

Traffic Impact Study for Riverside Transmission Reliability Project - Underground

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Table of Contents

SECTION 1: INTRODUCTION	I
PROJECT STUDY AREA.....	1
PROJECT ALIGNMENT.....	4
PROJECT RELATED COMPONENTS.....	4
CONSTRUCTION WORK FORCE AND SCHEDULE.....	5
SECTION 2: REGULATORY FRAMEWORK	8
FEDERAL.....	8
STATE.....	8
LOCAL.....	8
SECTION 3: PROJECT AREA OVERVIEW	10
LOCAL ROADWAY FACILITIES.....	10
REGIONAL ROADWAY FACILITIES.....	11
EXISTING TRANSIT SERVICE.....	13
SCHOOL BUS SERVICE.....	15
BICYCLE FACILITIES.....	16
SECTION 4: INVENTORY METHODS	17
DATA COLLECTION DETAILS.....	17
EXISTING TRAFFIC VOLUMES.....	17
SECTION 5: AFFECTED ENVIRONMENT	21
STUDY COMPONENTS.....	21
230 KV UNDERGROUND TRANSMISSION LINE PROJECT ROUTE SUMMARY.....	21
MAINTENANCE ACCESS.....	21
PLANNED ROADWAY PROJECTS.....	22
PLANNED MAJOR PROJECT DEVELOPMENTS IN THE AREA.....	24
SECTION 6: IMPACT ASSESSMENT	26
IMPACT ANALYSIS FOR UNDERGROUND TRANSMISSION LINE.....	26
SIGNIFICANCE CRITERIA.....	26
State.....	26
Local.....	27
LEVEL OF SERVICE METHODOLOGY.....	28
Signalized Intersections.....	28
Unsignalized Intersections.....	29
Level of Service on Street Segments.....	29
Significant Traffic Impacts Thresholds.....	32
PROJECT TRIP GENERATION.....	33
PROJECT TRIP DISTRIBUTION.....	34
PROJECT TRIP ASSIGNMENT.....	34
Study Scenarios.....	39
Existing 2016 Conditions.....	39
Existing With Ambient Growth Traffic Conditions.....	40
Existing With Ambient Growth Plus Construction Traffic Conditions.....	46
Traffic Impacts Due to Construction.....	51
METHOD – SENSITIVITY ANALYSIS.....	52
Sensitivity Ratings.....	52



Sensitivity Values	53
Traffic Impacts and Construction Methods	54
Construction Access.....	55
Sensitivity Summary – Project Construction (Short-Term).....	55
Sensitivity Summary – Project Operations (Long-Term)	57
GENERAL LINK IMPACT SUMMARY.....	57
MAINTENANCE IMPACTS.....	58
SECTION 7: MITIGATION MEASURES.....	59
GENERAL MITIGATION MEASURES.....	59
RECOMMENDED SPECIFIC MITIGATION MEASURES	61

List of Figures

FIGURE 1: STUDY AREA	3
FIGURE 2: PROPOSED TRANSMISSION LINE ALIGNMENT	6
FIGURE 3: EXISTING INTERSECTION GEOMETRY	12
FIGURE 4: EXISTING TRANSIT LINES	14
FIGURE 5: EXISTING ROADWAY SEGMENT DAILY VOLUMES	18
FIGURE 6: EXISTING AM PEAK HOUR TRAFFIC VOLUMES	19
FIGURE 7: EXISTING PM PEAK HOUR TRAFFIC VOLUMES.	20
FIGURE 8: PROJECT TRIP DISTRIBUTION	35
FIGURE 9: PROJECT ONLY ADT TRAFFIC VOLUMES	36
FIGURE 10: PROJECT ONLY AM PEAK HOUR TRAFFIC VOLUMES	37
FIGURE 11: PROJECT ONLY PM PEAK HOUR TRAFFIC VOLUMES	38
FIGURE 12: EXISTING WITH AMBIENT GROWTH AVERAGE DAILY TRAFFIC VOLUMES	43
FIGURE 13: EXISTING WITH AMBIENT GROWTH AM PEAK HOUR TRAFFIC VOLUMES	44
FIGURE 14: EXISTING WITH AMBIENT GROWTH PM PEAK HOUR TRAFFIC VOLUMES	45
FIGURE 15: EXISTING WITH AMBIENT GROWTH PLUS CONSTRUCTION AVERAGE DAILY TRAFFIC VOLUMES	48
FIGURE 16: EXISTING WITH AMBIENT GROWTH PLUS CONSTRUCTION AM PEAK HOUR TRAFFIC VOLUMES	49
FIGURE 17: EXISTING WITH AMBIENT GROWTH PLUS CONSTRUCTION PM PEAK HOUR TRAFFIC VOLUMES	50

List of Tables

TABLE 1: CONSTRUCTION WORKFORCE ESTIMATES BY ACTIVITY	7
TABLE 2: TRAFFIC AND TRANSPORTATION LAWS, ORDINANCES, REGULATIONS, AND STANDARDS	9
TABLE 3: SUMMARY OF LINK CHARACTERISTICS ON MAJOR ROADWAYS	21
TABLE 4: LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTION	28
TABLE 5: LEVEL OF SERVICE DEFINITIONS FOR UNSIGNALIZED INTERSECTIONS	29
TABLE 6: LEVEL OF SERVICE DEFINITIONS FOR ROADWAY SEGMENTS	30
TABLE 7: ROADWAY CAPACITIES FOR STREET SEGMENT ANALYSIS	31
TABLE 8: PROJECT TRIP GENERATION ESTIMATE (NON-PCE)	33
TABLE 9: PROJECT TRIP GENERATION ESTIMATE (PCE ADJUSTMENT)	34
TABLE 10: EXISTING 2016 INTERSECTION LEVEL OF SERVICE SUMMARY	39
TABLE 11: EXISTING 2016 ADT LEVEL OF SERVICE SUMMARY	40
TABLE 12: EXISTING WITH AMBIENT GROWTH TRAFFIC - INTERSECTION LEVEL OF SERVICE SUMMARY	41



TABLE 13: EXISTING WITH AMBIENT GROWTH AVERAGE DAILY TRAFFIC LEVEL OF SERVICE SUMMARY	42
TABLE 14: EXISTING WITH AMBIENT GROWTH PLUS CONSTRUCTION LEVEL OF SERVICE SUMMARY	46
TABLE 15: EXISTING WITH AMBIENT GROWTH PLUS CONSTRUCTION AVERAGE DAILY TRAFFIC LEVEL OF SERVICE SUMMARY	47
TABLE 16: COMPARISON OF LEVEL OF SERVICE SUMMARY	51
TABLE 17: COMPARISON OF AVERAGE DAILY TRAFFIC LEVEL OF SERVICE SUMMARY	52
TABLE 18: SHORT-TERM DURATION SENSITIVITY RATINGS FOR ROADWAYS	56
TABLE 19: LONG-TERM DURATION SENSITIVITY RATINGS FOR ROADWAYS	57
TABLE 20: NEW 230 KV UNDERGROUND TRANSMISSION LINE SUMMARY OF IMPACTS	58

Appendix

APPENDIX A – TRAFFIC COUNT DATA
APPENDIX B – INTERSECTION LEVEL OF SERVICE WORKSHEETS - EXISTING CONDITIONS (YEAR 2016)
APPENDIX C – INTERSECTION LEVEL OF SERVICE WORKSHEETS - EXISTING WITH AMBIENT GROWTH TRAFFIC CONDITIONS
APPENDIX D – INTERSECTION LEVEL OF SERVICE WORKSHEETS - EXISTING WITH AMBIENT GROWTH WITH CONSTRUCTION TRAFFIC CONDITIONS
APPENDIX E – SUPPLEMENTAL INFORMATION

Section I: Introduction

This study report identifies the potential traffic impacts associated with the proposed Riverside Transmission Reliability Project (hereafter refer to as "Project"). The proposed overall Project would primarily consist of the construction, operation, and maintenance of a new approximately 10-mile double-circuit 230 kV transmission line, a new 230 kV substation (Wildlife Substation), a new 230/69 kV substation (Wilderness Substation), and five new 69 kV subtransmission line segments integrated into the City of Riverside Public Utilities' (RPU's) existing subtransmission system—a project in the hundreds of millions of dollars. Total length of the new 69 kV subtransmission lines would be approximately 11 miles.

Since certification of the Final Environmental Impact Report (FEIR), several route refinements have occurred to the proposed 230 kV transmission line. These refinements were developed through SCE's Certification of Public Convenience and Necessity (CPCN) application process with California Public Utilities Commission (CPUC), and new information based on intra-agency and interagency communications, new information, and requests from the public. Engineering designers attempted to accommodate both agency and public input to the maximum extent feasible. This report will address the undergrounding of the proposed 230 kV transmission line alignment that is located within the City of Jurupa Valley. Figure I shows the location and the surrounding roadway system.

The proposed underground portion of the project is anticipated to be constructed and completed within a 19 month time frame between June 2021 and December 2022. The study area includes analysis of nine key study intersections. Traffic impacts were analyzed based on weekday AM and PM peak hour traffic conditions at the ten study intersections. The traffic analysis includes the following traffic scenarios:

- Existing 2016 Conditions
- Existing With Ambient Growth Without Construction Traffic Conditions
- Existing With Ambient Growth Plus Construction Traffic Construction Conditions
- Traffic Impacts Due to Construction

The traffic analysis conducted is based on methodology and criteria set forth by the City of Jurupa Valley.

Project Study Area

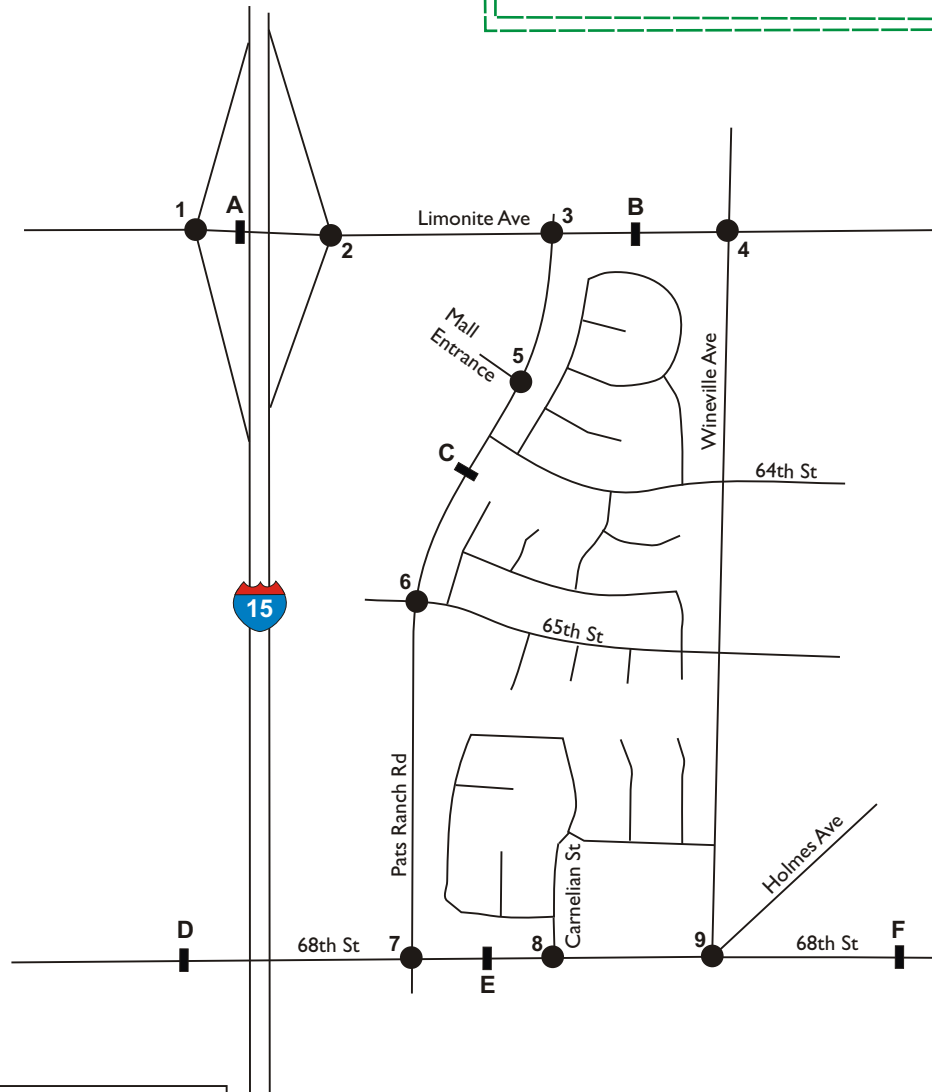
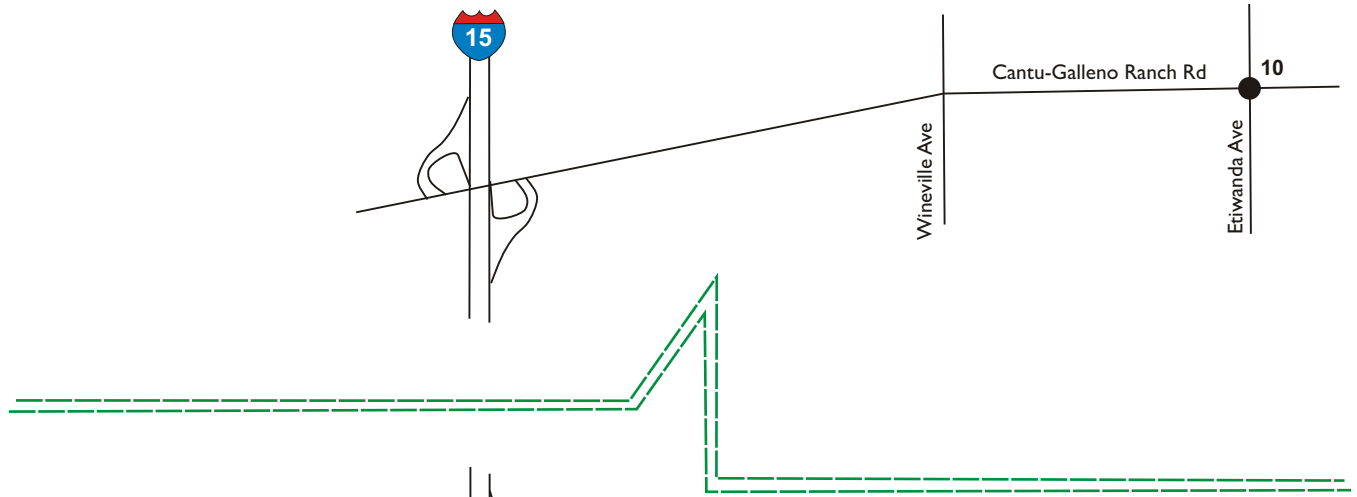
The Project study area is defined by the following ten key study intersections spread under the City of Jurupa Valley and California Department of Transportation (Caltrans):

- I-15 Southbound Ramps and Limonite Avenue (Caltrans - Signalized)



- I-15 Northbound Ramps and Limonite Avenue (Caltrans - Signalized)
- Pats Ranch Road and Limonite Avenue (Jurupa Valley - Signalized)
- Wineville Avenue and Limonite Avenue (Jurupa Valley - Signalized)
- Pats Ranch Road and Mall Entrance (Jurupa Valley - Signalized)
- Pats Ranch Road and 65th Street (Jurupa Valley - Signalized)
- Pats Ranch Road and 68th Street (Jurupa Valley - Signalized)
- Carnelian Street and 68th Street (Jurupa Valley - Stop Controlled)
- Wineville Avenue and Holmes Avenue/68th Street (Jurupa Valley - Stop Controlled)
- Etiwanda Avenue and Cantu-Galleano Ranch Road (Jurupa Valley - Signalized)

Figure I also shows the location of ten study intersections.



LEGEND

- Study Intersection
- X Intersection Reference Number
- █ Study Roadway Segment (A-F)





Project Alignment

The proposed alignment includes the undergrounding of 2 miles of transmission line with the alignment starting off at the Golf course located south of 68th Street and traversing west along 68th Street and continuing along Pats Ranch Road past Limonite Avenue and connecting back to east side of I-15 Northbound Ramps. Figure 2 shows the proposed transmission line alignment.

Project Related Components

It has been assumed the underground route will be constructed using the open cut trench and if feasible, other trenchless conceptual designs will be considered. During final route design, the trench details will need to be finalized to account for cable design, splicing/manhole locations, crossing requirements, land user agreements, easement requirements, and any county, state, and federal permitting requirements. Overall, the proposed RTRP undergrounding would require approximately 19 months for completion with workers (working 10 hour days, 5 days a week) to construct. The proposed RTRP undergrounding activities include the following:

- Construction of a trench and vault where excavation activities will generally be done by a excavator. The anticipated dimensions for trenches are typically 4'-6" wide by 6'-6" deep, by approximately seven feet deep, and by a required and specified length. Vault excavation is typically three feet greater than the vault's width and length dimensions, as well as four feet deeper than the vault's height. The excavator would serve the purpose of placing the excavated soil into the dump truck to be hauled away. Calculation of the area of disturbance is approximately 15 feet on either side of trench, as well as on all sides of vaults. During these activities, it is anticipated that water trucks would be used on an as-needed basis during excavation to control fugitive dust.
- SCE's contractor or SCE's cable crews would arrive at a later date to pull in six single conductor 5,000 kcmil Segmental Copper Cross-linked polyethylene (XLPE) cables per circuit run in one of the 8-inch conduits in the ductbank. To accomplish this, a rodder (cable pulling truck) would be set up at every other vault to pull cable both ways. At opposite ends of every other vault, the cable carousels would be set up to feed cable both ways. Other crews typically would install the vault grounds; rack the cables; and any other necessary equipment; and make the appropriate cable splices and terminations. Switching would be performed to put the new equipment into service.
- Ancillary facilities will also need to be installed during the cable pulling process (e.g., communications facilities). New fiber optic communications would be required for system control of the 230 kV transmission lines. Lane closures and traffic control permits are often required by local, County and State agencies for cable installations.

Jurupa Valley is considered a suburban area that is becoming increasingly more congested with traffic and construction activities. Schools, churches, homes and retail and commercial exist along route selected which will require additional safety considerations during construction. During construction,



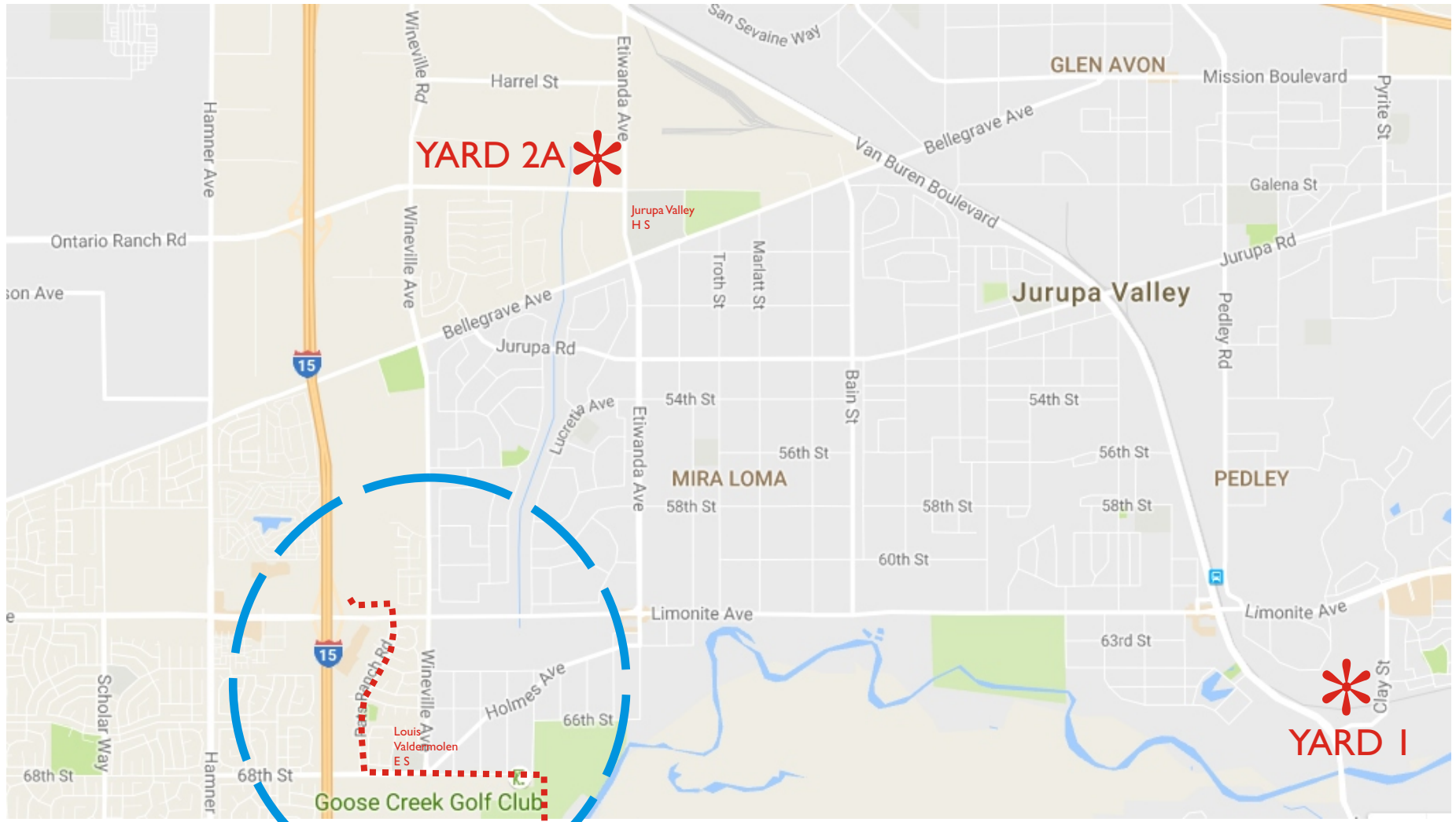
the entire road may have to be closed to provide sufficient working space for the installation of the underground cable system.

