	110	18	44	2	52	60	5
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	36	21	3	57	145	24	58	3	68	79	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	8.5	8.4	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	7%	1%	44%
Vol Thru, %	69%	59%	28%	51%
Vol Right, %	3%	35%	71%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	64	46	155	117
LT Vol	18	3	2	52
Through Vol	44	27	43	60
RT Vol	2	16	110	5
Lane Flow Rate	84	61	204	154
Geometry Grp	1	1	1	1
Degree of Util (X)	0.111	0.076	0.235	0.2
Departure Headway (Hd)	4.734	4.532	4.154	4.675
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	756	790	865	768
Service Time	2.766	2.564	2.178	2.704
HCM Lane V/C Ratio	0.111	0.077	0.236	0.201
HCM Control Delay	8.4	7.9	8.5	8.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.9	0.7

Lanes and Geometrics
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850						0.974
Flt Protected		0.998										0.961
Satd. Flow (prot)	0	3532	1863	0	3539	1583	0	1863	0	0	1744	0
Flt Permitted		0.998										0.961
Satd. Flow (perm)	0	3532	1863	0	3539	1583	0	1863	0	0	1744	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		660			309			203			464	
Travel Time (s)		15.0			7.0			4.6			10.5	
Intersection Summary												
Area Type:	Other											

Volume
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	14	387	0	1	381	62	0	0	0	67	0	16
Future Volume (vph)	14	387	0	1	381	62	0	0	0	67	0	16
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	16	435	0	1	428	70	0	0	0	75	0	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	0	429	70	0	0	0	0	93	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗		↔↔	↗		↔			↔	
Traffic Vol, veh/h	14	387	0	1	381	62	0	0	0	67	0	16
Future Vol, veh/h	14	387	0	1	381	62	0	0	0	67	0	16
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	435	0	1	428	70	0	0	0	75	0	18
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.3	10.6	0	11.1
HCM LOS	B	B	-	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	10%	0%	0%	1%	0%	0%	81%
Vol Thru, %	100%	90%	100%	100%	99%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	100%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	143	258	0	128	254	62	83
LT Vol	0	14	0	0	1	0	0	67
Through Vol	0	129	258	0	127	254	0	0
RT Vol	0	0	0	0	0	0	62	16
Lane Flow Rate	0	161	290	0	144	285	70	93
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.24	0.428	0	0.212	0.42	0.089	0.179
Departure Headway (Hd)	6.866	5.37	5.32	5.32	5.295	5.292	4.586	6.891
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	664	670	0	672	674	773	524
Service Time	4.57	3.151	3.101	3.101	3.072	3.068	2.363	4.591
HCM Lane V/C Ratio	0	0.242	0.433	0	0.214	0.423	0.091	0.177
HCM Control Delay	9.6	9.9	12.1	8.1	9.5	11.9	7.8	11.1
HCM Lane LOS	N	A	B	N	A	B	A	B
HCM 95th-tile Q	0	0.9	2.1	0	0.8	2.1	0.3	0.6

Lanes and Geometrics
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	100		0	200		0	100		0	100		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.991			0.977			0.850			0.850		
Flt Protected	0.950			0.950				0.983			0.961	
Satd. Flow (prot)	1770	3507	0	1770	3458	0	0	1831	1583	0	1790	1583
Flt Permitted	0.950			0.950				0.892			0.727	
Satd. Flow (perm)	1770	3507	0	1770	3458	0	0	1662	1583	0	1354	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			41				191			191
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			320			221			464	
Travel Time (s)		7.0			7.3			5.0			10.5	

Intersection Summary

Area Type: Other

Volume
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	25	404	24	143	430	78	20	37	162	122	27	8
Future Volume (vph)	25	404	24	143	430	78	20	37	162	122	27	8
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	28	449	27	159	478	87	22	41	180	136	30	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	476	0	159	565	0	0	63	180	0	166	9
Intersection Summary												

Timings
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	404	143	430	20	37	162	122	27	8
Future Volume (vph)	25	404	143	430	20	37	162	122	27	8
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	3	8		2			6	
Permitted Phases					2		2	6		6
Detector Phase	7	4	3	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	15.0	28.0	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	37.5%	25.0%	46.7%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	5.2	12.8	9.1	20.1		18.7	18.7		18.7	18.7
Actuated g/C Ratio	0.10	0.25	0.18	0.39		0.36	0.36		0.36	0.36
v/c Ratio	0.16	0.54	0.51	0.41		0.10	0.26		0.34	0.01
Control Delay	26.9	19.5	27.6	11.7		14.8	3.9		17.7	0.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	26.9	19.5	27.6	11.7		14.8	3.9		17.7	0.0
LOS	C	B	C	B		B	A		B	A
Approach Delay		19.9		15.2		6.7			16.8	
Approach LOS		B		B		A			B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 51.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 15.6

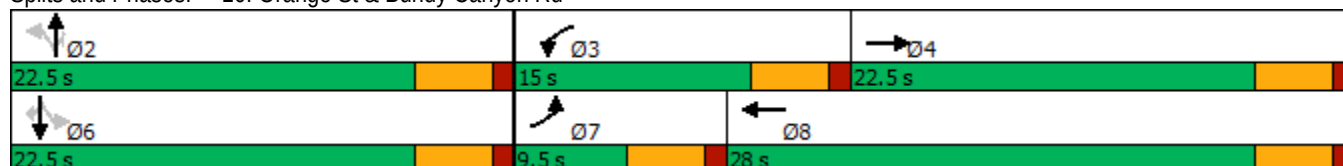
Intersection LOS: B

Intersection Capacity Utilization 45.9%

ICU Level of Service A

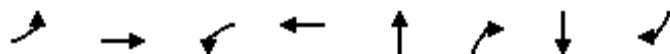
Analysis Period (min) 15

Splits and Phases: 10: Orange St & Bundy Canyon Rd



Queues
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	28	476	159	565	63	180	166	9
v/c Ratio	0.16	0.54	0.51	0.41	0.10	0.26	0.34	0.01
Control Delay	26.9	19.5	27.6	11.7	14.8	3.9	17.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	19.5	27.6	11.7	14.8	3.9	17.7	0.0
Queue Length 50th (ft)	9	70	47	47	14	0	41	0
Queue Length 95th (ft)	31	108	104	105	41	34	95	0
Internal Link Dist (ft)		229		240	141		384	
Turn Bay Length (ft)	100		200					
Base Capacity (vph)	178	1277	374	1713	602	695	490	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.37	0.43	0.33	0.10	0.26	0.34	0.01
Intersection Summary								

HCM 2010 Signalized Intersection Summary
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	404	24	143	430	78	20	37	162	122	27	8
Future Volume (veh/h)	25	404	24	143	430	78	20	37	162	122	27	8
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	1863	1900	1863	1863
Adj Flow Rate, veh/h	28	449	27	159	478	87	22	41	180	136	30	9
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	706	42	206	873	158	104	146	611	140	18	611
Arrive On Green	0.03	0.21	0.21	0.12	0.29	0.29	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1774	3393	203	1774	2995	542	0	378	1583	0	46	1583
Grp Volume(v), veh/h	28	234	242	159	281	284	63	0	180	166	0	9
Grp Sat Flow(s),veh/h/ln	1774	1770	1827	1774	1770	1767	378	0	1583	46	0	1583
Q Serve(g_s), s	0.7	5.6	5.6	4.1	6.2	6.3	0.0	0.0	3.7	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.7	5.6	5.6	4.1	6.2	6.3	18.0	0.0	3.7	18.0	0.0	0.2
Prop In Lane	1.00		0.11	1.00		0.31	0.35		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	58	368	380	206	516	515	250	0	611	158	0	611
V/C Ratio(X)	0.48	0.63	0.64	0.77	0.55	0.55	0.25	0.00	0.29	1.05	0.00	0.01
Avail Cap(c_a), veh/h	190	683	705	400	892	891	250	0	611	158	0	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	16.8	16.9	20.0	13.9	13.9	11.3	0.0	9.9	21.3	0.0	8.8
Incr Delay (d2), s/veh	6.1	1.8	1.8	6.0	0.9	0.9	2.4	0.0	1.2	85.4	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	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.9	3.0	2.3	3.2	3.2	0.7	0.0	1.8	5.7	0.0	0.1
LnGrp Delay(d),s/veh	28.3	18.7	18.6	26.0	14.8	14.8	13.7	0.0	11.1	106.8	0.0	8.9
LnGrp LOS	C	B	B	C	B	B	B		B	F		A
Approach Vol, veh/h		504			724			243			175	
Approach Delay, s/veh		19.2			17.3			11.8			101.8	
Approach LOS		B			B			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	9.9	14.2		22.5	6.0	18.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	10.5	18.0		18.0	5.0	23.5				
Max Q Clear Time (g_c+I1), s		20.0	6.1	7.6		20.0	2.7	8.3				
Green Ext Time (p_c), s		0.0	0.2	2.1		0.0	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay				26.0								
HCM 2010 LOS				C								

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.940						0.850					
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3327	0	1770	3539	0	0	0	0	1770	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3327	0	1770	3539	0	0	0	0	1770	1583	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)	272									299		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	320			695			332			508		
Travel Time (s)	7.3			15.8			7.5			11.5		

Intersection Summary

Area Type: Other

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	406	271	181	533	0	0	0	0	230	0	167
Future Volume (vph)	0	406	271	181	533	0	0	0	0	230	0	167
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	419	279	187	549	0	0	0	0	237	0	172
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	698	0	187	549	0	0	0	0	237	172	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

	→	↖	←	↘	↓
Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	406	181	533	230	0
Future Volume (vph)	406	181	533	230	0
Turn Type	NA	Prot	NA	Perm	NA
Protected Phases	4	3	8		6
Permitted Phases				6	
Detector Phase	4	3	8	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	13.9	9.6	24.7	18.7	18.7
Actuated g/C Ratio	0.26	0.18	0.47	0.35	0.35
v/c Ratio	0.65	0.59	0.33	0.38	0.23
Control Delay	13.8	30.7	8.6	17.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	30.7	8.6	17.9	0.8
LOS	B	C	A	B	A
Approach Delay	13.8		14.2		10.7
Approach LOS	B		B		B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 52.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 13.3

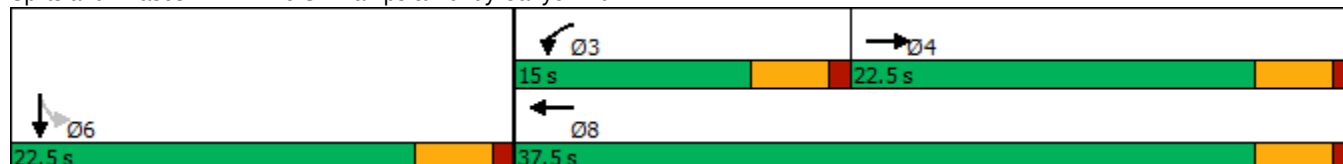
Intersection LOS: B

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd

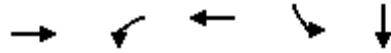


Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	698	187	549	237	172
v/c Ratio	0.65	0.59	0.33	0.38	0.23
Control Delay	13.8	30.7	8.6	17.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	30.7	8.6	17.9	0.8
Queue Length 50th (ft)	64	58	50	62	0
Queue Length 95th (ft)	112	#132	74	125	2
Internal Link Dist (ft)	240		615		428
Turn Bay Length (ft)		260			
Base Capacity (vph)	1355	366	2300	627	754
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.51	0.24	0.38	0.23

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Volume (veh/h)	0	406	271	181	533	0	0	0	0	230	0	167
Future Volume (veh/h)	0	406	271	181	533	0	0	0	0	230	0	167
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	1863	1900	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	419	279	187	549	0				237	0	172
Adj No. of Lanes	0	2	0	1	2	0				1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	553	365	237	1731	0				604	0	539
Arrive On Green	0.00	0.27	0.27	0.13	0.49	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	2138	1349	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	362	336	187	549	0				237	0	172
Grp Sat Flow(s),veh/h/ln	0	1770	1625	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	9.9	10.0	5.4	5.0	0.0				5.4	0.0	4.2
Cycle Q Clear(g_c), s	0.0	9.9	10.0	5.4	5.0	0.0				5.4	0.0	4.2
Prop In Lane	0.00		0.83	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	479	439	237	1731	0				604	0	539
V/C Ratio(X)	0.00	0.76	0.76	0.79	0.32	0.00				0.39	0.00	0.32
Avail Cap(c_a), veh/h	0	603	553	352	2210	0				604	0	539
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	17.7	17.7	22.2	8.2	0.0				13.3	0.0	12.9
Incr Delay (d2), s/veh	0.0	4.2	4.9	7.0	0.1	0.0				1.9	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.4	5.1	3.1	2.4	0.0				3.0	0.0	2.1
LnGrp Delay(d),s/veh	0.0	21.9	22.6	29.2	8.3	0.0				15.2	0.0	14.4
LnGrp LOS		C	C	C	A					B		B
Approach Vol, veh/h		698			736						409	
Approach Delay, s/veh		22.2			13.6						14.9	
Approach LOS		C			B						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			11.6	18.8		22.5		30.4				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.5	18.0		18.0		33.0				
Max Q Clear Time (g_c+I1), s			7.4	12.0		7.4		7.0				
Green Ext Time (p_c), s			0.1	2.2		1.3		3.9				
Intersection Summary												
HCM 2010 Ctrl Delay			17.1									
HCM 2010 LOS			B									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.948			0.851				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3355	0	1770	1585	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3355	0	1770	1585	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					167			300				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	

Intersection Summary

Area Type: Other

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

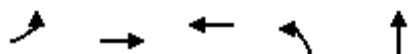
St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	166	472	0	0	417	222	301	3	276	0	0	0
Future Volume (vph)	166	472	0	0	417	222	301	3	276	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	180	513	0	0	453	241	327	3	300	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	513	0	0	694	0	327	303	0	0	0	0
Intersection Summary												

Timings 12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Configurations					
Traffic Volume (vph)	166	472	417	301	3
Future Volume (vph)	166	472	417	301	3
Turn Type	Prot	NA	NA	Perm	NA
Protected Phases	7	4	8		2
Permitted Phases				2	
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5
Total Split (s)	14.0	36.5	22.5	23.5	23.5
Total Split (%)	23.3%	60.8%	37.5%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	9.0	28.3	14.8	19.1	19.1
Actuated g/C Ratio	0.16	0.50	0.26	0.34	0.34
v/c Ratio	0.64	0.29	0.69	0.55	0.41
Control Delay	35.7	8.5	18.0	20.4	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	8.5	18.0	20.4	4.4
LOS	D	A	B	C	A
Approach Delay		15.6	18.0		12.7
Approach LOS		B	B		B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 15.5

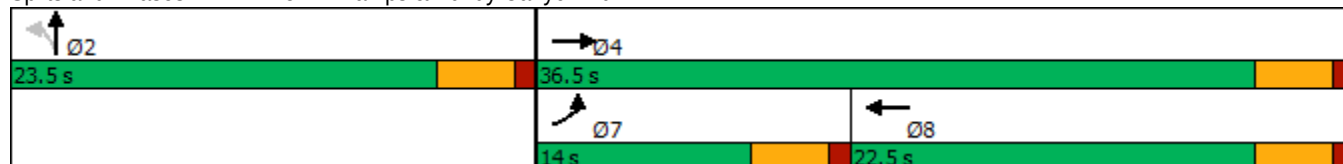
Intersection LOS: B

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd

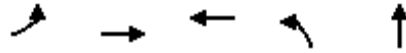


Queues

St. Francis of Rome Church TIA

09/24/2019

12: I-15 NB Ramps & Bundy Canyon Rd



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	180	513	694	327	303
v/c Ratio	0.64	0.29	0.69	0.55	0.41
Control Delay	35.7	8.5	18.0	20.4	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	8.5	18.0	20.4	4.4
Queue Length 50th (ft)	60	48	83	93	1
Queue Length 95th (ft)	#137	73	133	170	47
Internal Link Dist (ft)		615	78		321
Turn Bay Length (ft)	185				
Base Capacity (vph)	299	2018	1189	599	735
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.25	0.58	0.55	0.41

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	472	0	0	417	222	301	3	276	0	0	0
Future Volume (veh/h)	166	472	0	0	417	222	301	3	276	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	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	180	513	0	0	453	241	327	3	300			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	227	1693	0	0	596	315	628	6	556			
Arrive On Green	0.13	0.48	0.00	0.00	0.27	0.27	0.35	0.35	0.35			
Sat Flow, veh/h	1774	3632	0	0	2333	1183	1774	16	1570			
Grp Volume(v), veh/h	180	513	0	0	357	337	327	0	303			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1654	1774	0	1586			
Q Serve(g_s), s	5.3	4.7	0.0	0.0	10.0	10.1	7.8	0.0	8.2			
Cycle Q Clear(g_c), s	5.3	4.7	0.0	0.0	10.0	10.1	7.8	0.0	8.2			
Prop In Lane	1.00		0.00	0.00		0.72	1.00		0.99			
Lane Grp Cap(c), veh/h	227	1693	0	0	471	440	628	0	561			
V/C Ratio(X)	0.79	0.30	0.00	0.00	0.76	0.77	0.52	0.00	0.54			
Avail Cap(c_a), veh/h	314	2110	0	0	593	555	628	0	561			
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	22.7	8.5	0.0	0.0	18.1	18.1	13.7	0.0	13.8			
Incr Delay (d2), s/veh	9.1	0.1	0.0	0.0	4.3	4.9	3.1	0.0	3.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.1	2.3	0.0	0.0	5.4	5.2	4.4	0.0	4.1			
LnGrp Delay(d),s/veh	31.8	8.6	0.0	0.0	22.4	23.0	16.8	0.0	17.5			
LnGrp LOS	C	A			C	C	B		B			
Approach Vol, veh/h		693			694			630				
Approach Delay, s/veh		14.6			22.7			17.2				
Approach LOS		B			C			B				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		23.5		30.2			11.4	18.8				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		19.0		32.0			9.5	18.0				
Max Q Clear Time (g_c+I1), s		10.2		6.7			7.3	12.1				
Green Ext Time (p_c), s		2.1		3.6			0.1	2.2				
Intersection Summary												
HCM 2010 Ctrl Delay				18.2								
HCM 2010 LOS				B								

Lanes and Geometrics
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%		0%		
Storage Length (ft)	0		0	150		0	100		0	100		0	
Storage Lanes	0		0	0		1	1		0	1		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt						0.850	0.977				0.999		
Flt Protected				0.950							0.950		
Satd. Flow (prot)	0	1863	0	1770	0	1583	1863	1820	0	1770	1861	0	
Flt Permitted				0.950							0.950		
Satd. Flow (perm)	0	1863	0	1770	0	1583	1863	1820	0	1770	1861	0	
Right Turn on Red						Yes					Yes	Yes	
Satd. Flow (RTOR)						399	10						
Link Speed (mph)	30				30				30				30
Link Distance (ft)	209				495				473				348
Travel Time (s)	4.8				11.3				10.8				7.9

Intersection Summary

Area Type: Other

Volume
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1	0	31	0	379	0	200	36	439	233	1
Future Volume (vph)	0	1	0	31	0	379	0	200	36	439	233	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1	0	33	0	399	0	211	38	462	245	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	33	0	399	0	249	0	462	246	0
Intersection Summary												

Timings
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA
09/24/2019

	→	↖	↗	↑	↘	↓
Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↔	↖	↗	↑	↘	↗
Traffic Volume (vph)	1	31	379	200	439	233
Future Volume (vph)	1	31	379	200	439	233
Turn Type	NA	Prot	pm+ov	NA	Prot	NA
Protected Phases	2	1	7	8	7	4
Permitted Phases			1			
Detector Phase	2	1	7	8	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	9.5	22.5
Total Split (s)	22.7	9.5	25.3	22.5	25.3	47.8
Total Split (%)	28.4%	11.9%	31.6%	28.1%	31.6%	59.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max
Act Effect Green (s)	5.7	5.1	23.8	18.4	21.2	47.2
Actuated g/C Ratio	0.11	0.09	0.44	0.34	0.39	0.88
v/c Ratio	0.01	0.20	0.43	0.40	0.66	0.15
Control Delay	26.0	28.9	2.6	17.4	22.2	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	28.9	2.6	17.4	22.2	2.5
LOS	C	C	A	B	C	A
Approach Delay	26.0			17.4		15.4
Approach LOS	C			B		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 53.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.4

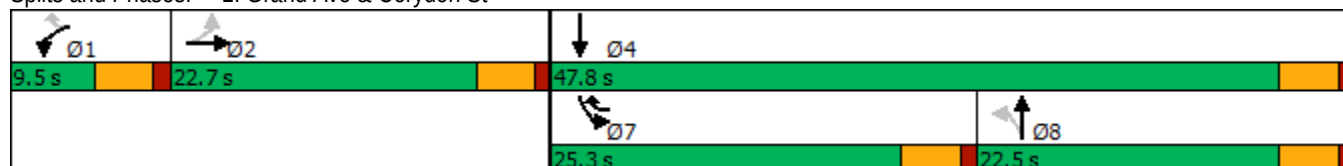
Intersection LOS: B

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Grand Ave & Corydon St



Queues
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1	33	399	249	462	246
v/c Ratio	0.01	0.20	0.43	0.40	0.66	0.15
Control Delay	26.0	28.9	2.6	17.4	22.2	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	28.9	2.6	17.4	22.2	2.5
Queue Length 50th (ft)	0	9	0	46	91	0
Queue Length 95th (ft)	5	38	29	148	#332	63
Internal Link Dist (ft)	129			393		268
Turn Bay Length (ft)		150			100	
Base Capacity (vph)	644	168	923	628	699	1636
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.20	0.43	0.40	0.66	0.15

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	0	31	0	379	0	200	36	439	233	1
Future Volume (veh/h)	0	1	0	31	0	379	0	200	36	439	233	1
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	1900	1863	1900	1863	0	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	1	0	33	0	399	0	211	38	462	245	1
Adj No. of Lanes	0	1	0	1	0	1	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	0	2	2	2	2	2	2	2
Cap, veh/h	0	3	0	63	0	0	122	560	101	521	1361	6
Arrive On Green	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.36	0.36	0.29	0.73	0.73
Sat Flow, veh/h	0	1513	0	1774	33		1129	1537	277	1774	1854	8
Grp Volume(v), veh/h	0	1	0	33	34.6		0	0	249	462	0	246
Grp Sat Flow(s),veh/h/ln	0	1863	0	1774	C		1129	0	1814	1774	0	1861
Q Serve(g_s), s	0.0	0.0	0.0	1.1			0.0	0.0	6.0	14.7	0.0	2.4
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.1			0.0	0.0	6.0	14.7	0.0	2.4
Prop In Lane	0.00		0.00	1.00			1.00		0.15	1.00		0.00
Lane Grp Cap(c), veh/h	0	3	0	63			122	0	661	521	0	1367
V/C Ratio(X)	0.00	0.32	0.00	0.53			0.00	0.00	0.38	0.89	0.00	0.18
Avail Cap(c_a), veh/h	0	575	0	150			122	0	661	626	0	1367
HCM Platoon Ratio	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00			0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.4	0.0	28.0			0.0	0.0	13.8	19.9	0.0	2.4
Incr Delay (d2), s/veh	0.0	49.2	0.0	6.6			0.0	0.0	0.4	12.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.6			0.0	0.0	3.0	9.0	0.0	1.3
LnGrp Delay(d),s/veh	0.0	78.6	0.0	34.6			0.0	0.0	14.2	32.7	0.0	2.7
LnGrp LOS		E		C					B	C		A
Approach Vol, veh/h		1						249			708	
Approach Delay, s/veh		78.6						14.2			22.3	
Approach LOS		E						B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	6.6	4.6		47.8			21.8	26.0				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.2		43.3			20.8	18.0				
Max Q Clear Time (g_c+I1), s	3.1	2.0		4.4			16.7	8.0				
Green Ext Time (p_c), s	0.0	0.0		1.5			0.7	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay				20.7								
HCM 2010 LOS				C								

Lanes and Geometrics
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%		0%		
Storage Length (ft)	95		95	145		0	100		0	100		100	
Storage Lanes	1		1	1		0	1		0	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt			0.850		0.976				0.912				0.850
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1770	1863	1583	1770	3454	0	1770	1699	0	1770	1863	1583	
Flt Permitted	0.950			0.950			0.738			0.722			
Satd. Flow (perm)	1770	1863	1583	1770	3454	0	1375	1699	0	1345	1863	1583	
Right Turn on Red			Yes				Yes				Yes		Yes
Satd. Flow (RTOR)			109		43				31				109
Link Speed (mph)	30				30				30		30		
Link Distance (ft)	495				474				343		250		
Travel Time (s)	11.3				10.8				7.8		5.7		

Intersection Summary

Area Type: Other

Volume
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	9	484	31	30	413	80	46	20	28	91	26	7
Future Volume (vph)	9	484	31	30	413	80	46	20	28	91	26	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	538	34	33	459	89	51	22	31	101	29	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	538	34	33	548	0	51	53	0	101	29	8
Intersection Summary												

Timings
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	484	31	30	413	46	20	91	26	7
Future Volume (vph)	9	484	31	30	413	46	20	91	26	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4		3	8		2		6	
Permitted Phases			4			2		6		6
Detector Phase	7	4	4	3	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	27.0	27.0	9.5	27.0	23.5	23.5	23.5	23.5	23.5
Total Split (%)	15.8%	45.0%	45.0%	15.8%	45.0%	39.2%	39.2%	39.2%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	5.1	18.4	18.4	5.1	19.9	19.5	19.5	19.5	19.5	19.5
Actuated g/C Ratio	0.10	0.37	0.37	0.10	0.40	0.39	0.39	0.39	0.39	0.39
v/c Ratio	0.06	0.79	0.05	0.18	0.39	0.10	0.08	0.19	0.04	0.01
Control Delay	25.4	25.4	0.2	27.0	10.9	13.8	8.6	14.6	13.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	25.4	0.2	27.0	10.9	13.8	8.6	14.6	13.5	0.0
LOS	C	C	A	C	B	B	A	B	B	A
Approach Delay		23.9			11.8		11.2		13.5	
Approach LOS		C			B		B		B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 50.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 44.7%

ICU Level of Service A

Analysis Period (min) 15

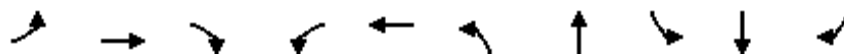
Splits and Phases: 2: Palomar St & Corydon St

		
Ø2	Ø3	Ø4
23.5 s	9.5 s	27 s
		
Ø6	Ø7	Ø8
23.5 s	9.5 s	27 s

Queues
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	10	538	34	33	548	51	53	101	29	8
v/c Ratio	0.06	0.79	0.05	0.18	0.39	0.10	0.08	0.19	0.04	0.01
Control Delay	25.4	25.4	0.2	27.0	10.9	13.8	8.6	14.6	13.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	25.4	0.2	27.0	10.9	13.8	8.6	14.6	13.5	0.0
Queue Length 50th (ft)	3	116	0	9	47	8	4	17	5	0
Queue Length 95th (ft)	16	#313	0	34	104	34	26	59	22	0
Internal Link Dist (ft)		415			394		263		170	
Turn Bay Length (ft)	95		95	145		100		100		100
Base Capacity (vph)	180	855	786	180	1718	533	678	521	722	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.63	0.04	0.18	0.32	0.10	0.08	0.19	0.04	0.01

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	484	31	30	413	80	46	20	28	91	26	7
Future Volume (veh/h)	9	484	31	30	413	80	46	20	28	91	26	7
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	1900	1863	1863	1863
Adj Flow Rate, veh/h	10	538	34	33	459	89	51	22	31	101	29	8
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	638	542	65	1084	209	620	254	359	598	676	575
Arrive On Green	0.01	0.34	0.34	0.04	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1774	1863	1583	1774	2961	571	1365	701	988	1346	1863	1583
Grp Volume(v), veh/h	10	538	34	33	273	275	51	0	53	101	29	8
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1762	1365	0	1688	1346	1863	1583
Q Serve(g_s), s	0.3	14.0	0.8	1.0	6.1	6.1	1.3	0.0	1.1	2.8	0.5	0.2
Cycle Q Clear(g_c), s	0.3	14.0	0.8	1.0	6.1	6.1	1.8	0.0	1.1	3.9	0.5	0.2
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.58	1.00		1.00
Lane Grp Cap(c), veh/h	23	638	542	65	648	645	620	0	613	598	676	575
V/C Ratio(X)	0.44	0.84	0.06	0.51	0.42	0.43	0.08	0.00	0.09	0.17	0.04	0.01
Avail Cap(c_a), veh/h	170	801	681	170	761	758	620	0	613	598	676	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	15.9	11.6	24.8	12.4	12.5	11.4	0.0	11.0	12.2	10.8	10.7
Incr Delay (d2), s/veh	12.5	6.7	0.0	6.1	0.4	0.4	0.3	0.0	0.3	0.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	8.4	0.3	0.6	3.0	3.1	0.5	0.0	0.5	1.1	0.3	0.1
LnGrp Delay(d),s/veh	38.1	22.6	11.6	30.9	12.9	12.9	11.6	0.0	11.2	12.8	10.9	10.7
LnGrp LOS	D	C	B	C	B	B	B		B	B	B	B
Approach Vol, veh/h		582			581			104			138	
Approach Delay, s/veh		22.3			13.9			11.4			12.3	
Approach LOS		C			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	6.4	22.4		23.5	5.2	23.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	5.0	22.5		19.0	5.0	22.5				
Max Q Clear Time (g_c+I1), s		3.8	3.0	16.0		5.9	2.3	8.1				
Green Ext Time (p_c), s		0.3	0.0	2.0		0.3	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay				17.0								
HCM 2010 LOS				B								

Lanes and Geometrics
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	350		0	100		0	90		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.899				0.987		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3182	0	1770	3493	0	1770	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3182	0	1770	3493	0	1770	3536	0
Right Turn on Red			Yes				Yes				Yes	
Satd. Flow (RTOR)			176		35				15		1	
Link Speed (mph)	30				30				30		30	
Link Distance (ft)	560				435				423		314	
Travel Time (s)	12.7				9.9				9.6		7.1	

Intersection Summary

Area Type: Other

Volume
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	9	3	27	82	16	33	70	571	54	18	584	6
Future Volume (vph)	9	3	27	82	16	33	70	571	54	18	584	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	3	29	87	17	35	74	607	57	19	621	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	3	29	87	52	0	74	664	0	19	627	0
Intersection Summary												

Timings
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	3	27	82	16	70	571	18	584
Future Volume (vph)	9	3	27	82	16	70	571	18	584
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	9.5	22.6	9.5	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	14.6%	34.8%	14.6%	34.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
Act Effect Green (s)	5.2	5.8	5.8	6.0	7.8	5.2	31.0	5.2	27.4
Actuated g/C Ratio	0.12	0.13	0.13	0.14	0.18	0.12	0.70	0.12	0.62
v/c Ratio	0.05	0.01	0.08	0.36	0.09	0.36	0.27	0.09	0.28
Control Delay	21.9	20.7	0.4	24.9	10.4	26.3	7.1	22.4	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.7	0.4	24.9	10.4	26.3	7.1	22.4	9.9
LOS	C	C	A	C	B	C	A	C	A
Approach Delay		7.0			19.4		9.0		10.3
Approach LOS		A			B		A		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 44.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 10.4

Intersection LOS: B

Intersection Capacity Utilization 44.1%

ICU Level of Service A

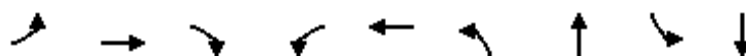
Analysis Period (min) 15

Splits and Phases: 3: Mission Trail & Malaga Rd

			
Ø1	Ø2	Ø3	Ø4
9.5 s	22.6 s	10.4 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
9.5 s	22.6 s	9.5 s	23.4 s

Queues
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	3	29	87	52	74	664	19	627
v/c Ratio	0.05	0.01	0.08	0.36	0.09	0.36	0.27	0.09	0.28
Control Delay	21.9	20.7	0.4	24.9	10.4	26.3	7.1	22.4	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.7	0.4	24.9	10.4	26.3	7.1	22.4	9.9
Queue Length 50th (ft)	2	1	0	19	2	17	25	4	51
Queue Length 95th (ft)	14	7	0	62	15	#58	127	21	121
Internal Link Dist (ft)		480			355		343		234
Turn Bay Length (ft)	350			100		90		220	
Base Capacity (vph)	206	783	767	244	1425	206	2459	206	2200
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.00	0.04	0.36	0.04	0.36	0.27	0.09	0.28

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	3	27	82	16	33	70	571	54	18	584	6
Future Volume (veh/h)	9	3	27	82	16	33	70	571	54	18	584	6
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	1900	1863	1863	1900
Adj Flow Rate, veh/h	10	3	29	87	17	35	74	607	57	19	621	6
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	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	23	142	120	129	240	215	118	1428	134	42	1413	14
Arrive On Green	0.01	0.08	0.08	0.07	0.14	0.14	0.07	0.44	0.44	0.02	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3272	307	1774	3592	35
Grp Volume(v), veh/h	10	3	29	87	17	35	74	328	336	19	306	321
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1809	1774	1770	1857
Q Serve(g_s), s	0.3	0.1	0.8	2.2	0.4	0.9	1.9	5.9	5.9	0.5	5.8	5.8
Cycle Q Clear(g_c), s	0.3	0.1	0.8	2.2	0.4	0.9	1.9	5.9	5.9	0.5	5.8	5.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.02
Lane Grp Cap(c), veh/h	23	142	120	129	240	215	118	772	789	42	696	730
V/C Ratio(X)	0.43	0.02	0.24	0.67	0.07	0.16	0.63	0.42	0.43	0.46	0.44	0.44
Avail Cap(c_a), veh/h	193	729	619	227	727	650	193	772	789	193	696	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	19.7	20.0	20.8	17.3	17.6	20.9	9.0	9.0	22.2	10.2	10.2
Incr Delay (d2), s/veh	12.2	0.1	1.0	5.9	0.1	0.4	5.4	1.7	1.7	7.6	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.3	0.2	0.4	1.1	3.2	3.3	0.3	3.2	3.3
LnGrp Delay(d),s/veh	34.8	19.7	21.0	26.7	17.5	17.9	26.3	10.7	10.7	29.8	12.2	12.2
LnGrp LOS	C	B	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h	42				139				738			
Approach Delay, s/veh	24.2				23.4				12.2			
Approach LOS	C				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	5.6	24.6	7.9	8.0	7.6	22.6	5.1	10.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.1	5.9	18.0	5.0	18.1	5.0	18.9				
Max Q Clear Time (g_c+I1), s	2.5	7.9	4.2	2.8	3.9	7.8	2.3	2.9				
Green Ext Time (p_c), s	0.0	3.0	0.0	0.0	0.0	2.8	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay	13.7											
HCM 2010 LOS	B											