Construction Work Force and Schedule

The following section provides a detailed description of the construction and operation of the project proposed by SCE and RPU. The preliminary schedule would reflect a construction start date for the undergrounding in June 2021 and completion in December 2022.

The estimated elements, number of personnel, and equipment required for construction of the proposed project is summarized in Table I: Construction Workforce Estimates. Construction would be performed by either SCE construction crews or contractors, depending on the availability of SCE construction personnel at the time of construction. If SCE transmission and telecommunications construction crews are used, they would likely be based out of the construction yard 2A located off of Etiwanda Avenue and Cantu Galleano Ranch Road approximately 3.5 miles away. Contractor construction personnel would be managed by SCE construction management personnel and will be based out of this yard.

In general, construction efforts would occur in accordance with accepted construction industry and SCE standards. Construction activities generally would be scheduled during daylight hours (7:00 am to 5:00 pm), Monday through Friday. When different hours or days are necessary, SCE would obtain variances, as necessary, from the jurisdiction in which the work would take place. All materials associated with construction efforts would be delivered by truck to established marshalling yards. Delivery activities requiring major street use would be scheduled to occur during off-peak traffic hours.



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-  Proposed Transmission Line Alignment
-  Project Influence Area



Table I: Construction Workforce Estimates By Activity

Equipment Description	Equipment Quantity	Estimated Schedule Days	Probable Yard (1 or 2A)	Estimated Crew Workforce	Yard-2A Estimated Vehicle Round Trips Full Project	Estimated Time of Day (AM,PM)
Survey (1)				4		
I-Ton Truck, 4x4	2	11	n/a		-	AM,PM
Vault Installation (16)				20	2704	
I-Ton Truck, 4x4	4	224	2A		896	AM,PM
Backhoe/Front Loader	2	224	2A		4	AM,PM
Excavator	2	112	2A		4	AM,PM
Dump Truck	6	112	2A		1,344	AM,PM
Water Truck	2	224	2A		448	AM,PM
Crane (L)	2	112	2A		4	AM,PM
Concrete Truck	12	32	n/a		-	AM,PM
Flat Bed Truck	6	32	n/a		-	AM,PM
Lowboy Truck/Trailer	2	112	2A		4	AM,PM
Duct Bank Installation (17)				20	2432	
I-Ton Truck, 4x4	4	110	2A		440	AM,PM
Compressor Trailer	2	110	2A		-	-
Backhoe/Front Loader	2	110	2A		4	AM,PM
Excavator	2	85	2A		4	AM,PM
Dump Truck	6	110	2A		1320	AM,PM
Pipe Truck/Trailer	2	110	2A		440	AM,PM
Water Truck	2	110	2A		220	AM,PM
Concrete Truck	8	85	n/a		-	AM,PM
Lowboy Truck/Trailer	2	85	2A		4	AM,PM
Underground Cable Installation (18)				10	390	
I-Ton Truck, 4x4	2	96	2A		192	AM,PM
Puller	1	96	2A		2	AM,PM
Cable Dolly/Truck	1	96	2A		96	AM,PM
Flat Bed Mat'l Truck	1	96	2A		96	AM,PM
Crane (L)	1	96	2A		2	AM,PM
R/T Forklift	1	96	2A		2	AM,PM
Cable Splicing (19)				16	1280	
I-Ton Truck, 4x4	4	160	2A		640	AM,PM
Splicing Truck/Trailer	2	160	2A		320	AM,PM
Flat Bed Mat'l Truck	2	160	2A		320	AM,PM
Riser Pole Preparation (20)				5	80	
I-Ton Truck, 4x4	2	20	2A		40	AM,PM
Flat Bed Mat'l Truck	2	20	2A		40	AM,PM
Cable Terminating (21)				8	364	
I-Ton Truck, 4x4	2	120	2A		240	AM,PM
Flat Bed Mat'l Truck	1	120	2A		120	AM,PM
Crane (L)	1	120	2A		2	AM,PM
R/T Forklift	1	120	2A		2	AM,PM
Trench Restoration/Paving (22)				6	150	
I-Ton Truck, 4x4	2	30	2A		60	AM,PM
Skip Loader	1	30	2A		30	AM,PM
Dump Truck	2	30	2A		60	AM,PM
Bobcat	1	30	2A		-	-
Compaction Roller	1	30	2A		-	-
Restoration (23)				7	41	
I-Ton Truck, 4x4	2	11	2A		22	AM,PM
Backhoe/Front Loader	1	11	2A		2	AM,PM
Motor Grader	1	11	2A		2	AM,PM
Water Truck	1	11	2A		11	AM,PM
Drum Compactor	1	11	2A		2	AM,PM
Lowboy/Truck/Trailer	1	11	2A		2	AM,PM

Crew Size Assumptions For:

- 1) Survey = one 4-man crew
- 16) Vault Installation = two 10-man crews
- 17) Duct Bank Installation = two 10-man crews
- 18) Underground Cable Installation = one 10-man crew
- 19) Cable Splicing = two 8-man crews
- 20) Riser Pole Preparation = one 5-man crew
- 21) Cable Termination = one 8-man crew
- 22) Trench Restoration/Paving = one 6-man crew
- 23) Restoration = one 7-man crew

Section 2: Regulatory Framework

Traffic study details are defined by guidelines and requirements published by the federal, state, and local reviewing agencies. Typical traffic studies are based on specific proposed project locations that would generate a specific number of trips to and from a site within a defined time period.

In addition, construction and operating plans will need to be developed in accordance with federal, state, and local regulations and standards that promote safety and efficient use of public roadways.

Federal

The Code of Federal Regulations (CFR) provides guidelines for regulations as it relates to the movement of hazardous materials via the Federal Motor Carrier Safety Administration. Under the Federal Aviation Administration guidelines, regulations are provided for aviation activities during the construction and post-construction periods.

State

The California Vehicle Code (CVC) along with the California Streets and Highway Code outline regulations as pertains to the transportation of hazardous waste within the state.

Local

Separate traffic study guidelines are published by the City of Riverside (via the Department of Transportation), City of Jurupa Valley and the County of Riverside (via the Transportation Department).

Encroachment permits may be required by all local jurisdictions that lie within the project study area for the construction activities associated with the project.

The application of local agency guidelines for traffic impact determinations is discussed further in the Impact Assessment section (Section 6.0) of this report.

Table 2 provides a specific codes and a general description of adopted federal, state, and local laws, ordinances, regulations and standards (LORS) pertaining to general traffic and transportation safety and operational issues that would relate to construction and operations of the proposed project.

Table 2: Traffic and Transportation Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
Federal	
CFR Title 14 Aeronautics and Space, Part 77 Objects Affecting Navigable Airspace (14 CFT 77)	This regulation establishes standards for determining physical obstructions to navigable airspace; sets noticing and hearing requirements; and provides for aeronautical studies to determine the effect of physical obstructions to the safe and efficient use of airspace
CFR, Title 49, Subtitle B	Includes procedures and regulations pertaining to interstate and intrastate transport (including hazardous materials program procedures) and provides safety measures for motor carriers and motor vehicles that operate on public highways.
State	
CVC, Div 2, Chapter 2.5; Div 6; Chap. 7; Div 13; Chap. 5; Div. 14.1; Chap 1 & 2; Div. 14.8; Div. 15	Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials
California Streets and Highway Code, Div 1, Chap 3; Div 2 Chap 5.5	Includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits
Local	
Caltrans	Per the Caltrans Guide for the Preparation of Traffic Impact Studies, the traffic modeling and signal timing optimization software package Synchro has also been utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e. I- 15 Freeway ramps at Limonite Avenue). Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on SHS facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. Consistent with the City of Jurupa Valley LOS threshold of LOS "D", LOS "D" will be used as the target LOS for freeway ramps.
City of Jurupa Traffic Study Guidelines	The City of Jurupa Valley require signalized intersection operations analysis based on the methodology described in Chapter 18 and Chapter 31 of the HCM 2010 and for unsignalized intersections be evaluated using the methodology described in Chapter 19, Chapter 20, and Chapter 32 of the HCM 2010. The minimum level of service applicable to the study area intersections is LOS "D". Therefore, any intersection operating at LOS "E" or worse will be considered deficient and LOS "D" or worse at the Project access points will be considered deficient for the purposes of this analysis
City of Jurupa Valley Encroachment Permit	Encroachment permits are required to excavate, construct and otherwise encroach on City of Jurupa Valley road ROW. Notification to the City inspector shall be made in writing at least 48 hours in advance of the time when work will be started, and upon completion of the work. The permittee shall accept full responsibility for complying with federal, State, and County environmental laws received; any necessary environmental clearances and/or permits, prior to commencing any work as authorized by this permit. See Appendix E.



Section 3: Project Area Overview

The project study area includes several local and major regional transportation facilities that traverse the City of Riverside and Riverside County. These facilities are described below.

Local Roadway Facilities

Project site is located within the City of Jurupa Valley. The City has adopted the County of Riverside General Plan Circulation Element for the Jurupa area. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the City of Jurupa Valley as identified in the General Plan Circulation Elements. Fieldwork within the Project study area was undertaken to identify traffic control and approach lane configuration at each study intersection, and to identify the locations of on-street parking and transit stops. Key roadways within the study area are described below. The discussion presented here is limited to specific roadways that traverse the study intersections and serve the Project site. Figure 3 shows the existing intersection geometry.

Limonite Avenue

Limonite is classified as Urban Arterial Highway that are high-speed/high-capacity roads that provide access to regional transportation facilities. Urban Arterial Highways are primarily for through traffic where anticipated traffic volumes exceed four-lane capacities and access from other streets/highways should be limited to approximately one-quarter mile intervals. Within the study area Limonite Avenue is fronted by commercial uses, provide 2 to 3 travel lanes in each direction with a posted speed limit of 45 miles per hour (mph) and parking is generally prohibited.

Pats Ranch Road

Pats Ranch Road is classified as Secondary Highway that are intended to through traffic along longer routes between major traffic generating areas or to serve property zoned for multiple residential, secondary industrial or commercial uses. Access from other streets/highways should be limited to approximately 330 foot intervals. Within the study area Pats Ranch Road is fronted by commercial and Residential uses, provide 2 travel lanes in each direction and parking is generally prohibited.

Wineville Ave

Wineville Ave is classified as Secondary Highway that are intended to through traffic along longer routes between major traffic generating areas or to serve property zoned for multiple residential, secondary industrial or commercial uses. Within the study area Wineville Avenue is fronted by Residential uses, provide 2 travel lanes in each direction and parking is generally prohibited.

68th Street

68th Street is classified as a Major Highway that are intended to through traffic along longer routes between major traffic generating areas or to serve property zoned for multiple residential uses. Within



the study area 68th Street is fronted by Residential uses, provide 2 travel lanes in each direction and parking is generally prohibited.

65th Street

65th Street is classified as a Local Street that are intended to serve property zoned for multiple residential uses. Within the study area 65th Street is fronted by Residential uses, provide one travel lane in each direction and parking is generally permitted.

Carnelian Street

Carnelian Street is classified as a Local Street that are intended to serve property zoned for multiple residential uses. Within the study area Carnelian Street is fronted by Residential uses and a School, provides one travel lane in each direction and parking is generally permitted.

Holmes Avenue

Holmes Avenue is classified as a Local Street that is intended to serve property zoned for multiple residential uses. Within the study area Holmes Avenue is fronted by Residential uses; provide one travel lane in each direction and parking is generally permitted.

Etiwanda Avenue

Etiwanda Avenue is classified as an Urban Arterial north of Cantu-Galleano Ranch Road and south of Cantu-Galleano Ranch Road Etiwanda Avenue is classified as Arterial per Jurupa Area Plan. Etiwanda Avenue is fronted by new residential uses and a school within the study area.

Cantu-Galleano Ranch Road

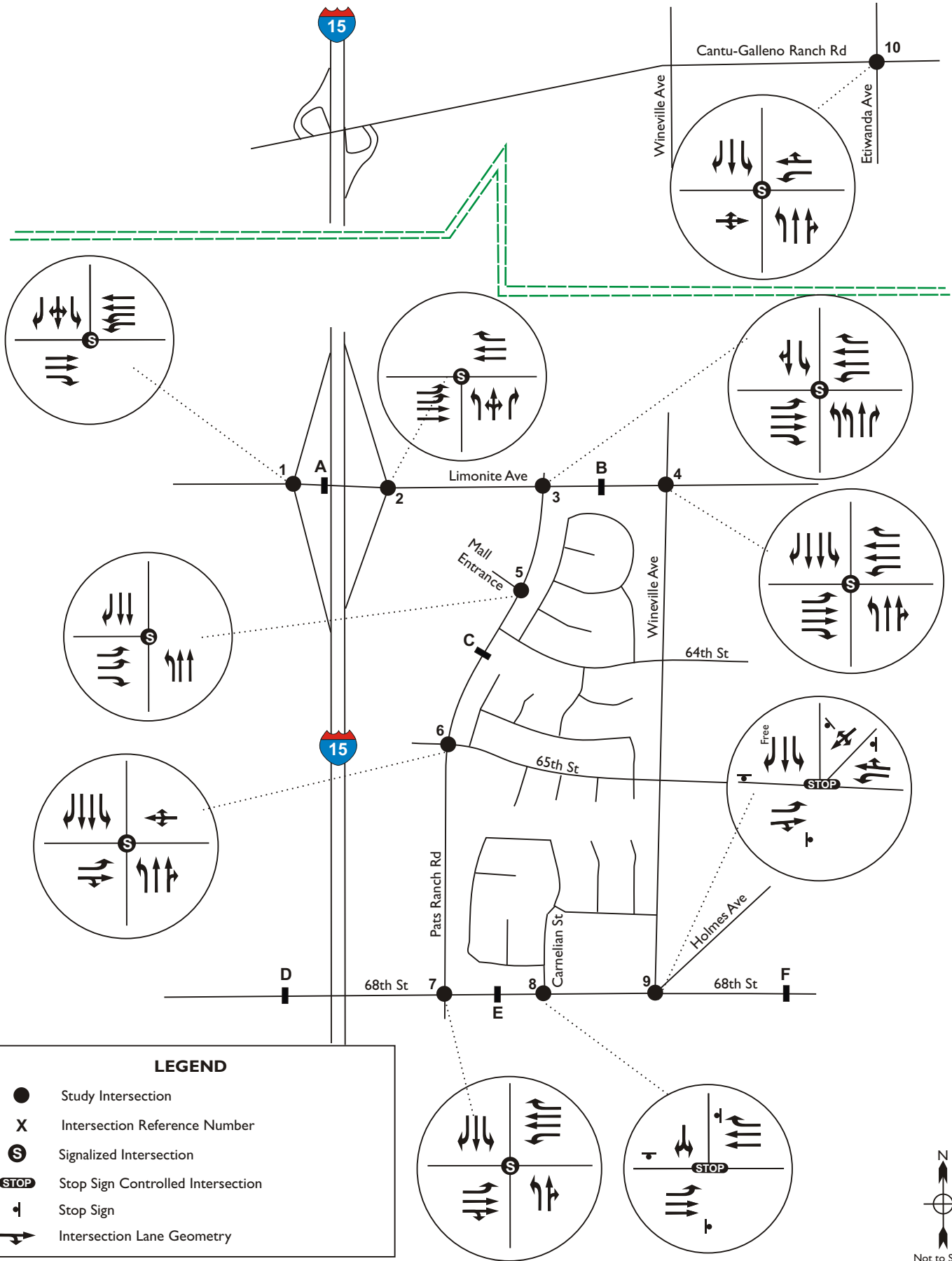
Cantu-Galleano Ranch Road is classified as an Arterial per Jurupa Area Plan. Within the study area Cantu-Galleano Ranch Road is fronted by new residential and warehouse uses.

There is a major roadway construction at the intersection of Etiwanda Avenue and Cantu-Galleano Ranch Road that is anticipated to be complete in the next six months. As part of the future scenarios, this intersection is assumed to be built-out with fully protected signal phasing operation.

Regional Roadway Facilities

Interstate 15 (I-15)

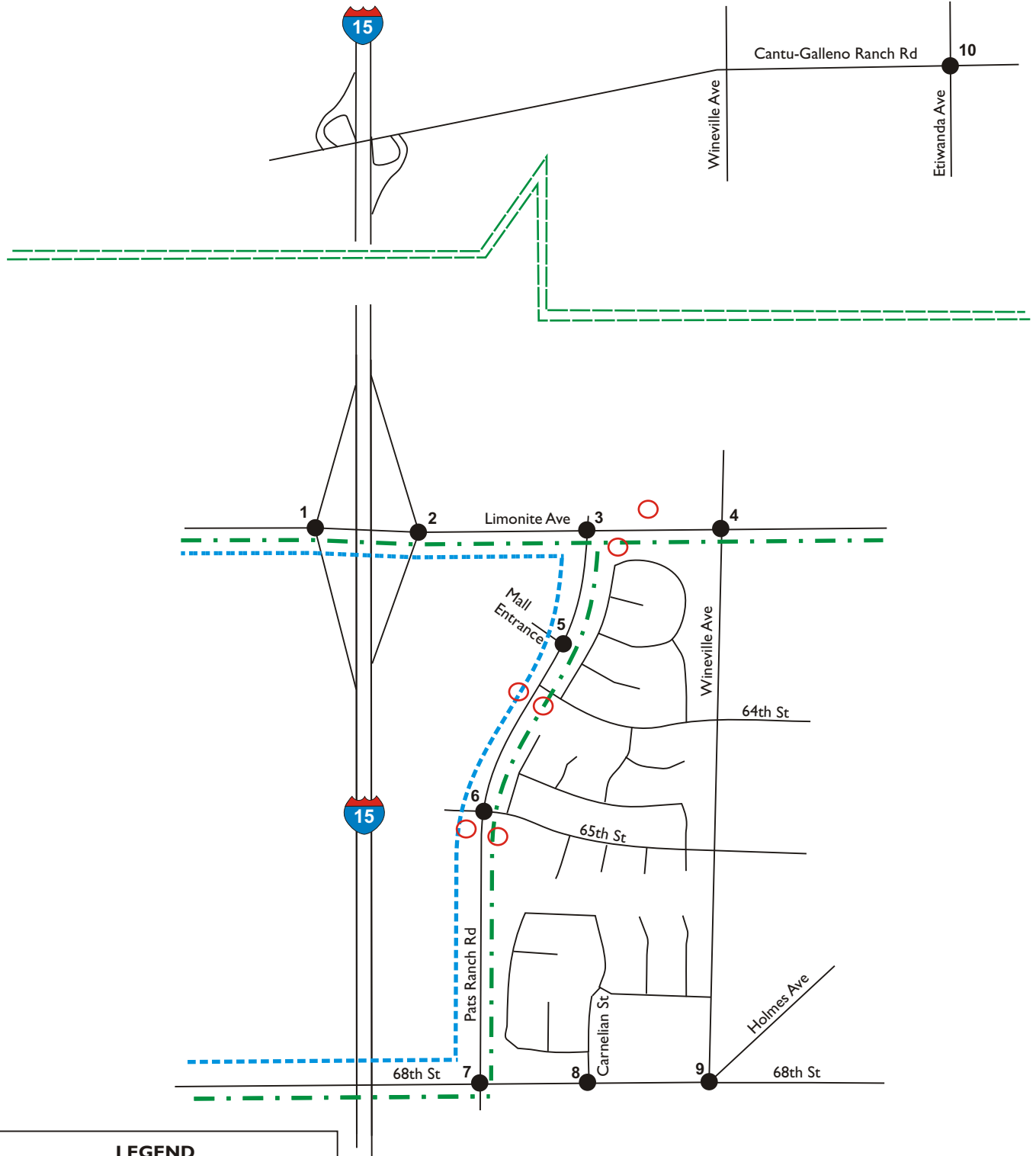
This is the nearest freeway to the project site. A portion of the transmission line runs parallel along the freeway. It provides regional northeast/southwest throughout the State, beginning in San Diego and continuing north past the California state border to Las Vegas and beyond. In the project area, it has three to four lanes per direction. Limonite Avenue provides a full interchange with this freeway within the project vicinity.



Existing Transit Service

The study area is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the unincorporated Riverside County region near the City of Jurupa Valley, with bus service along Limonite Avenue, Pats Ranch Road and 68th Street via RTA Route 29 and Route 3. Route 29 provides connections to the Riverside Downtown Terminal, Eastvale, Hamner Avenue & Limonite Avenue via Jurupa Valley. Figure 4 shows the transit service within the study area. Route 3 provides connections to Swan Lake MHP, Eastvale, Norco, and Corona Transit Center to Belle Street & 10th Street. There are existing bus stops for Routes 3 and 29 on both sides of the road along Pats Ranch Road, just south of 64th Street, south of 65th Street and along Limonite Avenue just east of Pats Ranch Road.

Construction activities may require the closure of bus stops. Temporary bus stops will be located nearby during the active construction period. Immediately after completion of construction on a segment, the bus stops will be opened to restore access for bus patrons. The traffic disruptions of construction will affect the speed and reliability of the existing bus service. These impacts will be temporary and of limited duration. Pedestrian access including wheelchair accessible ramps and temporary sidewalks where needed will be maintained during construction.



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- Study Intersection
- X Intersection Reference Number
- RTA Route 3
- RTA Route 28
- Bus Stop Location

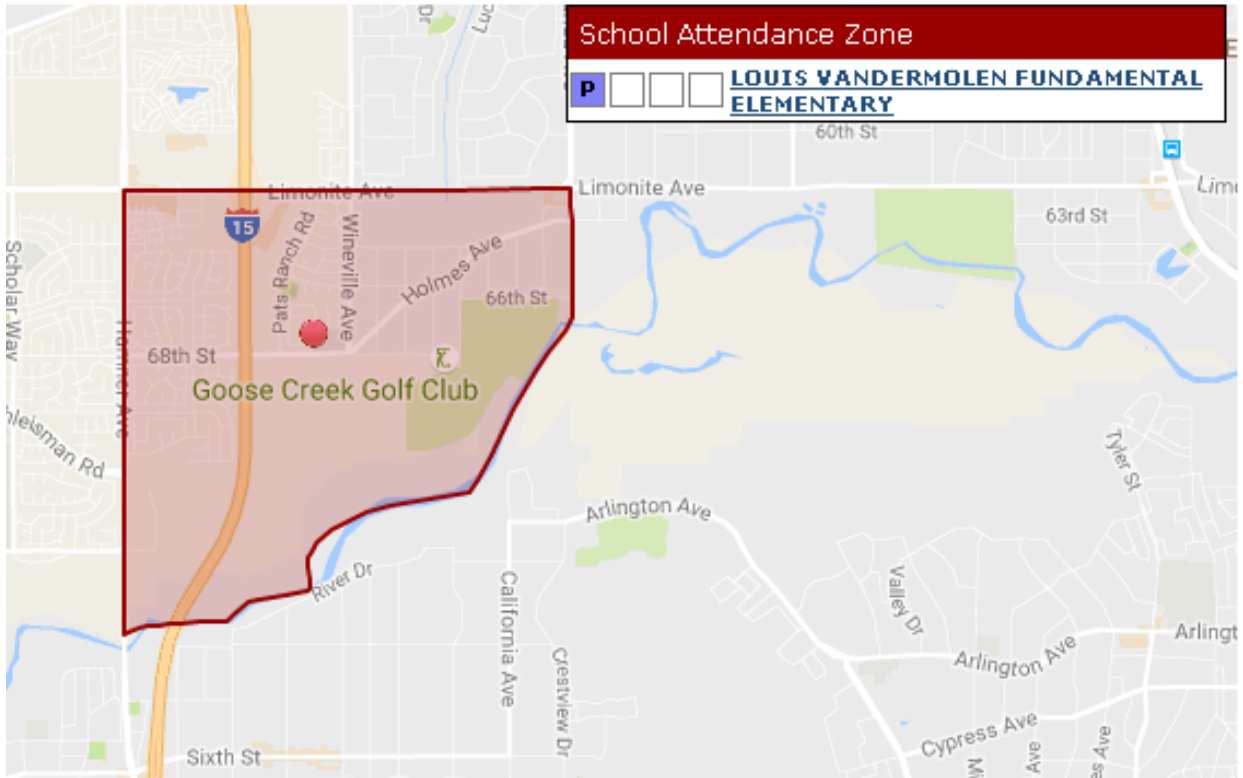
Source: Riverside Transit Agency (RTA)



Not to Scale

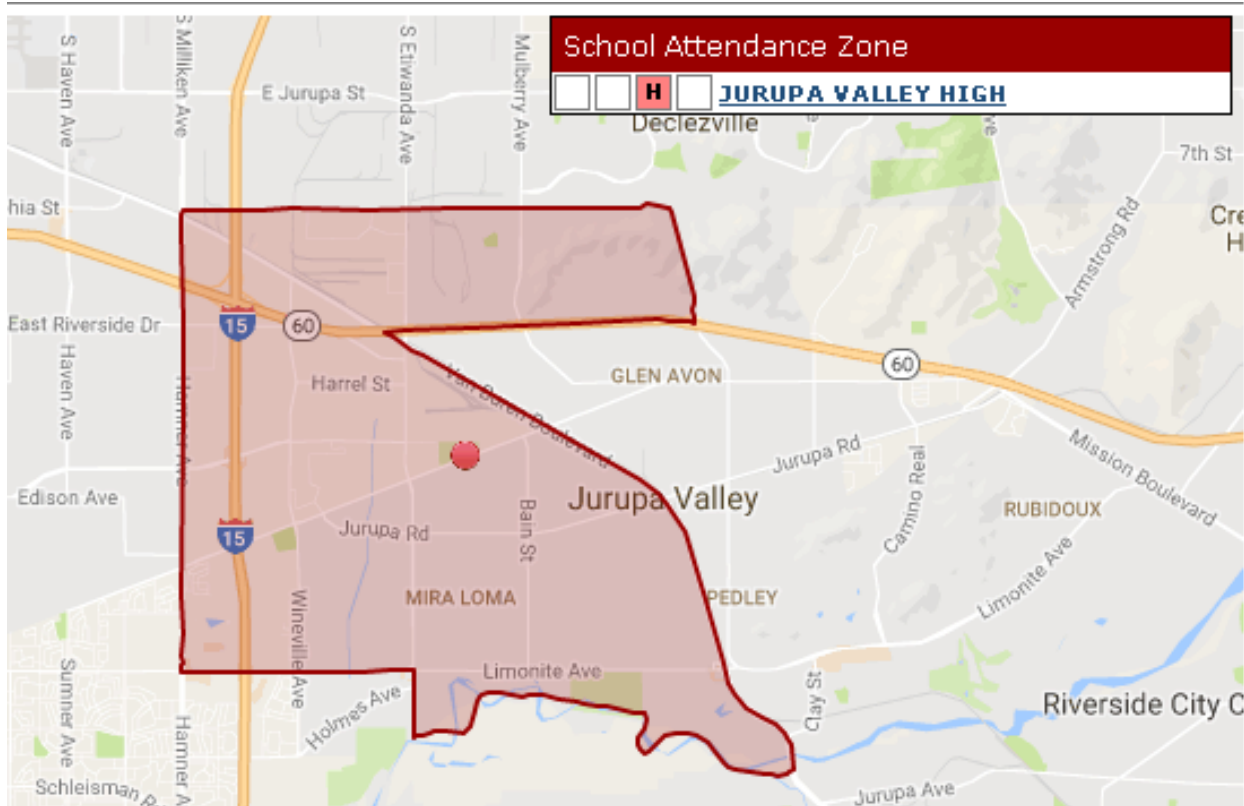
School Bus Service

The CPUC has requested traffic information related to schools on similar projects. It is understood that the potential impacts of traffic, namely construction truck traffic, may have some effect on school children in the area (children being picked up or dropped off on local roads near the proposed project site). The Louis Vandermolten Fundamental Elementary School is located immediately adjacent to the undergrounding along 68th Street. This school is part of the Corona-Norco Unified School District and has grades K-6th with an enrollment of approximately 1,100 students and 42 staff members. The school attendance boundary consists of Hamner Avenue to Etiwanda Avenue and Limonite Avenue to the Santa Ana River boarder as illustrated in the Figure below. This school and its students will not experience significant traffic changes because increases in traffic resulting from this project are temporary construction trips. Once project construction is completed, construction-related trips will cease to exist.



Jurupa Valley High School is also within the project vicinity and diagonal to Yard 2A. This school is part of the Jurupa Unified School District and has grades 9th-12th with an enrollment of approximately 1,600 students and 70 staff members. The school attendance boundary consists of Philadelphia Avenue to the north, Hamner Avenue to the west, Limonite Avenue to the south, and Van Buren Boulevard to the east as illustrated in the Figure below. This school and its students will not experience significant traffic changes because increases in traffic resulting from this project are temporary construction trips and once the project completed these trips will cease to exist. In order to mitigate any potential traffic

impact from construction traffic traveling to and from Yard 2A, construction traffic will utilize Cantu-Galleano Ranch Road and head south on Wineville Avenue to the project site.



Bicycle Facilities

Bicycling occurs throughout the County, but is more concentrated in the cities and urbanized portions of unincorporated areas, and is more recreational than commute-oriented. Although the County's current bicycle plan provides for connections between major urban and recreational facilities within the County, implementation of the plan has occurred only to a limited extent. Currently there are no bicycle lanes, bicycle routes, and bikeways on the roadways within the study area; however bicyclists are allowed to use public roadways within the city limits. All existing bicycle and pedestrian access should be maintained throughout the construction period, except during critical short-term construction activities requiring closure to perform construction or for safety reasons. Closures will require advance approval by SCE and will be allowed only during periods of low traffic.

During excavation, trenching, and pavement rehabilitation operations, the contractor will restrict parking and place long-term lane closures where work is active. The contractor will be required to safely protect the excavation each day during hours of non-activity. It is anticipated bicycles will share the road during this stage. The construction work through intersections will have to be performed under a flagging operation, half-width at a time, and temporary steel plates may be required to maintain traffic during non-working hours.

Section 4: Inventory Methods

In order to complete the traffic impact sensitivity analysis, a field survey was conducted to collect data on the characteristics (e.g., number of lanes) of major area roadways that would be affected by the undergrounding activities of the alignment.

Data Collection Details

Data used for the traffic impact sensitivity analysis was collected in detail during fieldwork efforts for the underground alignment. Project study area data was collected from existing agency information (such as bikeway maps and transit line information) and roadway maps. The results of these inventory efforts were combined and served as the primary inputs to the impact sensitivity analysis.

There is a potential for traffic impacts to occur in the study area during direct construction, operations and maintenance period. During construction, temporary lane closures would likely occur to allow for the construction of the underground transmission lines and other activities.

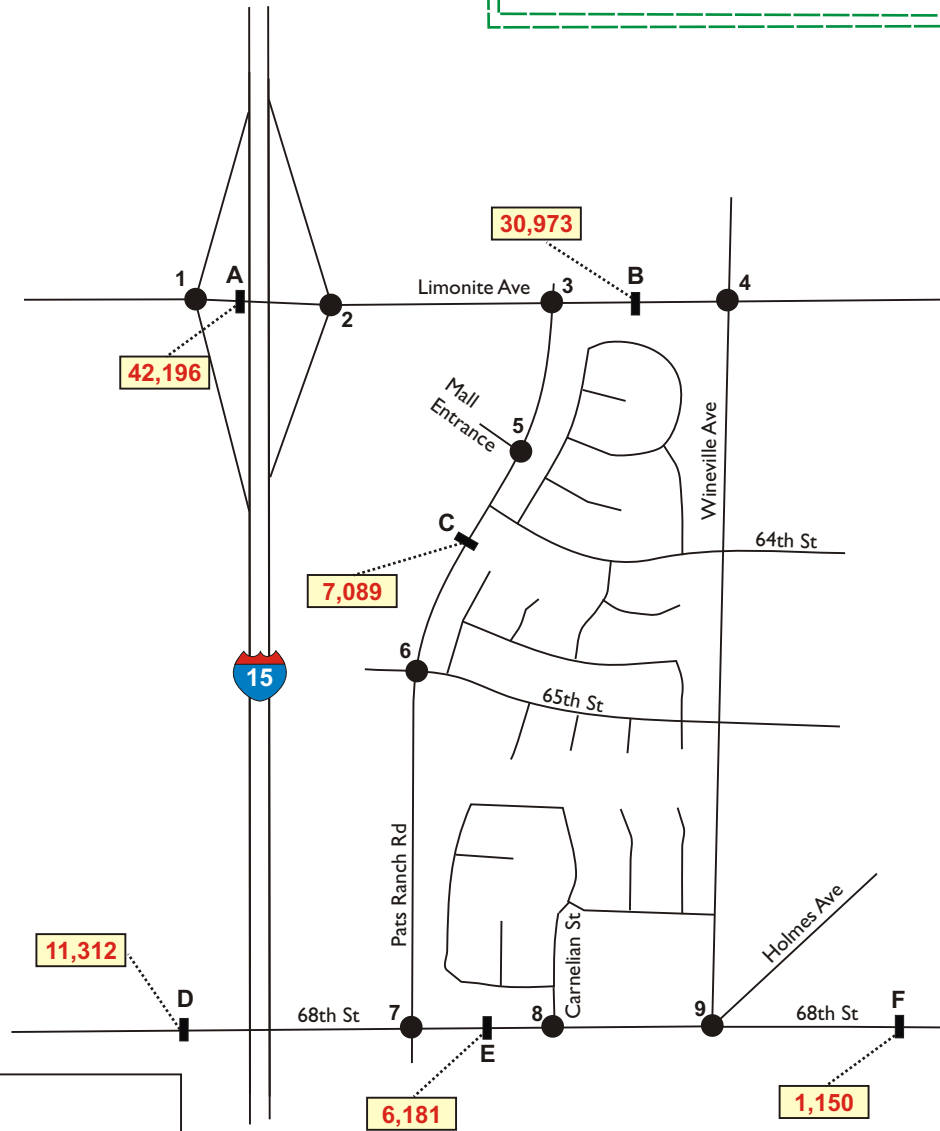
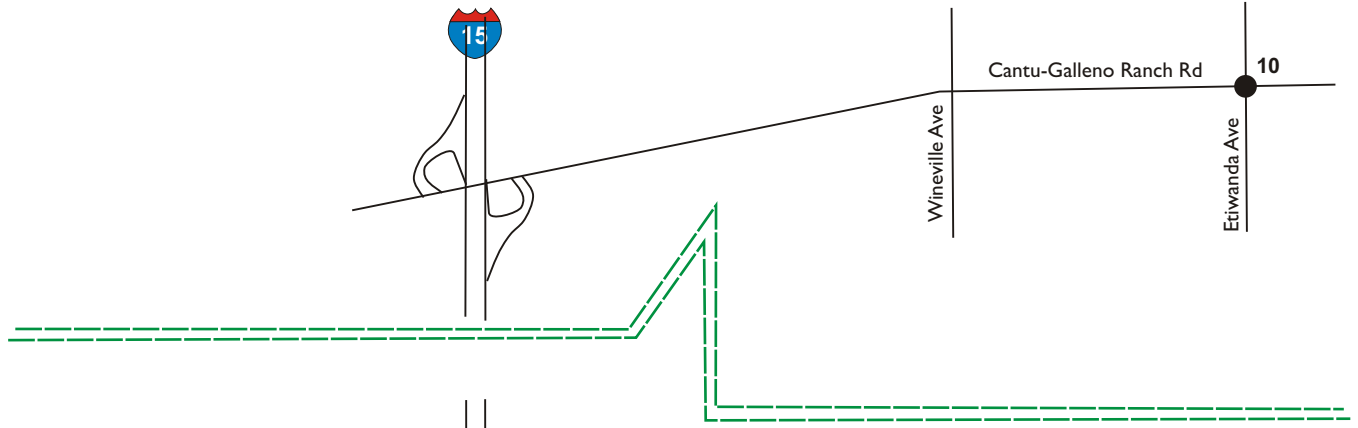
During the operations and maintenance period, equipment movement to and from primary roadways to the underground transmission line could necessitate lane closures. Any impacts to area transportation facilities or resources during the operations and maintenance period, however, are expected to be short-term in nature and therefore insignificant in terms of transportation network operations.

The potential impacts during construction and maintenance of the project are further discussed in this report.

Existing Traffic Volumes

KOA compiled manual intersection turn movement counts that were conducted at the study intersections on October 4th (Tuesday) and December 4th (Tuesday) of 2016. Peak period turning movement counts were collected between the hours of 7:00 AM to 9:00 AM and 3:00 PM to 6:00 PM. The results of counts were utilized to determine existing weekday AM and PM peak-hour conditions.

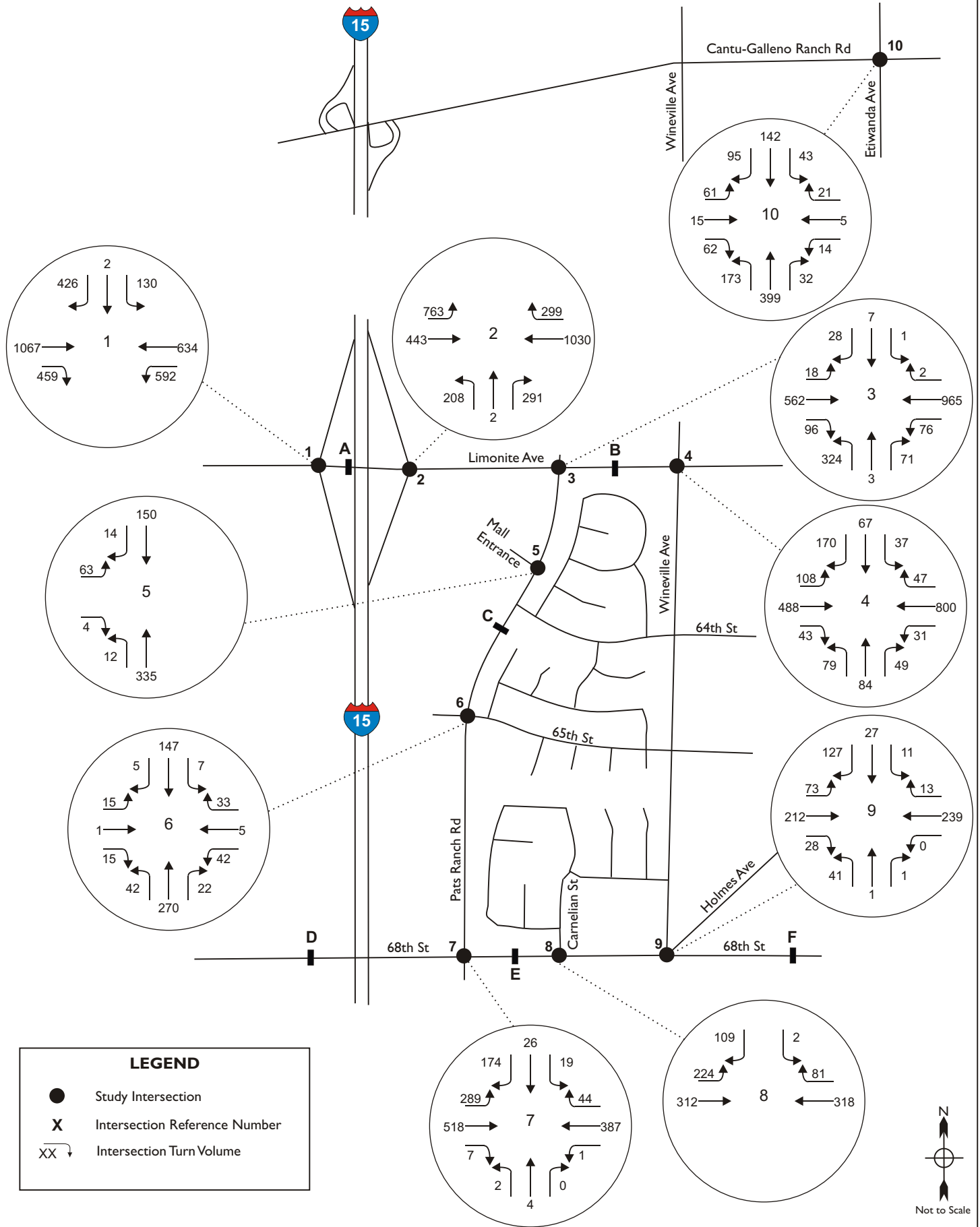
Figures 5, 6 and 7 show the existing ADT, AM and PM peak-hour intersection volumes, respectively.