Lanes and Geometrics
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		70	105	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.925			0.850		
Flt Protected	0.978				0.950	
Satd. Flow (prot)	1685	0	3539	1583	1770	3539
Flt Permitted	0.978				0.950	
Satd. Flow (perm)	1685	0	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	106			125		
Link Speed (mph)	30		30			30
Link Distance (ft)	332		405			423
Travel Time (s)	7.5		9.2			9.6
Intersection Summary						
Area Type:	Other					

Volume
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	102	126	679	131	103	586
Future Volume (vph)	102	126	679	131	103	586
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	128	158	849	164	129	733
Shared Lane Traffic (%)						
Lane Group Flow (vph)	286	0	849	164	129	733
Intersection Summary						

Timings
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	102	679	131	103	586
Future Volume (vph)	102	679	131	103	586
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	8	2		1	6
Permitted Phases			2		
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	24.5	24.5	13.0	37.5
Total Split (%)	37.5%	40.8%	40.8%	21.7%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	Max	Max	Max	None	Max
Act Effect Green (s)	18.0	22.7	22.7	7.9	33.0
Actuated g/C Ratio	0.30	0.38	0.38	0.13	0.55
v/c Ratio	0.49	0.64	0.24	0.55	0.38
Control Delay	14.1	19.0	6.1	33.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	19.0	6.1	33.8	8.4
LOS	B	B	A	C	A
Approach Delay	14.1	16.9			12.2
Approach LOS	B	B			B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 14.7

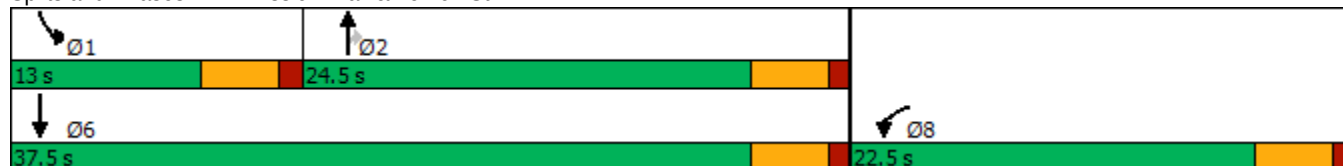
Intersection LOS: B

Intersection Capacity Utilization 49.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Mission Trail & Lemon St



Queues

St. Francis of Rome Church TIA

4: Mission Trail & Lemon St

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	286	849	164	129	733
v/c Ratio	0.49	0.64	0.24	0.55	0.38
Control Delay	14.1	19.0	6.1	33.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	19.0	6.1	33.8	8.4
Queue Length 50th (ft)	50	138	9	44	71
Queue Length 95th (ft)	91	167	35	79	87
Internal Link Dist (ft)	252	325			343
Turn Bay Length (ft)			70	105	
Base Capacity (vph)	579	1337	676	250	1946
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.64	0.24	0.52	0.38
Intersection Summary					

HCM 2010 Signalized Intersection Summary

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	102	126	679	131	103	586		
Future Volume (veh/h)	102	126	679	131	103	586		
Number	3	18	2	12	1	6		
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	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	128	158	849	164	129	732		
Adj No. of Lanes	0	0	2	1	1	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80		
Percent Heavy Veh, %	0	0	2	2	2	2		
Cap, veh/h	223	275	1351	605	165	1947		
Arrive On Green	0.30	0.30	0.38	0.38	0.09	0.55		
Sat Flow, veh/h	742	916	3632	1583	1774	3632		
Grp Volume(v), veh/h	287	0	849	164	129	732		
Grp Sat Flow(s),veh/h/ln	1664	0	1770	1583	1774	1770		
Q Serve(g_s), s	8.8	0.0	11.7	4.3	4.3	7.0		
Cycle Q Clear(g_c), s	8.8	0.0	11.7	4.3	4.3	7.0		
Prop In Lane	0.45	0.55		1.00	1.00			
Lane Grp Cap(c), veh/h	499	0	1351	605	165	1947		
V/C Ratio(X)	0.57	0.00	0.63	0.27	0.78	0.38		
Avail Cap(c_a), veh/h	499	0	1351	605	251	1947		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	17.8	0.0	15.1	12.8	26.6	7.7		
Incr Delay (d2), s/veh	4.8	0.0	2.2	1.1	8.4	0.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.6	0.0	6.1	2.1	2.5	3.5		
LnGrp Delay(d),s/veh	22.5	0.0	17.3	13.9	35.0	8.2		
LnGrp LOS	C		B	B	D	A		
Approach Vol, veh/h	287		1013			861		
Approach Delay, s/veh	22.5		16.8			12.2		
Approach LOS	C		B			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.1	27.4				37.5		22.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	8.5	20.0				33.0		18.0
Max Q Clear Time (g_c+I1), s	6.3	13.7				9.0		10.8
Green Ext Time (p_c), s	0.1	3.3				5.4		0.5
Intersection Summary								
HCM 2010 Ctrl Delay			15.7					
HCM 2010 LOS			B					
Notes								

Existing Plus Project Condition
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	270	260	125			115
Storage Lanes	2	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.88	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	2787	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		224				281
Link Speed (mph)	30			30	30	
Link Distance (ft)	463			424	405	
Travel Time (s)	10.5			9.6	9.2	
Intersection Summary						
Area Type:	Other					

Volume
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	474	208	169	319	290	420
Future Volume (vph)	474	208	169	319	290	420
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	510	224	182	343	312	452
Shared Lane Traffic (%)						
Lane Group Flow (vph)	510	224	182	343	312	452
Intersection Summary						

Timings
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Traffic Volume (vph)	474	208	169	319	290	420
Future Volume (vph)	474	208	169	319	290	420
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	Max	Max	None
Act Effect Green (s)	14.1	28.1	9.4	33.1	19.1	37.7
Actuated g/C Ratio	0.25	0.50	0.17	0.59	0.34	0.67
v/c Ratio	0.59	0.15	0.61	0.16	0.26	0.39
Control Delay	21.4	1.4	32.0	6.1	15.3	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	1.4	32.0	6.1	15.3	2.6
LOS	C	A	C	A	B	A
Approach Delay	15.3			15.0	7.8	
Approach LOS	B			B	A	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 12.4

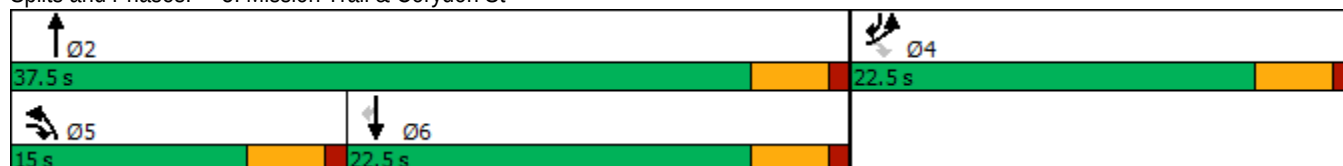
Intersection LOS: B

Intersection Capacity Utilization 42.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Mission Trail & Corydon St



Queues
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	510	224	182	343	312	452
v/c Ratio	0.59	0.15	0.61	0.16	0.26	0.39
Control Delay	21.4	1.4	32.0	6.1	15.3	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	1.4	32.0	6.1	15.3	2.6
Queue Length 50th (ft)	77	0	56	23	40	18
Queue Length 95th (ft)	117	13	#122	46	73	45
Internal Link Dist (ft)	383			344	325	
Turn Bay Length (ft)	270	260	125			115
Base Capacity (vph)	1101	1552	331	2082	1203	1246
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.14	0.55	0.16	0.26	0.36

Intersection Summary

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

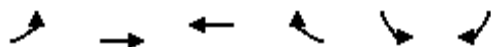
HCM 2010 Signalized Intersection Summary
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	474	208	169	319	290	420		
Future Volume (veh/h)	474	208	169	319	290	420		
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	510	224	182	343	312	452		
Adj No. of Lanes	2	2	1	2	2	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	730	954	231	2191	1431	976		
Arrive On Green	0.21	0.21	0.13	0.62	0.40	0.40		
Sat Flow, veh/h	3442	2787	1774	3632	3632	1583		
Grp Volume(v), veh/h	510	224	182	343	312	452		
Grp Sat Flow(s),veh/h/ln	1721	1393	1774	1770	1770	1583		
Q Serve(g_s), s	7.3	3.1	5.3	2.2	3.1	8.2		
Cycle Q Clear(g_c), s	7.3	3.1	5.3	2.2	3.1	8.2		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	730	954	231	2191	1431	976		
V/C Ratio(X)	0.70	0.23	0.79	0.16	0.22	0.46		
Avail Cap(c_a), veh/h	1162	1304	349	2191	1431	976		
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	19.4	12.5	22.5	4.3	10.4	5.5		
Incr Delay (d2), s/veh	1.2	0.1	6.7	0.2	0.4	1.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.6	2.8	3.0	1.1	1.5	6.0		
LnGrp Delay(d),s/veh	20.6	12.7	29.2	4.4	10.7	7.1		
LnGrp LOS	C	B	C	A	B	A		
Approach Vol, veh/h	734			525	764			
Approach Delay, s/veh	18.2			13.0	8.6			
Approach LOS	B			B	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.5		15.8	11.4	26.1		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		33.0		18.0	10.5	18.0		
Max Q Clear Time (g_c+I1), s		4.2		9.3	7.3	10.2		
Green Ext Time (p_c), s		2.4		2.0	0.1	2.4		
Intersection Summary								
HCM 2010 Ctrl Delay			13.2					
HCM 2010 LOS			B					

Lanes and Geometrics
6: Orange St & Monjonner Way

St. Francis of Rome Church TIA
09/24/2019

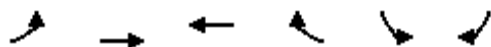


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.954		0.981	
Flt Protected		0.996			0.959	
Satd. Flow (prot)	0	1855	1777	0	1752	0
Flt Permitted		0.996			0.959	
Satd. Flow (perm)	0	1855	1777	0	1752	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		439	221		241	
Travel Time (s)		10.0	5.0		5.5	
Intersection Summary						

Area Type: Other

Volume
6: Orange St & Monjonnier Way

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	4	42	45	23	22	4
Future Volume (vph)	4	42	45	23	22	4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	4	47	50	26	24	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	51	76	0	28	0
Intersection Summary						

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	42	45	23	22	4
Future Vol, veh/h	4	42	45	23	22	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	47	50	26	24	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	76	0	0 118 63
Stage 1	-	-	- 63 -
Stage 2	-	-	- 55 -
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	1523	-	- 878 1002
Stage 1	-	-	- 960 -
Stage 2	-	-	- 968 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1523	-	- 875 1002
Mov Cap-2 Maneuver	-	-	- 875 -
Stage 1	-	-	- 957 -
Stage 2	-	-	- 968 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1523	-	-	-	892
HCM Lane V/C Ratio	0.003	-	-	-	0.032
HCM Control Delay (s)	7.4	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes and Geometrics
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.933				0.959	
Flt Protected				0.983	0.966	
Satd. Flow (prot)	1738	0	0	1831	1726	0
Flt Permitted				0.983	0.966	
Satd. Flow (perm)	1738	0	0	1831	1726	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	167			136	829	
Travel Time (s)	3.8			3.1	18.8	
Intersection Summary						
Area Type:	Other					

Volume
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	130	127	52	95	105	45
Future Volume (vph)	130	127	52	95	105	45
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	173	169	69	127	140	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	342	0	0	196	200	0
Intersection Summary						

Intersection

Int Delay, s/veh 4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	130	127	52	95	105	45
Future Vol, veh/h	130	127	52	95	105	45
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	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	173	169	69	127	140	60

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	342
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	-	-	1217
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1217
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	1217	-
HCM Lane V/C Ratio	0.367	-	-	0.057	-
HCM Control Delay (s)	15.4	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0.2	-

Lanes and Geometrics
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.964			0.906			0.994			0.995	
Flt Protected		0.997						0.988			0.982	
Satd. Flow (prot)	0	1790	0	0	1688	0	0	1829	0	0	1820	0
Flt Permitted		0.997						0.988			0.982	
Satd. Flow (perm)	0	1790	0	0	1688	0	0	1829	0	0	1820	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		221			312			464			829	
Travel Time (s)		5.0			7.1			10.5			18.8	
Intersection Summary												
Area Type:	Other											

Volume
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	3	42	17	1	40	93	18	56	3	65	106	6
Future Volume (vph)	3	42	17	1	40	93	18	56	3	65	106	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	53	21	1	50	116	23	70	4	81	133	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	167	0	0	97	0	0	222	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	42	17	1	40	93	18	56	3	65	106	6
Future Vol, veh/h	3	42	17	1	40	93	18	56	3	65	106	6
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	53	21	1	50	116	23	70	4	81	133	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	8.5	8.5	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	5%	1%	37%
Vol Thru, %	73%	68%	30%	60%
Vol Right, %	4%	27%	69%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	62	134	177
LT Vol	18	3	1	65
Through Vol	56	42	40	106
RT Vol	3	17	93	6
Lane Flow Rate	96	78	168	221
Geometry Grp	1	1	1	1
Degree of Util (X)	0.128	0.102	0.203	0.286
Departure Headway (Hd)	4.779	4.734	4.373	4.658
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	748	755	819	770
Service Time	2.823	2.777	2.409	2.697
HCM Lane V/C Ratio	0.128	0.103	0.205	0.287
HCM Control Delay	8.5	8.3	8.5	9.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.3	0.8	1.2

Lanes and Geometrics
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850						0.989
Flt Protected		0.999										0.956
Satd. Flow (prot)	0	3536	1863	0	3539	1583	0	1863	0	0	1761	0
Flt Permitted		0.999										0.956
Satd. Flow (perm)	0	3536	1863	0	3539	1583	0	1863	0	0	1761	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		660			309			203			464	
Travel Time (s)		15.0			7.0			4.6			10.5	
Intersection Summary												
Area Type:	Other											

Volume
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	10	373	0	0	332	74	0	0	0	119	0	11
Future Volume (vph)	10	373	0	0	332	74	0	0	0	119	0	11
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	381	0	0	339	76	0	0	0	121	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	391	0	0	339	76	0	0	0	0	132	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗		↔↔	↗		↔			↔	
Traffic Vol, veh/h	10	373	0	0	332	74	0	0	0	119	0	11
Future Vol, veh/h	10	373	0	0	332	74	0	0	0	119	0	11
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	381	0	0	339	76	0	0	0	121	0	11
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.8	9.3	0	11.6
HCM LOS	B	A	-	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	7%	0%	0%	0%	0%	0%	92%
Vol Thru, %	100%	93%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	100%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	134	249	0	166	166	74	130
LT Vol	0	10	0	0	0	0	0	119
Through Vol	0	124	249	0	166	166	0	0
RT Vol	0	0	0	0	0	0	74	11
Lane Flow Rate	0	137	254	0	169	169	76	133
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.206	0.378	0	0.253	0.253	0.061	0.248
Departure Headway (Hd)	6.637	5.404	5.366	5.366	5.383	5.383	2.927	6.724
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	658	665	0	662	662	1199	537
Service Time	4.342	3.188	3.151	3.151	3.163	3.163	0.706	4.424
HCM Lane V/C Ratio	0	0.208	0.382	0	0.255	0.255	0.063	0.248
HCM Control Delay	9.3	9.6	11.4	8.2	10	10	5.9	11.6
HCM Lane LOS	N	A	B	N	A	A	A	B
HCM 95th-tile Q	0	0.8	1.8	0	1	1	0.2	1

Lanes and Geometrics
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%			0%	
Storage Length (ft)	100		0	200		0	100		0	100		0	
Storage Lanes	1		0	1		0	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt	0.994				0.974				0.850			0.850	
Flt Protected	0.950			0.950				0.990			0.958		
Satd. Flow (prot)	1770	3518	0	1770	3447	0	0	1844	1583	0	1785	1583	
Flt Permitted	0.950			0.950				0.939			0.700		
Satd. Flow (perm)	1770	3518	0	1770	3447	0	0	1749	1583	0	1304	1583	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		7			47				186			109	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		309			320			221			464		
Travel Time (s)		7.0			7.3			5.0			10.5		

Intersection Summary

Area Type: Other

Volume
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	41	452	18	104	391	84	13	55	177	174	23	13
Future Volume (vph)	41	452	18	104	391	84	13	55	177	174	23	13
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	43	476	19	109	412	88	14	58	186	183	24	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	495	0	109	500	0	0	72	186	0	207	14
Intersection Summary												

Timings
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	41	452	104	391	13	55	177	174	23	13
Future Volume (vph)	41	452	104	391	13	55	177	174	23	13
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	3	8		2			6	
Permitted Phases					2		2	6		6
Detector Phase	7	4	3	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.2	22.5	13.8	26.1	23.7	23.7	23.7	23.7	23.7	23.7
Total Split (%)	17.0%	37.5%	23.0%	43.5%	39.5%	39.5%	39.5%	39.5%	39.5%	39.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	5.8	13.0	8.0	19.1		19.9	19.9		19.9	19.9
Actuated g/C Ratio	0.11	0.25	0.15	0.37		0.38	0.38		0.38	0.38
v/c Ratio	0.22	0.56	0.40	0.38		0.11	0.26		0.42	0.02
Control Delay	27.0	19.9	26.7	12.2		13.9	4.0		18.0	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	27.0	19.9	26.7	12.2		13.9	4.0		18.0	0.1
LOS	C	B	C	B		B	A		B	A
Approach Delay		20.5		14.8		6.8			16.9	
Approach LOS		C		B		A			B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 51.9

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 15.7

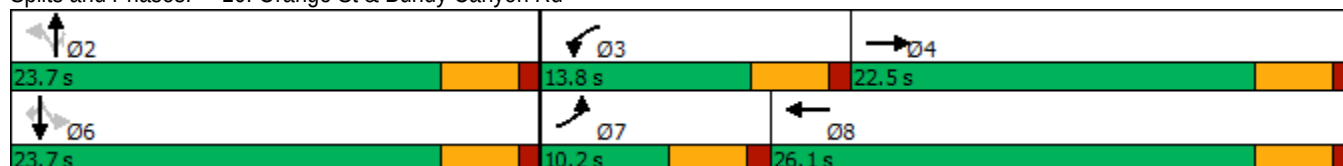
Intersection LOS: B

Intersection Capacity Utilization 47.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Orange St & Bundy Canyon Rd

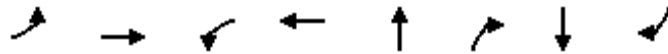


Queues

St. Francis of Rome Church TIA

10: Orange St & Bundy Canyon Rd

09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	43	495	109	500	72	186	207	14
v/c Ratio	0.22	0.56	0.40	0.38	0.11	0.26	0.42	0.02
Control Delay	27.0	19.9	26.7	12.2	13.9	4.0	18.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	19.9	26.7	12.2	13.9	4.0	18.0	0.1
Queue Length 50th (ft)	13	73	33	42	16	0	51	0
Queue Length 95th (ft)	41	113	77	97	43	37	116	0
Internal Link Dist (ft)		229		240	141		384	
Turn Bay Length (ft)	100		200					
Base Capacity (vph)	201	1265	327	1588	668	720	498	672
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.39	0.33	0.31	0.11	0.26	0.42	0.02
Intersection Summary								

HCM 2010 Signalized Intersection Summary
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	452	18	104	391	84	13	55	177	174	23	13
Future Volume (veh/h)	41	452	18	104	391	84	13	55	177	174	23	13
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	1863	1900	1863	1863
Adj Flow Rate, veh/h	43	476	19	109	412	88	14	58	186	183	24	14
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	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	81	743	30	144	725	154	93	291	655	146	11	655
Arrive On Green	0.05	0.21	0.21	0.08	0.25	0.25	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1774	3470	138	1774	2908	616	0	703	1583	0	25	1583
Grp Volume(v), veh/h	43	242	253	109	249	251	72	0	186	207	0	14
Grp Sat Flow(s),veh/h/ln	1774	1770	1838	1774	1770	1754	703	0	1583	25	0	1583
Q Serve(g_s), s	1.1	5.8	5.8	2.8	5.7	5.8	0.0	0.0	3.6	0.0	0.0	0.2
Cycle Q Clear(g_c), s	1.1	5.8	5.8	2.8	5.7	5.8	19.2	0.0	3.6	19.2	0.0	0.2
Prop In Lane	1.00		0.08	1.00		0.35	0.19		1.00	0.88		1.00
Lane Grp Cap(c), veh/h	81	379	393	144	441	438	384	0	655	157	0	655
V/C Ratio(X)	0.53	0.64	0.64	0.76	0.56	0.57	0.19	0.00	0.28	1.32	0.00	0.02
Avail Cap(c_a), veh/h	218	686	713	356	824	816	384	0	655	157	0	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	16.6	16.6	20.9	15.2	15.2	9.8	0.0	9.0	21.9	0.0	8.0
Incr Delay (d2), s/veh	5.2	1.8	1.8	7.8	1.1	1.2	1.1	0.0	1.1	182.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.0	3.1	1.7	2.9	2.9	0.7	0.0	1.7	9.9	0.0	0.1
LnGrp Delay(d),s/veh	26.9	18.4	18.4	28.7	16.3	16.4	10.9	0.0	10.1	203.9	0.0	8.1
LnGrp LOS	C	B	B	C	B	B	B		B	F		A
Approach Vol, veh/h		538			609			258			221	
Approach Delay, s/veh		19.1			18.6			10.3			191.5	
Approach LOS		B			B			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.7	8.3	14.4		23.7	6.6	16.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.2	9.3	18.0		19.2	5.7	21.6				
Max Q Clear Time (g_c+I1), s		21.2	4.8	7.8		21.2	3.1	7.8				
Green Ext Time (p_c), s		0.0	0.1	2.1		0.0	0.0	2.6				
Intersection Summary												
HCM 2010 Ctrl Delay				40.9								
HCM 2010 LOS				D								

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.937						0.852					
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3316	0	1770	3539	0	0	0	0	1770	1587	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3316	0	1770	3539	0	0	0	0	1770	1587	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)	311									153		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	320			695			332			508		
Travel Time (s)	7.3			15.8			7.5			11.5		

Intersection Summary

Area Type: Other

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	461	333	226	421	0	0	0	0	220	2	139
Future Volume (vph)	0	461	333	226	421	0	0	0	0	220	2	139
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	507	366	248	463	0	0	0	0	242	2	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	873	0	248	463	0	0	0	0	242	155	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

	→	↖	←	↗	↓
Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	461	226	421	220	2
Future Volume (vph)	461	226	421	220	2
Turn Type	NA	Prot	NA	Perm	NA
Protected Phases	4	3	8		6
Permitted Phases				6	
Detector Phase	4	3	8	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	15.8	10.2	30.6	18.1	18.1
Actuated g/C Ratio	0.27	0.18	0.53	0.31	0.31
v/c Ratio	0.77	0.79	0.25	0.44	0.26
Control Delay	17.2	44.7	7.6	19.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	44.7	7.6	19.6	4.8
LOS	B	D	A	B	A
Approach Delay	17.2		20.5		13.8
Approach LOS	B		C		B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 57.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 17.7

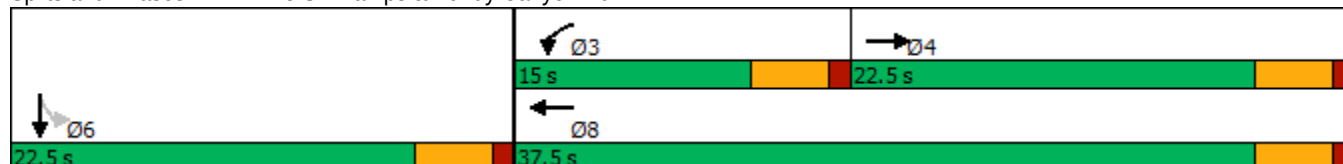
Intersection LOS: B

Intersection Capacity Utilization 59.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd

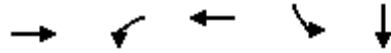


Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	873	248	463	242	155
v/c Ratio	0.77	0.79	0.25	0.44	0.26
Control Delay	17.2	44.7	7.6	19.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	44.7	7.6	19.6	4.8
Queue Length 50th (ft)	91	87	41	70	1
Queue Length 95th (ft)	151	#194	62	128	35
Internal Link Dist (ft)	240		615		428
Turn Bay Length (ft)		260			
Base Capacity (vph)	1252	323	2032	554	602
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.77	0.23	0.44	0.26

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Volume (veh/h)	0	461	333	226	421	0	0	0	0	220	2	139
Future Volume (veh/h)	0	461	333	226	421	0	0	0	0	220	2	139
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	1863	1900	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	507	366	248	463	0				242	2	153
Adj No. of Lanes	0	2	0	1	2	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
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	580	418	297	1908	0				545	6	481
Arrive On Green	0.00	0.30	0.30	0.17	0.54	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	2058	1417	1774	3632	0				1774	20	1566
Grp Volume(v), veh/h	0	456	417	248	463	0				242	0	155
Grp Sat Flow(s),veh/h/ln	0	1770	1613	1774	1770	0				1774	0	1586
Q Serve(g_s), s	0.0	14.4	14.4	7.9	4.1	0.0				6.4	0.0	4.4
Cycle Q Clear(g_c), s	0.0	14.4	14.4	7.9	4.1	0.0				6.4	0.0	4.4
Prop In Lane	0.00		0.88	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	522	476	297	1908	0				545	0	487
V/C Ratio(X)	0.00	0.87	0.88	0.84	0.24	0.00				0.44	0.00	0.32
Avail Cap(c_a), veh/h	0	544	495	318	1993	0				545	0	487
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	19.6	19.6	23.6	7.2	0.0				16.3	0.0	15.6
Incr Delay (d2), s/veh	0.0	14.3	15.6	16.5	0.1	0.0				2.6	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.0	8.4	5.2	1.9	0.0				3.5	0.0	2.1
LnGrp Delay(d),s/veh	0.0	33.9	35.2	40.2	7.2	0.0				18.9	0.0	17.3
LnGrp LOS		C	D	D	A					B		B
Approach Vol, veh/h		873			711						397	
Approach Delay, s/veh		34.5			18.7						18.3	
Approach LOS		C			B						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			14.3	21.8		22.5		36.1				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			10.5	18.0		18.0		33.0				
Max Q Clear Time (g_c+I1), s			9.9	16.4		8.4		6.1				
Green Ext Time (p_c), s			0.0	0.9		1.2		3.3				
Intersection Summary												
HCM 2010 Ctrl Delay			25.6									
HCM 2010 LOS			C									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.948			0.852				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3355	0	1770	1587	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3355	0	1770	1587	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					161			276				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	

Intersection Summary

Area Type: Other

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	232	453	0	0	427	223	249	3	257	0	0	0
Future Volume (vph)	232	453	0	0	427	223	249	3	257	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	249	487	0	0	459	240	268	3	276	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	487	0	0	699	0	268	279	0	0	0	0
Intersection Summary												

Timings
12: I-15 NB Ramps & Bundy Canyon Rd

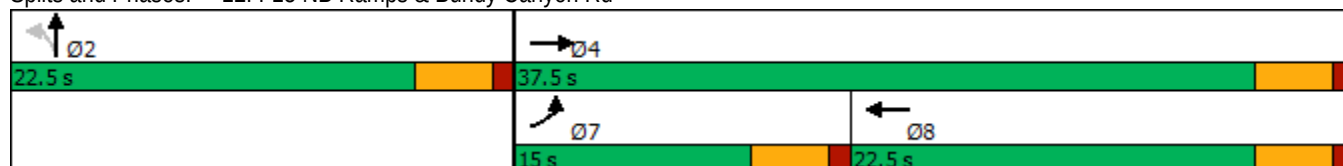
St. Francis of Rome Church TIA
09/24/2019

					
Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Configurations					
Traffic Volume (vph)	232	453	427	249	3
Future Volume (vph)	232	453	427	249	3
Turn Type	Prot	NA	NA	Perm	NA
Protected Phases	7	4	8		2
Permitted Phases				2	
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5
Total Split (s)	15.0	37.5	22.5	22.5	22.5
Total Split (%)	25.0%	62.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	10.2	29.7	14.9	18.1	18.1
Actuated g/C Ratio	0.18	0.52	0.26	0.32	0.32
v/c Ratio	0.78	0.26	0.70	0.48	0.40
Control Delay	43.6	7.8	18.4	20.0	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	7.8	18.4	20.0	4.6
LOS	D	A	B	B	A
Approach Delay		19.9	18.4		12.2
Approach LOS		B	B		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.8
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 17.2
 Intersection LOS: B
 Intersection Capacity Utilization 59.4%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd

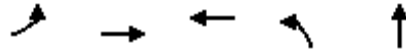


Queues

St. Francis of Rome Church TIA

09/24/2019

12: I-15 NB Ramps & Bundy Canyon Rd



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	249	487	699	268	279
v/c Ratio	0.78	0.26	0.70	0.48	0.40
Control Delay	43.6	7.8	18.4	20.0	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	7.8	18.4	20.0	4.6
Queue Length 50th (ft)	84	43	85	76	1
Queue Length 95th (ft)	#195	66	135	142	47
Internal Link Dist (ft)		615	78		321
Turn Bay Length (ft)	185				
Base Capacity (vph)	328	2066	1178	564	693
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.24	0.59	0.48	0.40

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	232	453	0	0	427	223	249	3	257	0	0	0
Future Volume (veh/h)	232	453	0	0	427	223	249	3	257	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	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	249	487	0	0	459	240	268	3	276			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	300	1819	0	0	594	309	575	6	508			
Arrive On Green	0.17	0.51	0.00	0.00	0.26	0.26	0.32	0.32	0.32			
Sat Flow, veh/h	1774	3632	0	0	2348	1171	1774	17	1569			
Grp Volume(v), veh/h	249	487	0	0	360	339	268	0	279			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1656	1774	0	1586			
Q Serve(g_s), s	7.5	4.3	0.0	0.0	10.4	10.5	6.7	0.0	8.0			
Cycle Q Clear(g_c), s	7.5	4.3	0.0	0.0	10.4	10.5	6.7	0.0	8.0			
Prop In Lane	1.00		0.00	0.00		0.71	1.00		0.99			
Lane Grp Cap(c), veh/h	300	1819	0	0	466	437	575	0	514			
V/C Ratio(X)	0.83	0.27	0.00	0.00	0.77	0.78	0.47	0.00	0.54			
Avail Cap(c_a), veh/h	335	2103	0	0	573	537	575	0	514			
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	22.3	7.6	0.0	0.0	18.9	18.9	14.9	0.0	15.4			
Incr Delay (d2), s/veh	14.6	0.1	0.0	0.0	5.1	5.8	2.7	0.0	4.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.9	2.1	0.0	0.0	5.8	5.5	3.7	0.0	4.1			
LnGrp Delay(d),s/veh	36.9	7.7	0.0	0.0	24.0	24.7	17.7	0.0	19.5			
LnGrp LOS	D	A			C	C	B		B			
Approach Vol, veh/h		736			699			547				
Approach Delay, s/veh		17.6			24.4			18.6				
Approach LOS		B			C			B				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		22.5		33.0			13.9	19.1				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.0		33.0			10.5	18.0				
Max Q Clear Time (g_c+I1), s		10.0		6.3			9.5	12.5				
Green Ext Time (p_c), s		1.7		3.4			0.1	2.1				
Intersection Summary												
HCM 2010 Ctrl Delay				20.2								
HCM 2010 LOS				C								

Appendix D

Opening Year (2020) Cumulative Without Project Conditions
Intersection Analysis Worksheets

Lanes and Geometrics
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	0		0	150		0	100		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.850						0.980					
Flt Protected	0.984			0.950			0.950			0.950		
Satd. Flow (prot)	0	1833	0	1770	0	1583	1770	1825	0	1770	1863	0
Flt Permitted	0.907			0.756			0.566			0.950		
Satd. Flow (perm)	0	1690	0	1408	0	1583	1054	1825	0	1770	1863	0
Right Turn on Red	Yes						Yes					
Satd. Flow (RTOR)	280						10					
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	209			495			473			348		
Travel Time (s)	4.8			11.3			10.8			7.9		

Intersection Summary

Area Type: Other

Volume
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	1	2	0	34	2	485	1	221	34	492	282	1
Future Volume (vph)	1	2	0	34	2	485	1	221	34	492	282	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	1	2	0	39	2	551	1	251	39	559	320	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	39	2	551	1	290	0	559	321	0
Intersection Summary												

Timings

1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	2	34	2	485	1	221	492	282
Future Volume (vph)	1	2	34	2	485	1	221	492	282
Turn Type	Perm	NA	Perm	NA	pm+ov	Perm	NA	Prot	NA
Protected Phases		4		8	1		2	1	6
Permitted Phases	4		8		8	2			
Detector Phase	4	4	8	8	1	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	30.0	22.5	22.5	30.0	52.5
Total Split (%)	30.0%	30.0%	30.0%	30.0%	40.0%	30.0%	30.0%	40.0%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		9.8	12.8	0.0	31.1	21.2	21.2	23.7	52.6
Actuated g/C Ratio		0.16	0.21	0.00	0.51	0.34	0.34	0.39	0.86
v/c Ratio		0.01	0.13	no cap	0.59	0.00	0.46	0.82	0.20
Control Delay		22.0	21.6		6.6	21.0	22.2	31.8	3.8
Queue Delay		0.0	0.0		0.1	0.0	0.0	0.0	0.0
Total Delay		22.0	21.6	Error	6.7	21.0	22.2	31.8	3.8
LOS		C	C	F	A	C	C	C	A
Approach Delay		22.0		Err			22.2		21.6
Approach LOS		C		F			C		C

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 61.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: Err

Intersection Signal Delay: Err

Intersection LOS: F

Intersection Capacity Utilization Err%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Grand Ave & Corydon St

		
Ø1	Ø2	Ø4
30 s	22.5 s	22.5 s
		
Ø6		Ø8
52.5 s		22.5 s

Queues
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	39	2	551	1	290	559	321
v/c Ratio	0.01	0.13	no cap	0.59	0.00	0.46	0.82	0.20
Control Delay	22.0	21.6		6.6	21.0	22.2	31.8	3.8
Queue Delay	0.0	0.0		0.1	0.0	0.0	0.0	0.0
Total Delay	22.0	21.6	Error	6.7	21.0	22.2	31.8	3.8
Queue Length 50th (ft)	1	8	0	48	0	65	120	0
Queue Length 95th (ft)	7	37	0	97	4	192	#422	90
Internal Link Dist (ft)	129		415			393		268
Turn Bay Length (ft)		150			100		100	
Base Capacity (vph)	509	424	1	992	362	634	756	1595
Starvation Cap Reductn	0	0	0	42	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.09	2.00	0.58	0.00	0.46	0.74	0.20

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

																						
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR										
Lane Configurations																						
Traffic Volume (veh/h)	1	2	0	34	2	485	1	221	34	492	282	1										
Future Volume (veh/h)	1	2	0	34	2	485	1	221	34	492	282	1										
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	1863	1900	1863	1863	1863	1900	1863	1863	1900										
Adj Flow Rate, veh/h	1	2	0	39	2	551	1	251	39	559	320	1										
Adj No. of Lanes	0	1	0	1	0	1	1	1	0	1	1	0										
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88										
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2										
Cap, veh/h	148	264	0	435	0	910	355	386	60	594	1188	4										
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.24	0.25	0.25	0.25	0.33	0.64	0.64										
Sat Flow, veh/h	349	1100	0	1409	0	1583	1054	1575	245	1774	1856	6										
Grp Volume(v), veh/h	3	0	0	39	0	551	1	0	290	559	0	321										
Grp Sat Flow(s),veh/h/ln	1449	0	0	1409	0	1583	1054	0	1820	1774	0	1862										
Q Serve(g_s), s	0.0	0.0	0.0	1.5	0.0	17.0	0.1	0.0	10.7	23.0	0.0	5.6										
Cycle Q Clear(g_c), s	0.1	0.0	0.0	1.6	0.0	17.0	0.1	0.0	10.7	23.0	0.0	5.6										
Prop In Lane	0.33		0.00	1.00		1.00	1.00		0.13	1.00		0.00										
Lane Grp Cap(c), veh/h	412	0	0	435	0	910	355	0	446	594	0	1192										
V/C Ratio(X)	0.01	0.00	0.00	0.09	0.00	0.61	0.00	0.00	0.65	0.94	0.00	0.27										
Avail Cap(c_a), veh/h	412	0	0	435	0	910	355	0	446	603	0	1192										
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00										
Uniform Delay (d), s/veh	21.7	0.0	0.0	22.3	0.0	10.4	21.4	0.0	25.4	24.2	0.0	5.9										
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	1.2	0.0	0.0	7.1	23.1	0.0	0.6										
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.6	0.0	7.6	0.0	0.0	6.3	15.0	0.0	3.0										
LnGrp Delay(d),s/veh	21.7	0.0	0.0	22.3	0.0	11.6	21.4	0.0	32.6	47.3	0.0	6.4										
LnGrp LOS	C			C		B	C		C	D		A										
Approach Vol, veh/h	3			590			291			880												
Approach Delay, s/veh	21.7			12.3			32.5			32.4												
Approach LOS	C			B			C			C												
Timer	1	2	3	4	5	6	7	8														
Assigned Phs	1	2	4		6		8															
Phs Duration (G+Y+Rc), s	29.6	22.9	22.5		52.5		22.5															
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5		4.5															
Max Green Setting (Gmax), s	25.5	18.0	18.0		48.0		18.0															
Max Q Clear Time (g_c+I1), s	25.0	12.7	2.1		7.6		19.0															
Green Ext Time (p_c), s	0.1	0.7	0.0		2.1		0.0															
Intersection Summary																						
HCM 2010 Ctrl Delay	25.7																					
HCM 2010 LOS	C																					
Notes																						

Opening Year (2020) Cumulative Conditions Without Project
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	95		95	145		0	100		0	100		100
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.850			0.976			0.939			0.850		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3454	0	1770	1749	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.742			0.720		
Satd. Flow (perm)	1770	1863	1583	1770	3454	0	1382	1749	0	1341	1863	1583
Right Turn on Red	Yes						Yes			Yes		
Satd. Flow (RTOR)	109			42			23			109		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	495			474			343			250		
Travel Time (s)	11.3			10.8			7.8			5.7		

Intersection Summary

Area Type: Other

Volume
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	4	562	36	31	559	105	52	32	22	73	22	7
Future Volume (vph)	4	562	36	31	559	105	52	32	22	73	22	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	598	38	33	595	112	55	34	23	78	23	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	598	38	33	707	0	55	57	0	78	23	7
Intersection Summary												

Timings
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	4	562	36	31	559	52	32	73	22	7
Future Volume (vph)	4	562	36	31	559	52	32	73	22	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4		3	8		2		6	
Permitted Phases			4			2		6		6
Detector Phase	7	4	4	3	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	22.5	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	37.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	5.1	20.2	20.2	5.1	21.9	18.4	18.4	18.4	18.4	18.4
Actuated g/C Ratio	0.10	0.40	0.40	0.10	0.43	0.36	0.36	0.36	0.36	0.36
v/c Ratio	0.02	0.81	0.05	0.19	0.47	0.11	0.09	0.16	0.03	0.01
Control Delay	25.2	25.6	0.1	27.3	11.1	14.9	10.5	15.3	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	25.6	0.1	27.3	11.1	14.9	10.5	15.3	14.4	0.0
LOS	C	C	A	C	B	B	B	B	B	A
Approach Delay		24.1			11.9		12.6		14.1	
Approach LOS		C			B		B		B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 51.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 47.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Palomar St & Corydon St

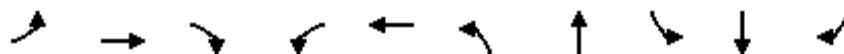
		
Ø2	Ø3	Ø4
22.5 s	9.5 s	28 s
		
Ø6	Ø7	Ø8
22.5 s	9.5 s	28 s

Queues

St. Francis of Rome Church TIA

2: Palomar St & Corydon St

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	4	598	38	33	707	55	57	78	23	7
v/c Ratio	0.02	0.81	0.05	0.19	0.47	0.11	0.09	0.16	0.03	0.01
Control Delay	25.2	25.6	0.1	27.3	11.1	14.9	10.5	15.3	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	25.6	0.1	27.3	11.1	14.9	10.5	15.3	14.4	0.0
Queue Length 50th (ft)	1	129	0	9	63	10	6	15	4	0
Queue Length 95th (ft)	9	#354	0	34	136	37	31	49	20	0
Internal Link Dist (ft)		415			394		263		170	
Turn Bay Length (ft)	95		95	145		100		100		100
Base Capacity (vph)	177	876	802	177	1755	498	645	483	671	640
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.68	0.05	0.19	0.40	0.11	0.09	0.16	0.03	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary

2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	562	36	31	559	105	52	32	22	73	22	7
Future Volume (veh/h)	4	562	36	31	559	105	52	32	22	73	22	7
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	1900	1863	1863	1863
Adj Flow Rate, veh/h	4	598	38	33	595	112	55	34	23	78	23	7
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	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	10	693	589	64	1199	225	588	351	237	559	630	535
Arrive On Green	0.01	0.37	0.37	0.04	0.40	0.40	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	1863	1583	1774	2975	559	1374	1037	702	1341	1863	1583
Grp Volume(v), veh/h	4	598	38	33	353	354	55	0	57	78	23	7
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1764	1374	0	1739	1341	1863	1583
Q Serve(g_s), s	0.1	15.8	0.8	1.0	7.9	8.0	1.5	0.0	1.2	2.3	0.4	0.2
Cycle Q Clear(g_c), s	0.1	15.8	0.8	1.0	7.9	8.0	1.9	0.0	1.2	3.4	0.4	0.2
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	10	693	589	64	713	711	588	0	588	559	630	535
V/C Ratio(X)	0.42	0.86	0.06	0.51	0.50	0.50	0.09	0.00	0.10	0.14	0.04	0.01
Avail Cap(c_a), veh/h	167	822	699	167	781	779	588	0	588	559	630	535
HCM Platoon Ratio	1.00	1.00	1.00	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	26.4	15.5	10.8	25.2	11.9	11.9	12.5	0.0	12.1	13.2	11.8	11.7
Incr Delay (d2), s/veh	26.5	8.3	0.0	6.2	0.5	0.5	0.3	0.0	0.3	0.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	9.6	0.4	0.6	3.9	3.9	0.6	0.0	0.6	0.9	0.2	0.1
LnGrp Delay(d),s/veh	52.9	23.7	10.8	31.4	12.4	12.4	12.8	0.0	12.4	13.8	11.9	11.8
LnGrp LOS	D	C	B	C	B	B	B		B	B	B	B
Approach Vol, veh/h		640			740			112			108	
Approach Delay, s/veh		23.1			13.2			12.6			13.2	
Approach LOS		C			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	6.4	24.3		22.5	4.8	25.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	23.5		18.0	5.0	23.5				
Max Q Clear Time (g_c+I1), s		3.9	3.0	17.8		5.4	2.1	10.0				
Green Ext Time (p_c), s		0.3	0.0	2.0		0.2	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay				17.2								
HCM 2010 LOS				B								

Lanes and Geometrics
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%			
Storage Length (ft)	350		0	100		0	90		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt	0.850			0.907			0.987			0.997		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3210	0	1770	3493	0	1770	3529	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3210	0	1770	3493	0	1770	3529	0
Right Turn on Red	Yes						Yes			Yes		
Satd. Flow (RTOR)	176			34			15			3		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	560			435			423			314		
Travel Time (s)	12.7			9.9			9.6			7.1		

Intersection Summary

Area Type: Other

Volume
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	8	2	30	100	20	33	76	704	67	33	800	17
Future Volume (vph)	8	2	30	100	20	33	76	704	67	33	800	17
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	8	2	31	104	21	34	79	733	70	34	833	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	2	31	104	55	0	79	803	0	34	851	0
Intersection Summary												

Timings
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	8	2	30	100	20	76	704	33	800
Future Volume (vph)	8	2	30	100	20	76	704	33	800
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	9.5	23.0	9.5	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	14.6%	35.4%	14.6%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
Act Effect Green (s)	5.1	5.8	5.8	5.7	7.6	5.1	26.9	5.1	24.9
Actuated g/C Ratio	0.11	0.13	0.13	0.13	0.17	0.11	0.60	0.11	0.55
v/c Ratio	0.04	0.01	0.09	0.47	0.10	0.40	0.38	0.17	0.44
Control Delay	21.9	20.5	0.5	30.3	10.9	28.2	9.8	23.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.5	0.5	30.3	10.9	28.2	9.8	23.4	11.4
LOS	C	C	A	C	B	C	A	C	B
Approach Delay		5.6			23.6		11.4		11.8
Approach LOS		A			C		B		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 45.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 50.3%

ICU Level of Service A

Analysis Period (min) 15

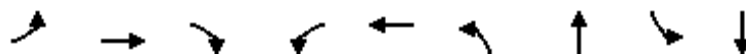
Splits and Phases: 3: Mission Trail & Malaga Rd

 Ø1	 Ø2	 Ø3	 Ø4
9.5 s	23 s	10 s	22.5 s
 Ø5	 Ø6	 Ø7	 Ø8
9.5 s	23 s	9.5 s	23 s

Queues
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	2	31	104	55	79	803	34	851
v/c Ratio	0.04	0.01	0.09	0.47	0.10	0.40	0.38	0.17	0.44
Control Delay	21.9	20.5	0.5	30.3	10.9	28.2	9.8	23.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.5	0.5	30.3	10.9	28.2	9.8	23.4	11.4
Queue Length 50th (ft)	2	1	0	24	2	18	32	8	74
Queue Length 95th (ft)	12	5	0	#87	16	#66	160	32	173
Internal Link Dist (ft)		480			355		343		234
Turn Bay Length (ft)	350			100		90		220	
Base Capacity (vph)	200	760	750	222	1366	200	2086	200	1945
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.00	0.04	0.47	0.04	0.40	0.38	0.17	0.44

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	30	100	20	33	76	704	67	33	800	17
Future Volume (veh/h)	8	2	30	100	20	33	76	704	67	33	800	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	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	2	31	104	21	34	79	733	70	34	833	18
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	142	120	140	256	229	121	1384	132	68	1394	30
Arrive On Green	0.01	0.08	0.08	0.08	0.14	0.14	0.07	0.42	0.42	0.04	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3266	312	1774	3542	77
Grp Volume(v), veh/h	8	2	31	104	21	34	79	397	406	34	416	435
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1808	1774	1770	1849
Q Serve(g_s), s	0.2	0.0	0.9	2.7	0.5	0.9	2.0	7.8	7.8	0.9	8.8	8.8
Cycle Q Clear(g_c), s	0.2	0.0	0.9	2.7	0.5	0.9	2.0	7.8	7.8	0.9	8.8	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.04
Lane Grp Cap(c), veh/h	19	142	120	140	256	229	121	750	766	68	696	728
V/C Ratio(X)	0.43	0.01	0.26	0.74	0.08	0.15	0.65	0.53	0.53	0.50	0.60	0.60
Avail Cap(c_a), veh/h	189	713	606	208	696	623	189	750	766	189	696	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	20.1	20.5	21.2	17.4	17.6	21.3	10.1	10.1	22.2	11.3	11.3
Incr Delay (d2), s/veh	14.7	0.0	1.1	7.5	0.1	0.3	5.8	2.7	2.6	5.7	3.8	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.6	0.2	0.4	1.2	4.3	4.4	0.5	5.0	5.2
LnGrp Delay(d),s/veh	37.8	20.1	21.6	28.7	17.5	17.9	27.1	12.7	12.7	27.8	15.1	14.9
LnGrp LOS	D	C	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		41			159			882			885	
Approach Delay, s/veh		24.7			24.9			14.0			15.5	
Approach LOS		C			C			B			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	6.3	24.4	8.2	8.1	7.7	23.0	5.0	11.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	2.9	9.8	4.7	2.9	4.0	10.8	2.2	2.9				
Green Ext Time (p_c), s	0.0	3.3	0.0	0.0	0.0	3.2	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				15.8								
HCM 2010 LOS				B								

Lanes and Geometrics
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		70	105	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.942			0.850		
Flt Protected	0.972				0.950	
Satd. Flow (prot)	1706	0	3539	1583	1770	3539
Flt Permitted	0.972				0.950	
Satd. Flow (perm)	1706	0	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	55			104		
Link Speed (mph)	30		30			30
Link Distance (ft)	332		405			423
Travel Time (s)	7.5		9.2			9.6
Intersection Summary						
Area Type:	Other					

Volume
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	69	51	748	115	78	807
Future Volume (vph)	69	51	748	115	78	807
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	74	55	804	124	84	868
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	0	804	124	84	868
Intersection Summary						

Timings

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	69	748	115	78	807
Future Volume (vph)	69	748	115	78	807
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	8	2		1	6
Permitted Phases			2		
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	25.9	25.9	11.6	37.5
Total Split (%)	37.5%	43.2%	43.2%	19.3%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max
Act Effect Green (s)	7.9	31.4	31.4	6.7	38.6
Actuated g/C Ratio	0.15	0.60	0.60	0.13	0.73
v/c Ratio	0.43	0.38	0.13	0.37	0.33
Control Delay	16.7	9.4	3.8	25.8	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	9.4	3.8	25.8	4.1
LOS	B	A	A	C	A
Approach Delay	16.7	8.7			6.0
Approach LOS	B	A			A

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 52.6

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 7.9

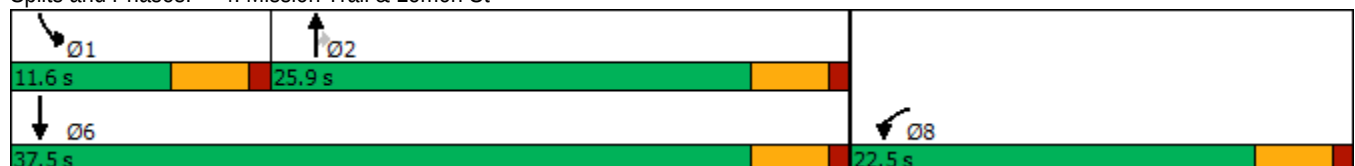
Intersection LOS: A

Intersection Capacity Utilization 43.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Mission Trail & Lemon St



Queues

St. Francis of Rome Church TIA

4: Mission Trail & Lemon St

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	129	804	124	84	868
v/c Ratio	0.43	0.38	0.13	0.37	0.33
Control Delay	16.7	9.4	3.8	25.8	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	9.4	3.8	25.8	4.1
Queue Length 50th (ft)	19	84	3	22	44
Queue Length 95th (ft)	57	144	28	58	86
Internal Link Dist (ft)	252	325			343
Turn Bay Length (ft)			70	105	
Base Capacity (vph)	621	2115	988	239	2597
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.38	0.13	0.35	0.33
Intersection Summary					

HCM 2010 Signalized Intersection Summary

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	69	51	748	115	78	807		
Future Volume (veh/h)	69	51	748	115	78	807		
Number	3	18	2	12	1	6		
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	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	74	55	804	124	84	868		
Adj No. of Lanes	0	0	2	1	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	0	0	2	2	2	2		
Cap, veh/h	97	72	1909	854	126	2501		
Arrive On Green	0.10	0.10	0.54	0.54	0.07	0.71		
Sat Flow, veh/h	961	714	3632	1583	1774	3632		
Grp Volume(v), veh/h	130	0	804	124	84	868		
Grp Sat Flow(s),veh/h/ln	1689	0	1770	1583	1774	1770		
Q Serve(g_s), s	3.5	0.0	6.3	1.8	2.2	4.4		
Cycle Q Clear(g_c), s	3.5	0.0	6.3	1.8	2.2	4.4		
Prop In Lane	0.57	0.42		1.00	1.00			
Lane Grp Cap(c), veh/h	170	0	1909	854	126	2501		
V/C Ratio(X)	0.77	0.00	0.42	0.15	0.67	0.35		
Avail Cap(c_a), veh/h	651	0	1909	854	270	2501		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.5	0.0	6.4	5.4	21.1	2.7		
Incr Delay (d2), s/veh	7.0	0.0	0.7	0.4	5.9	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.0	0.0	3.2	0.9	1.3	2.2		
LnGrp Delay(d),s/veh	27.5	0.0	7.1	5.7	27.1	3.0		
LnGrp LOS	C		A	A	C	A		
Approach Vol, veh/h	130		928			952		
Approach Delay, s/veh	27.5		6.9			5.2		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.8	29.7				37.5		9.2
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	7.1	21.4				33.0		18.0
Max Q Clear Time (g_c+I1), s	4.2	8.3				6.4		5.5
Green Ext Time (p_c), s	0.0	5.0				6.8		0.3
Intersection Summary								
HCM 2010 Ctrl Delay			7.4					
HCM 2010 LOS			A					
Notes								

Opening Year (2020) Cumulative Conditions Without Project
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	270	260	125			115
Storage Lanes	2	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.88	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	2787	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		112				150
Link Speed (mph)	30			30	30	
Link Distance (ft)	463			424	405	
Travel Time (s)	10.5			9.6	9.2	
Intersection Summary						
Area Type:	Other					

Volume
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	421	386	345	518	565	386
Future Volume (vph)	421	386	345	518	565	386
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	439	402	359	540	589	402
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	402	359	540	589	402
Intersection Summary						

Timings
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Traffic Volume (vph)	421	386	345	518	565	386
Future Volume (vph)	421	386	345	518	565	386
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	20.0	20.0	42.5	22.5	22.5
Total Split (%)	34.6%	30.8%	30.8%	65.4%	34.6%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	Max	Max	None
Act Effect Green (s)	13.6	32.9	14.9	38.1	18.7	36.8
Actuated g/C Ratio	0.22	0.54	0.25	0.63	0.31	0.61
v/c Ratio	0.57	0.26	0.83	0.24	0.54	0.39
Control Delay	23.9	5.3	41.3	5.8	20.5	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	5.3	41.3	5.8	20.5	5.0
LOS	C	A	D	A	C	A
Approach Delay	15.0			19.9	14.2	
Approach LOS	B			B	B	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 60.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 58.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Mission Trail & Corydon St



Queues
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	439	402	359	540	589	402
v/c Ratio	0.57	0.26	0.83	0.24	0.54	0.39
Control Delay	23.9	5.3	41.3	5.8	20.5	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	5.3	41.3	5.8	20.5	5.0
Queue Length 50th (ft)	73	26	123	38	94	39
Queue Length 95th (ft)	112	46	#272	72	154	78
Internal Link Dist (ft)	383			344	325	
Turn Bay Length (ft)	270	260	125			115
Base Capacity (vph)	1021	1593	453	2222	1093	1125
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.25	0.79	0.24	0.54	0.36

Intersection Summary

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

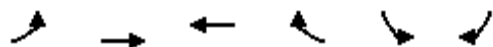
HCM 2010 Signalized Intersection Summary
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	 	 		 	 			
Traffic Volume (veh/h)	421	386	345	518	565	386		
Future Volume (veh/h)	421	386	345	518	565	386		
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	439	402	359	540	589	402		
Adj No. of Lanes	2	2	1	2	2	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	667	1189	413	2307	1210	848		
Arrive On Green	0.19	0.19	0.23	0.65	0.34	0.34		
Sat Flow, veh/h	3442	2787	1774	3632	3632	1583		
Grp Volume(v), veh/h	439	402	359	540	589	402		
Grp Sat Flow(s),veh/h/ln	1721	1393	1774	1770	1770	1583		
Q Serve(g_s), s	6.9	5.6	11.3	3.7	7.7	9.2		
Cycle Q Clear(g_c), s	6.9	5.6	11.3	3.7	7.7	9.2		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	667	1189	413	2307	1210	848		
V/C Ratio(X)	0.66	0.34	0.87	0.23	0.49	0.47		
Avail Cap(c_a), veh/h	1063	1509	472	2307	1210	848		
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	21.7	11.2	21.5	4.2	15.1	8.4		
Incr Delay (d2), s/veh	1.1	0.2	14.5	0.2	1.4	1.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.3	5.1	7.1	1.8	3.9	6.1		
LnGrp Delay(d),s/veh	22.8	11.4	36.0	4.4	16.6	10.3		
LnGrp LOS	C	B	D	A	B	B		
Approach Vol, veh/h	841			899	991			
Approach Delay, s/veh	17.4			17.0	14.0			
Approach LOS	B			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		42.5		15.8	18.1	24.4		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		38.0		18.0	15.5	18.0		
Max Q Clear Time (g_c+I1), s		5.7		8.9	13.3	11.2		
Green Ext Time (p_c), s		4.0		2.4	0.3	3.1		
Intersection Summary								
HCM 2010 Ctrl Delay			16.0					
HCM 2010 LOS			B					

Lanes and Geometrics
6: Orange St & Monjonner Way

St. Francis of Rome Church TIA
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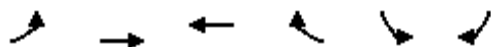


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.963				
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1794	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1794	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		439	221		241	
Travel Time (s)		10.0	5.0		5.5	
Intersection Summary						

Area Type: Other

Volume
6: Orange St & Monjonnier Way

St. Francis of Rome Church TIA
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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	57	86	33	2	0
Future Volume (vph)	0	57	86	33	2	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	68	102	39	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	68	141	0	2	0
Intersection Summary						

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	57	86	33	2	0
Future Vol, veh/h	0	57	86	33	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	68	102	39	2	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	141	0	-	0	190	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	68	-
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	1442	-	-	-	799	929
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	955	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	799	929
Mov Cap-2 Maneuver	-	-	-	-	799	-
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	955	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		9.5		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1442	-	-	-	799	
HCM Lane V/C Ratio	-	-	-	-	0.003	
HCM Control Delay (s)	0	-	-	-	9.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes and Geometrics
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.957				0.963	
Flt Protected				0.987	0.965	
Satd. Flow (prot)	1783	0	0	1839	1731	0
Flt Permitted				0.987	0.965	
Satd. Flow (perm)	1783	0	0	1839	1731	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	167			136	829	
Travel Time (s)	3.8			3.1	18.8	
Intersection Summary						
Area Type:	Other					

Volume
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	93	44	43	115	96	36
Future Volume (vph)	93	44	43	115	96	36
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	121	57	56	149	125	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	0	0	205	172	0
Intersection Summary						

Intersection

Int Delay, s/veh 4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	44	43	115	96	36
Future Vol, veh/h	93	44	43	115	96	36
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	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	57	56	149	125	47

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	178
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	-	-	1398
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1398
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	634	-	-	1398	-
HCM Lane V/C Ratio	0.27	-	-	0.04	-
HCM Control Delay (s)	12.8	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Lanes and Geometrics
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980			0.904			0.990			0.992	
Flt Protected		0.996			0.999			0.985			0.970	
Satd. Flow (prot)	0	1818	0	0	1682	0	0	1816	0	0	1792	0
Flt Permitted		0.996			0.999			0.985			0.970	
Satd. Flow (perm)	0	1818	0	0	1682	0	0	1816	0	0	1792	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		221			312			464			829	
Travel Time (s)		5.0			7.1			10.5			18.8	
Intersection Summary												
Area Type:	Other											

Volume
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	3	28	5	2	45	114	9	18	2	54	28	5
Future Volume (vph)	3	28	5	2	45	114	9	18	2	54	28	5
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	37	7	3	59	150	12	24	3	71	37	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	48	0	0	212	0	0	39	0	0	115	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	28	5	2	45	114	9	18	2	54	28	5
Future Vol, veh/h	3	28	5	2	45	114	9	18	2	54	28	5
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	37	7	3	59	150	12	24	3	71	37	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	8.1	7.9	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	8%	1%	62%
Vol Thru, %	62%	78%	28%	32%
Vol Right, %	7%	14%	71%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	36	161	87
LT Vol	9	3	2	54
Through Vol	18	28	45	28
RT Vol	2	5	114	5
Lane Flow Rate	38	47	212	114
Geometry Grp	1	1	1	1
Degree of Util (X)	0.049	0.058	0.231	0.147
Departure Headway (Hd)	4.635	4.443	3.932	4.613
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	774	808	915	780
Service Time	2.655	2.46	1.943	2.629
HCM Lane V/C Ratio	0.049	0.058	0.232	0.146
HCM Control Delay	7.9	7.7	8.1	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.9	0.5

Lanes and Geometrics
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850						0.960
Flt Protected		0.999										0.966
Satd. Flow (prot)	0	3536	1863	0	3539	1583	0	1863	0	0	1727	0
Flt Permitted		0.999										0.966
Satd. Flow (perm)	0	3536	1863	0	3539	1583	0	1863	0	0	1727	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		660			309			203			464	
Travel Time (s)		15.0			7.0			4.6			10.5	
Intersection Summary												
Area Type:	Other											

Volume
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	11	722	0	1	697	29	0	0	0	28	0	12
Future Volume (vph)	11	722	0	1	697	29	0	0	0	28	0	12
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	12	811	0	1	783	33	0	0	0	31	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	823	0	0	784	33	0	0	0	0	44	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	23.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕	↗		↕			↕	
Traffic Vol, veh/h	11	722	0	1	697	29	0	0	0	28	0	12
Future Vol, veh/h	11	722	0	1	697	29	0	0	0	28	0	12
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	811	0	1	783	33	0	0	0	31	0	13
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	25.1	22.9	0	11.5
HCM LOS	D	C	-	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	4%	0%	0%	0%	0%	0%	70%
Vol Thru, %	100%	96%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	100%	30%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	252	481	0	233	465	29	40
LT Vol	0	11	0	0	1	0	0	28
Through Vol	0	241	481	0	232	465	0	0
RT Vol	0	0	0	0	0	0	29	12
Lane Flow Rate	0	283	541	0	262	522	33	45
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.443	0.845	0	0.413	0.821	0.045	0.099
Departure Headway (Hd)	7.943	5.645	5.623	5.623	5.665	5.663	4.957	7.923
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	639	644	0	637	642	723	453
Service Time	5.692	3.371	3.349	3.349	3.392	3.389	2.684	5.668
HCM Lane V/C Ratio	0	0.443	0.84	0	0.411	0.813	0.046	0.099
HCM Control Delay	10.7	12.8	31.5	8.3	12.3	29.1	7.9	11.5
HCM Lane LOS	N	B	D	N	B	D	A	B
HCM 95th-tile Q	0	2.3	9.3	0	2	8.6	0.1	0.3

Lanes and Geometrics
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	100		0	200		0	100		0	100		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.996				0.985				0.850			0.850
Flt Protected	0.950			0.950				0.984			0.961	
Satd. Flow (prot)	1770	3525	0	1770	3486	0	0	1833	1583	0	1790	1583
Flt Permitted	0.950			0.950				0.896			0.722	
Satd. Flow (perm)	1770	3525	0	1770	3486	0	0	1669	1583	0	1345	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	5				23				191			109
Link Speed (mph)	30				30				30			30
Link Distance (ft)	309				320				221			464
Travel Time (s)	7.0				7.3				5.0			10.5

Intersection Summary

Area Type: Other

Volume
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	26	700	22	153	716	81	19	38	172	127	28	8
Future Volume (vph)	26	700	22	153	716	81	19	38	172	127	28	8
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	29	778	24	170	796	90	21	42	191	141	31	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	802	0	170	886	0	0	63	191	0	172	9
Intersection Summary												

Timings
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	26	700	153	716	19	38	172	127	28	8
Future Volume (vph)	26	700	153	716	19	38	172	127	28	8
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	3	8		2			6	
Permitted Phases					2		2	6		6
Detector Phase	7	4	3	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	14.0	27.0	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (%)	15.8%	37.5%	23.3%	45.0%	39.2%	39.2%	39.2%	39.2%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	5.1	16.9	8.9	23.8		19.5	19.5		19.5	19.5
Actuated g/C Ratio	0.09	0.30	0.16	0.42		0.35	0.35		0.35	0.35
v/c Ratio	0.18	0.75	0.61	0.59		0.11	0.28		0.37	0.01
Control Delay	28.5	23.7	34.3	14.5		15.3	4.2		18.9	0.0
Queue Delay	0.0	0.0	0.0	0.8		0.0	0.0		0.0	0.0
Total Delay	28.5	23.7	34.3	15.3		15.3	4.2		18.9	0.0
LOS	C	C	C	B		B	A		B	A
Approach Delay		23.9		18.4		7.0			18.0	
Approach LOS		C		B		A			B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.0

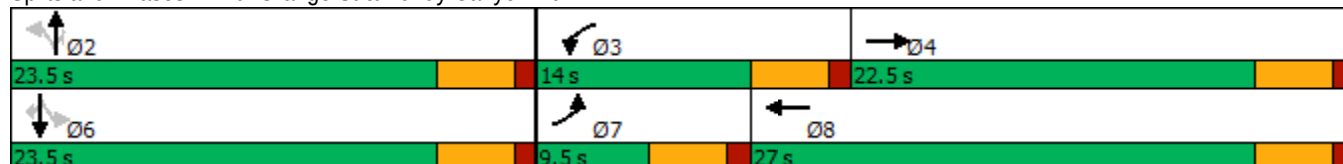
Intersection LOS: B

Intersection Capacity Utilization 54.9%

ICU Level of Service A

Analysis Period (min) 15

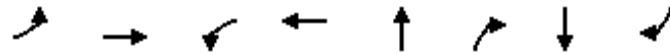
Splits and Phases: 10: Orange St & Bundy Canyon Rd



Queues
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	29	802	170	886	63	191	172	9
v/c Ratio	0.18	0.75	0.61	0.59	0.11	0.28	0.37	0.01
Control Delay	28.5	23.7	34.3	14.5	15.3	4.2	18.9	0.0
Queue Delay	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Total Delay	28.5	23.7	34.3	15.3	15.3	4.2	18.9	0.0
Queue Length 50th (ft)	10	135	58	92	16	0	48	0
Queue Length 95th (ft)	32	194	#126	190	39	37	96	0
Internal Link Dist (ft)		229		240	141		384	
Turn Bay Length (ft)	100		200					
Base Capacity (vph)	161	1164	307	1666	579	674	467	621
Starvation Cap Reductn	0	0	0	437	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.69	0.55	0.72	0.11	0.28	0.37	0.01

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	700	22	153	716	81	19	38	172	127	28	8
Future Volume (veh/h)	26	700	22	153	716	81	19	38	172	127	28	8
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	1863	1900	1863	1863
Adj Flow Rate, veh/h	29	778	24	170	796	90	21	42	191	141	31	9
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	986	30	216	1187	134	88	134	553	120	15	553
Arrive On Green	0.03	0.28	0.28	0.12	0.37	0.37	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1774	3505	108	1774	3206	362	0	384	1583	0	43	1583
Grp Volume(v), veh/h	29	393	409	170	439	447	63	0	191	172	0	9
Grp Sat Flow(s),veh/h/ln	1774	1770	1844	1774	1770	1799	384	0	1583	43	0	1583
Q Serve(g_s), s	0.9	11.2	11.2	5.1	11.3	11.3	0.0	0.0	4.9	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.9	11.2	11.2	5.1	11.3	11.3	19.0	0.0	4.9	19.0	0.0	0.2
Prop In Lane	1.00		0.06	1.00		0.20	0.33		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	58	498	518	216	655	666	222	0	553	135	0	553
V/C Ratio(X)	0.50	0.79	0.79	0.79	0.67	0.67	0.28	0.00	0.35	1.27	0.00	0.02
Avail Cap(c_a), veh/h	163	585	610	310	732	744	222	0	553	135	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	18.1	18.1	23.2	14.4	14.4	14.0	0.0	13.1	25.1	0.0	11.6
Incr Delay (d2), s/veh	6.6	6.2	5.9	8.3	2.1	2.0	3.2	0.0	1.7	167.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.3	6.5	3.0	5.9	6.0	0.8	0.0	2.4	8.3	0.0	0.1
LnGrp Delay(d),s/veh	32.5	24.2	24.0	31.6	16.4	16.4	17.2	0.0	14.8	192.1	0.0	11.6
LnGrp LOS	C	C	C	C	B	B	B		B	F		B
Approach Vol, veh/h		831			1056			254			181	
Approach Delay, s/veh		24.4			18.8			15.4			183.1	
Approach LOS		C			B			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	11.1	19.8		23.5	6.3	24.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	9.5	18.0		19.0	5.0	22.5				
Max Q Clear Time (g_c+I1), s		21.0	7.1	13.2		21.0	2.9	13.3				
Green Ext Time (p_c), s		0.0	0.1	2.1		0.0	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay				33.3								
HCM 2010 LOS				C								