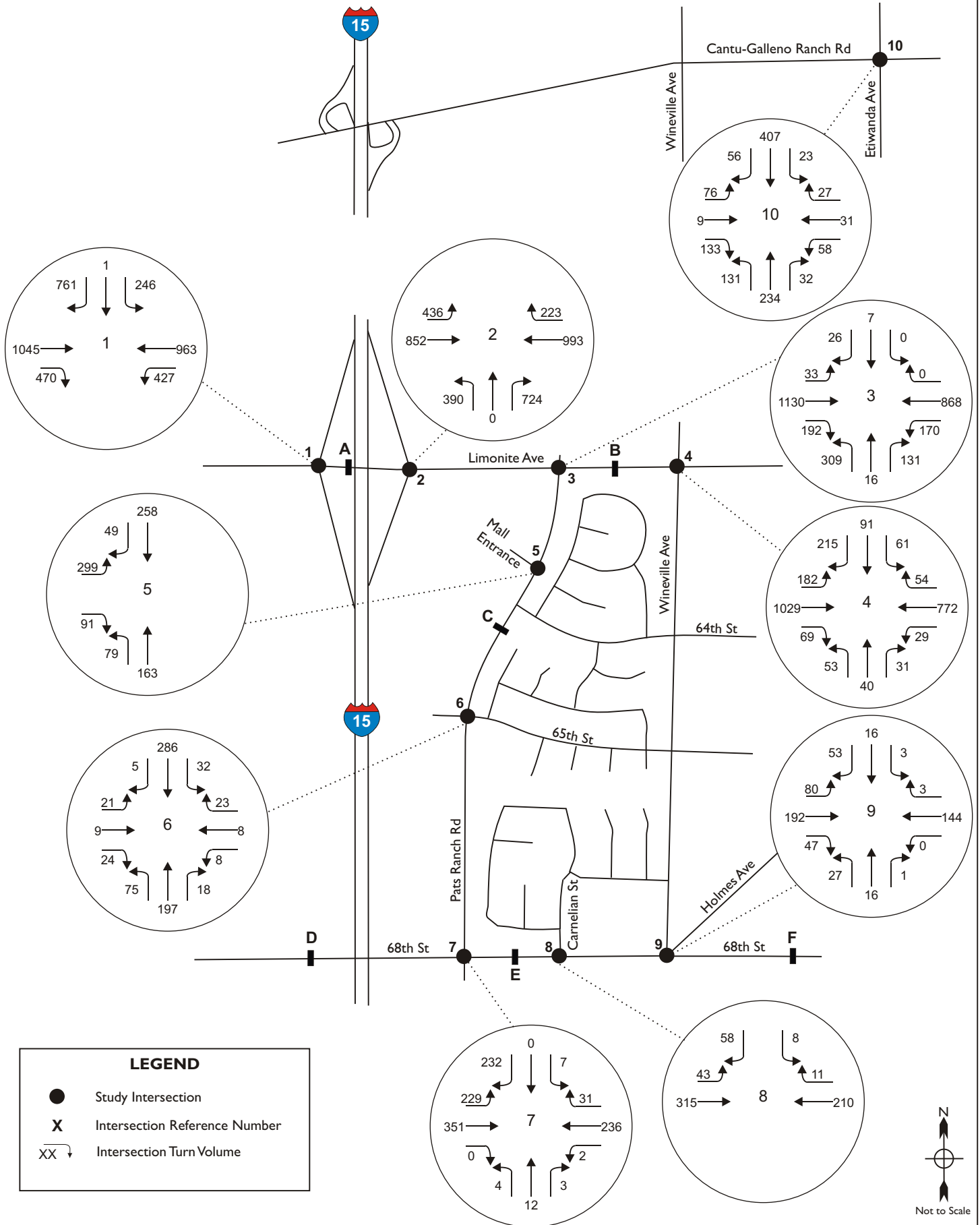


LEGEND

- Study Intersection
- X Intersection Reference Number
- █ Study Roadway Segment (A-F)
- XXXXXX Weekday Daily Volume







Section 5: Affected Environment

Study Components

This report section summarizes the characteristics of transportation facilities and resources that would potentially be impacted by project construction and/or maintenance and operations activity within the project 230 kV underground transmission component areas. This discussion includes, in order, the study roadway segment points, planned roadway projects

230 kV Underground Transmission Line Project Route Summary

Table 3 summarizes link characteristics organized by street segment and provides a summary of the route as it relates to the public roadway facilities. These characteristics were compiled as part of the fieldwork effort. These analysis locations represent points on the roadway network. The naming of the analysis links includes “to” and “from” extents.

Table 3: Summary Of Link Characteristics on Major Roadways

From	To	Roadway	Jurisdiction	Description (lanes)	Orientation to Route
Overhead Transition	Lucretia Avenue	Goose Creek Golf Course Property	Jurupa Valley	Recreational Area	Crossing
Lucretia Avenue	68th Street	68th Street	Jurupa Valley	2 lanes	Within ROW
Holmes Avenue	Carnelian Street	68th Street	Jurupa Valley	3 lane	Within ROW
Carnelian Street	Pats Ranch Road	68th Street	Jurupa Valley	4 lanes	Within ROW
68th Street	65th Street	Pats Ranch Road	Jurupa Valley	4 lanes	Within ROW
65th Street	64th Street	Pats Ranch Road	Jurupa Valley	4 lanes	Within ROW
64th Street	Limonite Avenue	Pats Ranch Road	Jurupa Valley	4 lanes	Within ROW
Limonite Avenue	Overhead Transition	Limonite Avenue	Jurupa Valley	5 lanes	Crossing/Parallel

It has been assumed the route will be constructed using open cut and if feasible other trenchless techniques will be considered. During final route design, the trench details will need to be finalized to account for cable design, splicing/manhole locations, crossing requirements, land user agreements, easement requirements, and any county, state, and federal permitting requirements.

During construction, temporary construction roads may be required to install both the duct banks and the manholes. Typically construction roads are developed within the right-of-way or with temporary construction permits and easements, and are designed to handle all foreseen loading requirements of material and construction equipment. After duct bank and manhole installation, the roads will be required to be refurbished to their original state. Permanent access will need to be maintained to each manhole location for future maintenance and cable replacement.

Maintenance Access

Routine maintenance on underground cables will be performed regularly to ensure the cables operate with uninterrupted services. Typical major components to be checked are as follows:

I. Terminators



2. Manholes
3. Lighting Arrestors
4. Grounds (Very Important)
5. Cables
6. Right-of-Way

The method of checking the condition and maintenance of the above items involve various methods of inspection, primarily visual. Some inspections would be performed only during an outage. Work should be performed per standard utility practices.

Planned Roadway Projects

As project design and construction plans move forward, coordination will be necessary with the lead agencies on these projects in order to determine if special considerations need to be made for wider roadway crossings and project timing.

On September 26, 2016, the City of Jurupa Valley began street improvements to Limonite Avenue between Etiwanda Avenue and Bain Street. The widening project will provide two (2) travel lanes in each direction with a center-turning lane. The street widening will improve circulation in the area and enhance safety on Limonite Avenue for the approximate one-mile stretch subject to the improvements. The project is expected to be complete in June 2017 therefore no major impacts will exist due to the addition of project trips.

The City of Jurupa Valley recently identified over \$24 million worth of pavement rehabilitation or reconstruction for local roads throughout the City. As seen in the figure below, phase 2 is within the underground transmission line and depending on the completion date this work will need to be coordinated so as to not add additional traffic congestion in the area during the construction of the underground transmission line.

Caltrans has a proposed freeway Interchange project at I-15 and Limonite Avenue. Limonite Avenue is an existing four-lane facility traveling in an east-west direction. Within the project limits, I-15 is currently a six-lane access-controlled freeway with three mixed-flow lanes in each direction. The Limonite Avenue Overcrossing is an east-west roadway, and currently provides two traffic lanes in each direction and two left-turn lanes at the I-15/Limonite Avenue on- and off-ramp intersections. To the west of I-15 (approximately 700 feet west of the intersection of the I-15 southbound ramps and Limonite Avenue), Limonite Avenue widens to three lanes in each direction. The I-15 median is currently unimproved and depressed with Type K barriers along the northbound outer edge of the median shoulder and south along the southbound outer edge of the median shoulder. The proposed project would replace the existing Limonite Avenue OC and would widen the roadway from four lanes to six lanes. Specifically, the project would widen the existing northbound and southbound on- and off-ramps, widen Limonite Avenue to three lanes in each direction through the interchange area, and replace the existing Limonite

Avenue Overcrossing structure. See figure below for project limit area.



Planned Major Project Developments in the Area

The Vernola Marketplace Apartments is located at the northwest corner of Pats Ranch Road and 68th Street in the City of Jurupa Valley. The Project is proposed to consist of the development of 397 apartment units. For the purposes of this analysis, it is assumed that the Project will be constructed within a single development phase. Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development. Since the field review there has not been any activity on site therefore it is assumed that it will be built at a later date.



RVC130823-02 Master Plan Application 1201; General Plan Amendment 1202; Change of Zone 1201, and Tentative Tract Map 36391 (CV Communities-Riverbend Project). The proposed project consists of constructing a master-planned residential community featuring 464 new single-family residential homes and a 10.66 acre park on the northern portion of an approximately 215.3-acre property adjacent to the I-15 freeway. This project is currently under construction with homes already being built.



Section 6: Impact Assessment

This section provides an overview of the methodology used and the determinations made for traffic impacts along the project links, in terms of both construction and post-construction (maintenance) periods. The discussion covers the sensitivity ratings along the project links, which were the basis for determining impacts along specific lengths of the links.

Impact Analysis for Underground Transmission Line

Project construction within the defined links along underground transmission line corridor has been analyzed for traffic impacts within this document.

A new double-circuit 230 kV underground transmission line of approximately 2 miles would be placed from the proposed 230 kV tubular steel pole transition just south of Goose Creek Golf Club and would run along 68th Street and Pats Ranch Road to just north of Limonite Avenue and would require approximately 19 months and 96 workers.

Construction manpower and on-site equipment estimates have been prepared by Southern California Edison as part of project planning. The focus of the analysis is based on the sensitivity rating that took into account the potential closure of travel lanes and the direct effects of closures/blockages on other facilities and resources (transit systems, fire department locations, school sites and likely access routes, etc.).

Significance Criteria

The following overarching list of traffic-related significance criteria is based on state and local requirements. Quantifiable impacts for this traffic study were based on City traffic impact standards.

State

The CEQA Environmental Checklist Form has the following criteria in section 15 as it relates to transportation and traffic elements:

XV. TRANSPORTATION/TRAFFIC -- Would the project:

- a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
- b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?
- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- e) Result in inadequate emergency access?



- f) Result in inadequate parking capacity?
- g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Local

Level of Service (LOS) is a qualitative measure of traffic operating conditions, whereby the letter grades of “A” through “F” are assigned to a roadway facility based on volumes over a specific time period and the design capacity of that facility over the same period.

As the LOS values descend from “A” to “F,” they represent progressively worsening traffic flow conditions. Table 15 shows the relationship between level of service and the performance measures for signalized and unsignalized intersections and lists the U.S. Department of Transportation Federal Highway Administration’s 2010 Highway Capacity Manual (HCM) delay criteria for signalized intersections.

For a typical traffic impact analysis of project construction efforts, the key impact determination is the ability of a roadway facility to continue to carry traffic volumes effectively. If at-capacity conditions are approached (LOS “E”) or exceeded (LOS “F”) during a construction project, primarily through capacity constraints caused by the establishment of project work areas within roadway rights-of-way, impacts should be defined and mitigated. When worsening of roadway facility operations within one of these poor LOS values (when existing conditions are already at or near capacity) occurs due to project construction, impacts should also be defined and mitigated.

Municipalities frequently define acceptable and unacceptable LOS values for all or certain types of roadway facilities within the entity’s jurisdiction. The acceptable/unacceptable values are used as guidelines, as key facilities must often be allowed to run at poor LOS for brief periods of the day, in order to balance the provision of capacity with average traffic conditions. Additional impact thresholds, typically based on changes in v/c values, are often used by jurisdictions to gauge significant impacts of proposed development projects.

The overall LOS and impact guidelines of the city jurisdictions within the project study area are as follows:

- City of Jurupa – The City of Jurupa Valley require signalized intersection operations analysis based on the methodology described in Chapter 18 and Chapter 31 of the HCM 2010. Intersection LOS operations are based on an intersection’s average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 5 & 6.

LOS “C” is the minimum acceptable LOS standard for the study area jurisdictions. Therefore, impacts



for major roadways (the study roadway segment points) were examined where LOS “D,” “E,” and “F” conditions could be caused or worsened by the project.

Level of Service Methodology

Signalized Intersections

The City of Jurupa Valley requires signalized intersection operations analysis based on the methodology described in Chapter 18 of the HCM 2010. Intersection LOS operations are based on an intersection’s average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 1.

Study area intersections have been analyzed using the software package Synchro (Version 9.1, Build 909). The LOS analysis for signalized intersections has been performed using optimized signal timing for existing traffic conditions. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis. Signal timing for study area intersections have been requested and utilized. Where signal timing was unavailable, the local accepted standards were utilized in lieu of actual signal timing.

Table 4 defines the level of service criteria for signalized intersections.

Table 4: Level of Service Definitions for Signalize Intersection

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 – 10	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 – 20	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 – 35	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 – 55	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 – 80	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80 or more	F	F

Unsignalized Intersections

The City of Jurupa Valley requires the operations of unsignalized intersections be evaluated using the methodology described in Chapter 19 and Chapter 20 of the HCM 2010. The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 1).

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

Level of service (LOS) values range from LOS A to LOS F. LOS A indicates excellent operating conditions with little delay to motorists, whereas LOS F represents congested conditions with excessive vehicle delay. LOS E is typically defined as the operating “capacity” of a roadway.

Table 5 defines the level of service criteria.

Table 5: Level of Service Definitions for unsignalized Intersections

Description	Average Control Delay (Seconds)	Level of Service, $V/C \leq 1.0$	Level of Service, $V/C > 1.0$
Little or no delays.	0 – 10	A	F
Short traffic delays.	10 – 15	B	F
Average traffic delays.	15 – 25	C	F
Long traffic delays.	25 – 35	D	F
Very long traffic delays	35 – 50	E	F
Extreme traffic delays with intersection capacity exceeded.	50 or more	F	F

Level of Service on Street Segments

The City of Jurupa Valley uses the criteria established by Riverside County Congestion Management Plan to assess the LOS of the street segments. The criteria is based on the 1999 Modified Highway Capacity Manual for two-way Annual Daily Traffic values for various roadway classification of the streets. The roadway classification ranges from Collector streets to Freeways indicating the Capacity of each of the roadway classes with number of lanes. By using the ultimate Capacity (LOS E) as the denominator, the LOS of each of the segments are determined by dividing the total ADT by the ultimate capacity. The resultant V/C is used to determine the corresponding LOS. Table 6 shows the LOS definitions for roadway segments.

Table 6: Level of Service Definitions for Roadway Segments

LOS	Interpretation	Roadway Segment Volume to Capacity Ratio
A	Excellent operation.	0.000 - 0.600
B	Very good operation.	0.601 - 0.700
C	Good operation.	0.701 - 0.800
D	Fair operation.	0.801 - 0.900
E	Poor operation.	0.901 - 1.000
F	Forced flow.Represents jammed conditions.	Over 1.000

Table 7 shows the capacity for various roadway classification used by Riverside County.

Table 7: Roadway Capacities for Street Segment Analysis

Roadway Classification	Number of Lanes	Maximum Two-Way Traffic Volume (ADT) ⁽²⁾		
		Service Level C	Service Level D	Service Level E
Collector	2	10,400	11,700	13,000
Secondary	4	20,700	23,300	25,900
Major	4	27,300	30,700	34,100
Arterial ⁽³⁾	2	14,400	16,200	18,000
Arterial	4	28,700	32,300	35,900
Mountain Arterial ⁽³⁾	2	12,900	14,500	16,100
Mountain Arterial	3	16,700	18,800	20,900
Mountain Arterial	4	29,800	33,500	37,200
Urban Arterial	4	28,700	32,300	35,900
Urban Arterial	6	43,100	48,500	53,900
Urban Arterial	8	57,400	64,600	71,800
Expressway	4	32,700	36,800	40,900
Expressway	6	49,000	55,200	61,300
Expressway	8	65,400	73,500	81,700
Freeway	4	61,200	68,900	76,500
Freeway	6	94,000	105,800	117,500
Freeway	8	128,400	144,500	160,500
Freeway	10	160,500	180,500	200,600
Ramp ⁽⁴⁾	1	16,000	18,000	20,000
Notes:				
(1) All capacity figures are based on optimum conditions and are intended as guidelines for planning purposes only.				
(2) Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables as defined in the Riverside County Congestion Management Program.				
(3) Two-lane roadways designated as future arterials that conform to arterial design standards for vertical and horizontal alignment are analyzed as arterials.				
(4) Ramp capacity is given as a one-way traffic volume.				
Revised: March 2001				



Significant Traffic Impacts Thresholds

The definition of an intersection deficiency has been obtained from each of the applicable surrounding jurisdictions.

CITY OF JURUPA VALLEY

Per Policy C-10 of the County of Riverside General Plan, the following LOS will be utilized for study area intersections located within the City: Seek to maintain the following target levels of service: “C” along all City-maintained roads. A peak hour level of service of “D” may be allowed in commercial and employment areas, and at intersections of any combination of Major Highways, Urban Arterials, Secondary Highways, or freeway ramp intersections.

For each of the off-site study area intersections within the City of Jurupa Valley the intersecting roadways were found to be Secondary Highway or higher on the City’s General Plan Circulation Element. As such, the minimum level of service applicable to the study area intersections is LOS “D”. Therefore, any intersection operating at LOS “E” or worse will be considered deficient and LOS “D” or worse at the Project access points will be considered deficient for the purposes of this analysis. The same criteria is also used for roadway segments.

CALTRANS

Caltrans endeavors to maintain a target LOS at the transition between LOS “C” and LOS “D” on SHS facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing LOS should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadway segments, and intersections is LOS “D”. Consistent with the City of Jurupa Valley LOS threshold of LOS “D”, LOS “D” will be used as the target LOS for freeway ramps.

THRESHOLDS OF SIGNIFICANCE

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

For purposes of analyzing California Environmental Quality Act (CEQA) impacts, the City of Jurupa Valley identifies significant impacts through a comparison of Existing and EAP traffic conditions:

- First, when the pre-Project condition is at or better than the acceptable LOS, and project-generated traffic causes deterioration below the acceptable LOS, a significant project-specific impact is deemed to occur.
- However, when the pre-Project condition is already deficient, and the Project is anticipated to



contribute traffic, the Project's contribution to the cumulative impact would be cumulatively considerable.

The proposed significance thresholds were applied at study area intersections for the purposes of determining project-related impacts. For the purposes of this analysis, the same thresholds have also been applied to the Caltrans ramp-to arterial intersections.

Project Trip Generation

The proposed underground transmission line is expected to generate both passenger cars from employees and truck traffic. Based on the anticipated loads and staffing levels/shifts at the site, AM and PM peak hour trips were estimated. Table 8 summarizes the trip generation estimates of passenger cars and the various types of trucks for daily and, AM and PM peak hours of traffic. The Project is estimated to generate 76 weekday daily trips, 28 weekday AM peak hour trips and 28 weekday PM peak hour trips. The detailed trip generation assumptions are provided in Appendix E as supplemental information.

Table 8: Project Trip Generation Estimate (Non-PCE)

Type	Daily Trips		AM Peak Hour			PM Peak Hour		
	From Yard 2A	Travel From I-15	In	Out	Total	In	Out	Total
1-Ton Truck, 4x4	8		4	0	4	0	4	4
Backhoe/Front Loader	4		2	0	2	0	2	2
Excavator	4		2	0	2	0	2	2
Dump Truck		12	6	2	8	2	6	8
Water Truck	4		2	0	2	0	2	2
Crane (L)	4		2	0	2	0	2	2
Concrete Truck		24	2	2	4	2	2	4
Flat Bed Truck		12	1	1	2	1	1	2
Lowboy Truck/Trailer	4		2	0	2	0	2	2
Total	28	48	23	5	28	5	23	28

Table 9: Project Trip Generation Estimate (PCE Adjustment)

PCE Adjusted								
Type	Daily Trips		AM Peak Hour			PM Peak Hour		
	From Yard 2A	Travel From I-15	In	Out	Total	In	Out	Total
I-Ton Truck, 4x4	8		4	0	4	0	4	4
Backhoe/Front Loader	10		5	0	5	0	5	5
Excavator	10		5	0	5	0	5	5
Dump Truck		30	15	5	20	5	15	20
Water Truck	10		5	0	5	0	5	5
Crane (L)	10		5	0	5	0	5	5
Concrete Truck		60	5	5	10	5	5	10
Flat Bed Truck		30	2.5	2.5	5	2.5	2.5	5
Lowboy Truck/Trailer	10		5	0	5	0	5	5
	58	120						
Total		178	52	13	64	13	52	64

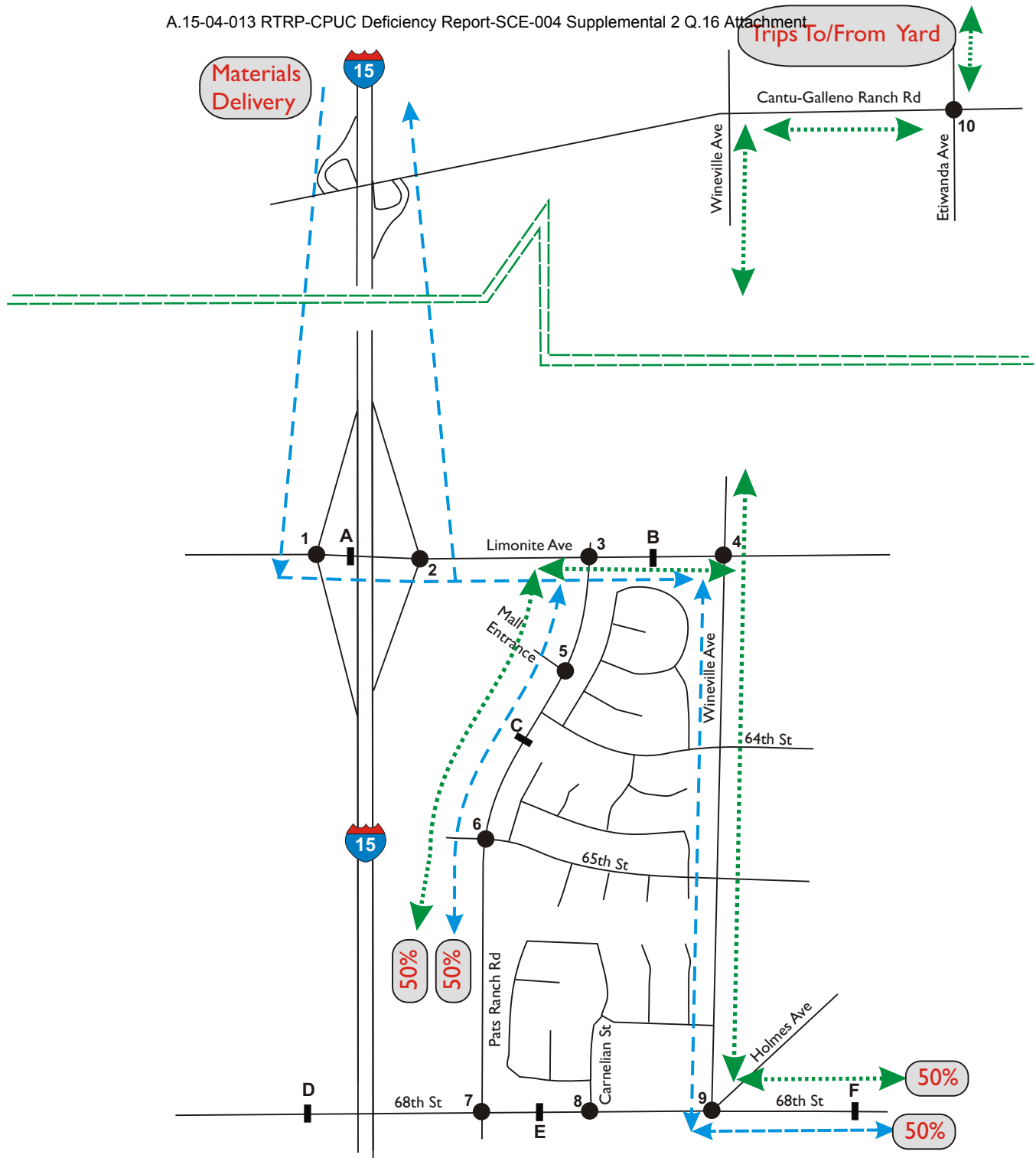
Table 9 also includes the PCE adjusted trip generation to account for trucks. The PCE adjusted volumes are used for the purpose of capacity analysis/level of service calculations only. The level of service worksheets provided in the appendix show the intersection volumes with the PCE adjustments.