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.951						0.850					
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3366	0	1770	3539	0	0	0	0	1770	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3366	0	1770	3539	0	0	0	0	1770	1583	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)	66									149		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	320			695			332			508		
Travel Time (s)	7.3			15.8			7.5			11.5		
Intersection Summary												
Area Type:	Other											

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	662	325	648	838	0	0	0	0	695	0	163
Future Volume (vph)	0	662	325	648	838	0	0	0	0	695	0	163
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	682	335	668	864	0	0	0	0	716	0	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1017	0	668	864	0	0	0	0	716	168	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

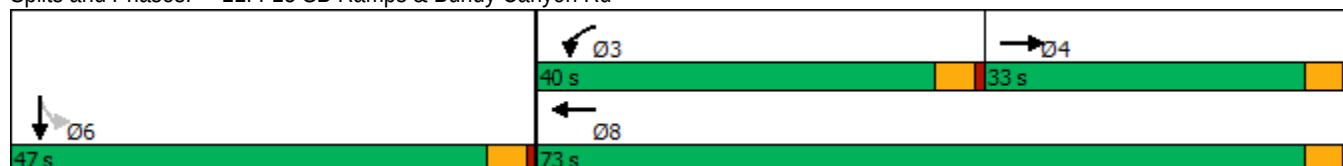
St. Francis of Rome Church TIA
09/24/2019

	→	↙	←	↘	↓
Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	662	648	838	695	0
Future Volume (vph)	662	648	838	695	0
Turn Type	NA	Prot	NA	Perm	NA
Protected Phases	4	3	8		6
Permitted Phases				6	
Detector Phase	4	3	8	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	33.0	40.0	73.0	47.0	47.0
Total Split (%)	27.5%	33.3%	60.8%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	28.5	35.5	68.5	42.5	42.5
Actuated g/C Ratio	0.24	0.30	0.57	0.35	0.35
v/c Ratio	1.20	1.28	0.43	1.14	0.26
Control Delay	138.1	175.1	15.4	118.9	6.8
Queue Delay	1.4	0.0	0.0	0.0	0.0
Total Delay	139.5	175.1	15.4	118.9	6.8
LOS	F	F	B	F	A
Approach Delay	139.5		85.0		97.6
Approach LOS	F		F		F

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.28
 Intersection Signal Delay: 104.4
 Intersection LOS: F
 Intersection Capacity Utilization 120.4%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd

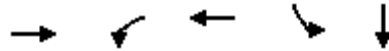


Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1017	668	864	716	168
v/c Ratio	1.20	1.28	0.43	1.14	0.26
Control Delay	138.1	175.1	15.4	118.9	6.8
Queue Delay	1.4	0.0	0.0	0.0	0.0
Total Delay	139.5	175.1	15.4	118.9	6.8
Queue Length 50th (ft)	~482	~655	190	~649	10
Queue Length 95th (ft)	#617	#885	237	#883	58
Internal Link Dist (ft)	240		615		428
Turn Bay Length (ft)		260			
Base Capacity (vph)	849	523	2020	626	656
Starvation Cap Reductn	174	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.51	1.28	0.43	1.14	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

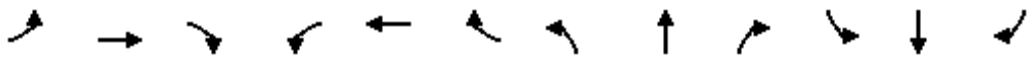
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Volume (veh/h)	0	662	325	648	838	0	0	0	0	695	0	163
Future Volume (veh/h)	0	662	325	648	838	0	0	0	0	695	0	163
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	1863	1900	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	682	335	668	864	0				716	0	168
Adj No. of Lanes	0	2	0	1	2	0				1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	547	269	525	2020	0				628	0	561
Arrive On Green	0.00	0.24	0.24	0.30	0.57	0.00				0.35	0.00	0.35
Sat Flow, veh/h	0	2395	1131	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	524	493	668	864	0				716	0	168
Grp Sat Flow(s),veh/h/ln	0	1770	1663	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	28.5	28.5	35.5	16.6	0.0				42.5	0.0	9.2
Cycle Q Clear(g_c), s	0.0	28.5	28.5	35.5	16.6	0.0				42.5	0.0	9.2
Prop In Lane	0.00		0.68	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	420	395	525	2020	0				628	0	561
V/C Ratio(X)	0.00	1.25	1.25	1.27	0.43	0.00				1.14	0.00	0.30
Avail Cap(c_a), veh/h	0	420	395	525	2020	0				628	0	561
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	45.8	45.8	42.2	14.6	0.0				38.8	0.0	28.0
Incr Delay (d2), s/veh	0.0	129.8	130.9	137.1	0.1	0.0				81.0	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
%ile BackOfQ(50%),veh/ln	0.0	29.0	27.4	37.3	8.1	0.0				34.9	0.0	4.2
LnGrp Delay(d),s/veh	0.0	175.5	176.7	179.3	14.8	0.0				119.7	0.0	29.4
LnGrp LOS		F	F	F	B					F		C
Approach Vol, veh/h		1017			1532						884	
Approach Delay, s/veh		176.1			86.5						102.5	
Approach LOS		F			F						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			40.0	33.0		47.0		73.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			35.5	28.5		42.5		68.5				
Max Q Clear Time (g_c+I1), s			37.5	30.5		44.5		18.6				
Green Ext Time (p_c), s			0.0	0.0		0.0		7.6				
Intersection Summary												
HCM 2010 Ctrl Delay			117.2									
HCM 2010 LOS			F									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.945			0.851				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3345	0	1770	1585	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3345	0	1770	1585	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					118			37				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	
Intersection Summary												
Area Type:	Other											

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

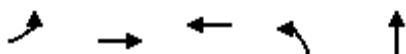
St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	158	1201	0	0	1134	662	356	3	770	0	0	0
Future Volume (vph)	158	1201	0	0	1134	662	356	3	770	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	172	1305	0	0	1233	720	387	3	837	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	1305	0	0	1953	0	387	840	0	0	0	0
Intersection Summary												

Timings
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

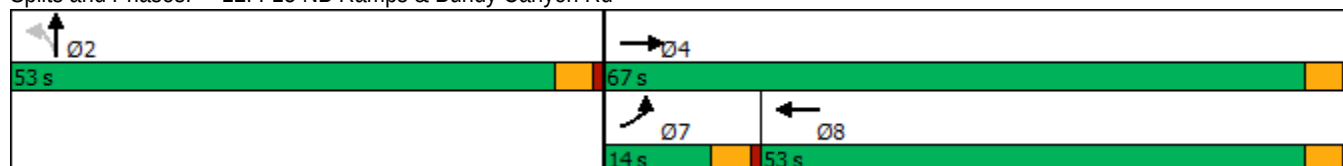


Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Configurations					
Traffic Volume (vph)	158	1201	1134	356	3
Future Volume (vph)	158	1201	1134	356	3
Turn Type	Prot	NA	NA	Perm	NA
Protected Phases	7	4	8		2
Permitted Phases				2	
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5
Total Split (s)	14.0	67.0	53.0	53.0	53.0
Total Split (%)	11.7%	55.8%	44.2%	44.2%	44.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	9.5	62.5	48.5	48.5	48.5
Actuated g/C Ratio	0.08	0.52	0.40	0.40	0.40
v/c Ratio	1.23	0.71	1.37	0.54	1.27
Control Delay	196.0	24.5	201.8	30.8	163.7
Queue Delay	0.0	0.8	0.0	0.0	0.0
Total Delay	196.0	25.3	201.8	30.8	163.7
LOS	F	C	F	C	F
Approach Delay		45.2	201.8		121.8
Approach LOS		D	F		F

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.37
 Intersection Signal Delay: 131.0
 Intersection LOS: F
 Intersection Capacity Utilization 120.4%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd

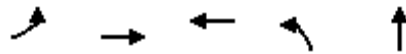


Queues

St. Francis of Rome Church TIA

09/24/2019

12: I-15 NB Ramps & Bundy Canyon Rd



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	172	1305	1953	387	840
v/c Ratio	1.23	0.71	1.37	0.54	1.27
Control Delay	196.0	24.5	201.8	30.8	163.7
Queue Delay	0.0	0.8	0.0	0.0	0.0
Total Delay	196.0	25.3	201.8	30.8	163.7
Queue Length 50th (ft)	~164	388	~1030	225	~806
Queue Length 95th (ft)	#308	472	#1171	324	#1054
Internal Link Dist (ft)		615	78		321
Turn Bay Length (ft)	185				
Base Capacity (vph)	140	1843	1422	715	662
Starvation Cap Reductn	0	246	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.23	0.82	1.37	0.54	1.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	1201	0	0	1134	662	356	3	770	0	0	0
Future Volume (veh/h)	158	1201	0	0	1134	662	356	3	770	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	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	172	1305	0	0	1233	720	387	3	837			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	140	1843	0	0	903	480	717	2	638			
Arrive On Green	0.08	0.52	0.00	0.00	0.40	0.40	0.40	0.40	0.40			
Sat Flow, veh/h	1774	3632	0	0	2327	1188	1774	6	1579			
Grp Volume(v), veh/h	172	1305	0	0	951	1002	387	0	840			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1653	1774	0	1584			
Q Serve(g_s), s	9.5	33.6	0.0	0.0	48.5	48.5	19.9	0.0	48.5			
Cycle Q Clear(g_c), s	9.5	33.6	0.0	0.0	48.5	48.5	19.9	0.0	48.5			
Prop In Lane	1.00		0.00	0.00		0.72	1.00		1.00			
Lane Grp Cap(c), veh/h	140	1843	0	0	715	668	717	0	640			
V/C Ratio(X)	1.22	0.71	0.00	0.00	1.33	1.50	0.54	0.00	1.31			
Avail Cap(c_a), veh/h	140	1843	0	0	715	668	717	0	640			
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	55.3	21.8	0.0	0.0	35.8	35.8	27.2	0.0	35.8			
Incr Delay (d2), s/veh	148.6	1.3	0.0	0.0	158.2	232.4	2.9	0.0	151.3			
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	10.4	16.6	0.0	0.0	55.1	65.2	10.4	0.0	48.1			
LnGrp Delay(d),s/veh	203.9	23.1	0.0	0.0	193.9	268.2	30.1	0.0	187.1			
LnGrp LOS	F	C			F	F	C		F			
Approach Vol, veh/h		1477			1953			1227				
Approach Delay, s/veh		44.1			232.0			137.6				
Approach LOS		D			F			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		53.0		67.0			14.0	53.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		48.5		62.5			9.5	48.5				
Max Q Clear Time (g_c+I1), s		50.5		35.6			11.5	50.5				
Green Ext Time (p_c), s		0.0		11.6			0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				147.5								
HCM 2010 LOS				F								

Lanes and Geometrics
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	0		0	150		0	100		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt				0.850			0.979			0.999		
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	1863	0	1770	0	1583	1863	1824	0	1770	1861	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	1863	0	1770	0	1583	1863	1824	0	1770	1861	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				515			8					
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	209			495			473			348		
Travel Time (s)	4.8			11.3			10.8			7.9		

Intersection Summary

Area Type: Other

Volume
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1	0	28	0	489	0	208	33	550	242	1
Future Volume (vph)	0	1	0	28	0	489	0	208	33	550	242	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1	0	29	0	515	0	219	35	579	255	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	29	0	515	0	254	0	579	256	0
Intersection Summary												

Timings
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA
09/24/2019

	→	↖	↗	↑	↘	↓
Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↔	↖	↗	↑	↘	↗
Traffic Volume (vph)	1	28	489	208	550	242
Future Volume (vph)	1	28	489	208	550	242
Turn Type	NA	Prot	pm+ov	NA	Prot	NA
Protected Phases	2	1	7	8	7	4
Permitted Phases			1			
Detector Phase	2	1	7	8	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	9.5	35.0	22.5	35.0	57.5
Total Split (%)	25.6%	10.6%	38.9%	25.0%	38.9%	63.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max
Act Effect Green (s)	5.6	5.1	30.0	21.8	27.4	56.8
Actuated g/C Ratio	0.09	0.08	0.47	0.34	0.43	0.90
v/c Ratio	0.01	0.21	0.50	0.40	0.76	0.15
Control Delay	31.0	34.4	2.7	21.1	24.3	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	34.4	2.7	21.1	24.3	2.2
LOS	C	C	A	C	C	A
Approach Delay	31.0			21.1		17.5
Approach LOS	C			C		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 63.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 62.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Grand Ave & Corydon St



Queues
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1	29	515	254	579	256
v/c Ratio	0.01	0.21	0.50	0.40	0.76	0.15
Control Delay	31.0	34.4	2.7	21.1	24.3	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	34.4	2.7	21.1	24.3	2.2
Queue Length 50th (ft)	0	10	0	61	142	0
Queue Length 95th (ft)	5	39	29	179	#423	63
Internal Link Dist (ft)	129			393		268
Turn Bay Length (ft)		150			100	
Base Capacity (vph)	551	141	1080	632	863	1666
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.21	0.48	0.40	0.67	0.15

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	0	28	0	489	0	208	33	550	242	1
Future Volume (veh/h)	0	1	0	28	0	489	0	208	33	550	242	1
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	1900	1863	1900	1863	0	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	1	0	29	0	515	0	219	35	579	255	1
Adj No. of Lanes	0	1	0	1	0	1	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	0	2	2	2	2	2	2	2
Cap, veh/h	0	3	0	55	0	0	105	545	87	636	1430	6
Arrive On Green	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.35	0.35	0.36	0.77	0.77
Sat Flow, veh/h	0	1761	0	1774	29		1119	1568	251	1774	1854	7
Grp Volume(v), veh/h	0	1	0	29	40.5		0	0	254	579	0	256
Grp Sat Flow(s),veh/h/ln	0	1863	0	1774	D		1119	0	1819	1774	0	1861
Q Serve(g_s), s	0.0	0.0	0.0	1.1			0.0	0.0	7.3	21.4	0.0	2.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.1			0.0	0.0	7.3	21.4	0.0	2.5
Prop In Lane	0.00		0.00	1.00			1.00		0.14	1.00		0.00
Lane Grp Cap(c), veh/h	0	3	0	55			105	0	632	636	0	1436
V/C Ratio(X)	0.00	0.37	0.00	0.53			0.00	0.00	0.40	0.91	0.00	0.18
Avail Cap(c_a), veh/h	0	501	0	129			105	0	632	787	0	1436
HCM Platoon Ratio	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00			0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	34.3	0.0	32.8			0.0	0.0	17.0	21.0	0.0	2.1
Incr Delay (d2), s/veh	0.0	67.7	0.0	7.7			0.0	0.0	0.4	12.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.7			0.0	0.0	3.7	12.6	0.0	1.4
LnGrp Delay(d),s/veh	0.0	102.0	0.0	40.5			0.0	0.0	17.4	33.8	0.0	2.4
LnGrp LOS		F		D					B	C		A
Approach Vol, veh/h		1						254			835	
Approach Delay, s/veh		102.0						17.4			24.1	
Approach LOS		F						B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	6.6	4.6		57.5			29.1	28.4				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5		53.0			30.5	18.0				
Max Q Clear Time (g_c+I1), s	3.1	2.0		4.5			23.4	9.3				
Green Ext Time (p_c), s	0.0	0.0		1.7			1.3	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay				23.1								
HCM 2010 LOS				C								

Opening Year (2020) Cumulative Conditions Without Project
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%		0%		0%		0%		0%		0%	
Storage Length (ft)	95		95	145		0	100		0	100		100
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.979		0.913				0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3465	0	1770	1701	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.738			0.721		
Satd. Flow (perm)	1770	1863	1583	1770	3465	0	1375	1701	0	1343	1863	1583
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	
Satd. Flow (RTOR)			109		35		32				109	
Link Speed (mph)	30				30		30				30	
Link Distance (ft)	495				474		343				250	
Travel Time (s)	11.3				10.8		7.8				5.7	

Intersection Summary

Area Type: Other

Volume
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	9	592	32	31	519	83	48	21	29	95	27	7
Future Volume (vph)	9	592	32	31	519	83	48	21	29	95	27	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	658	36	34	577	92	53	23	32	106	30	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	658	36	34	669	0	53	55	0	106	30	8
Intersection Summary												

Timings
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	592	32	31	519	48	21	95	27	7
Future Volume (vph)	9	592	32	31	519	48	21	95	27	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4		3	8		2		6	
Permitted Phases			4			2		6		6
Detector Phase	7	4	4	3	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	22.5	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	37.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	5.1	21.9	21.9	5.1	23.6	18.3	18.3	18.3	18.3	18.3
Actuated g/C Ratio	0.10	0.42	0.42	0.10	0.45	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.06	0.85	0.05	0.20	0.43	0.11	0.09	0.23	0.05	0.01
Control Delay	25.7	28.6	0.1	27.8	10.7	15.0	9.1	16.2	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	28.6	0.1	27.8	10.7	15.0	9.1	16.2	14.4	0.0
LOS	C	C	A	C	B	B	A	B	B	A
Approach Delay		27.1			11.5		12.0		15.0	
Approach LOS		C			B		B		B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 52.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 18.5

Intersection LOS: B

Intersection Capacity Utilization 50.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Palomar St & Corydon St

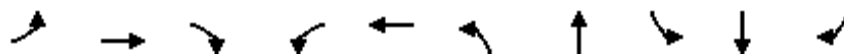
		
Ø2	Ø3	Ø4
22.5 s	9.5 s	28 s
		
Ø6	Ø7	Ø8
22.5 s	9.5 s	28 s

Queues

St. Francis of Rome Church TIA

2: Palomar St & Corydon St

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	10	658	36	34	669	53	55	106	30	8
v/c Ratio	0.06	0.85	0.05	0.20	0.43	0.11	0.09	0.23	0.05	0.01
Control Delay	25.7	28.6	0.1	27.8	10.7	15.0	9.1	16.2	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	28.6	0.1	27.8	10.7	15.0	9.1	16.2	14.4	0.0
Queue Length 50th (ft)	3	149	0	10	59	10	4	21	6	0
Queue Length 95th (ft)	16	#407	0	35	128	36	27	63	24	0
Internal Link Dist (ft)		415			394		263		170	
Turn Bay Length (ft)	95		95	145		100		100		100
Base Capacity (vph)	170	843	776	170	1696	477	610	465	646	620
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.78	0.05	0.20	0.39	0.11	0.09	0.23	0.05	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	592	32	31	519	83	48	21	29	95	27	7
Future Volume (veh/h)	9	592	32	31	519	83	48	21	29	95	27	7
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	1900	1863	1863	1863
Adj Flow Rate, veh/h	10	658	36	34	577	92	53	23	32	106	30	8
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	732	622	65	1275	203	560	230	320	538	607	516
Arrive On Green	0.01	0.39	0.39	0.04	0.42	0.42	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	3060	487	1364	706	983	1343	1863	1583
Grp Volume(v), veh/h	10	658	36	34	333	336	53	0	55	106	30	8
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1777	1364	0	1689	1343	1863	1583
Q Serve(g_s), s	0.3	18.3	0.8	1.0	7.5	7.5	1.5	0.0	1.3	3.3	0.6	0.2
Cycle Q Clear(g_c), s	0.3	18.3	0.8	1.0	7.5	7.5	2.1	0.0	1.3	4.5	0.6	0.2
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.58	1.00		1.00
Lane Grp Cap(c), veh/h	23	732	622	65	737	741	560	0	551	538	607	516
V/C Ratio(X)	0.44	0.90	0.06	0.52	0.45	0.45	0.09	0.00	0.10	0.20	0.05	0.02
Avail Cap(c_a), veh/h	161	793	674	161	753	756	560	0	551	538	607	516
HCM Platoon Ratio	1.00	1.00	1.00	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	27.1	15.7	10.4	26.1	11.6	11.6	13.5	0.0	13.0	14.6	12.8	12.6
Incr Delay (d2), s/veh	12.6	12.6	0.0	6.3	0.4	0.4	0.3	0.0	0.4	0.8	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	11.9	0.3	0.6	3.7	3.7	0.6	0.0	0.6	1.3	0.3	0.1
LnGrp Delay(d),s/veh	39.7	28.3	10.5	32.4	12.0	12.0	13.8	0.0	13.3	15.4	12.9	12.7
LnGrp LOS	D	C	B	C	B	B	B		B	B	B	B
Approach Vol, veh/h		704			703			108			144	
Approach Delay, s/veh		27.6			13.0			13.6			14.7	
Approach LOS		C			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	6.5	26.2		22.5	5.2	27.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	23.5		18.0	5.0	23.5				
Max Q Clear Time (g_c+I1), s		4.1	3.0	20.3		6.5	2.3	9.5				
Green Ext Time (p_c), s		0.3	0.0	1.4		0.3	0.0	3.6				
Intersection Summary												
HCM 2010 Ctrl Delay			19.4									
HCM 2010 LOS			B									

Lanes and Geometrics
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	350		0	100		0	90		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt	0.850			0.900			0.989			0.999		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3185	0	1770	3500	0	1770	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3185	0	1770	3500	0	1770	3536	0
Right Turn on Red	Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)	176			36			12			1		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	560			435			423			314		
Travel Time (s)	12.7			9.9			9.6			7.1		

Intersection Summary

Area Type: Other

Volume
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	9	3	28	85	17	34	73	726	56	19	738	6
Future Volume (vph)	9	3	28	85	17	34	73	726	56	19	738	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	3	30	90	18	36	78	772	60	20	785	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	3	30	90	54	0	78	832	0	20	791	0
Intersection Summary												

Timings
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	3	28	85	17	73	726	19	738
Future Volume (vph)	9	3	28	85	17	73	726	19	738
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	9.5	23.0	9.5	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	14.6%	35.4%	14.6%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
Act Effect Green (s)	5.1	5.8	5.8	5.6	7.7	5.1	29.0	5.1	25.3
Actuated g/C Ratio	0.11	0.13	0.13	0.12	0.17	0.11	0.64	0.11	0.55
v/c Ratio	0.05	0.01	0.08	0.41	0.10	0.40	0.37	0.10	0.40
Control Delay	22.0	20.7	0.5	27.7	10.5	28.2	8.1	22.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	20.7	0.5	27.7	10.5	28.2	8.1	22.6	11.0
LOS	C	C	A	C	B	C	A	C	B
Approach Delay		6.9			21.2		9.8		11.3
Approach LOS		A			C		A		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 45.6

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 11.2

Intersection LOS: B

Intersection Capacity Utilization 48.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Mission Trail & Malaga Rd

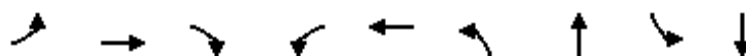
			
Ø1	Ø2	Ø3	Ø4
9.5 s	23 s	10 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
9.5 s	23 s	9.5 s	23 s

Queues

St. Francis of Rome Church TIA

3: Mission Trail & Malaga Rd

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	3	30	90	54	78	832	20	791
v/c Ratio	0.05	0.01	0.08	0.41	0.10	0.40	0.37	0.10	0.40
Control Delay	22.0	20.7	0.5	27.7	10.5	28.2	8.1	22.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	20.7	0.5	27.7	10.5	28.2	8.1	22.6	11.0
Queue Length 50th (ft)	2	1	0	20	2	18	34	4	67
Queue Length 95th (ft)	15	7	0	#72	15	#65	167	22	158
Internal Link Dist (ft)		480			355		343		234
Turn Bay Length (ft)	350			100		90		220	
Base Capacity (vph)	197	749	742	219	1338	197	2231	197	1964
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.00	0.04	0.41	0.04	0.40	0.37	0.10	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary

3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	3	28	85	17	34	73	726	56	19	738	6
Future Volume (veh/h)	9	3	28	85	17	34	73	726	56	19	738	6
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	1900	1863	1863	1900
Adj Flow Rate, veh/h	10	3	30	90	18	36	78	772	60	20	785	6
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	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	23	143	121	131	243	217	121	1464	114	43	1426	11
Arrive On Green	0.01	0.08	0.08	0.07	0.14	0.14	0.07	0.44	0.44	0.02	0.40	0.40
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3328	259	1774	3600	28
Grp Volume(v), veh/h	10	3	30	90	18	36	78	410	422	20	386	405
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1817	1774	1770	1858
Q Serve(g_s), s	0.3	0.1	0.8	2.3	0.4	0.9	2.0	7.9	7.9	0.5	7.9	7.9
Cycle Q Clear(g_c), s	0.3	0.1	0.8	2.3	0.4	0.9	2.0	7.9	7.9	0.5	7.9	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.01
Lane Grp Cap(c), veh/h	23	143	121	131	243	217	121	778	799	43	701	736
V/C Ratio(X)	0.43	0.02	0.25	0.69	0.07	0.17	0.65	0.53	0.53	0.46	0.55	0.55
Avail Cap(c_a), veh/h	190	718	610	209	701	627	190	778	799	190	701	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	19.9	20.3	21.1	17.6	17.8	21.2	9.5	9.5	22.5	10.9	10.9
Incr Delay (d2), s/veh	12.3	0.1	1.0	6.3	0.1	0.4	5.7	2.6	2.5	7.4	3.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.4	0.2	0.4	1.2	4.3	4.4	0.3	4.4	4.5
LnGrp Delay(d),s/veh	35.1	20.0	21.3	27.4	17.7	18.1	26.9	12.1	12.0	29.9	14.0	13.8
LnGrp LOS	D	C	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		43			144			910			811	
Approach Delay, s/veh		24.5			23.9			13.3			14.3	
Approach LOS		C			C			B			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	5.6	25.0	7.9	8.1	7.7	23.0	5.1	10.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	2.5	9.9	4.3	2.8	4.0	9.9	2.3	2.9				
Green Ext Time (p_c), s	0.0	3.4	0.0	0.0	0.0	3.2	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				14.8								
HCM 2010 LOS				B								

Lanes and Geometrics
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		70	105	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.923			0.850		
Flt Protected	0.979				0.950	
Satd. Flow (prot)	1683	0	3539	1583	1770	3539
Flt Permitted	0.979				0.950	
Satd. Flow (perm)	1683	0	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	100			110		
Link Speed (mph)	30		30			30
Link Distance (ft)	332		405			423
Travel Time (s)	7.5		9.2			9.6
Intersection Summary						
Area Type:	Other					

Volume
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	88	118	847	120	95	749
Future Volume (vph)	88	118	847	120	95	749
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	110	148	1059	150	119	936
Shared Lane Traffic (%)						
Lane Group Flow (vph)	258	0	1059	150	119	936
Intersection Summary						

Timings

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	88	847	120	95	749
Future Volume (vph)	88	847	120	95	749
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	3	2		1	6
Permitted Phases			2		
Detector Phase	3	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5
Total Split (s)	16.0	31.0	31.0	13.0	44.0
Total Split (%)	26.7%	51.7%	51.7%	21.7%	73.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max
Act Effect Green (s)	9.8	31.2	31.2	7.9	41.7
Actuated g/C Ratio	0.16	0.52	0.52	0.13	0.69
v/c Ratio	0.72	0.58	0.17	0.52	0.38
Control Delay	26.6	13.3	4.4	32.5	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	13.3	4.4	32.5	4.8
LOS	C	B	A	C	A
Approach Delay	26.6	12.2			8.0
Approach LOS	C	B			A

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60.5

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 11.9

Intersection LOS: B

Intersection Capacity Utilization 52.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Mission Trail & Lemon St



Queues

St. Francis of Rome Church TIA

4: Mission Trail & Lemon St

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	258	1059	150	119	936
v/c Ratio	0.72	0.58	0.17	0.52	0.38
Control Delay	26.6	13.3	4.4	32.5	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	13.3	4.4	32.5	4.8
Queue Length 50th (ft)	51	151	8	40	66
Queue Length 95th (ft)	97	178	28	74	80
Internal Link Dist (ft)	252	325			343
Turn Bay Length (ft)			70	105	
Base Capacity (vph)	401	1824	869	249	2436
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.58	0.17	0.48	0.38
Intersection Summary					

HCM 2010 Signalized Intersection Summary

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		 		 	 		
Traffic Volume (veh/h)	88	118	847	120	95	749		
Future Volume (veh/h)	88	118	847	120	95	749		
Number	3	18	2	12	1	6		
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	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	110	148	1059	150	119	936		
Adj No. of Lanes	0	0	2	1	1	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80		
Percent Heavy Veh, %	0	0	2	2	2	2		
Cap, veh/h	129	174	1781	797	153	2355		
Arrive On Green	0.18	0.18	0.50	0.50	0.09	0.67		
Sat Flow, veh/h	705	949	3632	1583	1774	3632		
Grp Volume(v), veh/h	259	0	1059	150	119	936		
Grp Sat Flow(s),veh/h/ln	1660	0	1770	1583	1774	1770		
Q Serve(g_s), s	9.0	0.0	12.6	3.1	3.9	7.1		
Cycle Q Clear(g_c), s	9.0	0.0	12.6	3.1	3.9	7.1		
Prop In Lane	0.42	0.57		1.00	1.00			
Lane Grp Cap(c), veh/h	304	0	1781	797	153	2355		
V/C Ratio(X)	0.85	0.00	0.59	0.19	0.78	0.40		
Avail Cap(c_a), veh/h	322	0	1781	797	254	2355		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.5	0.0	10.4	8.1	26.6	4.5		
Incr Delay (d2), s/veh	18.6	0.0	1.5	0.5	8.2	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	5.7	0.0	6.4	1.4	2.3	3.5		
LnGrp Delay(d),s/veh	42.1	0.0	11.9	8.6	34.7	5.0		
LnGrp LOS	D		B	A	C	A		
Approach Vol, veh/h	259		1209			1055		
Approach Delay, s/veh	42.1		11.5			8.4		
Approach LOS	D		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.6	34.4				44.0		15.4
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	8.5	26.5				39.5		11.5
Max Q Clear Time (g_c+I1), s	5.9	14.6				9.1		11.0
Green Ext Time (p_c), s	0.1	6.2				7.8		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			13.3					
HCM 2010 LOS			B					
Notes								

Opening Year (2020) Cumulative Conditions Without Project
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	270	260	125			115
Storage Lanes	2	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.88	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	2787	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		251				116
Link Speed (mph)	30			30	30	
Link Distance (ft)	463			424	405	
Travel Time (s)	10.5			9.6	9.2	
Intersection Summary						
Area Type:	Other					

Volume
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	485	313	275	465	431	428
Future Volume (vph)	485	313	275	465	431	428
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	522	337	296	500	463	460
Shared Lane Traffic (%)						
Lane Group Flow (vph)	522	337	296	500	463	460
Intersection Summary						

Timings
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Traffic Volume (vph)	485	313	275	465	431	428
Future Volume (vph)	485	313	275	465	431	428
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	Max	Max	None
Act Effect Green (s)	14.3	29.3	10.5	33.1	18.1	36.8
Actuated g/C Ratio	0.25	0.52	0.19	0.59	0.32	0.65
v/c Ratio	0.60	0.21	0.90	0.24	0.41	0.43
Control Delay	21.5	2.4	57.2	6.5	17.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	2.4	57.2	6.5	17.0	4.7
LOS	C	A	E	A	B	A
Approach Delay	14.0			25.3	10.8	
Approach LOS	B			C	B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 16.4

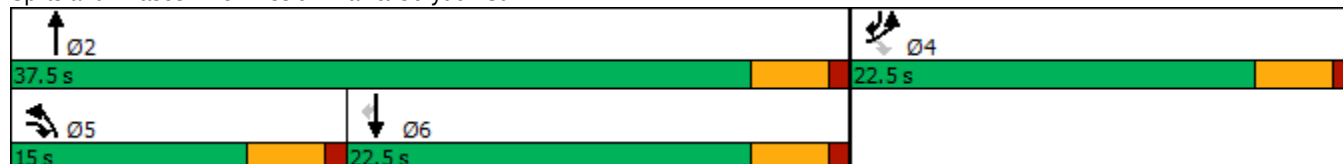
Intersection LOS: B

Intersection Capacity Utilization 52.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Mission Trail & Corydon St



Queues
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	522	337	296	500	463	460
v/c Ratio	0.60	0.21	0.90	0.24	0.41	0.43
Control Delay	21.5	2.4	57.2	6.5	17.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	2.4	57.2	6.5	17.0	4.7
Queue Length 50th (ft)	79	7	99	36	63	41
Queue Length 95th (ft)	120	24	#241	67	107	79
Internal Link Dist (ft)	383			344	325	
Turn Bay Length (ft)	270	260	125			115
Base Capacity (vph)	1098	1569	330	2076	1132	1172
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.21	0.90	0.24	0.41	0.39

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
5: Mission Trail & Corydon St

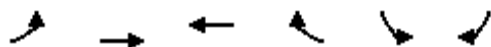
St. Francis of Rome Church TIA

09/24/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	485	313	275	465	431	428		
Future Volume (veh/h)	485	313	275	465	431	428		
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	522	337	296	500	463	460		
Adj No. of Lanes	2	2	1	2	2	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	759	1157	346	2168	1183	878		
Arrive On Green	0.22	0.22	0.19	0.61	0.33	0.33		
Sat Flow, veh/h	3442	2787	1774	3632	3632	1583		
Grp Volume(v), veh/h	522	337	296	500	463	460		
Grp Sat Flow(s),veh/h/ln	1721	1393	1774	1770	1770	1583		
Q Serve(g_s), s	7.5	4.3	8.7	3.4	5.4	9.8		
Cycle Q Clear(g_c), s	7.5	4.3	8.7	3.4	5.4	9.8		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	759	1157	346	2168	1183	878		
V/C Ratio(X)	0.69	0.29	0.86	0.23	0.39	0.52		
Avail Cap(c_a), veh/h	1150	1474	346	2168	1183	878		
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	19.3	10.5	21.0	4.7	13.7	7.5		
Incr Delay (d2), s/veh	1.1	0.1	18.6	0.2	1.0	2.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.7	4.0	6.0	1.7	2.8	6.9		
LnGrp Delay(d),s/veh	20.4	10.6	39.6	5.0	14.7	9.8		
LnGrp LOS	C	B	D	A	B	A		
Approach Vol, veh/h	859			796	923			
Approach Delay, s/veh	16.6			17.8	12.3			
Approach LOS	B			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.5		16.4	15.0	22.5		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		33.0		18.0	10.5	18.0		
Max Q Clear Time (g_c+I1), s		5.4		9.5	10.7	11.8		
Green Ext Time (p_c), s		3.6		2.4	0.0	2.6		
Intersection Summary								
HCM 2010 Ctrl Delay			15.4					
HCM 2010 LOS			B					

Lanes and Geometrics
6: Orange St & Monjonner Way

St. Francis of Rome Church TIA
09/24/2019



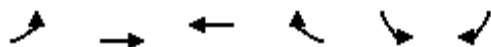
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.975		0.961	
Flt Protected		0.996			0.966	
Satd. Flow (prot)	0	1855	1816	0	1729	0
Flt Permitted		0.996			0.966	
Satd. Flow (perm)	0	1855	1816	0	1729	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		439	221		241	
Travel Time (s)		10.0	5.0		5.5	

Intersection Summary

Area Type: Other

Volume
6: Orange St & Monjonnier Way

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	4	44	47	11	9	4
Future Volume (vph)	4	44	47	11	9	4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	4	49	52	12	10	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	53	64	0	14	0
Intersection Summary						

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	44	47	11	9	4
Future Vol, veh/h	4	44	47	11	9	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	49	52	12	10	4
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	64	0	-	0	115	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	57	-
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	1538	-	-	-	881	1008
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	966	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1538	-	-	-	878	1008
Mov Cap-2 Maneuver	-	-	-	-	878	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	966	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.6	0		9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1538	-	-	-	914	
HCM Lane V/C Ratio	0.003	-	-	-	0.016	
HCM Control Delay (s)	7.3	0	-	-	9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes and Geometrics
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.944				0.947	
Flt Protected				0.982	0.971	
Satd. Flow (prot)	1758	0	0	1829	1713	0
Flt Permitted				0.982	0.971	
Satd. Flow (perm)	1758	0	0	1829	1713	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	167			136	829	
Travel Time (s)	3.8			3.1	18.8	
Intersection Summary						
Area Type:	Other					

Volume
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	131	93	54	95	72	47
Future Volume (vph)	131	93	54	95	72	47
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	175	124	72	127	96	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	299	0	0	199	159	0
Intersection Summary						

Intersection

Int Delay, s/veh 4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	131	93	54	95	72	47
Future Vol, veh/h	131	93	54	95	72	47
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	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	175	124	72	127	96	63

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	299
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	-	-	1262
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1262
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	581	-	-	1262	-
HCM Lane V/C Ratio	0.273	-	-	0.057	-
HCM Control Delay (s)	13.5	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.2	-

Lanes and Geometrics
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.989			0.907			0.986			0.994	
Flt Protected		0.997						0.990			0.977	
Satd. Flow (prot)	0	1837	0	0	1690	0	0	1818	0	0	1809	0
Flt Permitted		0.997						0.990			0.977	
Satd. Flow (perm)	0	1837	0	0	1690	0	0	1818	0	0	1809	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		221			312			464			829	
Travel Time (s)		5.0			7.1			10.5			18.8	
Intersection Summary												
Area Type:	Other											

Volume
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	3	44	4	1	42	97	6	21	3	68	71	6
Future Volume (vph)	3	44	4	1	42	97	6	21	3	68	71	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	55	5	1	53	121	8	26	4	85	89	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	175	0	0	38	0	0	182	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	44	4	1	42	97	6	21	3	68	71	6
Future Vol, veh/h	3	44	4	1	42	97	6	21	3	68	71	6
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	55	5	1	53	121	8	26	4	85	89	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB		NB		SB						
Opposing Approach	WB	EB		SB		NB						
Opposing Lanes	1	1		1		1						
Conflicting Approach Left	SB	NB		EB		WB						
Conflicting Lanes Left	1	1		1		1						
Conflicting Approach Right	NB	SB		WB		EB						
Conflicting Lanes Right	1	1		1		1						
HCM Control Delay	8	8.2		7.9		9						
HCM LOS	A	A		A		A						

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	6%	1%	47%
Vol Thru, %	70%	86%	30%	49%
Vol Right, %	10%	8%	69%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	51	140	145
LT Vol	6	3	1	68
Through Vol	21	44	42	71
RT Vol	3	4	97	6
Lane Flow Rate	38	64	175	181
Geometry Grp	1	1	1	1
Degree of Util (X)	0.048	0.082	0.2	0.23
Departure Headway (Hd)	4.649	4.607	4.116	4.568
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	770	778	873	787
Service Time	2.679	2.629	2.134	2.592
HCM Lane V/C Ratio	0.049	0.082	0.2	0.23
HCM Control Delay	7.9	8	8.2	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.3	0.7	0.9

Lanes and Geometrics
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850						0.989
Flt Protected												0.956
Satd. Flow (prot)	0	3539	1863	0	3539	1583	0	1863	0	0	1761	0
Flt Permitted												0.956
Satd. Flow (perm)	0	3539	1863	0	3539	1583	0	1863	0	0	1761	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		660			309			203			464	
Travel Time (s)		15.0			7.0			4.6			10.5	
Intersection Summary												
Area Type:	Other											

Volume
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	6	624	0	0	585	32	0	0	0	75	0	7
Future Volume (vph)	6	624	0	0	585	32	0	0	0	75	0	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	6	637	0	0	597	33	0	0	0	77	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	643	0	0	597	33	0	0	0	0	84	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	624	0	0	585	32	0	0	0	75	0	7
Future Vol, veh/h	6	624	0	0	585	32	0	0	0	75	0	7
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	637	0	0	597	33	0	0	0	77	0	7
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	15.9	12.7	0	12
HCM LOS	C	B	-	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	3%	0%	0%	0%	0%	0%	91%
Vol Thru, %	100%	97%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	100%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	214	416	0	293	293	32	82
LT Vol	0	6	0	0	0	0	0	75
Through Vol	0	208	416	0	293	293	0	0
RT Vol	0	0	0	0	0	0	32	7
Lane Flow Rate	0	218	424	0	298	298	33	84
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.338	0.656	0	0.464	0.464	0.028	0.177
Departure Headway (Hd)	7.477	5.577	5.562	5.562	5.597	5.597	3.14	7.607
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	646	649	0	645	645	1138	473
Service Time	5.219	3.299	3.285	3.285	3.321	3.321	0.864	5.341
HCM Lane V/C Ratio	0	0.337	0.653	0	0.462	0.462	0.029	0.178
HCM Control Delay	10.2	11.1	18.3	8.3	13.1	13.1	6	12
HCM Lane LOS	N	B	C	N	B	B	A	B
HCM 95th-tile Q	0	1.5	4.9	0	2.5	2.5	0.1	0.6

Lanes and Geometrics
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%			0%	
Storage Length (ft)	100		0	200		0	100		0	100		0	
Storage Lanes	1		0	1		0	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt	0.996				0.981				0.850			0.850	
Flt Protected	0.950			0.950				0.992			0.958		
Satd. Flow (prot)	1770	3525	0	1770	3472	0	0	1848	1583	0	1785	1583	
Flt Permitted	0.950			0.950				0.953			0.700		
Satd. Flow (perm)	1770	3525	0	1770	3472	0	0	1775	1583	0	1304	1583	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		4			29				197			109	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		309			320			221			464		
Travel Time (s)		7.0			7.3			5.0			10.5		

Intersection Summary

Area Type: Other

Volume
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	43	661	16	112	604	87	10	57	187	181	24	14
Future Volume (vph)	43	661	16	112	604	87	10	57	187	181	24	14
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	45	696	17	118	636	92	11	60	197	191	25	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	713	0	118	728	0	0	71	197	0	216	15
Intersection Summary												

Timings
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	43	661	112	604	10	57	187	181	24	14
Future Volume (vph)	43	661	112	604	10	57	187	181	24	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	3	8		2			6	
Permitted Phases					2		2	6		6
Detector Phase	7	4	3	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.3	22.5	13.0	25.2	24.5	24.5	24.5	24.5	24.5	24.5
Total Split (%)	17.2%	37.5%	21.7%	42.0%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	5.9	15.7	7.8	21.5		20.6	20.6		20.6	20.6
Actuated g/C Ratio	0.11	0.28	0.14	0.39		0.37	0.37		0.37	0.37
v/c Ratio	0.24	0.71	0.47	0.53		0.11	0.28		0.44	0.02
Control Delay	28.5	22.4	30.6	14.5		14.4	4.0		19.2	0.1
Queue Delay	0.0	0.0	0.0	0.5		0.0	0.0		0.0	0.0
Total Delay	28.5	22.4	30.6	15.0		14.4	4.0		19.2	0.1
LOS	C	C	C	B		B	A		B	A
Approach Delay		22.8		17.2		6.7			18.0	
Approach LOS		C		B		A			B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 55.1

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 18.0

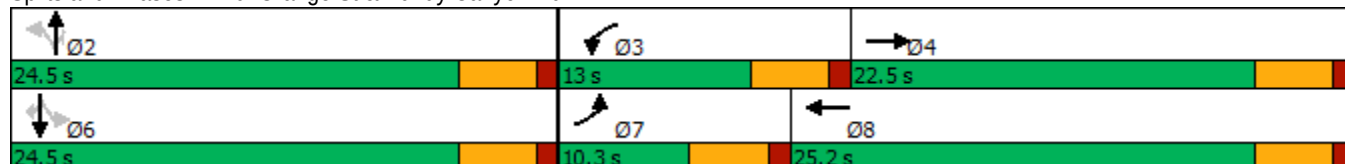
Intersection LOS: B

Intersection Capacity Utilization 54.2%

ICU Level of Service A

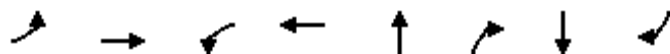
Analysis Period (min) 15

Splits and Phases: 10: Orange St & Bundy Canyon Rd



Queues
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	45	713	118	728	71	197	216	15
v/c Ratio	0.24	0.71	0.47	0.53	0.11	0.28	0.44	0.02
Control Delay	28.5	22.4	30.6	14.5	14.4	4.0	19.2	0.1
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	28.5	22.4	30.6	15.0	14.4	4.0	19.2	0.1
Queue Length 50th (ft)	16	116	40	73	18	0	61	0
Queue Length 95th (ft)	42	169	83	156	42	37	119	0
Internal Link Dist (ft)		229		240	141		384	
Turn Bay Length (ft)	100		200					
Base Capacity (vph)	191	1186	280	1560	662	714	486	659
Starvation Cap Reductn	0	0	0	402	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.60	0.42	0.63	0.11	0.28	0.44	0.02
Intersection Summary								

HCM 2010 Signalized Intersection Summary
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	661	16	112	604	87	10	57	187	181	24	14
Future Volume (veh/h)	43	661	16	112	604	87	10	57	187	181	24	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	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	45	696	17	118	636	92	11	60	197	191	25	15
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	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	82	939	23	152	949	137	80	320	613	131	9	613
Arrive On Green	0.05	0.27	0.27	0.09	0.31	0.31	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1774	3531	86	1774	3105	448	0	827	1583	0	24	1583
Grp Volume(v), veh/h	45	349	364	118	362	366	71	0	197	216	0	15
Grp Sat Flow(s),veh/h/ln	1774	1770	1848	1774	1770	1784	827	0	1583	24	0	1583
Q Serve(g_s), s	1.3	9.3	9.3	3.4	9.2	9.3	0.0	0.0	4.5	0.0	0.0	0.3
Cycle Q Clear(g_c), s	1.3	9.3	9.3	3.4	9.2	9.3	20.0	0.0	4.5	20.0	0.0	0.3
Prop In Lane	1.00		0.05	1.00		0.25	0.15		1.00	0.88		1.00
Lane Grp Cap(c), veh/h	82	470	491	152	541	545	401	0	613	141	0	613
V/C Ratio(X)	0.55	0.74	0.74	0.77	0.67	0.67	0.18	0.00	0.32	1.54	0.00	0.02
Avail Cap(c_a), veh/h	199	616	644	292	709	714	401	0	613	141	0	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	17.3	17.3	23.1	15.7	15.7	11.3	0.0	11.1	24.5	0.0	9.8
Incr Delay (d2), s/veh	5.7	3.4	3.3	8.1	1.6	1.6	1.0	0.0	1.4	273.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.0	5.2	2.0	4.7	4.7	0.7	0.0	2.2	12.6	0.0	0.1
LnGrp Delay(d),s/veh	29.8	20.7	20.6	31.2	17.2	17.2	12.3	0.0	12.5	297.7	0.0	9.9
LnGrp LOS	C	C	C	C	B	B	B		B	F		A
Approach Vol, veh/h		758			846			268			231	
Approach Delay, s/veh		21.2			19.2			12.4			279.0	
Approach LOS		C			B			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.5	8.9	18.2		24.5	6.9	20.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.0	8.5	18.0		20.0	5.8	20.7				
Max Q Clear Time (g_c+I1), s		22.0	5.4	11.3		22.0	3.3	11.3				
Green Ext Time (p_c), s		0.0	0.1	2.4		0.0	0.0	3.2				
Intersection Summary												
HCM 2010 Ctrl Delay				47.6								
HCM 2010 LOS				D								

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.945									0.852	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3345	0	1770	3539	0	0	0	0	1770	1587	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3345	0	1770	3539	0	0	0	0	1770	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		92									143	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		320			695			332			508	
Travel Time (s)		7.3			15.8			7.5			11.5	

Intersection Summary

Area Type: Other

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	648	372	601	654	0	0	0	0	569	2	130
Future Volume (vph)	0	648	372	601	654	0	0	0	0	569	2	130
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	712	409	660	719	0	0	0	0	625	2	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1121	0	660	719	0	0	0	0	625	145	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

	→	↙	←	↘	↓
Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	648	601	654	569	2
Future Volume (vph)	648	601	654	569	2
Turn Type	NA	Prot	NA	Perm	NA
Protected Phases	4	3	8		6
Permitted Phases				6	
Detector Phase	4	3	8	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	36.0	41.0	77.0	43.0	43.0
Total Split (%)	30.0%	34.2%	64.2%	35.8%	35.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	31.5	36.5	72.5	38.5	38.5
Actuated g/C Ratio	0.26	0.30	0.60	0.32	0.32
v/c Ratio	1.19	1.23	0.34	1.10	0.24
Control Delay	130.9	154.5	12.3	107.6	6.0
Queue Delay	1.5	0.0	0.0	0.0	0.0
Total Delay	132.3	154.5	12.3	107.6	6.0
LOS	F	F	B	F	A
Approach Delay	132.3		80.4		88.5
Approach LOS	F		F		F

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 100.1
 Intersection LOS: F
 Intersection Capacity Utilization 108.8%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd

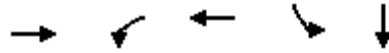


Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1121	660	719	625	145
v/c Ratio	1.19	1.23	0.34	1.10	0.24
Control Delay	130.9	154.5	12.3	107.6	6.0
Queue Delay	1.5	0.0	0.0	0.0	0.0
Total Delay	132.3	154.5	12.3	107.6	6.0
Queue Length 50th (ft)	~522	~630	136	~550	1
Queue Length 95th (ft)	#660	#859	173	#775	47
Internal Link Dist (ft)	240		615		428
Turn Bay Length (ft)		260			
Base Capacity (vph)	945	538	2138	567	606
Starvation Cap Reductn	217	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.54	1.23	0.34	1.10	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

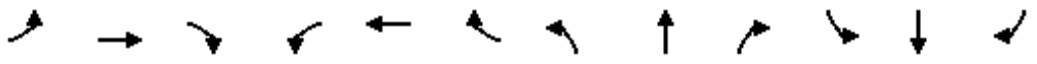
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Volume (veh/h)	0	648	372	601	654	0	0	0	0	569	2	130
Future Volume (veh/h)	0	648	372	601	654	0	0	0	0	569	2	130
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	1863	1900	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	712	409	660	719	0				625	2	143
Adj No. of Lanes	0	2	0	1	2	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
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	569	326	540	2138	0				569	7	502
Arrive On Green	0.00	0.26	0.26	0.30	0.60	0.00				0.32	0.32	0.32
Sat Flow, veh/h	0	2263	1243	1774	3632	0				1774	22	1565
Grp Volume(v), veh/h	0	580	541	660	719	0				625	0	145
Grp Sat Flow(s),veh/h/ln	0	1770	1643	1774	1770	0				1774	0	1587
Q Serve(g_s), s	0.0	31.5	31.5	36.5	12.1	0.0				38.5	0.0	8.2
Cycle Q Clear(g_c), s	0.0	31.5	31.5	36.5	12.1	0.0				38.5	0.0	8.2
Prop In Lane	0.00		0.76	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	465	431	540	2138	0				569	0	509
V/C Ratio(X)	0.00	1.25	1.25	1.22	0.34	0.00				1.10	0.00	0.28
Avail Cap(c_a), veh/h	0	465	431	540	2138	0				569	0	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	44.2	44.3	41.8	11.8	0.0				40.8	0.0	30.5
Incr Delay (d2), s/veh	0.0	129.2	131.7	116.2	0.1	0.0				67.3	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
%ile BackOfQ(50%),veh/ln	0.0	32.0	30.0	35.3	5.9	0.0				29.5	0.0	3.8
LnGrp Delay(d),s/veh	0.0	173.4	176.0	158.0	11.9	0.0				108.1	0.0	31.9
LnGrp LOS		F	F	F	B					F		C
Approach Vol, veh/h		1121			1379						770	
Approach Delay, s/veh		174.7			81.8						93.7	
Approach LOS		F			F						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			41.0	36.0		43.0		77.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			36.5	31.5		38.5		72.5				
Max Q Clear Time (g_c+I1), s			38.5	33.5		40.5		14.1				
Green Ext Time (p_c), s			0.0	0.0		0.0		6.0				
Intersection Summary												
HCM 2010 Ctrl Delay			116.4									
HCM 2010 LOS			F									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%			
Storage Length (ft)	185			0	0			0	0	0	0	0
Storage Lanes	1			0	0			0	1	0	0	0
Taper Length (ft)	25			25				25				25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.945		0.851					
Flt Protected	0.950								0.950			
Satd. Flow (prot)	1770	3539	0	0	3345	0	1770	1585	0	0	0	0
Flt Permitted	0.950								0.950			
Satd. Flow (perm)	1770	3539	0	0	3345	0	1770	1585	0	0	0	0
Right Turn on Red			Yes				Yes				Yes	
Satd. Flow (RTOR)					117		90					
Link Speed (mph)	30						30		30			
Link Distance (ft)	695		158				401		507			
Travel Time (s)	15.8		3.6				9.1		11.5			
Intersection Summary												
Area Type:	Other											

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	225	996	0	0	1000	578	285	3	627	0	0	0
Future Volume (vph)	225	996	0	0	1000	578	285	3	627	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	242	1071	0	0	1075	622	306	3	674	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	242	1071	0	0	1697	0	306	677	0	0	0	0
Intersection Summary												

Timings
12: I-15 NB Ramps & Bundy Canyon Rd

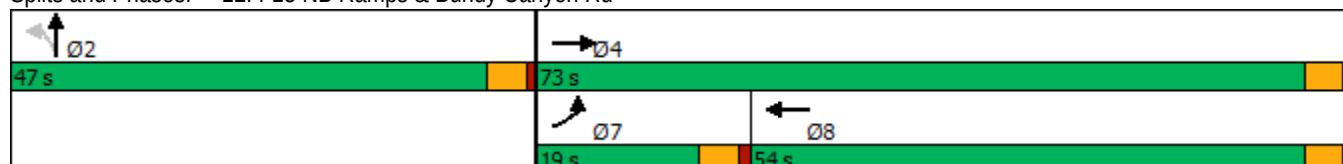
St. Francis of Rome Church TIA
09/24/2019

					
Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Configurations		 	  		
Traffic Volume (vph)	225	996	1000	285	3
Future Volume (vph)	225	996	1000	285	3
Turn Type	Prot	NA	NA	Perm	NA
Protected Phases	7	4	8		2
Permitted Phases				2	
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5
Total Split (s)	19.0	73.0	54.0	47.0	47.0
Total Split (%)	15.8%	60.8%	45.0%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	14.5	68.5	49.5	42.5	42.5
Actuated g/C Ratio	0.12	0.57	0.41	0.35	0.35
v/c Ratio	1.14	0.53	1.17	0.49	1.09
Control Delay	150.5	17.1	116.2	33.5	97.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	150.5	17.1	116.2	33.5	97.0
LOS	F	B	F	C	F
Approach Delay		41.6	116.2		77.2
Approach LOS		D	F		E

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 140
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 82.1
 Intersection LOS: F
 Intersection Capacity Utilization 108.8%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd

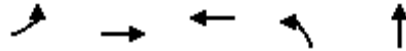


Queues

St. Francis of Rome Church TIA

09/24/2019

12: I-15 NB Ramps & Bundy Canyon Rd



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	242	1071	1697	306	677
v/c Ratio	1.14	0.53	1.17	0.49	1.09
Control Delay	150.5	17.1	116.2	33.5	97.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	150.5	17.1	116.2	33.5	97.0
Queue Length 50th (ft)	~218	255	~798	184	~545
Queue Length 95th (ft)	#382	312	#940	272	#780
Internal Link Dist (ft)		615	78		321
Turn Bay Length (ft)	185				
Base Capacity (vph)	213	2020	1448	626	619
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.14	0.53	1.17	0.49	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	996	0	0	1000	578	285	3	627	0	0	0
Future Volume (veh/h)	225	996	0	0	1000	578	285	3	627	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	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	242	1071	0	0	1075	622	306	3	674			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	214	2020	0	0	910	500	628	2	559			
Arrive On Green	0.12	0.57	0.00	0.00	0.41	0.41	0.35	0.35	0.35			
Sat Flow, veh/h	1774	3632	0	0	2300	1212	1774	7	1577			
Grp Volume(v), veh/h	242	1071	0	0	851	846	306	0	677			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1649	1774	0	1584			
Q Serve(g_s), s	14.5	22.3	0.0	0.0	49.5	49.5	16.2	0.0	42.5			
Cycle Q Clear(g_c), s	14.5	22.3	0.0	0.0	49.5	49.5	16.2	0.0	42.5			
Prop In Lane	1.00		0.00	0.00		0.73	1.00		1.00			
Lane Grp Cap(c), veh/h	214	2020	0	0	730	680	628	0	561			
V/C Ratio(X)	1.13	0.53	0.00	0.00	1.17	1.24	0.49	0.00	1.21			
Avail Cap(c_a), veh/h	214	2020	0	0	730	680	628	0	561			
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	52.7	15.8	0.0	0.0	35.2	35.3	30.2	0.0	38.8			
Incr Delay (d2), s/veh	100.5	0.3	0.0	0.0	88.9	122.1	2.7	0.0	108.9			
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	13.1	10.9	0.0	0.0	42.2	45.6	8.4	0.0	35.5			
LnGrp Delay(d),s/veh	153.2	16.1	0.0	0.0	124.2	157.4	32.9	0.0	147.7			
LnGrp LOS	F	B			F	F	C		F			
Approach Vol, veh/h		1313			1697			983				
Approach Delay, s/veh		41.4			140.7			111.9				
Approach LOS		D			F			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		47.0		73.0			19.0	54.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		42.5		68.5			14.5	49.5				
Max Q Clear Time (g_c+I1), s		44.5		24.3			16.5	51.5				
Green Ext Time (p_c), s		0.0		10.2			0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				101.0								
HCM 2010 LOS				F								

Appendix E

Opening Year (2020) Cumulative With Project Conditions
Intersection Analysis Worksheets

Lanes and Geometrics
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	0		0	150		0	100		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.850						0.978					
Flt Protected	0.984			0.950			0.950			0.950		
Satd. Flow (prot)	0	1833	0	1770	0	1583	1770	1822	0	1770	1863	0
Flt Permitted	0.939			0.756			0.566			0.950		
Satd. Flow (perm)	0	1749	0	1408	0	1583	1054	1822	0	1770	1863	0
Right Turn on Red	Yes						Yes					
Satd. Flow (RTOR)	280						11					
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	209			495			473			348		
Travel Time (s)	4.8			11.3			10.8			7.9		

Intersection Summary

Area Type: Other

Volume
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	1	2	0	38	2	489	1	221	37	495	282	1
Future Volume (vph)	1	2	0	38	2	489	1	221	37	495	282	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	1	2	0	43	2	556	1	251	42	563	320	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	43	2	556	1	293	0	563	321	0
Intersection Summary												

Timings

1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	2	38	2	489	1	221	495	282
Future Volume (vph)	1	2	38	2	489	1	221	495	282
Turn Type	Perm	NA	Perm	NA	pm+ov	Perm	NA	Prot	NA
Protected Phases		4		8	1		2	1	6
Permitted Phases	4		8		8	2			
Detector Phase	4	4	8	8	1	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	30.0	22.5	22.5	30.0	52.5
Total Split (%)	30.0%	30.0%	30.0%	30.0%	40.0%	30.0%	30.0%	40.0%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		12.3	12.4	0.0	35.6	21.1	21.1	23.7	51.7
Actuated g/C Ratio		0.19	0.19	0.00	0.54	0.32	0.32	0.36	0.78
v/c Ratio		0.01	0.16	no cap	0.57	0.00	0.50	0.89	0.22
Control Delay		22.0	24.1		6.0	22.0	25.3	40.6	5.1
Queue Delay		0.0	0.0		0.4	0.0	0.0	0.0	0.0
Total Delay		22.0	24.1	Error	6.4	22.0	25.3	40.6	5.1
LOS		C	C	F	A	C	C	D	A
Approach Delay		22.0		Err			25.3		27.7
Approach LOS		C		F			C		C

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 66

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: Err

Intersection Signal Delay: Err

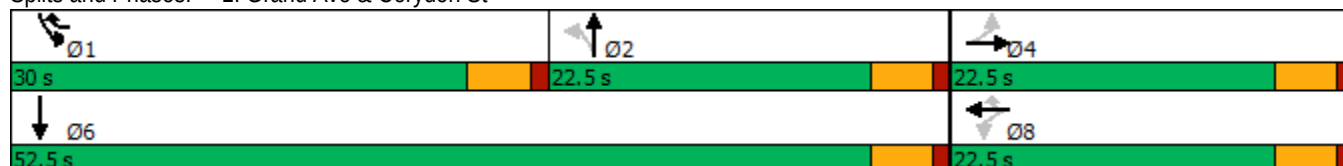
Intersection LOS: F

Intersection Capacity Utilization Err%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Grand Ave & Corydon St



Queues
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	43	2	556	1	293	563	321
v/c Ratio	0.01	0.16	no cap	0.57	0.00	0.50	0.89	0.22
Control Delay	22.0	24.1		6.0	22.0	25.3	40.6	5.1
Queue Delay	0.0	0.0		0.4	0.0	0.0	0.0	0.0
Total Delay	22.0	24.1	Error	6.4	22.0	25.3	40.6	5.1
Queue Length 50th (ft)	1	16	0	49	0	119	249	57
Queue Length 95th (ft)	7	40	0	99	4	193	#426	90
Internal Link Dist (ft)	129		415			393		268
Turn Bay Length (ft)		150			100		100	
Base Capacity (vph)	491	395	1	1033	336	590	704	1460
Starvation Cap Reductn	0	0	0	148	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.11	2.00	0.63	0.00	0.50	0.80	0.22

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	0	38	2	489	1	221	37	495	282	1
Future Volume (veh/h)	1	2	0	38	2	489	1	221	37	495	282	1
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	1863	1900	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	1	2	0	43	2	556	1	251	42	562	320	1
Adj No. of Lanes	0	1	0	1	0	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	264	0	435	0	912	353	380	64	596	1188	4
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.24	0.24	0.24	0.24	0.34	0.64	0.64
Sat Flow, veh/h	348	1099	0	1409	0	1583	1054	1556	260	1774	1856	6
Grp Volume(v), veh/h	3	0	0	43	0	556	1	0	293	562	0	321
Grp Sat Flow(s),veh/h/ln	1446	0	0	1409	0	1583	1054	0	1817	1774	0	1862
Q Serve(g_s), s	0.0	0.0	0.0	1.7	0.0	17.2	0.1	0.0	10.9	23.1	0.0	5.6
Cycle Q Clear(g_c), s	0.1	0.0	0.0	1.8	0.0	17.2	0.1	0.0	10.9	23.1	0.0	5.6
Prop In Lane	0.33		0.00	1.00		1.00	1.00		0.14	1.00		0.00
Lane Grp Cap(c), veh/h	411	0	0	435	0	912	353	0	443	596	0	1192
V/C Ratio(X)	0.01	0.00	0.00	0.10	0.00	0.61	0.00	0.00	0.66	0.94	0.00	0.27
Avail Cap(c_a), veh/h	411	0	0	435	0	912	353	0	443	603	0	1192
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	0.0	22.3	0.0	10.4	21.5	0.0	25.6	24.2	0.0	5.9
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	1.2	0.0	0.0	7.5	23.3	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	0.0	0.0	0.0	0.7	0.0	7.7	0.0	0.0	6.4	15.1	0.0	3.0
LnGrp Delay(d),s/veh	21.7	0.0	0.0	22.4	0.0	11.6	21.5	0.0	33.1	47.5	0.0	6.4
LnGrp LOS	C			C		B	C		C	D		A
Approach Vol, veh/h	3			599			294			883		
Approach Delay, s/veh	21.7			12.4			33.1			32.6		
Approach LOS	C			B			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	29.7	22.8	22.5		52.5		22.5					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5		4.5					
Max Green Setting (Gmax), s	25.5	18.0	18.0		48.0		18.0					
Max Q Clear Time (g_c+I1), s	25.1	12.9	2.1		7.6		19.2					
Green Ext Time (p_c), s	0.1	0.7	0.0		2.1		0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			25.8									
HCM 2010 LOS			C									
Notes												

Opening Year (2020) Cumulative Conditions With Project
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%		0%		
Storage Length (ft)	95		95	145		0	100		0	100		100	
Storage Lanes	1		1	1		0	1		0	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt			0.850		0.977				0.939				0.850
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1770	1863	1583	1770	3458	0	1770	1749	0	1770	1863	1583	
Flt Permitted	0.950			0.950			0.742			0.720			
Satd. Flow (perm)	1770	1863	1583	1770	3458	0	1382	1749	0	1341	1863	1583	
Right Turn on Red			Yes				Yes				Yes		Yes
Satd. Flow (RTOR)			109		42				23				109
Link Speed (mph)	30				30				30		30		
Link Distance (ft)	495				474				343		250		
Travel Time (s)	11.3				10.8				7.8		5.7		

Intersection Summary

Area Type: Other

Volume
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	4	569	36	31	567	105	52	32	22	73	22	7
Future Volume (vph)	4	569	36	31	567	105	52	32	22	73	22	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	605	38	33	603	112	55	34	23	78	23	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	605	38	33	715	0	55	57	0	78	23	7
Intersection Summary												

Timings 2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	4	569	36	31	567	52	32	73	22	7
Future Volume (vph)	4	569	36	31	567	52	32	73	22	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4		3	8		2		6	
Permitted Phases			4			2		6		6
Detector Phase	7	4	4	3	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	22.5	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	37.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	5.1	20.5	20.5	5.1	22.1	18.4	18.4	18.4	18.4	18.4
Actuated g/C Ratio	0.10	0.40	0.40	0.10	0.43	0.36	0.36	0.36	0.36	0.36
v/c Ratio	0.02	0.82	0.05	0.19	0.47	0.11	0.09	0.16	0.03	0.01
Control Delay	25.2	25.9	0.1	27.4	11.1	14.9	10.5	15.4	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	25.9	0.1	27.4	11.1	14.9	10.5	15.4	14.4	0.0
LOS	C	C	A	C	B	B	B	B	B	A
Approach Delay		24.3			11.9		12.7		14.2	
Approach LOS		C			B		B		B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 51.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 17.1

Intersection LOS: B

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Palomar St & Corydon St

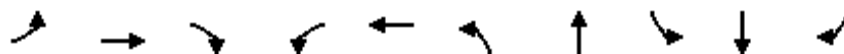
 Ø2	 Ø3	 Ø4
22.5 s	9.5 s	28 s
 Ø6	 Ø7	 Ø8
22.5 s	9.5 s	28 s

Queues

St. Francis of Rome Church TIA

2: Palomar St & Corydon St

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	4	605	38	33	715	55	57	78	23	7
v/c Ratio	0.02	0.82	0.05	0.19	0.47	0.11	0.09	0.16	0.03	0.01
Control Delay	25.2	25.9	0.1	27.4	11.1	14.9	10.5	15.4	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	25.9	0.1	27.4	11.1	14.9	10.5	15.4	14.4	0.0
Queue Length 50th (ft)	1	131	0	9	64	10	6	15	4	0
Queue Length 95th (ft)	9	#359	0	34	138	37	31	49	20	0
Internal Link Dist (ft)		415			394		263		170	
Turn Bay Length (ft)	95		95	145		100		100		100
Base Capacity (vph)	176	872	799	176	1749	495	641	480	667	637
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.69	0.05	0.19	0.41	0.11	0.09	0.16	0.03	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary

2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	569	36	31	567	105	52	32	22	73	22	7
Future Volume (veh/h)	4	569	36	31	567	105	52	32	22	73	22	7
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	1900	1863	1863	1863
Adj Flow Rate, veh/h	4	605	38	33	603	112	55	34	23	78	23	7
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	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	10	698	593	64	1209	224	586	349	236	556	627	533
Arrive On Green	0.01	0.37	0.37	0.04	0.41	0.41	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	1863	1583	1774	2982	553	1374	1037	702	1341	1863	1583
Grp Volume(v), veh/h	4	605	38	33	357	358	55	0	57	78	23	7
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1765	1374	0	1739	1341	1863	1583
Q Serve(g_s), s	0.1	16.1	0.8	1.0	8.0	8.1	1.5	0.0	1.2	2.3	0.4	0.2
Cycle Q Clear(g_c), s	0.1	16.1	0.8	1.0	8.0	8.1	1.9	0.0	1.2	3.5	0.4	0.2
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	10	698	593	64	718	716	586	0	585	556	627	533
V/C Ratio(X)	0.42	0.87	0.06	0.51	0.50	0.50	0.09	0.00	0.10	0.14	0.04	0.01
Avail Cap(c_a), veh/h	166	819	696	166	778	776	586	0	585	556	627	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	15.5	10.7	25.3	11.8	11.9	12.6	0.0	12.2	13.4	11.9	11.8
Incr Delay (d2), s/veh	26.5	8.7	0.0	6.2	0.5	0.5	0.3	0.0	0.3	0.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	9.9	0.4	0.6	4.0	4.0	0.6	0.0	0.6	0.9	0.2	0.1
LnGrp Delay(d),s/veh	53.0	24.2	10.8	31.5	12.4	12.4	12.9	0.0	12.5	13.9	12.0	11.9
LnGrp LOS	D	C	B	C	B	B	B		B	B	B	B
Approach Vol, veh/h		647			748			112			108	
Approach Delay, s/veh		23.5			13.2			12.7			13.4	
Approach LOS		C			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	6.4	24.5		22.5	4.8	26.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	23.5		18.0	5.0	23.5				
Max Q Clear Time (g_c+I1), s		3.9	3.0	18.1		5.5	2.1	10.1				
Green Ext Time (p_c), s		0.3	0.0	1.9		0.2	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay				17.3								
HCM 2010 LOS				B								