Project Trip Distribution

Trip Distribution is the process of assigning the directions from which traffic will access a project site. Trip distribution is dependent upon the delivery of materials and activities associated with the undergrounding of the transmission line. The delivery of materials is assumed to be via I-15 with 50% terminating at Pats Ranch Road south of 65th Street and 50% terminating east of 68th Street. For the trips related to employees, it is anticipated that the employee trips would originate from Yard 2A and 50% would terminate at Pats Ranch Road south of 65th Street and 50% terminate east of 68th Street. Figure 8 illustrate the intersection trip distribution percentages that were utilized for Project traffic. Other deliveries may originate from Yard 2A throughout the day however will be during off-peak hours and will not impact the surrounding area.

Project Trip Assignment

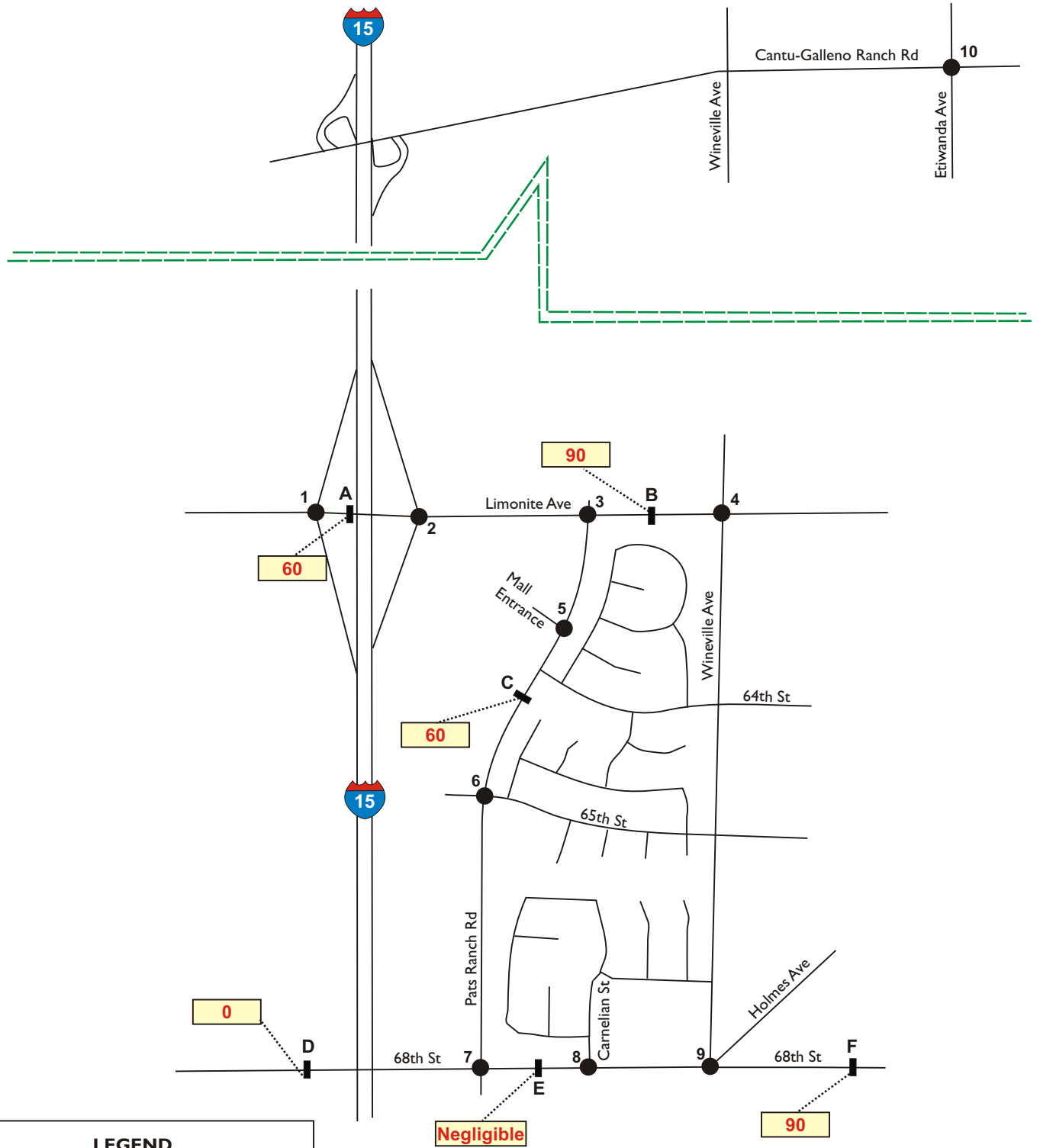
Based on the trip generation and distribution assumptions described above, Project traffic was assigned onto the roadway system based on the availability of local roadways to access the regional highway system. The Project-only ADT, AM and PM peak hour trip assignment are illustrated in Figures 9, 10 and 11, respectively.



LEGEND

- Study Intersection
- X Intersection Reference Number
- █ Study Roadway Segment (A-F)
- ↔ Materials Delivery To/From I-15 North (50% Via Pats Ranch Rd and 50% Via Wineville Ave)
- ↔ Construction Crew Trips (50% Via Pats Ranch Rd and 50% Via Wineville Ave)

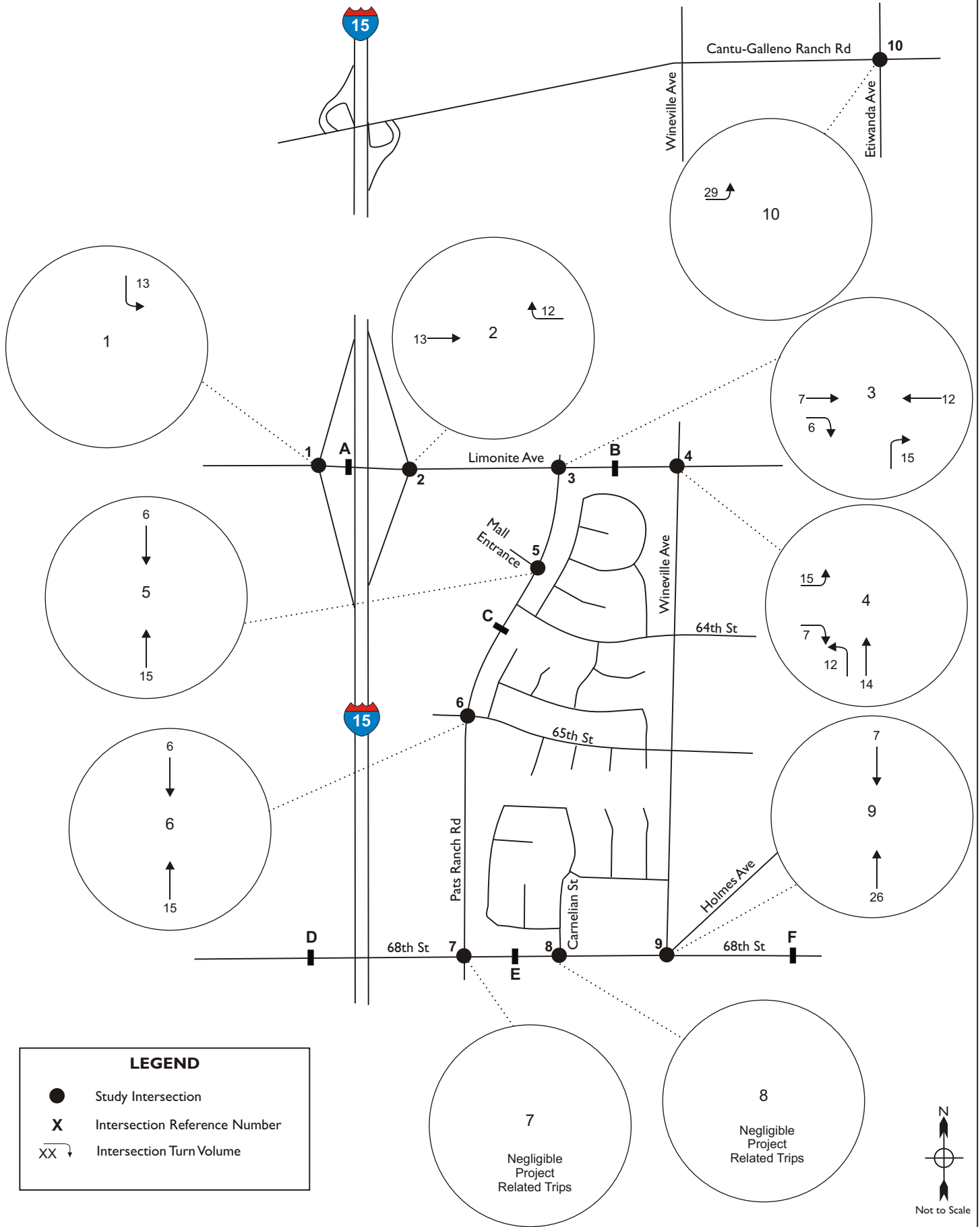


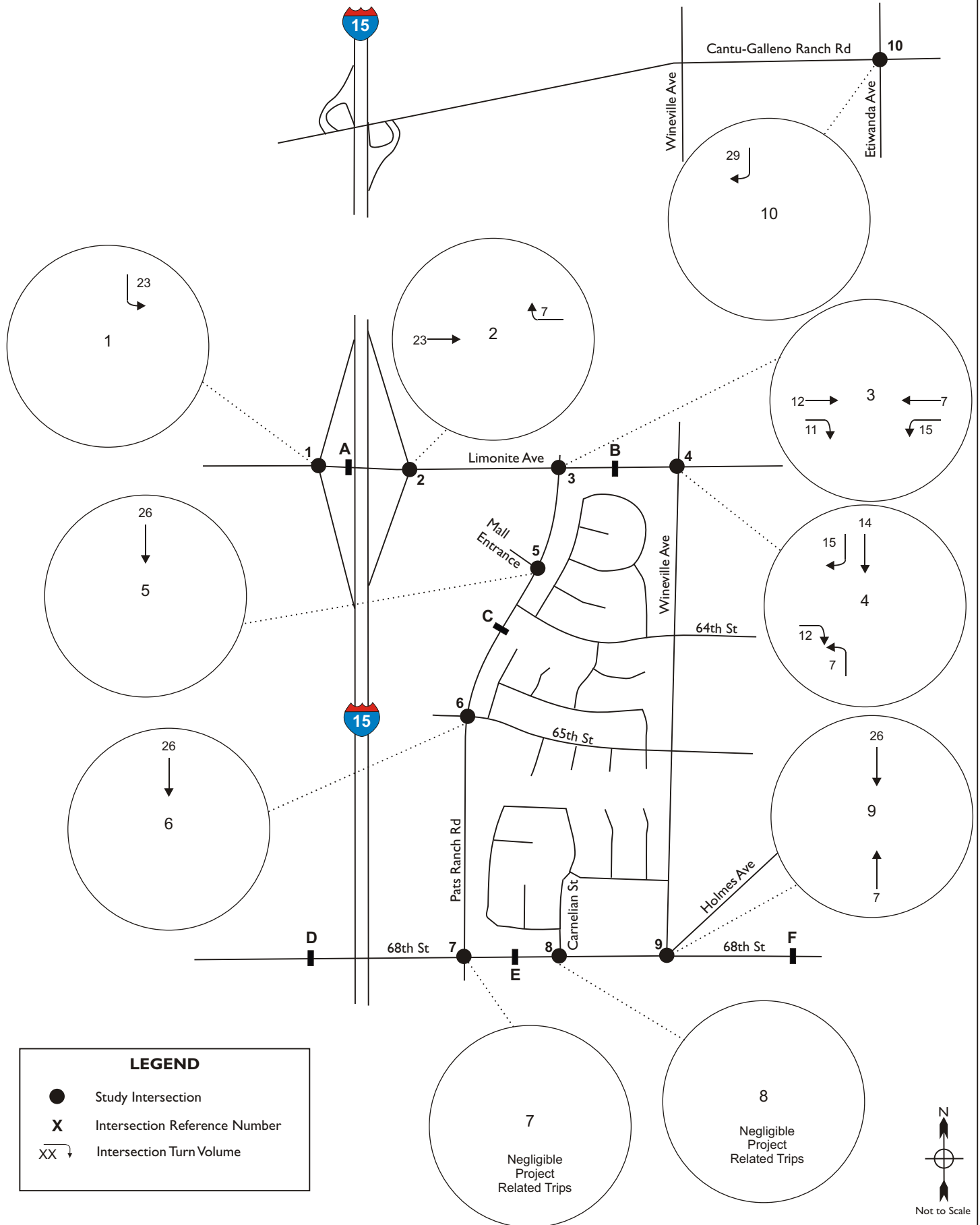


LEGEND

- Study Intersection
- X Intersection Reference Number
- █ Study Roadway Segment (A-F)
- XXXXXX Weekday Daily Volume









Study Scenarios

The proposed Project site is located within the City of Jurupa Valley. This report is prepared in conformance with traffic study guidelines defined by City of Jurupa Valley in the County of Riverside.

Existing 2016 Conditions

Fieldwork within the Project study area was undertaken to identify the condition of major roadways, to identify traffic control and approach lane configuration at each study intersection, and to identify the locations of on-street parking and transit stops.

KOA compiled manual intersection turn movement counts that were conducted at the study intersections on October 4th (Tuesday) and December 4th (Tuesday). Peak period turning movement counts were collected between the hours of 7:00 AM to 9:00 AM and 3:00 PM to 6:00 PM. Appendix A contains the counts taken.

Based on the AM and PM peak hour traffic counts at the study area intersections, the average vehicle delay (seconds) and corresponding level of service were determined for all of the study area intersections Table 10 provides the level of service results at each study intersection under existing 2016 conditions.

Generally, LOS D is the lowest acceptable level of service. As shown in Table 10, all of the intersections are operating at acceptable levels of service (LOS C or better) during both the AM and PM peak hours.

Table 10: Existing 2016 Intersection Level of Service Summary

Study Intersections		Weekday			
		AM Peak		PM Peak	
		Del/ Veh	LOS	Del/ Veh	LOS
1	I-15 SB Ramps & Limonite Ave	25.9	C	30.3	C
2	I-15 NB Ramps & Limonite Ave	31.6	C	31.5	C
3	Pats Ranch Rd & Limonite Ave	25.5	C	31.0	C
4	Wineville Ave & Limonite Ave	20.1	C	15.8	B
5	Pats Ranch Rd & Mall Entrance	8.2	A	17.3	B
6	Pats Ranch Rd & 65th St	19.6	B	19.0	B
7	Pats Ranch Rd & 68th St	21.0	C	16.9	B
8	Carnelian St & 68th St [a]	12.3	B	8.5	A
9	Wineville Ave & Holmes Ave/68th St [a]	14.5	B	11.2	B
10	Etiwanda Ave & Cantu-Galleano Ranch Rd	10.5	B	13.8	B
Notes:					
[a]	Stop Controlled Intersection				
-	Results are based on the 2010 HCM methodology.				
-	LOS A=Excellent, LOS B=Very Good, LOS C=Good, LOS D=Fair, LOS E=Poor, LOS F=Congestion				



Based on the average daily traffic counts along the segments, a volume-to-capacity ratio and corresponding level of service were determined. Table II provides the level of service results at for segments under existing 2016 conditions. Generally, LOS D is the lowest acceptable level of service. As shown in Table II, all of the segments are operating at acceptable levels of service (LOS C or better).

Table II: Existing 2016 ADT Level of Service Summary

Study Segments		Roadway Classification	NB/EB	SB/WB	Total Volume	Capacity [1]	Vol/Cap	LOS
A	Limonite Ave West of Veterans Memorial	Urban	21,301	20,895	42,196	53,900	0.783	C
B	Limonite Ave West of Wineville Ave	Urban	14,940	16,033	30,973	53,900	0.575	A
C	Pats Ranch Rd North of 65th St	Secondary	3,365	3,724	7,089	25,900	0.274	A
D	68th St West of Pats Ranch Rd	Major	5,718	5,594	11,312	34,100	0.332	A
E	68th St East of Pats Ranch Rd	Major	3,312	2,869	6,181	34,100	0.181	A
F	68th St East of Wineville Ave	Collector	617	533	1,150	13,000	0.088	A
Notes:								
[1]: Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables as defined in the Riverside County Congestion Management Program								

Existing conditions level of service worksheets are provided in Appendix B of this report.

Existing With Ambient Growth Traffic Conditions

This scenario includes application of an ambient growth factor of 2% per year based on the Riverside County's Transportation Analysis Model (RivTAM) to the existing traffic counts. This overall growth of 10% (2% per year for five years) brings the existing 2017 traffic counts to the year 2021 conditions. This higher growth rate would also take care of potential new developments that might not have been accounted for in the traffic study. In addition, the peak hour factor is assumed to be 0.92 for all of the study intersections for this condition.

Based on the AM and PM peak hour traffic counts at the study area intersections, the average vehicle delay (seconds) and corresponding level of service were determined for all of the study area intersections. Table 12 provides the level of service results at each study intersection under existing with ambient growth without construction traffic conditions.