Lanes and Geometrics
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	350		0	100		0	90		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.907				0.987		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3210	0	1770	3493	0	1770	3529	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3210	0	1770	3493	0	1770	3529	0
Right Turn on Red			Yes				Yes				Yes	
Satd. Flow (RTOR)			176		34				15		3	
Link Speed (mph)	30				30				30		30	
Link Distance (ft)	560				435				423		314	
Travel Time (s)	12.7				9.9				9.6		7.1	

Intersection Summary

Area Type: Other

Volume
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	8	2	30	100	20	33	76	712	67	33	806	17
Future Volume (vph)	8	2	30	100	20	33	76	712	67	33	806	17
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	8	2	31	104	21	34	79	742	70	34	840	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	2	31	104	55	0	79	812	0	34	858	0
Intersection Summary												

Timings
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	8	2	30	100	20	76	712	33	806
Future Volume (vph)	8	2	30	100	20	76	712	33	806
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	9.5	23.0	9.5	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	14.6%	35.4%	14.6%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
Act Effect Green (s)	5.1	5.8	5.8	5.7	7.6	5.1	26.9	5.1	24.9
Actuated g/C Ratio	0.11	0.13	0.13	0.13	0.17	0.11	0.60	0.11	0.55
v/c Ratio	0.04	0.01	0.09	0.47	0.10	0.40	0.39	0.17	0.44
Control Delay	21.9	20.5	0.5	30.3	10.9	28.2	9.8	23.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.5	0.5	30.3	10.9	28.2	9.8	23.4	11.4
LOS	C	C	A	C	B	C	A	C	B
Approach Delay		5.6			23.6		11.4		11.8
Approach LOS		A			C		B		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 45.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 50.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Mission Trail & Malaga Rd

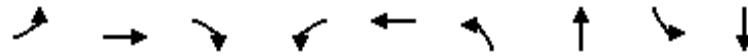
			
9.5 s	23 s	10 s	22.5 s
			
9.5 s	23 s	9.5 s	23 s

Queues

St. Francis of Rome Church TIA

3: Mission Trail & Malaga Rd

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	2	31	104	55	79	812	34	858
v/c Ratio	0.04	0.01	0.09	0.47	0.10	0.40	0.39	0.17	0.44
Control Delay	21.9	20.5	0.5	30.3	10.9	28.2	9.8	23.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	20.5	0.5	30.3	10.9	28.2	9.8	23.4	11.4
Queue Length 50th (ft)	2	1	0	24	2	18	32	8	75
Queue Length 95th (ft)	12	5	0	#87	16	#66	162	32	174
Internal Link Dist (ft)		480			355		343		234
Turn Bay Length (ft)	350			100		90		220	
Base Capacity (vph)	200	760	750	222	1366	200	2086	200	1945
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.00	0.04	0.47	0.04	0.40	0.39	0.17	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary

3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	30	100	20	33	76	712	67	33	806	17
Future Volume (veh/h)	8	2	30	100	20	33	76	712	67	33	806	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	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	2	31	104	21	34	79	742	70	34	840	18
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	142	120	140	256	229	121	1386	131	68	1394	30
Arrive On Green	0.01	0.08	0.08	0.08	0.14	0.14	0.07	0.42	0.42	0.04	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3270	308	1774	3543	76
Grp Volume(v), veh/h	8	2	31	104	21	34	79	401	411	34	420	438
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1808	1774	1770	1849
Q Serve(g_s), s	0.2	0.0	0.9	2.7	0.5	0.9	2.0	7.9	8.0	0.9	8.9	8.9
Cycle Q Clear(g_c), s	0.2	0.0	0.9	2.7	0.5	0.9	2.0	7.9	8.0	0.9	8.9	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.04
Lane Grp Cap(c), veh/h	19	142	120	140	256	229	121	750	767	68	696	728
V/C Ratio(X)	0.43	0.01	0.26	0.74	0.08	0.15	0.65	0.54	0.54	0.50	0.60	0.60
Avail Cap(c_a), veh/h	189	713	606	208	696	623	189	750	767	189	696	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	20.1	20.5	21.2	17.4	17.6	21.3	10.1	10.1	22.2	11.3	11.3
Incr Delay (d2), s/veh	14.7	0.0	1.1	7.5	0.1	0.3	5.8	2.7	2.7	5.7	3.8	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.6	0.2	0.4	1.2	4.4	4.4	0.5	5.1	5.2
LnGrp Delay(d),s/veh	37.8	20.1	21.6	28.7	17.5	17.9	27.1	12.8	12.8	27.8	15.2	15.0
LnGrp LOS	D	C	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		41			159			891			892	
Approach Delay, s/veh		24.7			24.9			14.1			15.6	
Approach LOS		C			C			B			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	6.3	24.4	8.2	8.1	7.7	23.0	5.0	11.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	2.9	10.0	4.7	2.9	4.0	10.9	2.2	2.9				
Green Ext Time (p_c), s	0.0	3.3	0.0	0.0	0.0	3.2	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				15.8								
HCM 2010 LOS				B								

Lanes and Geometrics
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		70	105	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.942			0.850		
Flt Protected	0.972				0.950	
Satd. Flow (prot)	1706	0	3539	1583	1770	3539
Flt Permitted	0.972				0.950	
Satd. Flow (perm)	1706	0	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	64			114		
Link Speed (mph)	30		30			30
Link Distance (ft)	332		405			423
Travel Time (s)	7.5		9.2			9.6
Intersection Summary						
Area Type:	Other					

Volume
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	84	62	748	127	87	807
Future Volume (vph)	84	62	748	127	87	807
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	90	67	804	137	94	868
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	0	804	137	94	868
Intersection Summary						

Timings
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	84	748	127	87	807
Future Volume (vph)	84	748	127	87	807
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	8	2		1	6
Permitted Phases			2		
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	25.5	25.5	12.0	37.5
Total Split (%)	37.5%	42.5%	42.5%	20.0%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max
Act Effect Green (s)	8.4	30.6	30.6	7.0	37.9
Actuated g/C Ratio	0.16	0.58	0.58	0.13	0.72
v/c Ratio	0.48	0.39	0.14	0.40	0.34
Control Delay	17.1	10.1	4.0	26.1	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	10.1	4.0	26.1	4.4
LOS	B	B	A	C	A
Approach Delay	17.1	9.2			6.5
Approach LOS	B	A			A

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 52.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 8.6

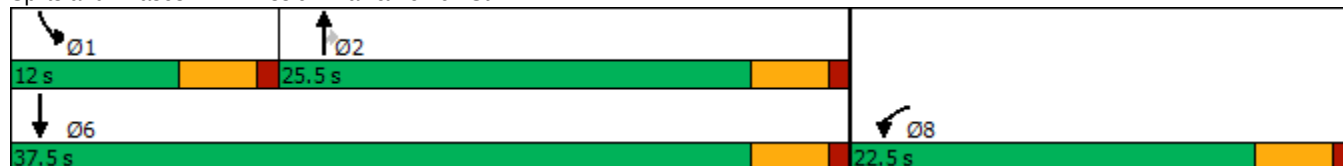
Intersection LOS: A

Intersection Capacity Utilization 45.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Mission Trail & Lemon St



Queues

St. Francis of Rome Church TIA

4: Mission Trail & Lemon St

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	157	804	137	94	868
v/c Ratio	0.48	0.39	0.14	0.40	0.34
Control Delay	17.1	10.1	4.0	26.1	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	10.1	4.0	26.1	4.4
Queue Length 50th (ft)	25	87	4	25	46
Queue Length 95th (ft)	66	151	32	64	93
Internal Link Dist (ft)	252	325			343
Turn Bay Length (ft)			70	105	
Base Capacity (vph)	628	2067	972	253	2558
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.39	0.14	0.37	0.34
Intersection Summary					

HCM 2010 Signalized Intersection Summary

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	84	62	748	127	87	807		
Future Volume (veh/h)	84	62	748	127	87	807		
Number	3	18	2	12	1	6		
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	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	90	67	804	137	94	868		
Adj No. of Lanes	0	0	2	1	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	0	0	2	2	2	2		
Cap, veh/h	117	87	1845	825	132	2441		
Arrive On Green	0.12	0.12	0.52	0.52	0.07	0.69		
Sat Flow, veh/h	962	716	3632	1583	1774	3632		
Grp Volume(v), veh/h	158	0	804	137	94	868		
Grp Sat Flow(s),veh/h/ln	1688	0	1770	1583	1774	1770		
Q Serve(g_s), s	4.3	0.0	6.7	2.2	2.5	4.8		
Cycle Q Clear(g_c), s	4.3	0.0	6.7	2.2	2.5	4.8		
Prop In Lane	0.57	0.42		1.00	1.00			
Lane Grp Cap(c), veh/h	206	0	1845	825	132	2441		
V/C Ratio(X)	0.77	0.00	0.44	0.17	0.71	0.36		
Avail Cap(c_a), veh/h	635	0	1845	825	278	2441		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.3	0.0	7.1	6.0	21.6	3.0		
Incr Delay (d2), s/veh	5.9	0.0	0.8	0.4	6.9	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.4	0.0	3.4	1.1	1.5	2.4		
LnGrp Delay(d),s/veh	26.2	0.0	7.8	6.4	28.5	3.5		
LnGrp LOS	C		A	A	C	A		
Approach Vol, veh/h	158		941			962		
Approach Delay, s/veh	26.2		7.6			5.9		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.1	29.4				37.5		10.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	7.5	21.0				33.0		18.0
Max Q Clear Time (g_c+I1), s	4.5	8.7				6.8		6.3
Green Ext Time (p_c), s	0.0	4.8				6.8		0.3
Intersection Summary								
HCM 2010 Ctrl Delay			8.3					
HCM 2010 LOS			A					
Notes								

Opening Year (2020) Cumulative Conditions With Project
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	270	260	125			115
Storage Lanes	2	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.88	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	2787	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		108				150
Link Speed (mph)	30			30	30	
Link Distance (ft)	463			424	405	
Travel Time (s)	10.5			9.6	9.2	
Intersection Summary						
Area Type:	Other					

Volume
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	427	386	345	525	572	393
Future Volume (vph)	427	386	345	525	572	393
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	445	402	359	547	596	409
Shared Lane Traffic (%)						
Lane Group Flow (vph)	445	402	359	547	596	409
Intersection Summary						

Timings
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Traffic Volume (vph)	427	386	345	525	572	393
Future Volume (vph)	427	386	345	525	572	393
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	20.0	20.0	42.5	22.5	22.5
Total Split (%)	34.6%	30.8%	30.8%	65.4%	34.6%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	Max	Max	None
Act Effect Green (s)	13.6	33.0	14.8	38.1	18.7	36.8
Actuated g/C Ratio	0.22	0.54	0.24	0.63	0.31	0.61
v/c Ratio	0.58	0.26	0.83	0.25	0.55	0.40
Control Delay	24.0	5.4	41.4	5.8	20.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	5.4	41.4	5.8	20.7	5.1
LOS	C	A	D	A	C	A
Approach Delay	15.2			19.9	14.3	
Approach LOS	B			B	B	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 60.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Mission Trail & Corydon St

 Ø2	 Ø4
42.5 s	22.5 s
 Ø5	 Ø6
20 s	22.5 s

Queues
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	445	402	359	547	596	409
v/c Ratio	0.58	0.26	0.83	0.25	0.55	0.40
Control Delay	24.0	5.4	41.4	5.8	20.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	5.4	41.4	5.8	20.7	5.1
Queue Length 50th (ft)	74	27	123	39	96	40
Queue Length 95th (ft)	113	47	#272	73	156	81
Internal Link Dist (ft)	383			344	325	
Turn Bay Length (ft)	270	260	125			115
Base Capacity (vph)	1020	1592	453	2220	1091	1124
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.25	0.79	0.25	0.55	0.36

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

5: Mission Trail & Corydon St

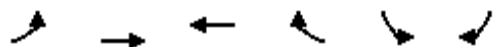
St. Francis of Rome Church TIA

09/24/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	427	386	345	525	572	393		
Future Volume (veh/h)	427	386	345	525	572	393		
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	445	402	359	547	596	409		
Adj No. of Lanes	2	2	1	2	2	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	672	1193	413	2303	1206	849		
Arrive On Green	0.20	0.20	0.23	0.65	0.34	0.34		
Sat Flow, veh/h	3442	2787	1774	3632	3632	1583		
Grp Volume(v), veh/h	445	402	359	547	596	409		
Grp Sat Flow(s),veh/h/ln	1721	1393	1774	1770	1770	1583		
Q Serve(g_s), s	7.0	5.6	11.4	3.7	7.8	9.4		
Cycle Q Clear(g_c), s	7.0	5.6	11.4	3.7	7.8	9.4		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	672	1193	413	2303	1206	849		
V/C Ratio(X)	0.66	0.34	0.87	0.24	0.49	0.48		
Avail Cap(c_a), veh/h	1061	1508	471	2303	1206	849		
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	21.7	11.2	21.5	4.2	15.3	8.5		
Incr Delay (d2), s/veh	1.1	0.2	14.6	0.2	1.4	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.4	5.1	7.3	1.9	4.1	6.3		
LnGrp Delay(d),s/veh	22.8	11.3	36.1	4.5	16.7	10.4		
LnGrp LOS	C	B	D	A	B	B		
Approach Vol, veh/h	847			906	1005			
Approach Delay, s/veh	17.4			17.0	14.2			
Approach LOS	B			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		42.5		15.9	18.1	24.4		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		38.0		18.0	15.5	18.0		
Max Q Clear Time (g_c+I1), s		5.7		9.0	13.4	11.4		
Green Ext Time (p_c), s		4.1		2.4	0.3	3.0		
Intersection Summary								
HCM 2010 Ctrl Delay			16.1					
HCM 2010 LOS			B					

Lanes and Geometrics
6: Orange St & Monjonner Way

St. Francis of Rome Church TIA
09/24/2019

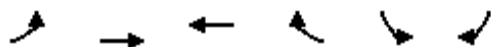


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.956				
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1781	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1781	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		439	221		241	
Travel Time (s)		10.0	5.0		5.5	
Intersection Summary						

Area Type: Other

Volume
6: Orange St & Monjonnier Way

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	0	57	86	42	13	0
Future Volume (vph)	0	57	86	42	13	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	68	102	50	15	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	68	152	0	15	0
Intersection Summary						

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	57	86	42	13	0
Future Vol, veh/h	0	57	86	42	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	68	102	50	15	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	152	0	0 195 127
Stage 1	-	-	- 127 -
Stage 2	-	-	- 68 -
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	1429	-	- 794 923
Stage 1	-	-	- 899 -
Stage 2	-	-	- 955 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1429	-	- 794 923
Mov Cap-2 Maneuver	-	-	- 794 -
Stage 1	-	-	- 899 -
Stage 2	-	-	- 955 -

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1429	-	-	-	794
HCM Lane V/C Ratio	-	-	-	-	0.019
HCM Control Delay (s)	0	-	-	-	9.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes and Geometrics
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.940				0.969	
Flt Protected				0.987	0.963	
Satd. Flow (prot)	1751	0	0	1839	1738	0
Flt Permitted				0.987	0.963	
Satd. Flow (perm)	1751	0	0	1839	1738	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	167			136	829	
Travel Time (s)	3.8			3.1	18.8	
Intersection Summary						
Area Type:	Other					

Volume
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	97	77	43	118	123	36
Future Volume (vph)	97	77	43	118	123	36
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	126	100	56	153	160	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	226	0	0	209	207	0
Intersection Summary						

Intersection

Int Delay, s/veh 5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	97	77	43	118	123	36
Future Vol, veh/h	97	77	43	118	123	36
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	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	126	100	56	153	160	47

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	226
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	-	-	1342
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1342
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	598	-	-	1342	-
HCM Lane V/C Ratio	0.345	-	-	0.042	-
HCM Control Delay (s)	14.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

Lanes and Geometrics
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.954			0.904			0.995			0.994		
Flt Protected	0.997			0.999			0.986			0.978		
Satd. Flow (prot)	0	1772	0	0	1682	0	0	1827	0	0	1811	0
Flt Permitted	0.997			0.999			0.986			0.978		
Satd. Flow (perm)	0	1772	0	0	1682	0	0	1827	0	0	1811	0
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	221			312			464			829		
Travel Time (s)	5.0			7.1			10.5			18.8		
Intersection Summary												
Area Type:	Other											

Volume
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	3	28	16	2	45	114	18	45	2	54	61	5
Future Volume (vph)	3	28	16	2	45	114	18	45	2	54	61	5
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	37	21	3	59	150	24	59	3	71	80	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	62	0	0	212	0	0	86	0	0	158	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	28	16	2	45	114	18	45	2	54	61	5
Future Vol, veh/h	3	28	16	2	45	114	18	45	2	54	61	5
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	37	21	3	59	150	24	59	3	71	80	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8.6	8.4	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	6%	1%	45%
Vol Thru, %	69%	60%	28%	51%
Vol Right, %	3%	34%	71%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	47	161	120
LT Vol	18	3	2	54
Through Vol	45	28	45	61
RT Vol	2	16	114	5
Lane Flow Rate	86	62	212	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.113	0.078	0.245	0.206
Departure Headway (Hd)	4.759	4.561	4.171	4.699
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	752	785	860	763
Service Time	2.796	2.594	2.196	2.732
HCM Lane V/C Ratio	0.114	0.079	0.247	0.207
HCM Control Delay	8.4	8	8.6	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.3	1	0.8

Lanes and Geometrics
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850						0.974
Flt Protected		0.999										0.961
Satd. Flow (prot)	0	3536	1863	0	3539	1583	0	1863	0	0	1744	0
Flt Permitted		0.999										0.961
Satd. Flow (perm)	0	3536	1863	0	3539	1583	0	1863	0	0	1744	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		660			309			203			464	
Travel Time (s)		15.0			7.0			4.6			10.5	
Intersection Summary												
Area Type:	Other											

Volume
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	14	722	0	1	697	63	0	0	0	68	0	16
Future Volume (vph)	14	722	0	1	697	63	0	0	0	68	0	16
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	16	811	0	1	783	71	0	0	0	76	0	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	827	0	0	784	71	0	0	0	0	94	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	28.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	722	0	1	697	63	0	0	0	68	0	16
Future Vol, veh/h	14	722	0	1	697	63	0	0	0	68	0	16
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	811	0	1	783	71	0	0	0	76	0	18
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	31.2	26.7	0	13.2
HCM LOS	D	D	-	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	5%	0%	0%	0%	0%	0%	81%
Vol Thru, %	100%	95%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	100%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	255	481	0	233	465	63	84
LT Vol	0	14	0	0	1	0	0	68
Through Vol	0	241	481	0	232	465	0	0
RT Vol	0	0	0	0	0	0	63	16
Lane Flow Rate	0	286	541	0	262	522	71	94
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.477	0.898	0	0.436	0.868	0.104	0.215
Departure Headway (Hd)	8.296	6.007	5.979	5.979	5.988	5.985	5.277	8.206
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	598	606	0	600	606	677	436
Service Time	6.078	3.756	3.728	3.728	3.736	3.734	3.025	5.976
HCM Lane V/C Ratio	0	0.478	0.893	0	0.437	0.861	0.105	0.216
HCM Control Delay	11.1	14.2	40.2	8.7	13.3	35.9	8.6	13.2
HCM Lane LOS	N	B	E	N	B	E	A	B
HCM 95th-tile Q	0	2.6	10.9	0	2.2	9.9	0.3	0.8

Lanes and Geometrics
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	100		0	200		0	100		0	100		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.995				0.985				0.850			0.850
Flt Protected	0.950			0.950				0.982			0.961	
Satd. Flow (prot)	1770	3522	0	1770	3486	0	0	1829	1583	0	1790	1583
Flt Permitted	0.950			0.950				0.883			0.720	
Satd. Flow (perm)	1770	3522	0	1770	3486	0	0	1645	1583	0	1341	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			22				191			109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			320			221			464	
Travel Time (s)		7.0			7.3			5.0			10.5	

Intersection Summary

Area Type: Other

Volume
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	26	737	25	153	747	81	22	38	172	127	28	8
Future Volume (vph)	26	737	25	153	747	81	22	38	172	127	28	8
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	29	819	28	170	830	90	24	42	191	141	31	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	847	0	170	920	0	0	66	191	0	172	9
Intersection Summary												

Timings
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	26	737	153	747	22	38	172	127	28	8
Future Volume (vph)	26	737	153	747	22	38	172	127	28	8
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	3	8		2			6	
Permitted Phases					2		2	6		6
Detector Phase	7	4	3	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	14.0	27.0	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (%)	15.8%	37.5%	23.3%	45.0%	39.2%	39.2%	39.2%	39.2%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	5.1	17.0	8.9	23.9		19.4	19.4		19.4	19.4
Actuated g/C Ratio	0.09	0.30	0.16	0.43		0.35	0.35		0.35	0.35
v/c Ratio	0.18	0.79	0.61	0.61		0.12	0.28		0.37	0.01
Control Delay	28.5	25.4	34.4	14.9		15.4	4.2		19.0	0.0
Queue Delay	0.0	0.0	0.0	0.9		0.0	0.0		0.0	0.0
Total Delay	28.5	25.4	34.4	15.8		15.4	4.2		19.0	0.0
LOS	C	C	C	B		B	A		B	A
Approach Delay		25.5		18.7		7.1			18.0	
Approach LOS		C		B		A			B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.9

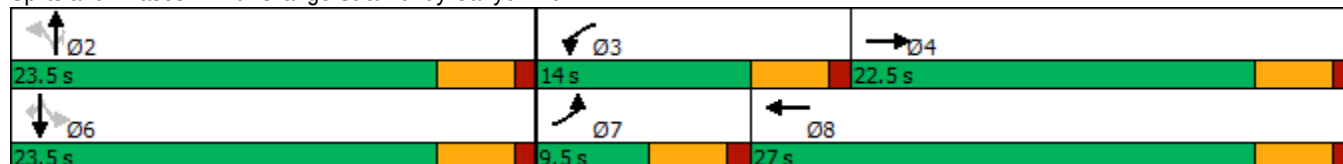
Intersection LOS: B

Intersection Capacity Utilization 56.1%

ICU Level of Service B

Analysis Period (min) 15

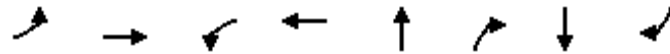
Splits and Phases: 10: Orange St & Bundy Canyon Rd



Queues
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	29	847	170	920	66	191	172	9
v/c Ratio	0.18	0.79	0.61	0.61	0.12	0.28	0.37	0.01
Control Delay	28.5	25.4	34.4	14.9	15.4	4.2	19.0	0.0
Queue Delay	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0
Total Delay	28.5	25.4	34.4	15.8	15.4	4.2	19.0	0.0
Queue Length 50th (ft)	10	145	58	97	17	0	48	0
Queue Length 95th (ft)	32	#219	#126	200	41	37	96	0
Internal Link Dist (ft)		229		240	141		384	
Turn Bay Length (ft)	100		200					
Base Capacity (vph)	161	1160	306	1662	569	673	464	619
Starvation Cap Reductn	0	0	0	431	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.73	0.56	0.75	0.12	0.28	0.37	0.01

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	737	25	153	747	81	22	38	172	127	28	8
Future Volume (veh/h)	26	737	25	153	747	81	22	38	172	127	28	8
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	1863	1900	1863	1863
Adj Flow Rate, veh/h	29	819	28	170	830	90	24	42	191	141	31	9
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	1009	35	216	1218	132	89	117	546	119	15	546
Arrive On Green	0.03	0.29	0.29	0.12	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	3492	119	1774	3221	349	0	338	1583	0	43	1583
Grp Volume(v), veh/h	29	415	432	170	456	464	66	0	191	172	0	9
Grp Sat Flow(s),veh/h/ln	1774	1770	1842	1774	1770	1801	338	0	1583	43	0	1583
Q Serve(g_s), s	0.9	12.0	12.0	5.1	11.9	11.9	0.0	0.0	5.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.9	12.0	12.0	5.1	11.9	11.9	19.0	0.0	5.0	19.0	0.0	0.2
Prop In Lane	1.00		0.06	1.00		0.19	0.36		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	58	512	532	216	669	681	206	0	546	134	0	546
V/C Ratio(X)	0.50	0.81	0.81	0.79	0.68	0.68	0.32	0.00	0.35	1.29	0.00	0.02
Avail Cap(c_a), veh/h	161	578	601	306	722	735	206	0	546	134	0	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	18.2	18.2	23.5	14.4	14.4	14.5	0.0	13.5	25.5	0.0	11.9
Incr Delay (d2), s/veh	6.6	7.7	7.5	8.7	2.4	2.4	4.1	0.0	1.8	173.9	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.9	7.1	3.0	6.1	6.2	0.9	0.0	2.4	8.5	0.0	0.1
LnGrp Delay(d),s/veh	32.8	25.9	25.7	32.2	16.8	16.7	18.6	0.0	15.2	199.4	0.0	12.0
LnGrp LOS	C	C	C	C	B	B	B		B	F		B
Approach Vol, veh/h		876			1090			257			181	
Approach Delay, s/veh		26.0			19.2			16.1			190.0	
Approach LOS		C			B			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.5	11.2	20.4		23.5	6.3	25.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	9.5	18.0		19.0	5.0	22.5				
Max Q Clear Time (g_c+I1), s		21.0	7.1	14.0		21.0	2.9	13.9				
Green Ext Time (p_c), s		0.0	0.1	1.9		0.0	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay				34.2								
HCM 2010 LOS				C								

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.950						0.850					
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3362	0	1770	3539	0	0	0	0	1770	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3362	0	1770	3539	0	0	0	0	1770	1583	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)	68									147		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	320			695			332			508		
Travel Time (s)	7.3			15.8			7.5			11.5		
Intersection Summary												
Area Type:	Other											

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	684	340	648	856	0	0	0	0	695	0	175
Future Volume (vph)	0	684	340	648	856	0	0	0	0	695	0	175
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	705	351	668	882	0	0	0	0	716	0	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1056	0	668	882	0	0	0	0	716	180	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

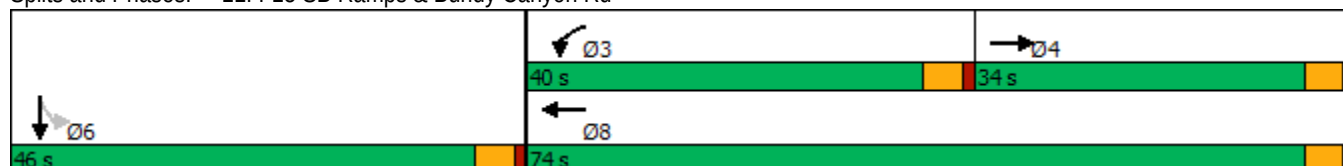
St. Francis of Rome Church TIA
09/24/2019

	→	↙	←	↘	↓
Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	684	648	856	695	0
Future Volume (vph)	684	648	856	695	0
Turn Type	NA	Prot	NA	Perm	NA
Protected Phases	4	3	8		6
Permitted Phases				6	
Detector Phase	4	3	8	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	34.0	40.0	74.0	46.0	46.0
Total Split (%)	28.3%	33.3%	61.7%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	29.5	35.5	69.5	41.5	41.5
Actuated g/C Ratio	0.25	0.30	0.58	0.35	0.35
v/c Ratio	1.20	1.28	0.43	1.17	0.28
Control Delay	139.9	175.1	15.0	129.3	8.2
Queue Delay	1.4	0.0	0.0	0.0	0.0
Total Delay	141.3	175.1	15.0	129.3	8.2
LOS	F	F	B	F	A
Approach Delay	141.3		84.0		105.0
Approach LOS	F		F		F

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.28
 Intersection Signal Delay: 106.6
 Intersection LOS: F
 Intersection Capacity Utilization 121.4%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd

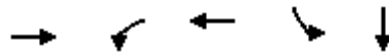


Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1056	668	882	716	180
v/c Ratio	1.20	1.28	0.43	1.17	0.28
Control Delay	139.9	175.1	15.0	129.3	8.2
Queue Delay	1.4	0.0	0.0	0.0	0.0
Total Delay	141.3	175.1	15.0	129.3	8.2
Queue Length 50th (ft)	~503	~655	191	~661	17
Queue Length 95th (ft)	#640	#885	237	#894	68
Internal Link Dist (ft)	240		615		428
Turn Bay Length (ft)		260			
Base Capacity (vph)	877	523	2049	612	643
Starvation Cap Reductn	189	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.53	1.28	0.43	1.17	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	684	340	648	856	0	0	0	0	695	0	175
Future Volume (veh/h)	0	684	340	648	856	0	0	0	0	695	0	175
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	1863	1900	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	705	351	668	882	0				716	0	180
Adj No. of Lanes	0	2	0	1	2	0				1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	563	280	525	2050	0				614	0	548
Arrive On Green	0.00	0.25	0.25	0.30	0.58	0.00				0.35	0.00	0.35
Sat Flow, veh/h	0	2384	1140	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	544	512	668	882	0				716	0	180
Grp Sat Flow(s),veh/h/ln	0	1770	1662	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	29.5	29.5	35.5	16.8	0.0				41.5	0.0	10.1
Cycle Q Clear(g_c), s	0.0	29.5	29.5	35.5	16.8	0.0				41.5	0.0	10.1
Prop In Lane	0.00		0.69	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	435	408	525	2050	0				614	0	548
V/C Ratio(X)	0.00	1.25	1.25	1.27	0.43	0.00				1.17	0.00	0.33
Avail Cap(c_a), veh/h	0	435	408	525	2050	0				614	0	548
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	45.3	45.3	42.2	14.2	0.0				39.3	0.0	29.0
Incr Delay (d2), s/veh	0.0	130.9	132.4	137.1	0.1	0.0				91.9	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	30.2	28.5	37.3	8.1	0.0				35.9	0.0	4.6
LnGrp Delay(d),s/veh	0.0	176.2	177.6	179.3	14.3	0.0				131.2	0.0	30.6
LnGrp LOS		F	F	F	B					F		C
Approach Vol, veh/h		1056			1550						896	
Approach Delay, s/veh		176.9			85.4						111.0	
Approach LOS		F			F						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			40.0	34.0		46.0		74.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			35.5	29.5		41.5		69.5				
Max Q Clear Time (g_c+I1), s			37.5	31.5		43.5		18.8				
Green Ext Time (p_c), s			0.0	0.0		0.0		7.9				
Intersection Summary												
HCM 2010 Ctrl Delay			119.5									
HCM 2010 LOS			F									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.945			0.851				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3345	0	1770	1585	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3345	0	1770	1585	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					117			39				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	

Intersection Summary

Area Type: Other

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

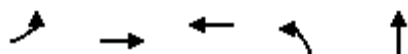
St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	173	1208	0	0	1140	662	369	3	770	0	0	0
Future Volume (vph)	173	1208	0	0	1140	662	369	3	770	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	188	1313	0	0	1239	720	401	3	837	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	188	1313	0	0	1959	0	401	840	0	0	0	0
Intersection Summary												

Timings
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

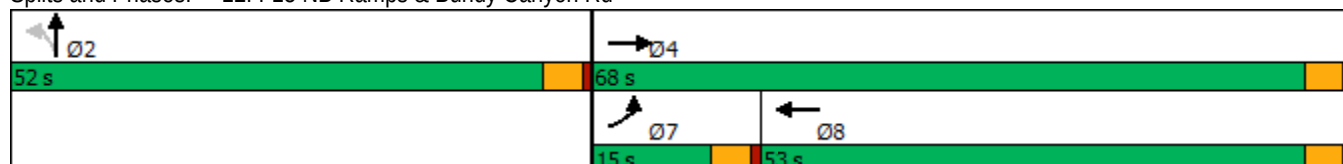


Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Configurations					
Traffic Volume (vph)	173	1208	1140	369	3
Future Volume (vph)	173	1208	1140	369	3
Turn Type	Prot	NA	NA	Perm	NA
Protected Phases	7	4	8		2
Permitted Phases				2	
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5
Total Split (s)	15.0	68.0	53.0	52.0	52.0
Total Split (%)	12.5%	56.7%	44.2%	43.3%	43.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	10.5	63.5	48.5	47.5	47.5
Actuated g/C Ratio	0.09	0.53	0.40	0.40	0.40
v/c Ratio	1.22	0.70	1.38	0.57	1.29
Control Delay	189.7	23.7	204.1	32.3	173.7
Queue Delay	0.0	0.8	0.0	0.0	0.0
Total Delay	189.7	24.5	204.1	32.3	173.7
LOS	F	C	F	C	F
Approach Delay		45.2	204.1		128.0
Approach LOS		D	F		F

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.38
 Intersection Signal Delay: 133.3
 Intersection LOS: F
 Intersection Capacity Utilization 121.4%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd

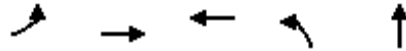


Queues

St. Francis of Rome Church TIA

09/24/2019

12: I-15 NB Ramps & Bundy Canyon Rd



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	188	1313	1959	401	840
v/c Ratio	1.22	0.70	1.38	0.57	1.29
Control Delay	189.7	23.7	204.1	32.3	173.7
Queue Delay	0.0	0.8	0.0	0.0	0.0
Total Delay	189.7	24.5	204.1	32.3	173.7
Queue Length 50th (ft)	~178	385	~1036	240	~815
Queue Length 95th (ft)	#328	467	#1176	343	#1062
Internal Link Dist (ft)		615	78		321
Turn Bay Length (ft)	185				
Base Capacity (vph)	154	1872	1421	700	650
Starvation Cap Reductn	0	262	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.22	0.82	1.38	0.57	1.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	1208	0	0	1140	662	369	3	770	0	0	0
Future Volume (veh/h)	173	1208	0	0	1140	662	369	3	770	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	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	188	1313	0	0	1239	720	401	3	837			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	155	1873	0	0	905	479	702	2	625			
Arrive On Green	0.09	0.53	0.00	0.00	0.40	0.40	0.40	0.40	0.40			
Sat Flow, veh/h	1774	3632	0	0	2331	1185	1774	6	1579			
Grp Volume(v), veh/h	188	1313	0	0	954	1005	401	0	840			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1654	1774	0	1584			
Q Serve(g_s), s	10.5	33.3	0.0	0.0	48.5	48.5	21.2	0.0	47.5			
Cycle Q Clear(g_c), s	10.5	33.3	0.0	0.0	48.5	48.5	21.2	0.0	47.5			
Prop In Lane	1.00		0.00	0.00		0.72	1.00		1.00			
Lane Grp Cap(c), veh/h	155	1873	0	0	715	668	702	0	627			
V/C Ratio(X)	1.21	0.70	0.00	0.00	1.33	1.50	0.57	0.00	1.34			
Avail Cap(c_a), veh/h	155	1873	0	0	715	668	702	0	627			
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	54.8	21.1	0.0	0.0	35.8	35.8	28.3	0.0	36.3			
Incr Delay (d2), s/veh	140.1	1.2	0.0	0.0	159.9	234.2	3.4	0.0	163.4			
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	11.2	16.5	0.0	0.0	55.4	65.6	11.0	0.0	49.2			
LnGrp Delay(d),s/veh	194.9	22.3	0.0	0.0	195.7	270.0	31.7	0.0	199.6			
LnGrp LOS	F	C			F	F	C		F			
Approach Vol, veh/h		1501			1959			1241				
Approach Delay, s/veh		43.9			233.8			145.4				
Approach LOS		D			F			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		52.0		68.0			15.0	53.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		47.5		63.5			10.5	48.5				
Max Q Clear Time (g_c+I1), s		49.5		35.3			12.5	50.5				
Green Ext Time (p_c), s		0.0		12.0			0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				149.8								
HCM 2010 LOS				F								

Lanes and Geometrics
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	150		0	100		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850		0.977				0.999
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	1863	0	1770	0	1583	1863	1820	0	1770	1861	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	1863	0	1770	0	1583	1863	1820	0	1770	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						519		9				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		209			495			473			348	
Travel Time (s)		4.8			11.3			10.8			7.9	

Intersection Summary

Area Type: Other

Volume
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	1	0	32	0	493	0	208	37	554	242	1
Future Volume (vph)	0	1	0	32	0	493	0	208	37	554	242	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1	0	34	0	519	0	219	39	583	255	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	34	0	519	0	258	0	583	256	0
Intersection Summary												

Timings 1: Grand Ave & Corydon St

St. Francis of Rome Church TIA
09/24/2019

	→	↖	↗	↑	↘	↓
Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↔	↖	↗	↑	↘	↗
Traffic Volume (vph)	1	32	493	208	554	242
Future Volume (vph)	1	32	493	208	554	242
Turn Type	NA	Prot	pm+ov	NA	Prot	NA
Protected Phases	2	1	7	8	7	4
Permitted Phases			1			
Detector Phase	2	1	7	8	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	9.5	22.5
Total Split (s)	22.9	9.5	35.1	22.5	35.1	57.6
Total Split (%)	25.4%	10.6%	39.0%	25.0%	39.0%	64.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max
Act Effect Green (s)	5.6	5.1	30.9	21.0	28.3	56.9
Actuated g/C Ratio	0.09	0.08	0.49	0.33	0.45	0.90
v/c Ratio	0.01	0.24	0.50	0.43	0.74	0.15
Control Delay	31.0	35.1	2.6	21.9	23.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	35.1	2.6	21.9	23.0	2.2
LOS	C	D	A	C	C	A
Approach Delay	31.0			21.9		16.7
Approach LOS	C			C		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 63.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 13.5

Intersection LOS: B

Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Grand Ave & Corydon St



Queues
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1	34	519	258	583	256
v/c Ratio	0.01	0.24	0.50	0.43	0.74	0.15
Control Delay	31.0	35.1	2.6	21.9	23.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	35.1	2.6	21.9	23.0	2.2
Queue Length 50th (ft)	0	11	0	67	127	0
Queue Length 95th (ft)	5	43	30	182	#428	63
Internal Link Dist (ft)	129			393		268
Turn Bay Length (ft)		150			100	
Base Capacity (vph)	547	141	1083	607	865	1666
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.24	0.48	0.43	0.67	0.15

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
1: Grand Ave & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	0	32	0	493	0	208	37	554	242	1
Future Volume (veh/h)	0	1	0	32	0	493	0	208	37	554	242	1
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	1900	1863	1900	1863	0	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	1	0	34	0	519	0	219	39	583	255	1
Adj No. of Lanes	0	1	0	1	0	1	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	0	2	2	2	2	2	2	2
Cap, veh/h	0	3	0	62	0	0	104	528	94	639	1425	6
Arrive On Green	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.34	0.34	0.36	0.77	0.77
Sat Flow, veh/h	0	1770	0	1774	34		1119	1540	274	1774	1854	7
Grp Volume(v), veh/h	0	1	0	34	40.3		0	0	258	583	0	256
Grp Sat Flow(s),veh/h/ln	0	1863	0	1774	D		1119	0	1814	1774	0	1861
Q Serve(g_s), s	0.0	0.0	0.0	1.3			0.0	0.0	7.5	21.6	0.0	2.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.3			0.0	0.0	7.5	21.6	0.0	2.5
Prop In Lane	0.00		0.00	1.00			1.00		0.15	1.00		0.00
Lane Grp Cap(c), veh/h	0	3	0	62			104	0	622	639	0	1431
V/C Ratio(X)	0.00	0.37	0.00	0.55			0.00	0.00	0.41	0.91	0.00	0.18
Avail Cap(c_a), veh/h	0	496	0	128			104	0	622	786	0	1431
HCM Platoon Ratio	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00			0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	34.5	0.0	32.8			0.0	0.0	17.4	21.1	0.0	2.1
Incr Delay (d2), s/veh	0.0	68.5	0.0	7.5			0.0	0.0	0.4	13.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.8			0.0	0.0	3.8	12.8	0.0	1.4
LnGrp Delay(d),s/veh	0.0	102.9	0.0	40.3			0.0	0.0	17.8	34.1	0.0	2.4
LnGrp LOS		F		D					B	C		A
Approach Vol, veh/h		1						258			839	
Approach Delay, s/veh		102.9						17.8			24.4	
Approach LOS		F						B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4			7	8				
Phs Duration (G+Y+Rc), s	6.9	4.6		57.6			29.4	28.2				
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.4		53.1			30.6	18.0				
Max Q Clear Time (g_c+I1), s	3.3	2.0		4.5			23.6	9.5				
Green Ext Time (p_c), s	0.0	0.0		1.7			1.3	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay				23.5								
HCM 2010 LOS				C								

Lanes and Geometrics
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)	0%				0%				0%		0%		
Storage Length (ft)	95		95	145		0	100		0	100		100	
Storage Lanes	1		1	1		0	1		0	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt			0.850		0.980				0.913				0.850
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1770	1863	1583	1770	3468	0	1770	1701	0	1770	1863	1583	
Flt Permitted	0.950			0.950			0.738			0.721			
Satd. Flow (perm)	1770	1863	1583	1770	3468	0	1375	1701	0	1343	1863	1583	
Right Turn on Red			Yes				Yes				Yes		Yes
Satd. Flow (RTOR)			109		34				32				109
Link Speed (mph)	30				30				30		30		
Link Distance (ft)	495				474				343		250		
Travel Time (s)	11.3				10.8				7.8		5.7		

Intersection Summary

Area Type: Other

Volume
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	9	600	32	31	527	83	48	21	29	95	27	7
Future Volume (vph)	9	600	32	31	527	83	48	21	29	95	27	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	667	36	34	586	92	53	23	32	106	30	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	667	36	34	678	0	53	55	0	106	30	8
Intersection Summary												

Timings
2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	600	32	31	527	48	21	95	27	7
Future Volume (vph)	9	600	32	31	527	48	21	95	27	7
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4		3	8		2		6	
Permitted Phases			4			2		6		6
Detector Phase	7	4	4	3	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	22.5	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	37.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	5.1	22.3	22.3	5.1	24.0	18.2	18.2	18.2	18.2	18.2
Actuated g/C Ratio	0.10	0.42	0.42	0.10	0.45	0.34	0.34	0.34	0.34	0.34
v/c Ratio	0.06	0.85	0.05	0.20	0.43	0.11	0.09	0.23	0.05	0.01
Control Delay	25.7	28.9	0.1	27.8	10.7	15.1	9.1	16.3	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	28.9	0.1	27.8	10.7	15.1	9.1	16.3	14.4	0.0
LOS	C	C	A	C	B	B	A	B	B	A
Approach Delay		27.4			11.5		12.0		15.0	
Approach LOS		C			B		B		B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 53

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 51.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Palomar St & Corydon St

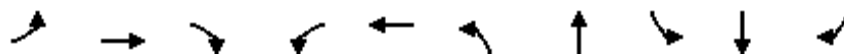
		
Ø2	Ø3	Ø4
22.5 s	9.5 s	28 s
		
Ø6	Ø7	Ø8
22.5 s	9.5 s	28 s

Queues

St. Francis of Rome Church TIA

2: Palomar St & Corydon St

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	10	667	36	34	678	53	55	106	30	8
v/c Ratio	0.06	0.85	0.05	0.20	0.43	0.11	0.09	0.23	0.05	0.01
Control Delay	25.7	28.9	0.1	27.8	10.7	15.1	9.1	16.3	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	28.9	0.1	27.8	10.7	15.1	9.1	16.3	14.4	0.0
Queue Length 50th (ft)	3	152	0	10	61	10	4	21	6	0
Queue Length 95th (ft)	16	#414	0	35	131	36	27	63	24	0
Internal Link Dist (ft)		415			394		263		170	
Turn Bay Length (ft)	95		95	145		100		100		100
Base Capacity (vph)	169	836	771	169	1685	473	606	461	641	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.80	0.05	0.20	0.40	0.11	0.09	0.23	0.05	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary

2: Palomar St & Corydon St

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	600	32	31	527	83	48	21	29	95	27	7
Future Volume (veh/h)	9	600	32	31	527	83	48	21	29	95	27	7
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	1900	1863	1863	1863
Adj Flow Rate, veh/h	10	667	36	34	586	92	53	23	32	106	30	8
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	737	626	65	1287	202	557	229	319	535	604	514
Arrive On Green	0.01	0.40	0.40	0.04	0.42	0.42	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1774	1863	1583	1774	3067	480	1364	706	983	1343	1863	1583
Grp Volume(v), veh/h	10	667	36	34	337	341	53	0	55	106	30	8
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1778	1364	0	1689	1343	1863	1583
Q Serve(g_s), s	0.3	18.7	0.8	1.0	7.6	7.6	1.5	0.0	1.3	3.3	0.6	0.2
Cycle Q Clear(g_c), s	0.3	18.7	0.8	1.0	7.6	7.6	2.2	0.0	1.3	4.6	0.6	0.2
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.58	1.00		1.00
Lane Grp Cap(c), veh/h	23	737	626	65	742	746	557	0	548	535	604	514
V/C Ratio(X)	0.44	0.91	0.06	0.52	0.45	0.46	0.10	0.00	0.10	0.20	0.05	0.02
Avail Cap(c_a), veh/h	160	789	670	160	749	753	557	0	548	535	604	514
HCM Platoon Ratio	1.00	1.00	1.00	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	27.2	15.8	10.4	26.2	11.6	11.6	13.6	0.0	13.1	14.7	12.9	12.7
Incr Delay (d2), s/veh	12.6	13.4	0.0	6.3	0.4	0.4	0.3	0.0	0.4	0.8	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	12.2	0.3	0.6	3.7	3.8	0.6	0.0	0.6	1.4	0.3	0.1
LnGrp Delay(d),s/veh	39.8	29.2	10.4	32.6	12.0	12.0	14.0	0.0	13.5	15.5	13.0	12.8
LnGrp LOS	D	C	B	C	B	B	B		B	B	B	B
Approach Vol, veh/h		713			712			108			144	
Approach Delay, s/veh		28.4			13.0			13.7			14.9	
Approach LOS		C			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	6.5	26.5		22.5	5.2	27.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	23.5		18.0	5.0	23.5				
Max Q Clear Time (g_c+I1), s		4.2	3.0	20.7		6.6	2.3	9.6				
Green Ext Time (p_c), s		0.3	0.0	1.2		0.3	0.0	3.6				
Intersection Summary												
HCM 2010 Ctrl Delay				19.7								
HCM 2010 LOS				B								

Lanes and Geometrics
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	350		0	100		0	90		0	220		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.900				0.989		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3185	0	1770	3500	0	1770	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3185	0	1770	3500	0	1770	3536	0
Right Turn on Red			Yes				Yes				Yes	
Satd. Flow (RTOR)			176		36				12		1	
Link Speed (mph)	30				30				30		30	
Link Distance (ft)	560				435				423		314	
Travel Time (s)	12.7				9.9				9.6		7.1	

Intersection Summary

Area Type: Other

Volume
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	9	3	28	85	17	34	73	735	56	19	746	6
Future Volume (vph)	9	3	28	85	17	34	73	735	56	19	746	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	3	30	90	18	36	78	782	60	20	794	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	3	30	90	54	0	78	842	0	20	800	0
Intersection Summary												

Timings
3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	3	28	85	17	73	735	19	746
Future Volume (vph)	9	3	28	85	17	73	735	19	746
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	9.6	23.0	9.5	22.9
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	14.8%	35.4%	14.6%	35.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
Act Effect Green (s)	5.1	5.8	5.8	5.6	7.7	5.2	29.0	5.1	25.3
Actuated g/C Ratio	0.11	0.13	0.13	0.12	0.17	0.11	0.64	0.11	0.55
v/c Ratio	0.05	0.01	0.08	0.41	0.10	0.39	0.38	0.10	0.41
Control Delay	22.0	20.7	0.5	27.7	10.5	27.5	8.1	22.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	20.7	0.5	27.7	10.5	27.5	8.1	22.6	11.1
LOS	C	C	A	C	B	C	A	C	B
Approach Delay		6.9			21.2		9.8		11.4
Approach LOS		A			C		A		B

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 45.6

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 11.3

Intersection LOS: B

Intersection Capacity Utilization 48.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Mission Trail & Malaga Rd

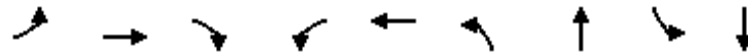
			
Ø1	Ø2	Ø3	Ø4
9.5 s	23 s	10 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
9.6 s	22.9 s	9.5 s	23 s

Queues

St. Francis of Rome Church TIA

3: Mission Trail & Malaga Rd

09/24/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	3	30	90	54	78	842	20	800
v/c Ratio	0.05	0.01	0.08	0.41	0.10	0.39	0.38	0.10	0.41
Control Delay	22.0	20.7	0.5	27.7	10.5	27.5	8.1	22.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	20.7	0.5	27.7	10.5	27.5	8.1	22.6	11.1
Queue Length 50th (ft)	2	1	0	20	2	18	34	4	68
Queue Length 95th (ft)	15	7	0	#72	15	#64	169	22	161
Internal Link Dist (ft)		480			355		343		234
Turn Bay Length (ft)	350			100		90		220	
Base Capacity (vph)	197	749	742	219	1338	201	2231	197	1960
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.00	0.04	0.41	0.04	0.39	0.38	0.10	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary

3: Mission Trail & Malaga Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	3	28	85	17	34	73	735	56	19	746	6
Future Volume (veh/h)	9	3	28	85	17	34	73	735	56	19	746	6
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	1900	1863	1863	1900
Adj Flow Rate, veh/h	10	3	30	90	18	36	78	782	60	20	794	6
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	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	23	143	121	131	243	218	121	1461	112	43	1422	11
Arrive On Green	0.01	0.08	0.08	0.07	0.14	0.14	0.07	0.44	0.44	0.02	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3332	256	1774	3600	27
Grp Volume(v), veh/h	10	3	30	90	18	36	78	415	427	20	390	410
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1818	1774	1770	1858
Q Serve(g_s), s	0.3	0.1	0.8	2.3	0.4	0.9	2.0	8.0	8.0	0.5	8.0	8.0
Cycle Q Clear(g_c), s	0.3	0.1	0.8	2.3	0.4	0.9	2.0	8.0	8.0	0.5	8.0	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.01
Lane Grp Cap(c), veh/h	23	143	121	131	243	218	121	776	797	43	699	734
V/C Ratio(X)	0.43	0.02	0.25	0.69	0.07	0.17	0.64	0.53	0.54	0.46	0.56	0.56
Avail Cap(c_a), veh/h	190	720	612	209	703	629	194	776	797	190	699	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	19.9	20.2	21.1	17.5	17.7	21.2	9.6	9.6	22.4	10.9	10.9
Incr Delay (d2), s/veh	12.2	0.1	1.0	6.2	0.1	0.4	5.6	2.6	2.6	7.4	3.2	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.4	0.2	0.4	1.2	4.4	4.5	0.3	4.4	4.6
LnGrp Delay(d),s/veh	35.1	19.9	21.3	27.3	17.6	18.1	26.8	12.2	12.2	29.8	14.1	14.0
LnGrp LOS	D	B	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		43			144			920			820	
Approach Delay, s/veh		24.4			23.8			13.4			14.5	
Approach LOS		C			C			B			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	5.6	24.9	7.9	8.1	7.7	22.9	5.1	10.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.1	18.4	5.0	18.5				
Max Q Clear Time (g_c+I1), s	2.5	10.0	4.3	2.8	4.0	10.0	2.3	2.9				
Green Ext Time (p_c), s	0.0	3.4	0.0	0.0	0.0	3.2	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				14.9								
HCM 2010 LOS				B								

Lanes and Geometrics
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		70	105	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.925			0.850		
Flt Protected	0.978				0.950	
Satd. Flow (prot)	1685	0	3539	1583	1770	3539
Flt Permitted	0.978				0.950	
Satd. Flow (perm)	1685	0	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	107			110		
Link Speed (mph)	30		30			30
Link Distance (ft)	332		405			423
Travel Time (s)	7.5		9.2			9.6
Intersection Summary						
Area Type:	Other					

Volume
4: Mission Trail & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	105	131	847	136	107	749
Future Volume (vph)	105	131	847	136	107	749
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	131	164	1059	170	134	936
Shared Lane Traffic (%)						
Lane Group Flow (vph)	295	0	1059	170	134	936
Intersection Summary						

Timings

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	105	847	136	107	749
Future Volume (vph)	105	847	136	107	749
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	8	2		1	6
Permitted Phases			2		
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	26.5	26.5	11.0	37.5
Total Split (%)	37.5%	44.2%	44.2%	18.3%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max
Act Effect Green (s)	11.6	25.5	25.5	6.5	34.3
Actuated g/C Ratio	0.21	0.46	0.46	0.12	0.62
v/c Ratio	0.67	0.64	0.21	0.64	0.42
Control Delay	19.9	16.1	6.0	41.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	16.1	6.0	41.2	6.7
LOS	B	B	A	D	A
Approach Delay	19.9	14.7			11.1
Approach LOS	B	B			B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 54.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.8

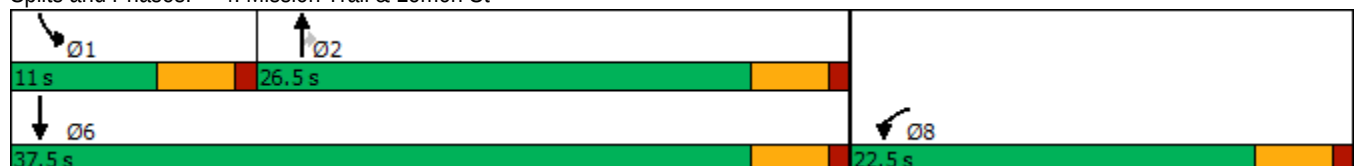
Intersection LOS: B

Intersection Capacity Utilization 54.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Mission Trail & Lemon St



Queues

St. Francis of Rome Church TIA

4: Mission Trail & Lemon St

09/24/2019

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	295	1059	170	134	936
v/c Ratio	0.67	0.64	0.21	0.64	0.42
Control Delay	19.9	16.1	6.0	41.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	16.1	6.0	41.2	6.7
Queue Length 50th (ft)	53	141	11	41	67
Queue Length 95th (ft)	95	206	39	#101	116
Internal Link Dist (ft)	252	325			343
Turn Bay Length (ft)			70	105	
Base Capacity (vph)	625	1644	794	210	2210
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.64	0.21	0.64	0.42

Intersection Summary

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

HCM 2010 Signalized Intersection Summary

4: Mission Trail & Lemon St

St. Francis of Rome Church TIA

09/24/2019

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	105	131	847	136	107	749		
Future Volume (veh/h)	105	131	847	136	107	749		
Number	3	18	2	12	1	6		
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	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	131	164	1059	170	134	936		
Adj No. of Lanes	0	0	2	1	1	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80		
Percent Heavy Veh, %	0	0	2	2	2	2		
Cap, veh/h	158	198	1545	691	171	2183		
Arrive On Green	0.21	0.21	0.44	0.44	0.10	0.62		
Sat Flow, veh/h	736	922	3632	1583	1774	3632		
Grp Volume(v), veh/h	296	0	1059	170	134	936		
Grp Sat Flow(s),veh/h/ln	1663	0	1770	1583	1774	1770		
Q Serve(g_s), s	9.1	0.0	12.9	3.6	4.0	7.4		
Cycle Q Clear(g_c), s	9.1	0.0	12.9	3.6	4.0	7.4		
Prop In Lane	0.44	0.55		1.00	1.00			
Lane Grp Cap(c), veh/h	357	0	1545	691	171	2183		
V/C Ratio(X)	0.83	0.00	0.69	0.25	0.78	0.43		
Avail Cap(c_a), veh/h	560	0	1545	691	216	2183		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.1	0.0	12.1	9.5	23.6	5.3		
Incr Delay (d2), s/veh	5.9	0.0	2.5	0.8	13.7	0.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.7	0.0	6.7	1.7	2.6	3.7		
LnGrp Delay(d),s/veh	25.9	0.0	14.6	10.4	37.3	6.0		
LnGrp LOS	C		B	B	D	A		
Approach Vol, veh/h	296		1229			1070		
Approach Delay, s/veh	25.9		14.0			9.9		
Approach LOS	C		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.7	27.8				37.5		16.0
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	6.5	22.0				33.0		18.0
Max Q Clear Time (g_c+I1), s	6.0	14.9				9.4		11.1
Green Ext Time (p_c), s	0.0	4.3				7.2		0.5
Intersection Summary								
HCM 2010 Ctrl Delay		13.7						
HCM 2010 LOS		B						
Notes								

Opening Year (2020) Cumulative Conditions With Project
Sunday Peak Hour

Synchro 10 Report

Lanes and Geometrics
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	270	260	125			115
Storage Lanes	2	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.88	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	2787	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	2787	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		240				116
Link Speed (mph)	30			30	30	
Link Distance (ft)	463			424	405	
Travel Time (s)	10.5			9.6	9.2	
Intersection Summary						
Area Type:	Other					

Volume
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	493	313	275	473	440	437
Future Volume (vph)	493	313	275	473	440	437
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	530	337	296	509	473	470
Shared Lane Traffic (%)						
Lane Group Flow (vph)	530	337	296	509	473	470
Intersection Summary						

Timings
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA

09/24/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 		 	 	
Traffic Volume (vph)	493	313	275	473	440	437
Future Volume (vph)	493	313	275	473	440	437
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	15.0	15.0	37.5	22.5	22.5
Total Split (%)	37.5%	25.0%	25.0%	62.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	Max	Max	None
Act Effect Green (s)	14.6	29.6	10.5	33.1	18.1	37.1
Actuated g/C Ratio	0.26	0.52	0.19	0.58	0.32	0.65
v/c Ratio	0.60	0.21	0.90	0.25	0.42	0.44
Control Delay	21.5	2.6	58.2	6.6	17.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	2.6	58.2	6.6	17.2	4.8
LOS	C	A	E	A	B	A
Approach Delay	14.1			25.6	11.0	
Approach LOS	B			C	B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 16.5

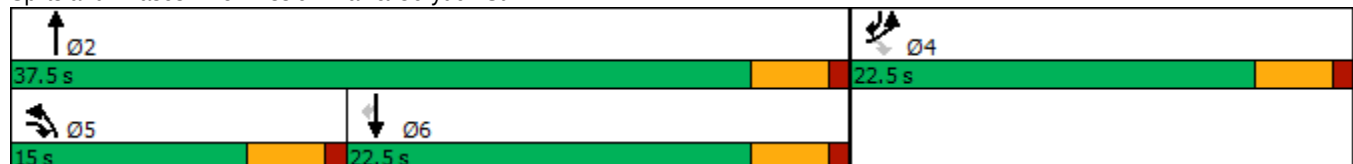
Intersection LOS: B

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Mission Trail & Corydon St



Queues
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	530	337	296	509	473	470
v/c Ratio	0.60	0.21	0.90	0.25	0.42	0.44
Control Delay	21.5	2.6	58.2	6.6	17.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	2.6	58.2	6.6	17.2	4.8
Queue Length 50th (ft)	80	8	101	40	67	43
Queue Length 95th (ft)	121	25	#241	68	109	82
Internal Link Dist (ft)	383			344	325	
Turn Bay Length (ft)	270	260	125			115
Base Capacity (vph)	1093	1570	328	2065	1126	1167
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.21	0.90	0.25	0.42	0.40

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
5: Mission Trail & Corydon St

St. Francis of Rome Church TIA
09/24/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	493	313	275	473	440	437		
Future Volume (veh/h)	493	313	275	473	440	437		
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	530	337	296	509	473	470		
Adj No. of Lanes	2	2	1	2	2	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	765	1161	345	2162	1179	880		
Arrive On Green	0.22	0.22	0.19	0.61	0.33	0.33		
Sat Flow, veh/h	3442	2787	1774	3632	3632	1583		
Grp Volume(v), veh/h	530	337	296	509	473	470		
Grp Sat Flow(s),veh/h/ln	1721	1393	1774	1770	1770	1583		
Q Serve(g_s), s	7.6	4.3	8.7	3.5	5.6	10.1		
Cycle Q Clear(g_c), s	7.6	4.3	8.7	3.5	5.6	10.1		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	765	1161	345	2162	1179	880		
V/C Ratio(X)	0.69	0.29	0.86	0.24	0.40	0.53		
Avail Cap(c_a), veh/h	1147	1470	345	2162	1179	880		
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	19.3	10.4	21.0	4.8	13.9	7.6		
Incr Delay (d2), s/veh	1.1	0.1	19.0	0.3	1.0	2.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.7	4.0	6.1	1.8	2.9	7.1		
LnGrp Delay(d),s/veh	20.4	10.6	40.0	5.0	14.9	9.9		
LnGrp LOS	C	B	D	A	B	A		
Approach Vol, veh/h	867			805	943			
Approach Delay, s/veh	16.6			17.9	12.4			
Approach LOS	B			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.5		16.5	15.0	22.5		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		33.0		18.0	10.5	18.0		
Max Q Clear Time (g_c+I1), s		5.5		9.6	10.7	12.1		
Green Ext Time (p_c), s		3.6		2.4	0.0	2.5		
Intersection Summary								
HCM 2010 Ctrl Delay			15.5					
HCM 2010 LOS			B					

Lanes and Geometrics
6: Orange St & Monjonner Way

St. Francis of Rome Church TIA
09/24/2019



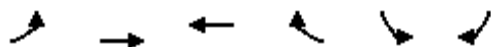
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.955		0.981	
Flt Protected		0.996			0.959	
Satd. Flow (prot)	0	1855	1779	0	1752	0
Flt Permitted		0.996			0.959	
Satd. Flow (perm)	0	1855	1779	0	1752	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		439	221		241	
Travel Time (s)		10.0	5.0		5.5	

Intersection Summary

Area Type: Other

Volume
6: Orange St & Monjonnier Way

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	4	44	47	23	22	4
Future Volume (vph)	4	44	47	23	22	4
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	4	49	52	26	24	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	53	78	0	28	0
Intersection Summary						

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	44	47	23	22	4
Future Vol, veh/h	4	44	47	23	22	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	49	52	26	24	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	78	0	0 122 65
Stage 1	-	-	- 65 -
Stage 2	-	-	- 57 -
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	1520	-	- 873 999
Stage 1	-	-	- 958 -
Stage 2	-	-	- 966 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1520	-	- 870 999
Mov Cap-2 Maneuver	-	-	- 870 -
Stage 1	-	-	- 955 -
Stage 2	-	-	- 966 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1520	-	-	-	888
HCM Lane V/C Ratio	0.003	-	-	-	0.033
HCM Control Delay (s)	7.4	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes and Geometrics
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.933				0.959	
Flt Protected				0.983	0.966	
Satd. Flow (prot)	1738	0	0	1831	1726	0
Flt Permitted				0.983	0.966	
Satd. Flow (perm)	1738	0	0	1831	1726	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	167			136	829	
Travel Time (s)	3.8			3.1	18.8	
Intersection Summary						
Area Type:	Other					

Volume
7: Almond St & Lemon St

St. Francis of Rome Church TIA
09/24/2019

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	135	131	54	99	108	47
Future Volume (vph)	135	131	54	99	108	47
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	180	175	72	132	144	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	355	0	0	204	207	0
Intersection Summary						

Intersection						
Int Delay, s/veh	5.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	135	131	54	99	108	47
Future Vol, veh/h	135	131	54	99	108	47
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	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	175	72	132	144	63
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	355	0	544	268
Stage 1	-	-	-	-	268	-
Stage 2	-	-	-	-	276	-
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	-	-	1204	-	500	771
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1204	-	468	771
Mov Cap-2 Maneuver	-	-	-	-	468	-
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	721	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.9		16	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	531	-	-	1204	-	
HCM Lane V/C Ratio	0.389	-	-	0.06	-	
HCM Control Delay (s)	16	-	-	8.2	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	1.8	-	-	0.2	-	

Lanes and Geometrics
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.965			0.907			0.994			0.995	
Flt Protected		0.998						0.988			0.982	
Satd. Flow (prot)	0	1794	0	0	1690	0	0	1829	0	0	1820	0
Flt Permitted		0.998						0.988			0.982	
Satd. Flow (perm)	0	1794	0	0	1690	0	0	1829	0	0	1820	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		221			312			464			829	
Travel Time (s)		5.0			7.1			10.5			18.8	
Intersection Summary												
Area Type:	Other											

Volume
8: Almond St & Orange St

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	3	44	17	1	42	97	18	57	3	68	109	6
Future Volume (vph)	3	44	17	1	42	97	18	57	3	68	109	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	55	21	1	53	121	23	71	4	85	136	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	175	0	0	98	0	0	229	0
Intersection Summary												

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	44	17	1	42	97	18	57	3	68	109	6
Future Vol, veh/h	3	44	17	1	42	97	18	57	3	68	109	6
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	55	21	1	53	121	23	71	4	85	136	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	8.6	8.6	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	5%	1%	37%
Vol Thru, %	73%	69%	30%	60%
Vol Right, %	4%	27%	69%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	78	64	140	183
LT Vol	18	3	1	68
Through Vol	57	44	42	109
RT Vol	3	17	97	6
Lane Flow Rate	98	80	175	229
Geometry Grp	1	1	1	1
Degree of Util (X)	0.13	0.106	0.214	0.298
Departure Headway (Hd)	4.815	4.772	4.4	4.687
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	741	748	814	764
Service Time	2.865	2.821	2.441	2.73
HCM Lane V/C Ratio	0.132	0.107	0.215	0.3
HCM Control Delay	8.6	8.4	8.6	9.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.4	0.8	1.3

Lanes and Geometrics
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850						0.989
Flt Protected		0.999										0.956
Satd. Flow (prot)	0	3536	1863	0	3539	1583	0	1863	0	0	1761	0
Flt Permitted		0.999										0.956
Satd. Flow (perm)	0	3536	1863	0	3539	1583	0	1863	0	0	1761	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		660			309			203			464	
Travel Time (s)		15.0			7.0			4.6			10.5	
Intersection Summary												
Area Type:	Other											

Volume
9: Almond St & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	10	624	0	0	585	75	0	0	0	122	0	11
Future Volume (vph)	10	624	0	0	585	75	0	0	0	122	0	11
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	10	637	0	0	597	77	0	0	0	124	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	647	0	0	597	77	0	0	0	0	135	0
Intersection Summary												

Intersection												
Intersection Delay, s/veh	15.4											
Intersection LOS	C											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗		↔↔	↗		↔			↔	
Traffic Vol, veh/h	10	624	0	0	585	75	0	0	0	122	0	11
Future Vol, veh/h	10	624	0	0	585	75	0	0	0	122	0	11
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	637	0	0	597	77	0	0	0	124	0	11
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	17.9	13.3	0	13.7
HCM LOS	C	B	-	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	5%	0%	0%	0%	0%	0%	92%
Vol Thru, %	100%	95%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	100%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	218	416	0	293	293	75	133
LT Vol	0	10	0	0	0	0	0	122
Through Vol	0	208	416	0	293	293	0	0
RT Vol	0	0	0	0	0	0	75	11
Lane Flow Rate	0	222	424	0	298	298	77	136
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.366	0.695	0	0.49	0.49	0.073	0.292
Departure Headway (Hd)	7.795	5.916	5.893	5.893	5.905	5.905	3.44	7.74
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	607	611	0	609	609	1035	464
Service Time	5.567	3.658	3.635	3.635	3.648	3.648	1.181	5.496
HCM Lane V/C Ratio	0	0.366	0.694	0	0.489	0.489	0.074	0.293
HCM Control Delay	10.6	12.1	21	8.6	14.2	14.2	6.5	13.7
HCM Lane LOS	N	B	C	N	B	B	A	B
HCM 95th-tile Q	0	1.7	5.5	0	2.7	2.7	0.2	1.2

Lanes and Geometrics
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	100		0	200		0	100		0	100		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.996				0.982				0.850			0.850
Flt Protected	0.950			0.950				0.990			0.958	
Satd. Flow (prot)	1770	3525	0	1770	3476	0	0	1844	1583	0	1785	1583
Flt Permitted	0.950			0.950				0.935			0.698	
Satd. Flow (perm)	1770	3525	0	1770	3476	0	0	1742	1583	0	1300	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			27				197			109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			320			221			464	
Travel Time (s)		7.0			7.3			5.0			10.5	

Intersection Summary

Area Type: Other

Volume
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	43	704	20	112	644	87	14	57	187	181	24	14
Future Volume (vph)	43	704	20	112	644	87	14	57	187	181	24	14
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	45	741	21	118	678	92	15	60	197	191	25	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	762	0	118	770	0	0	75	197	0	216	15
Intersection Summary												

Timings
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

										
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	43	704	112	644	14	57	187	181	24	14
Future Volume (vph)	43	704	112	644	14	57	187	181	24	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	3	8		2			6	
Permitted Phases					2		2	6		6
Detector Phase	7	4	3	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.2	23.0	12.0	24.8	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	17.0%	38.3%	20.0%	41.3%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	5.8	16.8	7.2	22.0		21.0	21.0		21.0	21.0
Actuated g/C Ratio	0.10	0.30	0.13	0.39		0.38	0.38		0.38	0.38
v/c Ratio	0.25	0.72	0.52	0.56		0.11	0.28		0.44	0.02
Control Delay	28.9	22.3	33.8	15.2		14.2	3.9		19.0	0.1
Queue Delay	0.0	0.0	0.0	0.6		0.0	0.0		0.0	0.0
Total Delay	28.9	22.3	33.8	15.8		14.2	3.9		19.0	0.1
LOS	C	C	C	B		B	A		B	A
Approach Delay		22.7		18.2		6.7			17.7	
Approach LOS		C		B		A			B	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 18.4

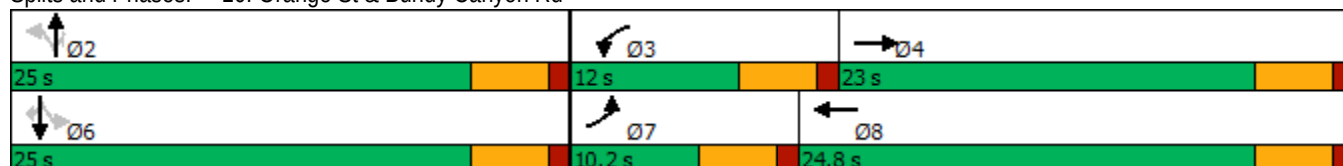
Intersection LOS: B

Intersection Capacity Utilization 55.5%

ICU Level of Service B

Analysis Period (min) 15

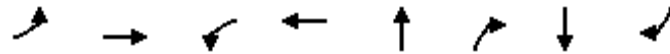
Splits and Phases: 10: Orange St & Bundy Canyon Rd



Queues
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	45	762	118	770	75	197	216	15
v/c Ratio	0.25	0.72	0.52	0.56	0.11	0.28	0.44	0.02
Control Delay	28.9	22.3	33.8	15.2	14.2	3.9	19.0	0.1
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0
Total Delay	28.9	22.3	33.8	15.8	14.2	3.9	19.0	0.1
Queue Length 50th (ft)	16	125	41	81	18	0	60	0
Queue Length 95th (ft)	42	181	#93	170	43	36	117	0
Internal Link Dist (ft)		229		240	141		384	
Turn Bay Length (ft)	100		200					
Base Capacity (vph)	184	1195	242	1529	653	716	487	661
Starvation Cap Reductn	0	0	0	381	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.64	0.49	0.67	0.11	0.28	0.44	0.02

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
10: Orange St & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	704	20	112	644	87	14	57	187	181	24	14
Future Volume (veh/h)	43	704	20	112	644	87	14	57	187	181	24	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	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	45	741	21	118	678	92	15	60	197	191	25	15
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	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	81	973	28	152	992	135	81	251	609	127	9	609
Arrive On Green	0.05	0.28	0.28	0.09	0.32	0.32	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1774	3515	100	1774	3133	425	0	653	1583	0	24	1583
Grp Volume(v), veh/h	45	373	389	118	383	387	75	0	197	216	0	15
Grp Sat Flow(s),veh/h/ln	1774	1770	1845	1774	1770	1788	653	0	1583	24	0	1583
Q Serve(g_s), s	1.3	10.3	10.3	3.5	10.1	10.1	0.0	0.0	4.7	0.0	0.0	0.3
Cycle Q Clear(g_c), s	1.3	10.3	10.3	3.5	10.1	10.1	20.5	0.0	4.7	20.5	0.0	0.3
Prop In Lane	1.00		0.05	1.00		0.24	0.20		1.00	0.88		1.00
Lane Grp Cap(c), veh/h	81	490	511	152	561	566	332	0	609	136	0	609
V/C Ratio(X)	0.56	0.76	0.76	0.78	0.68	0.68	0.23	0.00	0.32	1.58	0.00	0.02
Avail Cap(c_a), veh/h	190	614	640	250	674	681	332	0	609	136	0	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	17.7	17.7	23.9	15.9	15.9	12.2	0.0	11.5	25.3	0.0	10.2
Incr Delay (d2), s/veh	5.8	4.3	4.2	8.3	2.2	2.2	1.6	0.0	1.4	294.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.6	5.8	2.1	5.2	5.3	0.9	0.0	2.3	13.1	0.0	0.2
LnGrp Delay(d),s/veh	30.8	22.0	21.8	32.2	18.1	18.1	13.8	0.0	12.9	320.0	0.0	10.3
LnGrp LOS	C	C	C	C	B	B	B		B	F		B
Approach Vol, veh/h		807			888			272			231	
Approach Delay, s/veh		22.4			20.0			13.2			299.9	
Approach LOS		C			B			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	9.1	19.3		25.0	6.9	21.4				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.5	7.5	18.5		20.5	5.7	20.3				
Max Q Clear Time (g_c+I1), s		22.5	5.5	12.3		22.5	3.3	12.1				
Green Ext Time (p_c), s		0.0	0.0	2.5		0.0	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay				49.4								
HCM 2010 LOS				D								

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.945						0.852					
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3345	0	1770	3539	0	0	0	0	1770	1587	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3345	0	1770	3539	0	0	0	0	1770	1587	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)	93									160		
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	320			695			332			508		
Travel Time (s)	7.3			15.8			7.5			11.5		
Intersection Summary												
Area Type:	Other											

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	674	389	601	678	0	0	0	0	569	2	146
Future Volume (vph)	0	674	389	601	678	0	0	0	0	569	2	146
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	741	427	660	745	0	0	0	0	625	2	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1168	0	660	745	0	0	0	0	625	162	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

	→	↙	←	↘	↓
Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	674	601	678	569	2
Future Volume (vph)	674	601	678	569	2
Turn Type	NA	Prot	NA	Perm	NA
Protected Phases	4	3	8		6
Permitted Phases				6	
Detector Phase	4	3	8	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	37.0	41.0	78.0	42.0	42.0
Total Split (%)	30.8%	34.2%	65.0%	35.0%	35.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	32.5	36.5	73.5	37.5	37.5
Actuated g/C Ratio	0.27	0.30	0.61	0.31	0.31
v/c Ratio	1.20	1.23	0.34	1.13	0.27
Control Delay	136.0	154.5	12.0	118.0	6.0
Queue Delay	1.5	0.0	0.0	0.0	0.0
Total Delay	137.4	154.5	12.0	118.0	6.0
LOS	F	F	B	F	A
Approach Delay	137.4		78.9		94.9
Approach LOS	F		E		F

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 140
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 103.0
 Intersection LOS: F
 Intersection Capacity Utilization 110.0%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd

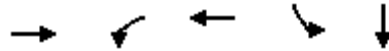


Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1168	660	745	625	162
v/c Ratio	1.20	1.23	0.34	1.13	0.27
Control Delay	136.0	154.5	12.0	118.0	6.0
Queue Delay	1.5	0.0	0.0	0.0	0.0
Total Delay	137.4	154.5	12.0	118.0	6.0
Queue Length 50th (ft)	~551	~630	139	~562	1
Queue Length 95th (ft)	#688	#859	176	#787	50
Internal Link Dist (ft)	240		615		428
Turn Bay Length (ft)		260			
Base Capacity (vph)	973	538	2167	553	605
Starvation Cap Reductn	228	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.57	1.23	0.34	1.13	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑	
Traffic Volume (veh/h)	0	674	389	601	678	0	0	0	0	569	2	146
Future Volume (veh/h)	0	674	389	601	678	0	0	0	0	569	2	146
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	1863	1900	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	741	427	660	745	0				625	2	160
Adj No. of Lanes	0	2	0	1	2	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
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	587	337	540	2168	0				554	6	490
Arrive On Green	0.00	0.27	0.27	0.30	0.61	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	2261	1245	1774	3632	0				1774	20	1567
Grp Volume(v), veh/h	0	604	564	660	745	0				625	0	162
Grp Sat Flow(s),veh/h/ln	0	1770	1643	1774	1770	0				1774	0	1586
Q Serve(g_s), s	0.0	32.5	32.5	36.5	12.4	0.0				37.5	0.0	9.4
Cycle Q Clear(g_c), s	0.0	32.5	32.5	36.5	12.4	0.0				37.5	0.0	9.4
Prop In Lane	0.00		0.76	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	479	445	540	2168	0				554	0	496
V/C Ratio(X)	0.00	1.26	1.27	1.22	0.34	0.00				1.13	0.00	0.33
Avail Cap(c_a), veh/h	0	479	445	540	2168	0				554	0	496
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	43.8	43.8	41.8	11.4	0.0				41.3	0.0	31.6
Incr Delay (d2), s/veh	0.0	133.3	136.9	116.2	0.1	0.0				78.3	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
%ile BackOfQ(50%),veh/ln	0.0	33.6	31.6	35.3	6.0	0.0				30.4	0.0	4.3
LnGrp Delay(d),s/veh	0.0	177.1	180.7	158.0	11.5	0.0				119.6	0.0	33.3
LnGrp LOS		F	F	F	B					F		C
Approach Vol, veh/h		1168			1405						787	
Approach Delay, s/veh		178.8			80.3						101.8	
Approach LOS		F			F						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			41.0	37.0		42.0		78.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			36.5	32.5		37.5		73.5				
Max Q Clear Time (g_c+I1), s			38.5	34.5		39.5		14.4				
Green Ext Time (p_c), s			0.0	0.0		0.0		6.3				
Intersection Summary												
HCM 2010 Ctrl Delay			119.6									
HCM 2010 LOS			F									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.945			0.851				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3345	0	1770	1585	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3345	0	1770	1585	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					113			88				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	
Intersection Summary												
Area Type:	Other											

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	242	1004	0	0	1008	578	301	3	627	0	0	0
Future Volume (vph)	242	1004	0	0	1008	578	301	3	627	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	260	1080	0	0	1084	622	324	3	674	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	1080	0	0	1706	0	324	677	0	0	0	0
Intersection Summary												

Timings
12: I-15 NB Ramps & Bundy Canyon Rd

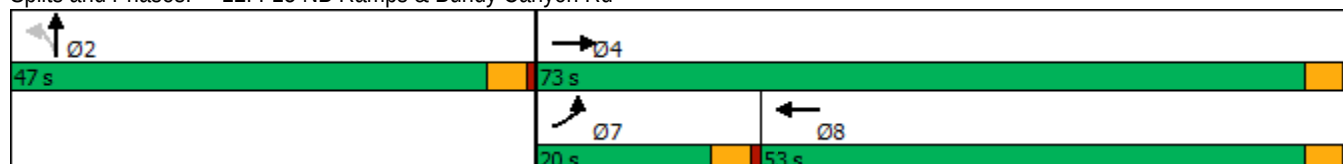
St. Francis of Rome Church TIA
09/24/2019

					
Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Configurations					
Traffic Volume (vph)	242	1004	1008	301	3
Future Volume (vph)	242	1004	1008	301	3
Turn Type	Prot	NA	NA	Perm	NA
Protected Phases	7	4	8		2
Permitted Phases				2	
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5
Total Split (s)	20.0	73.0	53.0	47.0	47.0
Total Split (%)	16.7%	60.8%	44.2%	39.2%	39.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Max	Max
Act Effect Green (s)	15.5	68.5	48.5	42.5	42.5
Actuated g/C Ratio	0.13	0.57	0.40	0.35	0.35
v/c Ratio	1.14	0.53	1.20	0.52	1.10
Control Delay	149.4	17.1	129.2	34.3	97.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	149.4	17.1	129.2	34.3	97.7
LOS	F	B	F	C	F
Approach Delay		42.8	129.2		77.2
Approach LOS		D	F		E

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 87.7
 Intersection LOS: F
 Intersection Capacity Utilization 110.0%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd

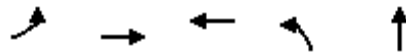


Queues

St. Francis of Rome Church TIA

09/24/2019

12: I-15 NB Ramps & Bundy Canyon Rd



Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	260	1080	1706	324	677
v/c Ratio	1.14	0.53	1.20	0.52	1.10
Control Delay	149.4	17.1	129.2	34.3	97.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	149.4	17.1	129.2	34.3	97.7
Queue Length 50th (ft)	~235	258	~820	197	~547
Queue Length 95th (ft)	#404	316	#961	288	#782
Internal Link Dist (ft)		615	78		321
Turn Bay Length (ft)	185				
Base Capacity (vph)	228	2020	1419	626	618
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.14	0.53	1.20	0.52	1.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	1004	0	0	1008	578	301	3	627	0	0	0
Future Volume (veh/h)	242	1004	0	0	1008	578	301	3	627	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	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	260	1080	0	0	1084	622	324	3	674			
Adj No. of Lanes	1	2	0	0	2	0	1	1	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	229	2020	0	0	895	487	628	2	559			
Arrive On Green	0.13	0.57	0.00	0.00	0.40	0.40	0.35	0.35	0.35			
Sat Flow, veh/h	1774	3632	0	0	2308	1205	1774	7	1577			
Grp Volume(v), veh/h	260	1080	0	0	854	852	324	0	677			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1650	1774	0	1584			
Q Serve(g_s), s	15.5	22.6	0.0	0.0	48.5	48.5	17.3	0.0	42.5			
Cycle Q Clear(g_c), s	15.5	22.6	0.0	0.0	48.5	48.5	17.3	0.0	42.5			
Prop In Lane	1.00		0.00	0.00		0.73	1.00		1.00			
Lane Grp Cap(c), veh/h	229	2020	0	0	715	667	628	0	561			
V/C Ratio(X)	1.13	0.53	0.00	0.00	1.19	1.28	0.52	0.00	1.21			
Avail Cap(c_a), veh/h	229	2020	0	0	715	667	628	0	561			
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	52.3	15.9	0.0	0.0	35.8	35.8	30.6	0.0	38.8			
Incr Delay (d2), s/veh	100.5	0.3	0.0	0.0	100.9	136.1	3.0	0.0	108.9			
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	14.0	11.0	0.0	0.0	43.7	47.3	9.0	0.0	35.5			
LnGrp Delay(d),s/veh	152.7	16.2	0.0	0.0	136.6	171.9	33.6	0.0	147.7			
LnGrp LOS	F	B			F	F	C		F			
Approach Vol, veh/h		1340			1706			1001				
Approach Delay, s/veh		42.7			154.2			110.7				
Approach LOS		D			F			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		47.0		73.0			20.0	53.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		42.5		68.5			15.5	48.5				
Max Q Clear Time (g_c+I1), s		44.5		24.6			17.5	50.5				
Green Ext Time (p_c), s		0.0		10.3			0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				106.5								
HCM 2010 LOS				F								

Appendix F

Mitigated Opening Year (2020) Cumulative With Project Conditions
Intersection Analysis Worksheets

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑					↖↗	↖	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor												
Frt		0.850								0.850		
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3539	1583	1770	3539	0	0	0	0	3433	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3539	1583	1770	3539	0	0	0	0	3433	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			351								190	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		320			695			332			508	
Travel Time (s)		7.3			15.8			7.5			11.5	
Intersection Summary												
Area Type:	Other											

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	684	340	648	856	0	0	0	0	695	0	175
Future Volume (vph)	0	684	340	648	856	0	0	0	0	695	0	175
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	705	351	668	882	0	0	0	0	716	0	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	705	351	668	882	0	0	0	0	716	180	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

	→	↘	↙	←	↘	↓
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↙	↑↑	↘↘	↘
Traffic Volume (vph)	684	340	648	856	695	0
Future Volume (vph)	684	340	648	856	695	0
Turn Type	NA	Perm	Prot	NA	Perm	NA
Protected Phases	4		3	8		6
Permitted Phases		4			6	
Detector Phase	4	4	3	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	24.0	24.0	40.0	64.0	26.0	26.0
Total Split (%)	26.7%	26.7%	44.4%	71.1%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	19.5	19.5	34.9	58.9	21.5	21.5
Actuated g/C Ratio	0.22	0.22	0.39	0.66	0.24	0.24
v/c Ratio	0.91	0.57	0.97	0.38	0.87	0.34
Control Delay	52.5	7.5	55.6	7.5	45.4	5.9
Queue Delay	4.5	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	7.5	55.6	7.5	45.4	5.9
LOS	E	A	E	A	D	A
Approach Delay	40.5			28.2		37.5
Approach LOS	D			C		D

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 89.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 34.3

Intersection LOS: C

Intersection Capacity Utilization 88.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd



Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	705	351	668	882	716	180
v/c Ratio	0.91	0.57	0.97	0.38	0.87	0.34
Control Delay	52.5	7.5	55.6	7.5	45.4	5.9
Queue Delay	4.5	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	7.5	55.6	7.5	45.4	5.9
Queue Length 50th (ft)	207	0	362	105	202	0
Queue Length 95th (ft)	#314	70	#590	137	#298	45
Internal Link Dist (ft)	240			615		428
Turn Bay Length (ft)			260			
Base Capacity (vph)	772	619	703	2356	826	524
Starvation Cap Reductn	37	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.57	0.95	0.37	0.87	0.34

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑	↑	
Traffic Volume (veh/h)	0	684	340	648	856	0	0	0	0	695	0	175
Future Volume (veh/h)	0	684	340	648	856	0	0	0	0	695	0	175
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	1863	1863	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	705	351	668	882	0				716	0	180
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	770	345	695	2335	0				826	0	380
Arrive On Green	0.00	0.22	0.22	0.39	0.66	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	3632	1583	1774	3632	0				3442	0	1583
Grp Volume(v), veh/h	0	705	351	668	882	0				716	0	180
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1770	0				1721	0	1583
Q Serve(g_s), s	0.0	17.4	19.5	32.9	10.1	0.0				17.9	0.0	8.7
Cycle Q Clear(g_c), s	0.0	17.4	19.5	32.9	10.1	0.0				17.9	0.0	8.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	770	345	695	2335	0				826	0	380
V/C Ratio(X)	0.00	0.92	1.02	0.96	0.38	0.00				0.87	0.00	0.47
Avail Cap(c_a), veh/h	0	770	345	703	2350	0				826	0	380
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	34.2	35.1	26.6	6.9	0.0				32.7	0.0	29.2
Incr Delay (d2), s/veh	0.0	15.6	53.3	24.6	0.1	0.0				11.9	0.0	4.2
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	10.2	13.5	20.7	4.9	0.0				9.8	0.0	4.2
LnGrp Delay(d),s/veh	0.0	49.8	88.4	51.2	7.0	0.0				44.5	0.0	33.4
LnGrp LOS		D	F	D	A					D		C
Approach Vol, veh/h		1056			1550						896	
Approach Delay, s/veh		62.6			26.0						42.3	
Approach LOS		E			C						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			39.6	24.0		26.0		63.6				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			35.5	19.5		21.5		59.5				
Max Q Clear Time (g_c+I1), s			34.9	21.5		19.9		12.1				
Green Ext Time (p_c), s			0.2	0.0		0.7		7.8				
Intersection Summary												
HCM 2010 Ctrl Delay			41.2									
HCM 2010 LOS			D									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850		0.851	0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3539	1583	1770	1506	1504	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3539	1583	1770	1506	1504	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						720		48	94			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	

Intersection Summary

Area Type: Other

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	173	1208	0	0	1140	662	369	3	770	0	0	0
Future Volume (vph)	173	1208	0	0	1140	662	369	3	770	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	188	1313	0	0	1239	720	401	3	837	0	0	0
Shared Lane Traffic (%)									50%			
Lane Group Flow (vph)	188	1313	0	0	1239	720	401	422	418	0	0	0
Intersection Summary												

Timings
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	173	1208	1140	662	369	3	770
Future Volume (vph)	173	1208	1140	662	369	3	770
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	8			2	
Permitted Phases				8	2		2
Detector Phase	7	4	8	8	2	2	2
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	13.0	44.0	31.0	31.0	26.0	26.0	26.0
Total Split (%)	18.6%	62.9%	44.3%	44.3%	37.1%	37.1%	37.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	8.5	39.5	26.5	26.5	21.5	21.5	21.5
Actuated g/C Ratio	0.12	0.56	0.38	0.38	0.31	0.31	0.31
v/c Ratio	0.88	0.66	0.93	0.69	0.74	0.85	0.79
Control Delay	70.6	12.6	34.4	5.4	31.7	39.1	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	12.6	34.4	5.4	31.7	39.1	30.4
LOS	E	B	C	A	C	D	C
Approach Delay		19.8	23.8			33.8	
Approach LOS		B	C			C	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 25.2

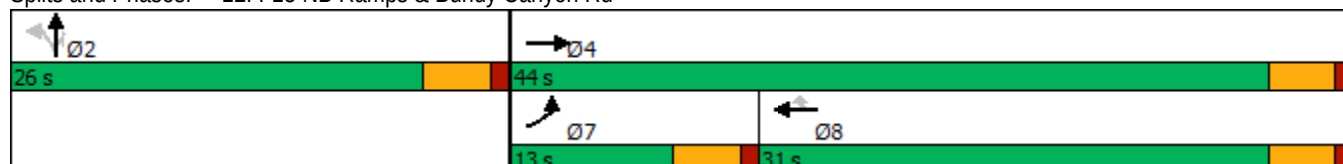
Intersection LOS: C

Intersection Capacity Utilization 88.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd



Queues
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	188	1313	1239	720	401	422	418
v/c Ratio	0.88	0.66	0.93	0.69	0.74	0.85	0.79
Control Delay	70.6	12.6	34.4	5.4	31.7	39.1	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	12.6	34.4	5.4	31.7	39.1	30.4
Queue Length 50th (ft)	81	186	261	0	153	158	133
Queue Length 95th (ft)	#190	252	#395	64	#276	#324	#286
Internal Link Dist (ft)		615	78			321	
Turn Bay Length (ft)	185						
Base Capacity (vph)	214	1997	1339	1046	543	495	527
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.66	0.93	0.69	0.74	0.85	0.79

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	1208	0	0	1140	662	369	3	770	0	0	0
Future Volume (veh/h)	173	1208	0	0	1140	662	369	3	770	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	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	188	1313	0	0	1239	720	401	0	839			
Adj No. of Lanes	1	2	0	0	2	1	1	0	2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	215	1997	0	0	1340	599	545	0	973			
Arrive On Green	0.12	0.56	0.00	0.00	0.38	0.38	0.31	0.00	0.31			
Sat Flow, veh/h	1774	3632	0	0	3632	1583	1774	0	3167			
Grp Volume(v), veh/h	188	1313	0	0	1239	720	401	0	839			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	7.3	18.0	0.0	0.0	23.4	26.5	14.2	0.0	17.5			
Cycle Q Clear(g_c), s	7.3	18.0	0.0	0.0	23.4	26.5	14.2	0.0	17.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	215	1997	0	0	1340	599	545	0	973			
V/C Ratio(X)	0.87	0.66	0.00	0.00	0.92	1.20	0.74	0.00	0.86			
Avail Cap(c_a), veh/h	215	1997	0	0	1340	599	545	0	973			
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	30.2	10.6	0.0	0.0	20.8	21.7	21.7	0.0	22.9			
Incr Delay (d2), s/veh	30.1	0.8	0.0	0.0	11.0	105.9	8.6	0.0	10.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.4	8.8	0.0	0.0	13.4	29.1	8.2	0.0	8.9			
LnGrp Delay(d),s/veh	60.3	11.4	0.0	0.0	31.8	127.6	30.3	0.0	32.9			
LnGrp LOS	E	B			C	F	C		C			
Approach Vol, veh/h		1501			1959			1240				
Approach Delay, s/veh		17.5			67.0			32.0				
Approach LOS		B			E			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		26.0		44.0			13.0	31.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		21.5		39.5			8.5	26.5				
Max Q Clear Time (g_c+I1), s		19.5		20.0			9.3	28.5				
Green Ext Time (p_c), s		1.1		9.9			0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				42.0								
HCM 2010 LOS				D								
Notes												

Opening Year (2020) Cumulative Conditions With Project Mitigated
Saturday Peak Hour

Synchro 10 Report

Lanes and Geometrics
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑					↖↗	↖	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	260		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor												
Frt			0.850								0.852	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3539	1583	1770	3539	0	0	0	0	3433	1587	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3539	1583	1770	3539	0	0	0	0	3433	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			427								160	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		320			695			332			508	
Travel Time (s)		7.3			15.8			7.5			11.5	
Intersection Summary												
Area Type:	Other											

Volume
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	674	389	601	678	0	0	0	0	569	2	146
Future Volume (vph)	0	674	389	601	678	0	0	0	0	569	2	146
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	741	427	660	745	0	0	0	0	625	2	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	741	427	660	745	0	0	0	0	625	162	0
Intersection Summary												

Timings
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

	→	↘	↙	←	↘	↓
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Configurations	↑↑	↑	↙	↑↑	↘↘	↑
Traffic Volume (vph)	674	389	601	678	569	2
Future Volume (vph)	674	389	601	678	569	2
Turn Type	NA	Perm	Prot	NA	Perm	NA
Protected Phases	4		3	8		6
Permitted Phases		4			6	
Detector Phase	4	4	3	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	25.0	25.0	41.0	66.0	24.0	24.0
Total Split (%)	27.8%	27.8%	45.6%	73.3%	26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	20.5	20.5	34.9	60.0	19.5	19.5
Actuated g/C Ratio	0.23	0.23	0.39	0.68	0.22	0.22
v/c Ratio	0.90	0.61	0.95	0.31	0.83	0.34
Control Delay	49.5	7.4	50.4	6.2	44.0	7.5
Queue Delay	8.7	0.0	0.0	0.0	0.0	0.0
Total Delay	58.2	7.4	50.4	6.2	44.0	7.5
LOS	E	A	D	A	D	A
Approach Delay	39.6			27.0		36.5
Approach LOS	D			C		D

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 88.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 33.6

Intersection LOS: C

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 11: I-15 SB Ramps & Bundy Canyon Rd



Queues

St. Francis of Rome Church TIA

11: I-15 SB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	741	427	660	745	625	162
v/c Ratio	0.90	0.61	0.95	0.31	0.83	0.34
Control Delay	49.5	7.4	50.4	6.2	44.0	7.5
Queue Delay	8.7	0.0	0.0	0.0	0.0	0.0
Total Delay	58.2	7.4	50.4	6.2	44.0	7.5
Queue Length 50th (ft)	217	0	348	77	176	1
Queue Length 95th (ft)	#326	77	#568	103	#261	50
Internal Link Dist (ft)	240			615		428
Turn Bay Length (ft)			260			
Base Capacity (vph)	821	695	730	2463	757	475
Starvation Cap Reductn	66	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.61	0.90	0.30	0.83	0.34

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
11: I-15 SB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑	↑	
Traffic Volume (veh/h)	0	674	389	601	678	0	0	0	0	569	2	146
Future Volume (veh/h)	0	674	389	601	678	0	0	0	0	569	2	146
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	1863	1863	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	741	427	660	745	0				625	2	160
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	825	369	695	2393	0				763	4	347
Arrive On Green	0.00	0.23	0.23	0.39	0.68	0.00				0.22	0.22	0.22
Sat Flow, veh/h	0	3632	1583	1774	3632	0				3442	20	1567
Grp Volume(v), veh/h	0	741	427	660	745	0				625	0	162
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1770	0				1721	0	1586
Q Serve(g_s), s	0.0	17.9	20.5	31.7	7.6	0.0				15.2	0.0	7.8
Cycle Q Clear(g_c), s	0.0	17.9	20.5	31.7	7.6	0.0				15.2	0.0	7.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	825	369	695	2393	0				763	0	352
V/C Ratio(X)	0.00	0.90	1.16	0.95	0.31	0.00				0.82	0.00	0.46
Avail Cap(c_a), veh/h	0	825	369	736	2474	0				763	0	352
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	32.7	33.7	25.9	5.8	0.0				32.6	0.0	29.7
Incr Delay (d2), s/veh	0.0	12.7	96.9	21.1	0.1	0.0				9.6	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.2	18.9	19.5	3.6	0.0				8.2	0.0	3.8
LnGrp Delay(d),s/veh	0.0	45.4	130.7	47.1	5.9	0.0				42.1	0.0	34.0
LnGrp LOS		D	F	D	A					D		C
Approach Vol, veh/h		1168			1405						787	
Approach Delay, s/veh		76.6			25.2						40.4	
Approach LOS		E			C						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			39.0	25.0		24.0		64.0				
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s			36.5	20.5		19.5		61.5				
Max Q Clear Time (g_c+I1), s			33.7	22.5		17.2		9.6				
Green Ext Time (p_c), s			0.8	0.0		0.9		6.3				
Intersection Summary												
HCM 2010 Ctrl Delay			46.7									
HCM 2010 LOS			D									

Lanes and Geometrics
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	185		0	0		0	0		0	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850		0.851	0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	3539	0	0	3539	1583	1770	1506	1504	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	3539	0	0	3539	1583	1770	1506	1504	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						622		103	103			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		695			158			401			507	
Travel Time (s)		15.8			3.6			9.1			11.5	

Intersection Summary

Area Type: Other

Volume
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	242	1004	0	0	1008	578	301	3	627	0	0	0
Future Volume (vph)	242	1004	0	0	1008	578	301	3	627	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	260	1080	0	0	1084	622	324	3	674	0	0	0
Shared Lane Traffic (%)									50%			
Lane Group Flow (vph)	260	1080	0	0	1084	622	324	340	337	0	0	0
Intersection Summary												

Timings
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA
09/24/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	242	1004	1008	578	301	3	627
Future Volume (vph)	242	1004	1008	578	301	3	627
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm
Protected Phases	7	4	8			2	
Permitted Phases				8	2		2
Detector Phase	7	4	8	8	2	2	2
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	18.0	47.0	29.0	29.0	23.0	23.0	23.0
Total Split (%)	25.7%	67.1%	41.4%	41.4%	32.9%	32.9%	32.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	None	None	None	Max	Max	Max
Act Effect Green (s)	12.8	41.8	24.5	24.5	18.5	18.5	18.5
Actuated g/C Ratio	0.18	0.60	0.35	0.35	0.27	0.27	0.27
v/c Ratio	0.80	0.51	0.87	0.65	0.69	0.71	0.71
Control Delay	46.9	8.9	30.4	5.3	32.0	26.1	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	8.9	30.4	5.3	32.0	26.1	25.7
LOS	D	A	C	A	C	C	C
Approach Delay		16.2	21.2			27.9	
Approach LOS		B	C			C	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 69.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 21.2

Intersection LOS: C

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 12: I-15 NB Ramps & Bundy Canyon Rd



Queues

St. Francis of Rome Church TIA

12: I-15 NB Ramps & Bundy Canyon Rd

09/24/2019



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	260	1080	1084	622	324	340	337
v/c Ratio	0.80	0.51	0.87	0.65	0.69	0.71	0.71
Control Delay	46.9	8.9	30.4	5.3	32.0	26.1	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	8.9	30.4	5.3	32.0	26.1	25.7
Queue Length 50th (ft)	107	122	225	0	126	95	94
Queue Length 95th (ft)	#215	165	#340	64	#218	#217	#215
Internal Link Dist (ft)		615	78			321	
Turn Bay Length (ft)	185						
Base Capacity (vph)	344	2170	1251	961	472	477	477
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.50	0.87	0.65	0.69	0.71	0.71

Intersection Summary

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

HCM 2010 Signalized Intersection Summary
12: I-15 NB Ramps & Bundy Canyon Rd

St. Francis of Rome Church TIA

09/24/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	1004	0	0	1008	578	301	3	627	0	0	0
Future Volume (veh/h)	242	1004	0	0	1008	578	301	3	627	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	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	260	1080	0	0	1084	622	324	0	676			
Adj No. of Lanes	1	2	0	0	2	1	1	0	2			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	306	2113	0	0	1270	568	481	0	858			
Arrive On Green	0.17	0.60	0.00	0.00	0.36	0.36	0.27	0.00	0.27			
Sat Flow, veh/h	1774	3632	0	0	3632	1583	1774	0	3167			
Grp Volume(v), veh/h	260	1080	0	0	1084	622	324	0	676			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	9.7	12.1	0.0	0.0	19.3	24.5	11.1	0.0	13.5			
Cycle Q Clear(g_c), s	9.7	12.1	0.0	0.0	19.3	24.5	11.1	0.0	13.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	306	2113	0	0	1270	568	481	0	858			
V/C Ratio(X)	0.85	0.51	0.00	0.00	0.85	1.09	0.67	0.00	0.79			
Avail Cap(c_a), veh/h	351	2203	0	0	1270	568	481	0	858			
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	27.4	8.0	0.0	0.0	20.2	21.9	22.2	0.0	23.1			
Incr Delay (d2), s/veh	16.1	0.2	0.0	0.0	5.8	66.1	7.4	0.0	7.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.1	5.9	0.0	0.0	10.4	21.0	6.4	0.0	6.8			
LnGrp Delay(d),s/veh	43.5	8.2	0.0	0.0	26.1	88.0	29.6	0.0	30.3			
LnGrp LOS	D	A			C	F	C		C			
Approach Vol, veh/h		1340			1706			1000				
Approach Delay, s/veh		15.0			48.6			30.1				
Approach LOS		B			D			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		23.0		45.3			16.3	29.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.5		42.5			13.5	24.5				
Max Q Clear Time (g_c+I1), s		15.5		14.1			11.7	26.5				
Green Ext Time (p_c), s		1.3		9.3			0.1	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				32.9								
HCM 2010 LOS				C								
Notes												

Opening Year (2020) Cumulative Conditions With Project Mitigated
Sunday Peak Hour

Synchro 10 Report