Table 12: Existing With Ambient Growth Traffic - Intersection Level of Service Summary

Study Intersections		Weekday			
		AM Peak		PM Peak	
		Del/ Veh	LOS	Del/ Veh	LOS
1	I-15 SB Ramps & Limonite Ave	31.6	C	43.7	D
2	I-15 NB Ramps & Limonite Ave	35.2	D	45.4	D
3	Pats Ranch Rd & Limonite Ave	27.5	C	40.0	D
4	Wineville Ave & Limonite Ave	21.6	C	25.1	C
5	Pats Ranch Rd & Mall Entrance	8.2	A	17.8	B
6	Pats Ranch Rd & 65th St	19.6	B	19.3	B
7	Pats Ranch Rd & 68th St	18.5	B	17.9	B
8	Carnelian St & 68th St [a]	10.3	B	8.4	A
9	Wineville Ave & Holmes Ave/68th St [a]	12.5	B	11.6	B
10	Etiwanda Ave & Cantu-Galleano Ranch Rd	14.8	B	17.1	B
Notes:					
[a]	Stop Controlled Intersection				
-	Results are based on the 2010 HCM methodology.				
-	LOS A=Excellent, LOS B=Very Good, LOS C=Good, LOS D=Fair, LOS E=Poor, LOS F=Congestion				

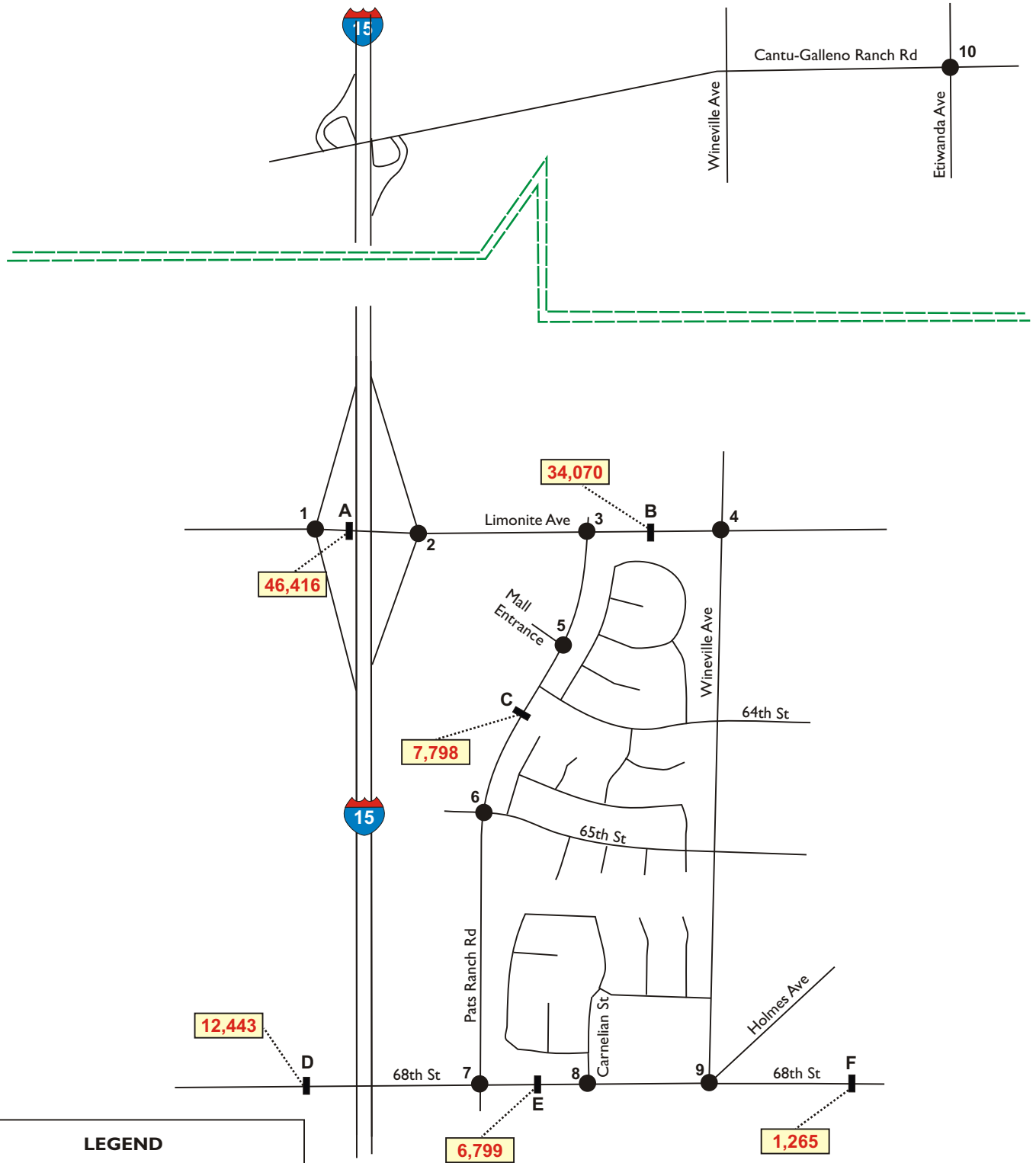
Generally, LOS D is the lowest acceptable level of service. As shown in Table 12, all of the intersections are operating at acceptable levels of service (LOS D or better) during both the AM and PM peak hours.

Based on the average daily traffic counts along the segments, a volume-to-capacity ratio and corresponding level of service were determined. Table 13 provides the level of service results at segments under project related traffic conditions. Generally, LOS D is the lowest acceptable level of service. As shown in Table 12, all of the segments are operating at acceptable levels of service (LOS D or better).

Table 13: Existing With Ambient Growth Average Daily Traffic Level of Service Summary

Study Segments		Roadway Classification	NB/EB	SB/WB	Total Volume	Capacity [1]	Vol/Cap	LOS
A	Limonite Ave West of Veterans Memorial	Urban	23,431	22,985	46,416	53,900	0.861	D
B	Limonite Ave West of Wineville Ave	Urban	16,434	17,636	34,070	53,900	0.632	B
C	Pats Ranch Rd North of 65th St	Secondary	3,702	4,096	7,798	25,900	0.301	A
D	68th St West of Pats Ranch Rd	Major	6,290	6,153	12,443	34,100	0.365	A
E	68th St East of Pats Ranch Rd	Major	3,643	3,156	6,799	34,100	0.199	A
F	68th St East of Wineville Ave	Collector	679	586	1,265	13,000	0.097	A
Notes:								
[1]: Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables as defined in the Riverside County Congestion Management Program								

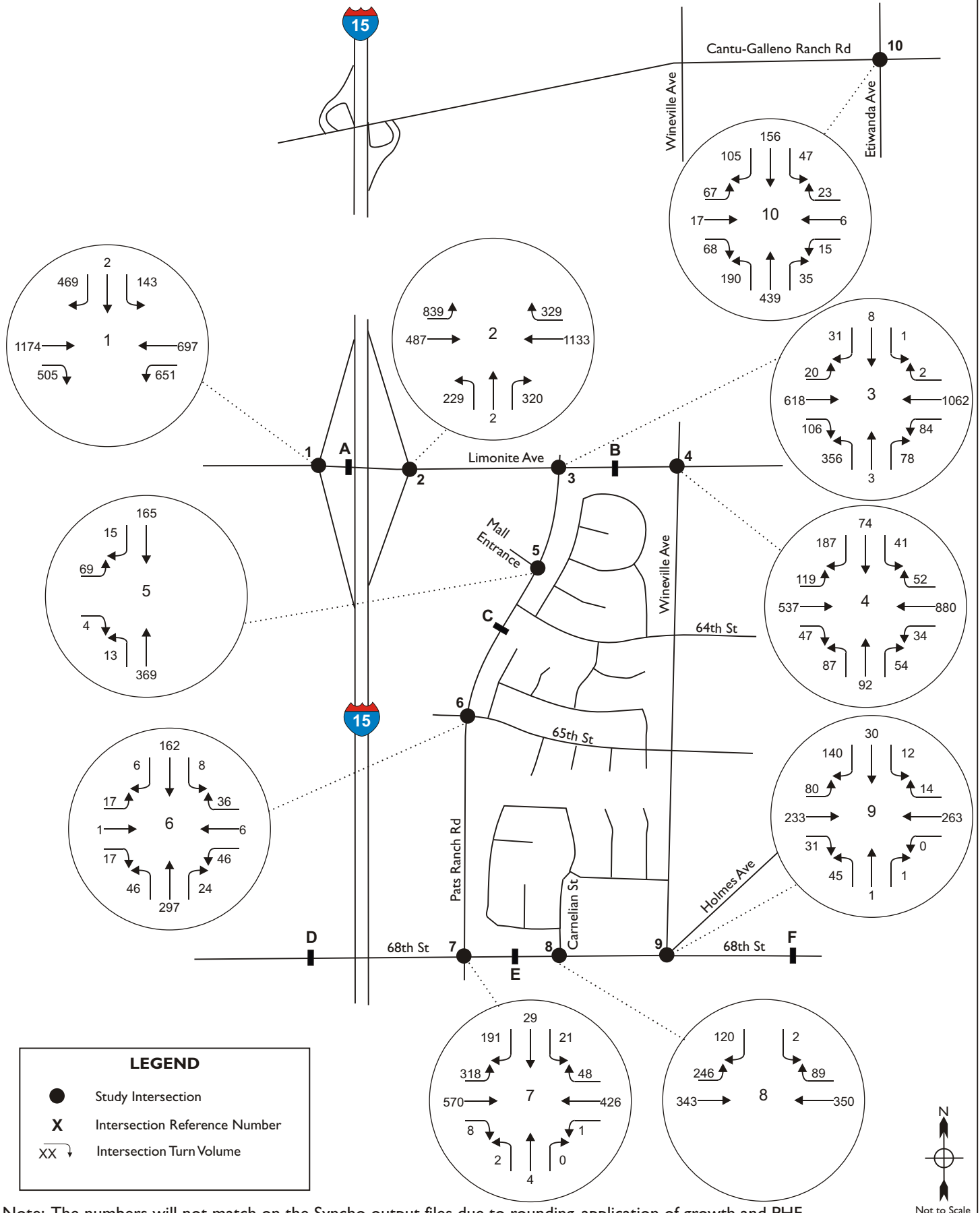
Figures 12, 13 and 14 illustrate the resultant existing with ambient growth traffic forecasts for the ADT, AM and PM peak hours, respectively. Existing with ambient growth conditions level of service worksheets are provided in Appendix C of this report.



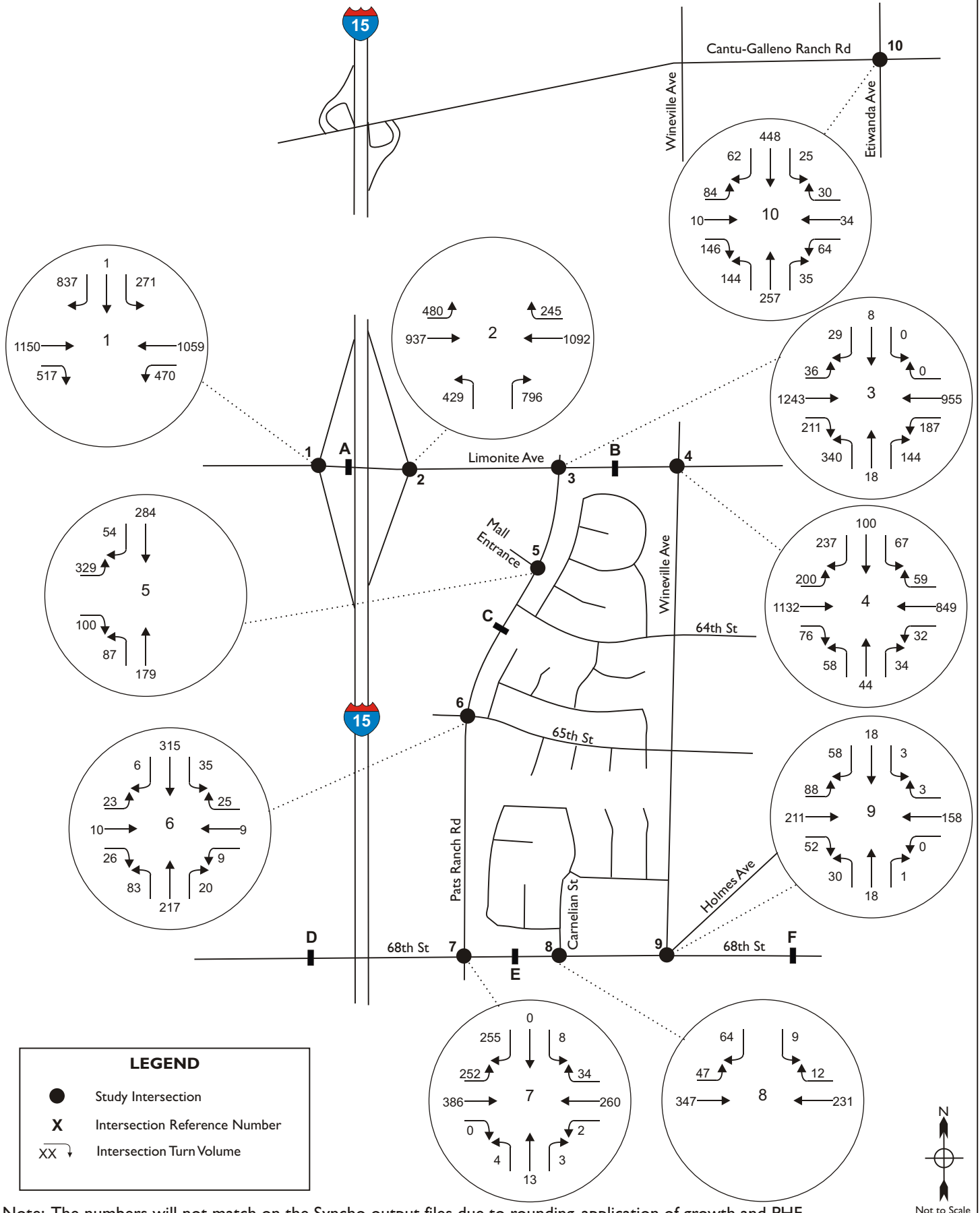
LEGEND

- Study Intersection
- X Intersection Reference Number
- █ Study Roadway Segment (A-F)
- XXXXXX Weekday Daily Volume





Note: The numbers will not match on the Syncho output files due to rounding, application of growth and PHF.



Existing With Ambient Growth Plus Construction Traffic Conditions

This scenario includes the traffic that is generated as part of construction and added on to the existing with ambient traffic conditions along with the planned lane closures to assess the worst case traffic conditions.

Based on the AM and PM peak hour traffic counts at the study area intersections, the average vehicle delay (seconds) and corresponding level of service were determined for all of the study area intersections. Table 14 provides the level of service results at each study intersection during construction conditions.

Generally, LOS D is the lowest acceptable level of service. As shown in Table 14, all of the intersections are operating at acceptable levels of service (LOS D or better) during both the AM and PM peak hours with the exception of Pats Ranch Road and Limonite Avenue which is projected to operate at LOS E (poor) during the PM Peak hour.

Table 14: Existing With Ambient Growth Plus Construction Level of Service Summary

Study Intersections		Weekday			
		AM Peak		PM Peak	
		Del/ Veh	LOS	Del/ Veh	LOS
1	I-15 SB Ramps & Limonite Ave	31.9	C	44.5	D
2	I-15 NB Ramps & Limonite Ave	35.1	D	45.2	D
3	Pats Ranch Rd & Limonite Ave	38.6	D	71.5	E
4	Wineville Ave & Limonite Ave	23.0	C	26.1	C
5	Pats Ranch Rd & Mall Entrance	9.2	A	20.4	C
6	Pats Ranch Rd & 65th St	18.9	B	20.0	B
7	Pats Ranch Rd & 68th St	27.8	C	20.2	C
8	Carnelian St & 68th St [a]	14.2	B	11.3	B
9	Wineville Ave & Holmes Ave/68th St [a]	14.6	B	12.8	B
10	Etiwanda Ave & Cantu-Galleano Ranch Rd	15.3	B	17.0	B
Notes:					
[a]	Stop Controlled Intersection				
-	Results are based on the 2010 HCM methodology.				
-	LOS A=Excellent, LOS B=Very Good, LOS C=Good, LOS D=Fair, LOS E=Poor, LOS F=Congestion				



Based on the average daily traffic counts along the segments which included existing with ambient growth and the projected construction traffic volumes, a volume-to-capacity ratio and corresponding level of service were determined. Table 15 provides the level of service results at for segments under traffic during construction traffic conditions. Generally, LOS D is the lowest acceptable level of service. As shown in Table 15, all of the segments are operating at acceptable levels of service (LOS D or better).

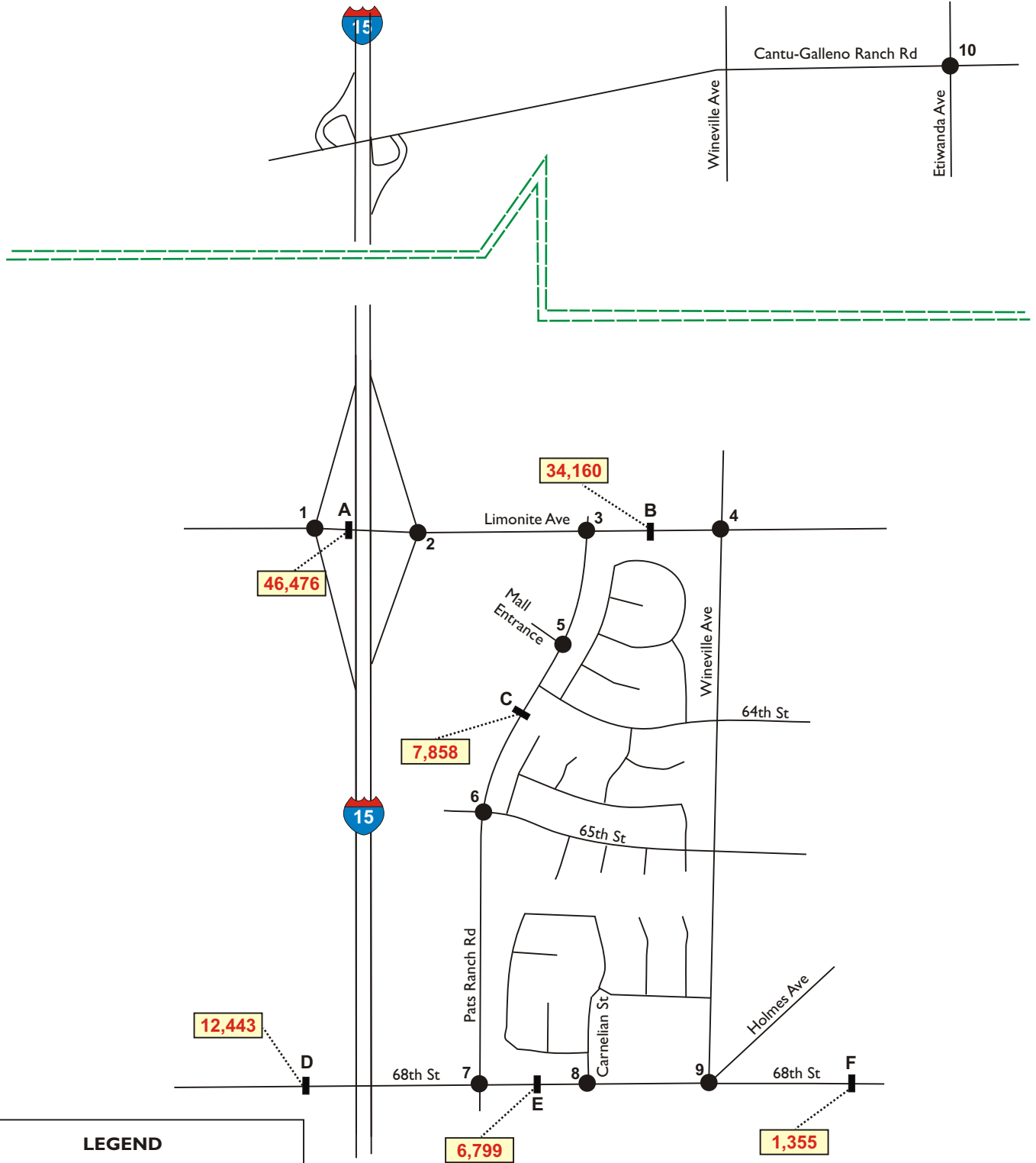
Table 15: Existing With Ambient Growth Plus Construction Average Daily Traffic Level of Service Summary

Study Segments	Roadway Classification	NB/EB	SB/WB	Total Volume	Construction ADT	Total Volume With Const	Capacity [1]	Vol/Cap	LOS
A	Limonite Ave West of Veterans Memorial	23,431	22,985	46,416	60	46,476	53,900	0.862	D
B	Limonite Ave West of Wineville Ave	16,434	17,636	34,070	90	34,160	53,900	0.634	B
C	Pats Ranch Rd North of 65th St	3,702	4,096	7,798	60	7,858	25,900	0.303	A
D	68th St West of Pats Ranch Rd	6,290	6,153	12,443	0	12,443	34,100	0.365	A
E	68th St East of Pats Ranch Rd	3,643	3,156	6,799	Negligible	6,799	34,100	0.199	A
F	68th St East of Wineville Ave	679	586	1,265	90	1,355	13,000	0.104	A

Notes:

[1]: Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables as defined in the Riverside County Congestion Management Program

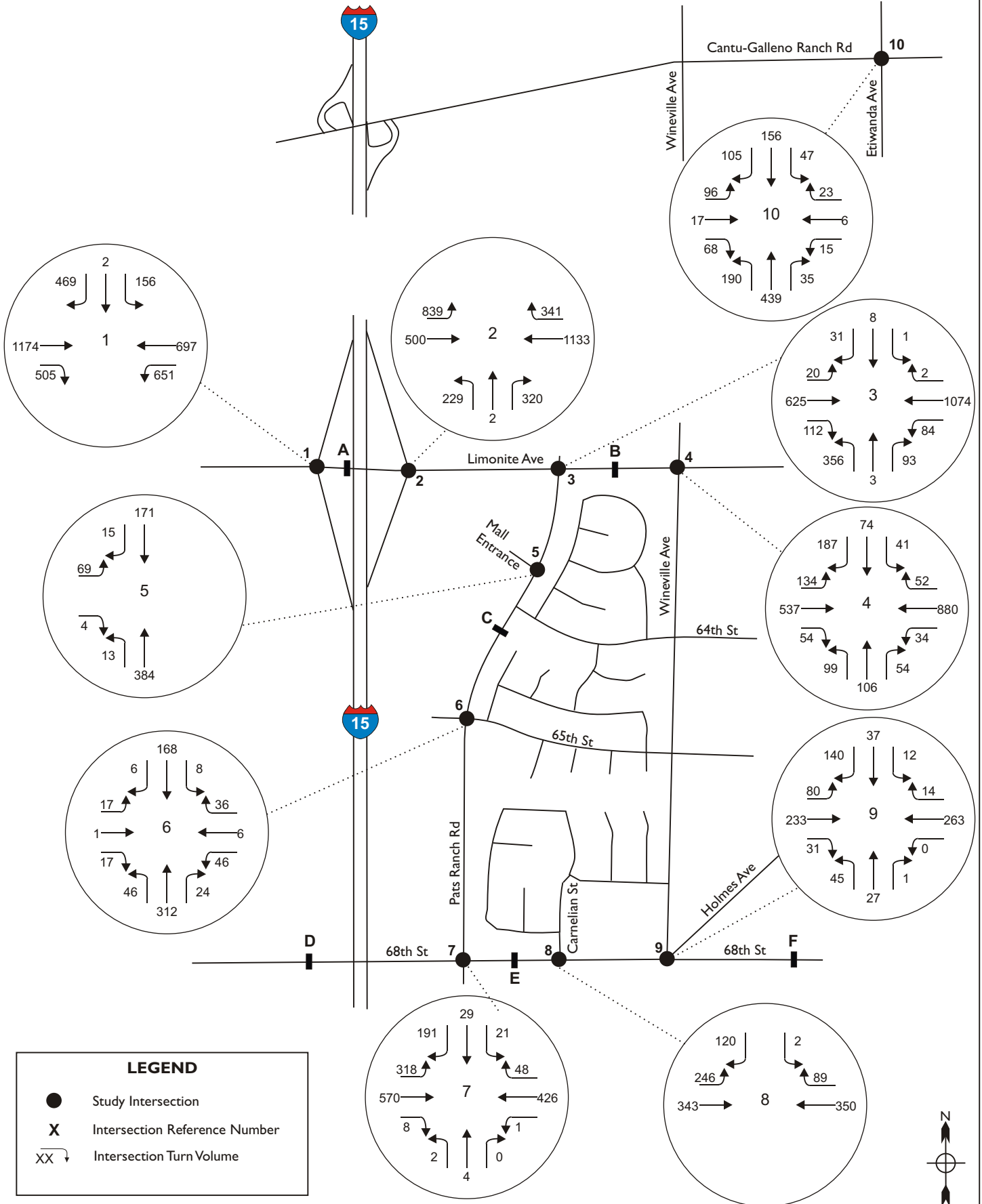
Figures 15, 16 and 17 illustrate the resultant existing with ambient growth with construction traffic forecasts for the ADT, AM and PM peak hours, respectively. Existing with ambient growth with construction traffic conditions level of service worksheets are provided in Appendix D of this report.



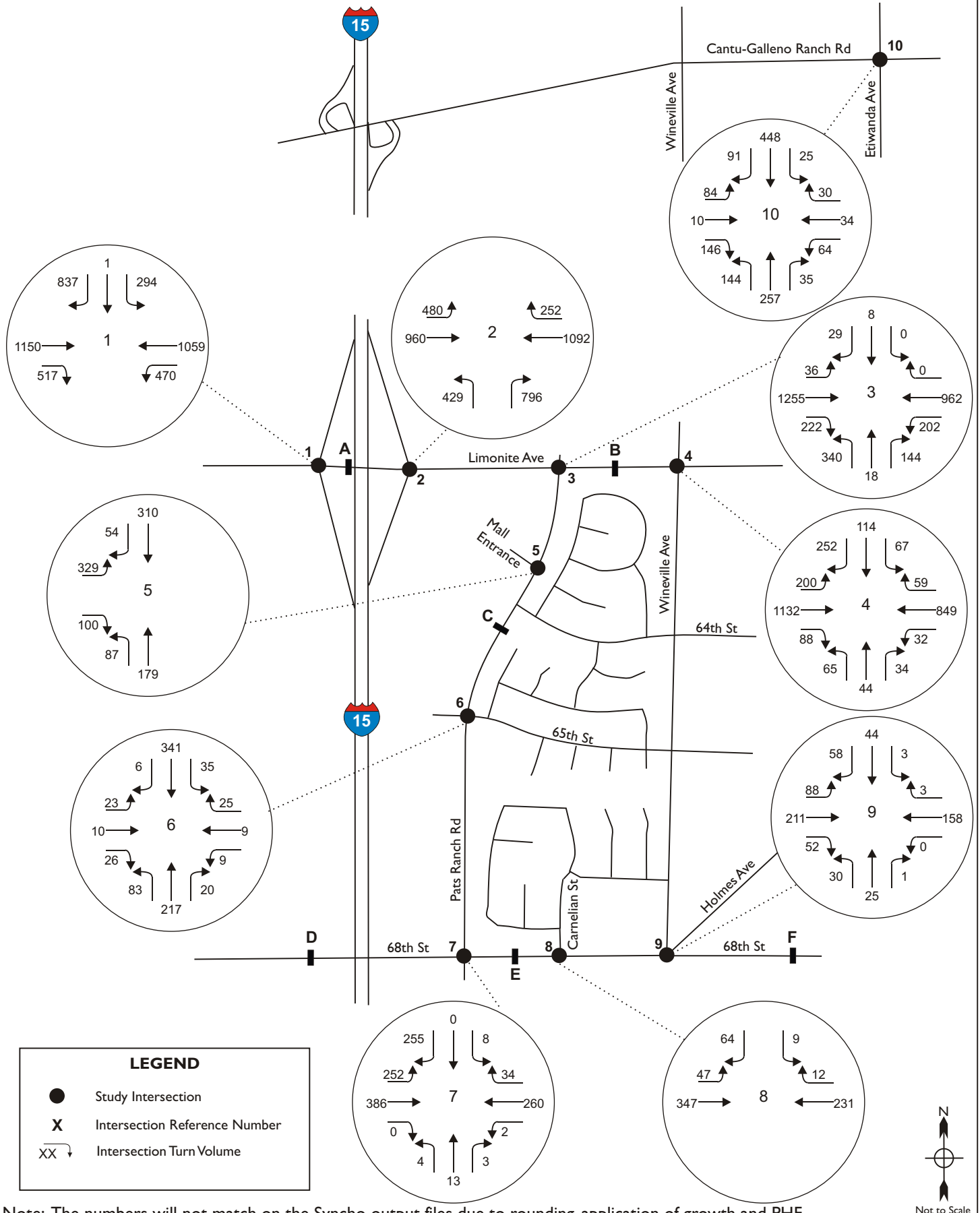
LEGEND

- Study Intersection
- X Intersection Reference Number
- █ Study Roadway Segment (A-F)
- XXXXXX Weekday Daily Volume





Note: The numbers will not match on the Syncho output files due to rounding, application of growth and PHF.



Note: The numbers will not match on the Syncho output files due to rounding, application of growth and PHF.



Traffic Impacts Due to Construction

This scenario summarizes the traffic impacts due to construction by comparing the traffic during construction conditions with the existing with ambient growth conditions. Based on the established threshold, traffic impact is determined and potential traffic mitigation measures are outlined which is discussed in the subsequent section of this report.

Based on the AM and PM peak hour traffic counts at the study area intersections, Table 16 provides comparison of the level of service results at each study intersection under traffic during construction conditions with the existing with ambient growth conditions.

As shown in Table 16, and based on the established threshold criteria, the intersection of Pats Ranch Road and Limonite Avenue is projected to create a significant impact.

Table 16: Comparison of Level of Service Summary

Study Intersections		Existing With Ambient Growth				Existing With Ambient Growth Plus Construction Traffic				Change in Delay		Sig Impact?
		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak	
		Del/Veh	LOS	Del/Veh	LOS	Del/Veh	LOS	Del/Veh	LOS			
1	I-15 SB Ramps & Limonite Ave	31.6	C	43.7	D	31.9	C	44.5	D	0.3	0.8	No
2	I-15 NB Ramps & Limonite Ave	35.2	D	45.4	D	35.1	D	45.2	D	-0.1	-0.2	No
3	Pats Ranch Rd & Limonite Ave	27.5	C	40.0	D	38.6	D	71.5	E	11.1	31.5	Yes
4	Wineville Ave & Limonite Ave	21.6	C	25.1	C	23.0	C	26.1	C	1.4	1.0	No
5	Pats Ranch Rd & Mall Entrance	8.2	A	17.8	B	9.2	A	20.4	C	1.0	2.6	No
6	Pats Ranch Rd & 65th St	19.6	B	19.3	B	18.9	B	20.0	B	-0.7	0.7	No
7	Pats Ranch Rd & 68th St	18.5	B	17.9	B	27.8	C	20.2	C	9.3	2.3	No
8	Carnelian St & 68th St [a]	10.3	B	8.4	A	14.2	B	11.3	B	3.9	2.9	No
9	Wineville Ave & Holmes Ave/68th St [a]	12.5	B	11.6	B	14.6	B	12.8	B	2.1	1.2	No
10	Etiwanda Ave & Cantu-Galleano Ranch Rd	14.8	B	17.1	B	15.3	B	17.0	B	0.5	-0.1	No

Notes:

- [a] Stop Controlled Intersection
- Results are based on the 2010 HCM methodology.
- LOS A=Excellent, LOS B=Very Good, LOS C=Good, LOS D=Fair, LOS E=Poor, LOS F=Congestion

Table 17 provides a comparison of the level of service results for segments under traffic during construction conditions with the existing with ambient growth conditions. As shown in Table 17, and based on the established threshold criteria, none of the study segments are projected to create a significant impact.

Table 17: Comparison of Average Daily Traffic Level of Service Summary

Study Segments		Roadway Classification	Existing With Ambient Growth Total Volume	Existing With Ambient Growth Plus Construction Traffic Total Volume	Change in Daily Vol	Sig Impact?
A	Limonite Ave West of Veterans Memorial	Urban	46,416	46,476	60	No
B	Limonite Ave West of Wineville Ave	Urban	34,070	34,160	90	No
C	Pats Ranch Rd North of 65th St	Secondary	7,798	7,858	60	No
D	68th St West of Pats Ranch Rd	Major	12,443	12,443	0	No
E	68th St East of Pats Ranch Rd	Major	6,799	6,799	0	No
F	68th St East of Wineville Ave	Collector	1,265	1,355	90	No

Notes:

[!]: Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables as defined in the Riverside County Congestion Management Program

Method – Sensitivity analysis

This section discusses the sensitivity ratings and values utilized for determining impact potential along the length of the project, and is focused on traffic impacts that could occur outside of the defined study roadway segment points. This sensitivity framework was then applied to establish an impact rating of “high,” “moderate,” or “low” by segment.

Sensitivity Ratings

Sensitivity ratings were developed for transportation resources that could be significantly impacted by the proposed project, in order to help determine the sensitivity to the siting and construction of the proposed transmission line.

Sensitivity is defined as a measure of probable adverse response of a resource to direct and indirect impacts associated with the construction, operation, and maintenance of a transmission line. Sensitivity ratings were assigned to a number of segments within the study area. These ratings were based upon a relative evaluation of the resource’s importance and the impact potential that construction and maintenance of a transmission line would have upon that resource for the short-term (construction period) and long-term (operations and maintenance) durations of the project. The determinations of sensitivity levels included consideration of the following:

- **Roadway Classification:** Functional classification is used to categorize roadways according to their predominant role in the highway network and their physical setting. Typically, the role of the roadway in the network is determined by the level of mobility provided to automobile traffic by that roadway. On this basis, the functional classification differentiates between highways, arterial, collector/secondary, and local roadways. Highways provide regional connectivity and have high sensitivity, while arterials serve those corridor movements that have long trip length and high volumes and have moderate sensitivity. Collectors serve subordinate traffic generators,

and local roads provide access to individual parcels; therefore, both have a low sensitivity in terms of potential impacts.

- Closures: The construction and maintenance of the transmission line may involve temporary partial or full road closures that can have an effect on traffic flow.
- Present and Future Uses: Potential conflicts could occur with planned and programmed transportation improvement projects. Roadway widenings, as the primary example, could necessitate an intensification of mitigation measures for identified impacts.
- Traffic volume: Truck trips and construction employee trips during the construction of the transmission line may create an increase of traffic and cause significant operational service degradations on roadways.
- Access: Maintenance access between major roadways and smaller access roadways, if directly connected, could cause localized traffic delays. Where construction or maintenance access would transition from a major roadway to a new small access roadway, safety conflicts or potential significant traffic delays could occur on the main roadway due to new truck movements.

Sensitivity Values

Using the framework defined above, the transportation network crossed by the project transmission line corridors (including alternatives) was analyzed and assigned a relative sensitivity rating for potential impacts within the project study area. Sensitivity ratings were categorized as “high,” “moderate,” or “low” based upon the following characteristics:

High Sensitivity: Includes areas which have the following characteristics:

1. An increase of traffic could have a direct detrimental effect on transportation system operations, where roadways are operating at or near capacity under existing conditions;
2. A planned roadway construction project would provide a wider roadway cross-section once complete, and project construction methods would need to be modified significantly to span the road or selected travel lanes;
3. A fire station or hospital is located within ¼-mile of the project corridor and alternative access routes to those facilities around potential closures do not exist;
4. A public transit route would not have a viable alternative route (collector roadways or better) within ¼-mile of existing route; and



5. Mitigation is not likely to be effective in substantially reducing significant impacts, based on roadway shoulder characteristics, topography, and other limiting factors toward the provision of temporary travel lanes.

Moderate Sensitivity: Includes areas which have the following characteristics:

1. An increase of traffic could have a direct detrimental effect on transportation system operations, but could be mitigated to insignificance on roadways that are operating at good levels of service under existing conditions;
2. The roadway would have limited conflict with current or planned roadway classification, and project construction methods could be easily changed to accommodate any improved roadway cross-section;
3. A fire station or hospital is located within ¼-mile of the project corridor, with an alternate but longer access route to those facilities around the project-related closure; and
4. A public transit route would have a viable but longer alternate route (collector roadways or better) within ¼-mile of existing route.

Low Sensitivity: Includes areas which have the following characteristics:

1. Roadway sensitivity that has not been classified as high or moderate;
2. Planned roadway construction projects where construction methods would need little modification to accommodate minor cross-sectional or other changes;
3. Roadways where measures may be easily implemented to reduce the effects to less than significant;
4. Roadways likely used by emergency or transit vehicles, or other general access issues located on a grid system, with multiple available alternative routes on collectors or arterials.
5. Roadways that would have little or no change in traffic flow due to the construction or operation of the transmission line.

Traffic Impacts and Construction Methods

The traffic study has assumed that some ground-based construction activity will be necessary on all analyzed links, although the details of the construction methods (e.g., construction of new towers) may be different within each link. The primary concern for reviewing agencies during the development of final construction plans for the project will be the location and quantity of any necessary travel lane closures. The closure of bicycle lane facilities within work areas and the effect on rail operations, emergency vehicles response, school bus access, and other such transportation resources/modes will also be of concern.

Short-term construction transportation impacts are substantially greater than long-term operational transportation impacts because of the excavation required to prepare a site for installation of facilities.



Dump trucks with capacities ranging from 10 to 18 cubic yards would be used to remove soil from transmission line trenches and vault excavations. The excavated material that is not suitable to be reused at the construction site (e.g. to backfill a trench) would be hauled away, using major streets in the vicinity and regional highways. The excavation phase would occur early in construction.

Besides these periods of heavy truck traffic, other trips are generated over the duration of construction. These trips include workers traveling to and from work, delivery of equipment and supplies, and miscellaneous inspector trips. The underground duct banks are constructed in segments, so traffic impacts in any one area (for instance, a city block) would be most intense during construction in that area. The transmission line will be constructed in public rights-of-way, so it is common for one or more traffic lanes to be temporarily blocked in the stretch of road immediate to the open trench segment. In those cases, traffic management plans would be developed to ensure the movement of goods and people through the area, usually by employing flaggers to maintain traffic flow in at least one direction at all times. Access to properties adjoining the blocked-off portion of the roadway would be maintained to the maximum extent possible.

After the trench has been backfilled and the road pavement replaced, the construction “train” moves on to the next segment. The most intensive traffic impact moves along with the construction. Spoils and equipment hauling trucks and workers would use major roadways to access and egress the construction site, so impacts would occur distant from the actual construction as well. For trench construction, these impacts are usually minor.

Construction Access

Access by construction vehicles to and from construction sites within the project links, as well as direct access between existing area roadways and construction access roadways, can potentially cause localized traffic impacts. For the impact analysis, the characteristics of roadways within the study area were considered in terms of safe and efficient access to construction areas or construction access roads. This type of access would necessitate turning movements by construction vehicles from larger roadways to smaller construction access roadways.

Due to potential safety issues associated with construction access and major roadways (arterials), these were given higher sensitivity ratings.

Sensitivity Summary – Project Construction (Short-Term)

Table 18 summarizes the sensitivity ratings for the short-term period of project duration (construction activities), and the rationale for each.

**Table 18: Short-Term Duration Sensitivity Ratings for Roadways**

Resource Component	Short-term Duration			Rationale
	Sensitivity			
	High	Moderate	Low	
Roadways				
<i>Dirt and Private Roads</i>				
<i>Sole Route to Land Uses (non-grid)</i>			•	Access could create closures, but detours/diversions could likely accommodate access
<i>Collector Roadways</i>				
<i>Collector, Grid Street System</i>		•		Alternate access exists, via longer travel route
<i>Collector, non-Grid Street System</i>	•			Access could be cut-off
<i>Arterial Roadways</i>				
<i>Arterial or Mountain Road, Straight Alignment</i>		•		Closures could cause significant traffic delays, but closures would be visible for long approach distances
<i>Arterial or Mountain Road, Curvilinear Alignment</i>	•			Closures could cause significant traffic delays, and may create significant traffic safety impacts due to short approach distances on curves
<i>Highway (State Routes) or Freeway Facilities</i>				
<i>Any Highway or Freeway</i>	•			Closures could cause significant traffic delays through single or multiple lane closures
Public Transportation Routes				
<i>without alternate route within 1/4-mile (non-grid)</i>	•			Transit line temporary closures could be necessary
<i>with alternate route within 1/4-mile (grid)</i>		•		Transit line route lengths and passenger walking distances could be lengthened
Emergency Access Route (within 1/4-mile of fire station, hospital)				
<i>without alternate/parallel route</i>	•			Emergency access could be significantly impacted
<i>with alternate/parallel route</i>		•		Emergency access would not likely be impacted, but response time would potentially be increased
School Bus Routes				
<i>Public Schools within 1/4-mile</i>		•		School bus routes could be lengthened during detour
Railroad Corridors				
<i>Passenger Rail</i>	•			Passenger commute service could be affected
<i>Freight Rail</i>		•		Freight service could be delayed
Bicycle Routes				
<i>Class I and Class II Facilities</i>	•			Bicycle lane closures or detours could be necessary



Sensitivity Summary – Project Operations (Long-Term)

Table 19 summarizes the sensitivity ratings for the long-term period of project duration (operations and maintenance), and the rationale for each.

Table 19: Long-Term Duration Sensitivity Ratings for Roadways

Resource Component	Long-term Duration			Rationale
	High	Moderate	Low	
Roadways				
<i>All Dirt and Private Roads</i>			•	Maintenance access could create temporary closures but detours/diversions could likely accommodate access
<i>All Local Roads</i>			•	Maintenance access would not likely cause traffic impacts
<i>All Collector Roads</i>			•	Maintenance access would not likely cause traffic impacts
<i>All Arterial Roadways</i>			•	Maintenance access would not likely cause traffic impacts
<i>All Highways/Freeways</i>			•	Maintenance access would not likely cause traffic impacts
Public Transportation Routes				
<i>All Transit Routes</i>			•	Maintenance activity would not likely create transit impacts
School Bus Routes				
<i>Public schools within ¼-mile</i>			•	Maintenance activity would not likely create school bus service impacts
Railroad Corridors				
<i>Passenger Rail</i>			•	Maintenance activity would not likely require access to rail rights-of-way
<i>Freight Rail</i>			•	Maintenance activity would not likely require access to rail rights-of-way
Recreational Routes				
<i>Class I and Class II Facilities</i>			•	Temporary impacts during access could be mitigated through the provision of bike lane diversions/detours

General Link Impact Summary

This sub-section provides a discussion of the traffic impact analysis associated with construction and maintenance activities along the proposed project links. Specific mitigation measures were developed to determine if segments would have a potential for high traffic impacts resulting from the proposed project construction and maintenance activities.

Table 20 provides a summary of the sensitivity analysis – by high, moderate, and low impacts – conducted for the determination of traffic impacts on project links along the new 230 kV underground transmission line. Segments with a potential high impact would need to have mitigation applied with specific measures; potential moderate impacts could be mitigated with general measures. Segments with a potential low impact would not require mitigation measures.



Table 20: New 230 kV Underground Transmission Line Summary Of Impacts

Segment		Construction Impact			Maintenance Impact		
From	To	Low	Moderate	High	Low	Moderate	High
Overhead Transition	Lucretia Avenue		X		X		
Lucretia Avenue	68th Street			X	X		
Holmes Avenue	Carnelian Street		X		X		
Carnelian Street	Pats Ranch Road		X		X		
68th Street	65th Street		X		X		
65th Street	64th Street		X		X		
64th Street	Limonite Avenue			X	X		
Limonite Avenue	Overhead Transition			X	X		

Maintenance Impacts

Once project construction is completed, high or moderate impacts would not be present as the proposed project becomes operational and enters the maintenance period.

Where access for maintenance would occur, there is a potential for significant traffic impacts. It is anticipated, however, that lane closures or blockages/impedances for maintenance adjacent to study area roadways would be of short duration and would not cause impacts for extended periods (during entire peak periods or for days at a time).

Section 7: Mitigation Measures

General Mitigation Measures

This section provides a discussion of the traffic impact mitigations associated with construction and maintenance of the proposed new 230 kV underground transmission line. Mitigation measures were developed for specific areas along a segment determined to have LOS impact and a high or moderate sensitivity due to construction impacts from the project component.

The following list defines general construction mitigation measures that should be applied to moderately impacted roadways during project construction to avoid significant traffic impacts to area roadways and other transportation facilities or resources. These moderately impacted roadways were defined based on the sensitivity analysis criteria as described in the section above.

The following are the recommended general project traffic mitigation measures:

- Minimize Roadway Closures: Construction activities will involve temporary lane closures or detours in the vicinity of the project. However, auto access to public services, facilities, and businesses will be maintained during normal business hours either by maintaining one or more lane of traffic or by providing an alternate travel route. Similarly, pedestrian access to services and businesses affected by construction will be maintained by providing safe pathways.
- Incorporate Protective Measures: During excavation, vault construction, and pavement rehabilitation operations, the contractor will restrict parking and place long-term lane closures where work is active. The contractor will be required to safely protect the excavation each day during hours of non-activity. It is anticipated bicycles will share the road during this stage. The construction work through intersections will have to be performed under a flagging operation, half-width at a time, and temporary steel plates may be required to maintain traffic during non-working hours.
- Public Outreach: SCE will conduct public outreach in areas of construction to advise individuals and businesses of planned activities. Construction activity schedules will be publicly available and posted on a project status web site maintained by SCE. A database will be established of property owners along the project corridor and of other individuals or agencies expressing interest in notification of construction activity. The database will allow SCE to contact property owners directly, by mail, or phone, in advance of construction.
- Prepare Traffic Control Plans: Prior to the start of construction, owner operators shall submit Motorized and non-motorized Traffic Control Plans (TCPs) to all agencies with

jurisdiction over public roads that would be directly affected by construction activities (where road closures or encroachments would be necessary). The Plans shall define the locations of all roads that would need to be temporarily closed due to construction activities, and also define the use of flag persons, warning signs, lights, barricades, cones, and other necessary measures for each construction closure. The Plans shall include measures to avoid disruptions or delays in access for emergency service vehicles and to keep emergency service agencies fully informed of road closures, detours, and delays. Police departments, fire departments, ambulance services, and paramedic services shall be notified at least one month in advance of each closure by RPU and SCE. Complete closures of roadways will be the exception, with times and locations to be identified in the traffic management plan and approval of closures required by SCE and RPU and the appropriate city in which the work is proposed.

- Provide for Emergency Vehicle Access: Provisions shall be ready at all times to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies. TCPs shall also identify all emergency service agencies, include contact information for those agencies, assign responsibility for notifying the service providers, and specify coordination procedures. Copies of the Plans shall be provided to all affected police departments, fire departments, ambulance, and paramedic services.
- Avoid Peak-Period Construction: To minimize traffic congestion and delays during construction to the extent feasible, RPU and SCE shall restrict all necessary lane closures or obstructions on major roadways associated with project construction activities to off-peak periods, as feasible. Lane closures should be avoided during the 6:00 a.m. to 9:00 a.m. timeframe and the 3:30 to 6:30 p.m. timeframe, or as otherwise defined within the TCPs.
- Adjust Design Based on Planned Roadway Projects: As project design and construction plans move forward, coordination will be necessary with the lead agencies on other planned roadway projects that could overlap with project construction, in order to determine if special considerations need to be made for project timing.
- Provide Roadway Lane Diversions: Where project construction could close one or multiple lanes, and where significant degradations in roadway operations could result, roadway diversions should be provided to restore the travel lanes through temporary roadway restriping.
- Provide Bike Lane or Trail Diversions: Where project construction and/or maintenance access could close bicycle lanes or trails, temporary diversions should be provided where feasible to provide continued access around the construction or maintenance area.

- Minimize Disruption or Delays to Public Bus Service: SCE shall coordinate with the public bus service providers at least 30 days prior to construction in the service territory to reduce the potential interruption of bus transit services. Construction activities may require the closure of bus stops. Temporary bus stops will be located nearby during the active construction period. Immediately after completion of construction on a roadway segment, the roadway will be opened to restore access for bus patrons. The traffic disruptions of construction will affect the speed and reliability of the existing bus service. These impacts will be temporary and of limited duration.
- Provide Access to Nearby Recreation Areas: Where project construction and/or maintenance access could cut off access to nearby recreation areas, and where no alternate route exists to the recreation areas, measures should be used to provide a minimum of on-lane reversible access (with flagmen) through the construction/maintenance area, or work should only be conducted during off-peak or evening hours. Pedestrian access including wheelchair accessible ramps and temporary sidewalks where needed will be maintained during construction.
- Repair Damaged Streets: Any damage to local roadways caused by project construction and/or maintenance should be repaired and the roadways should be restored to their previous condition.
- Open trench segments would be temporarily covered to allow residents and service vehicles to access driveways and loading areas. Trench segments would be excavated and closed promptly, minimizing the time that trenches are open in front of residence driveways and businesses. Construction vehicles would not be parked in front of access points and/or business parking areas.
- Materials delivery or removal during peak traffic hours along major arterials would be avoided when possible. Flaggers would be present to direct traffic around the construction site.

Recommended Specific Mitigation Measures

Based on the impact analysis, and the determination for high impacts, the following recommended specific mitigation measures were developed. Areas determined to have a low impact were considered to be less than significant. Moderate or high impacts in all areas can be mitigated to a less-than-significant level with the recommended set of mitigation measures.

Recommended mitigation measures are provided below for the new 230 kV underground transmission line component. They are based on categories of resources and a potential for high impacts to



traffic/transportation resources. In some instances, multiple impact types may apply on one roadway segment. For example, a roadway may be potentially impacted due to its status as a major facility (arterial) but also be potentially impacted due to the presence of bicycle lanes and a transit route. The recommendations are as follows:

- Arterials, straight alignments – Provide construction closures that keep at least one lane of traffic open in each direction of travel at all times, or provide adequate lane capacity to generally provide a good level of service in traffic operations.
- Roadway with likely school bus access need – Provide construction closures that keep at least one lane of traffic open with reversible flow (via flagmen) at all times, or provide adequate lane capacity to generally provide a good level of service in traffic operations.
- Bus transit route – Provide construction closures that keep at least one lane of traffic open with reversible flow (via flagmen) during times of transit line operation, unless an adequate detour route can be found within 1/4-mile of the closure point.
- Roadway with Class I or Class II bicycle facility – Provide construction closures that allow for continued bicycle access within the existing facilities during all times, or provide a safe diversion of the bicycle facility around the construction zone.

High impacts were not defined during the maintenance/operations period. Therefore, traffic impact mitigation measures were not recommended for the operations and maintenance period of the project transmission lines and related facilities. With the implementation of these recommended mitigation measures, the resulting traffic impacts to each type of transportation resource would be less than significant.



APPENDIX A
Traffic Counts

INTERSECTION TURNING MOVEMENT COUNTS

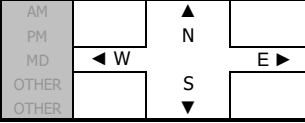
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Oct 4, 16

LOCATION: Jurupa Valley
NORTH & SOUTH: Pats Ranch
EAST & WEST: Limonite

PROJECT #: SC1095
LOCATION #: 5
CONTROL: SIGNAL

NOTES:



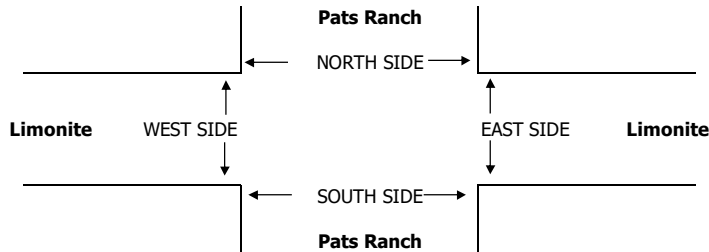
Add U-Turns to Left Turns

LANES:	NORTHBOUND Pats Ranch			SOUTHBOUND Pats Ranch			EASTBOUND Limonite			WESTBOUND Limonite			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	

U-TURNS				
NB	SB	EB	WB	TTL

7:00 AM	82	0	11	0	4	6	4	122	27	24	239	1	520
7:15 AM	90	1	22	0	3	9	5	147	31	23	246	0	577
7:30 AM	84	1	23	0	0	6	5	153	21	14	274	0	581
7:45 AM	68	1	15	1	0	7	4	140	17	15	206	1	475
8:00 AM	66	2	14	0	2	12	5	132	19	23	192	0	467
8:15 AM	49	3	9	0	0	9	4	163	24	22	239	0	522
8:30 AM	60	1	17	0	1	11	7	158	12	28	232	0	527
8:45 AM	52	0	11	0	3	5	6	145	39	26	207	1	495
VOLUMES	551	9	122	1	13	65	40	1,160	190	175	1,835	3	4,164
APPROACH %	81%	1%	18%	1%	16%	82%	3%	83%	14%	9%	91%	0%	
APP/DEPART	682	/	51	79	/	379	1,390	/	1,283	2,013	/	2,451	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	324	3	71	1	7	28	18	562	96	76	965	2	2,153
APPROACH %	81%	1%	18%	3%	19%	78%	3%	83%	14%	7%	93%	0%	
PEAK HR FACTOR	0.881			0.750			0.923			0.905			0.926
APP/DEPART	398	/	22	36	/	179	676	/	634	1,043	/	1,318	0
1:00 PM	82	1	31	0	1	7	11	207	32	45	183	0	600
1:15 PM	95	3	34	0	2	4	8	202	33	22	194	0	597
1:30 PM	83	2	39	0	0	9	10	208	48	46	203	0	648
1:45 PM	91	3	35	0	0	7	4	219	37	38	189	0	623
2:00 PM	90	4	35	0	3	2	2	240	46	20	161	0	603
2:15 PM	112	10	34	0	2	5	4	220	38	26	194	1	646
2:30 PM	101	2	42	0	1	6	5	211	34	35	174	0	611
2:45 PM	78	2	23	0	0	5	12	245	37	38	193	0	633
VOLUMES	732	27	273	0	9	45	56	1,752	305	270	1,491	1	4,961
APPROACH %	71%	3%	26%	0%	17%	83%	3%	83%	14%	15%	85%	0%	
APP/DEPART	1,032	/	84	54	/	584	2,113	/	2,025	1,762	/	2,268	0
BEGIN PEAK HR	1:30 PM												
VOLUMES	376	19	143	0	5	23	20	887	169	130	747	1	2,520
APPROACH %	70%	4%	27%	0%	18%	82%	2%	82%	16%	15%	85%	0%	
PEAK HR FACTOR	0.862			0.778			0.934			0.882			0.972
APP/DEPART	538	/	40	28	/	304	1,076	/	1,030	878	/	1,146	0

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0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0



Time	N Side	S Side	E Side	W Side	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	1	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	0	2	0	2
1:00 PM	0	0	0	0	0
1:15 PM	0	3	0	0	3
1:30 PM	0	0	0	0	0
1:45 PM	1	0	0	0	1
2:00 PM	0	0	0	0	0
2:15 PM	0	0	1	0	1
2:30 PM	0	1	0	0	1
2:45 PM	0	3	1	0	4
TOTAL	1	7	2	0	10

Time	N Side	S Side	E Side	W Side	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	1	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	0	2	0	2
1:00 PM	0	0	0	0	0
1:15 PM	0	3	0	0	3
1:30 PM	0	0	0	0	0
1:45 PM	1	0	0	0	1
2:00 PM	0	0	0	0	0
2:15 PM	0	0	1	0	1
2:30 PM	0	1	0	0	1
2:45 PM	0	3	1	0	4
TOTAL	1	7	2	0	10

Time	N Side	S Side	E Side	W Side	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	1	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	0	2	0	2
1:00 PM	0	0	0	0	0
1:15 PM	0	3	0	0	3
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	1	0	1
2:30 PM	0	1	0	0	1
2:45 PM	0	3	1	0	4
TOTAL	0	5	1	0	6

Time	NS	SS	ES	WS	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	0	0	0	0
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	1	0	0	0	1
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	2	1	0	3
TOTAL	1	2	1	0	4

INTERSECTION TURNING MOVEMENT COUNTS

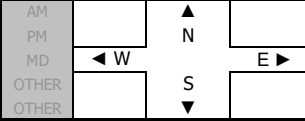
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Oct 4, 16

LOCATION: Jurupa Valley
NORTH & SOUTH: Wineville
EAST & WEST: Limonite

PROJECT #: SC1095
LOCATION #: 9
CONTROL: SIGNAL

NOTES:



Add U-Turns to Left Turns

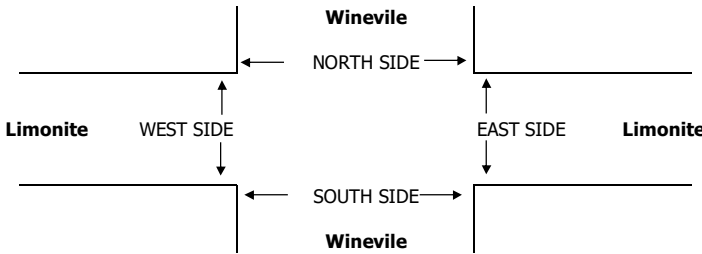
LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	Wineville	Wineville	Wineville	Wineville	Wineville	Wineville	Limonite	Limonite	Limonite	Limonite	Limonite		
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0

AM	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	Wineville	Wineville	Wineville	Wineville	Wineville	Wineville	Limonite	Limonite	Limonite	Limonite	Limonite		
7:00 AM	18	12	7	6	15	48	22	97	12	10	218	13	478
7:15 AM	14	22	10	8	22	42	25	133	12	5	217	12	522
7:30 AM	19	27	19	18	18	47	31	130	13	15	203	14	554
7:45 AM	28	23	13	5	12	33	30	128	6	1	162	8	449
8:00 AM	11	8	8	13	7	37	16	120	12	3	189	8	432
8:15 AM	18	12	16	13	10	43	25	124	15	2	194	12	484
8:30 AM	12	17	12	14	7	30	25	141	11	1	211	10	491
8:45 AM	8	11	6	6	4	38	24	125	13	4	187	15	441
VOLUMES	128	132	91	83	95	318	198	998	94	41	1,581	92	3,851
APPROACH %	36%	38%	26%	17%	19%	64%	15%	77%	7%	2%	92%	5%	
APP/DEPART	351	/	421	496	/	230	1,290	/	1,172	1,714	/	2,028	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	79	84	49	37	67	170	108	488	43	31	800	47	2,003
APPROACH %	37%	40%	23%	14%	24%	62%	17%	76%	7%	4%	91%	5%	
PEAK HR FACTOR	0.815			0.825			0.918			0.911			0.904
APP/DEPART	212	/	239	274	/	141	639	/	574	878	/	1,049	0
1:00 PM	9	6	11	4	5	49	35	182	24	7	150	10	492
1:15 PM	20	4	8	9	5	47	47	172	13	5	147	13	490
1:30 PM	22	8	7	13	10	52	40	190	17	12	177	5	553
1:45 PM	17	8	4	8	18	37	26	223	17	10	173	13	554
2:00 PM	15	3	7	15	12	31	29	205	22	8	152	12	511
2:15 PM	23	21	19	5	10	43	39	205	18	6	139	11	539
2:30 PM	20	12	12	17	7	59	41	205	14	4	131	9	531
2:45 PM	17	6	9	17	11	38	36	215	13	3	185	4	554
VOLUMES	143	68	77	88	78	356	293	1,597	138	55	1,254	77	4,224
APPROACH %	50%	24%	27%	17%	15%	68%	14%	79%	7%	4%	90%	6%	
APP/DEPART	288	/	432	522	/	271	2,028	/	1,762	1,386	/	1,759	0
BEGIN PEAK HR	1:30 PM												
VOLUMES	77	40	37	41	50	163	134	823	74	36	641	41	2,157
APPROACH %	50%	26%	24%	16%	20%	64%	13%	80%	7%	5%	89%	6%	
PEAK HR FACTOR	0.611			0.847			0.969			0.916			0.973
APP/DEPART	154	/	214	254	/	160	1,031	/	901	718	/	882	0

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0	0	2	0	2
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0	0	0	0	0
0	0	1	0	1
0	0	2	0	2
0	0	1	0	1
0	0	6	0	6



AM	PEDESTRIAN + BIKE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	0	0	0	1	1
8:00 AM	1	0	0	2	3
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	1	0	1
TOTAL	1	0	1	4	6
1:00 PM	0	0	0	0	0
1:15 PM	0	0	1	0	1
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	1	1
2:00 PM	0	0	0	0	0
2:15 PM	0	1	1	0	2
2:30 PM	0	1	0	0	1
2:45 PM	0	0	0	0	0
TOTAL	0	2	2	1	5

AM	PEDESTRIAN CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	0	0	0	1	1
8:00 AM	0	0	0	1	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	0	0	3	3
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	1	1
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	0	0	1	1

AM	BICYCLE CROSSINGS				
	NS	SS	ES	WS	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	1	0	0	1	2
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	1	0	1
TOTAL	1	0	1	1	3
1:00 PM	0	0	0	0	0
1:15 PM	0	0	1	0	1
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	1	1	0	2
2:30 PM	0	1	0	0	1
2:45 PM	0	0	0	0	0
TOTAL	0	2	2	0	4

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Oct 4, 16	LOCATION: NORTH & SOUTH: EAST & WEST:	Jurupa Valley Pats Ranch Mall Entrance	PROJECT #: LOCATION #: CONTROL:	SC1095 1 SIGNAL																				
NOTES:																								
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">AM</td> <td style="padding: 2px;">▲</td> <td style="padding: 2px;">N</td> <td style="padding: 2px;">▶</td> </tr> <tr> <td style="padding: 2px;">PM</td> <td style="padding: 2px;">◀</td> <td style="padding: 2px;">W</td> <td style="padding: 2px;">▶</td> </tr> <tr> <td style="padding: 2px;">MD</td> <td style="padding: 2px;">▶</td> <td style="padding: 2px;">S</td> <td style="padding: 2px;">▶</td> </tr> <tr> <td style="padding: 2px;">OTHER</td> <td style="padding: 2px;">▼</td> <td style="padding: 2px;">S</td> <td style="padding: 2px;">▶</td> </tr> <tr> <td style="padding: 2px;">OTHER</td> <td style="padding: 2px;">▶</td> <td style="padding: 2px;">S</td> <td style="padding: 2px;">▶</td> </tr> </table>					AM	▲	N	▶	PM	◀	W	▶	MD	▶	S	▶	OTHER	▼	S	▶	OTHER	▶	S	▶
AM	▲	N	▶																					
PM	◀	W	▶																					
MD	▶	S	▶																					
OTHER	▼	S	▶																					
OTHER	▶	S	▶																					

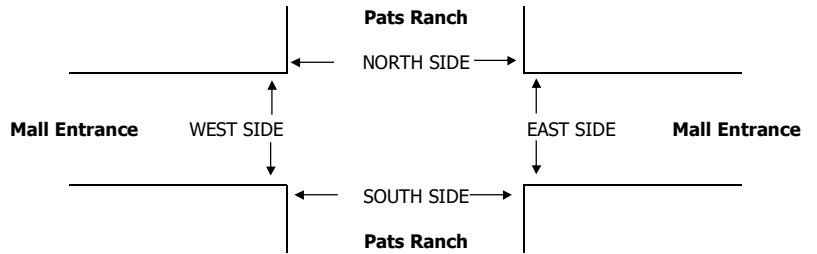
Add U-Turns to Left Turns

LANES:	NORTHBOUND <small>Pats Ranch</small>			SOUTHBOUND <small>Pats Ranch</small>			EASTBOUND <small>Mall Entrance</small>			WESTBOUND <small>Mall Entrance</small>			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	X	X	2	1	2	X	1	X	X	X	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0

	NORTHBOUND <small>Pats Ranch</small>			SOUTHBOUND <small>Pats Ranch</small>			EASTBOUND <small>Mall Entrance</small>			WESTBOUND <small>Mall Entrance</small>			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
AM													
7:00 AM	1	57	0	0	33	1	12	0	0	0	0	0	104
7:15 AM	0	81	0	0	68	3	15	0	1	0	0	0	168
7:30 AM	3	103	0	0	35	1	10	0	1	0	0	0	153
7:45 AM	4	99	0	0	21	3	18	0	1	0	0	0	146
8:00 AM	5	52	0	0	26	7	20	0	1	0	0	0	111
8:15 AM	4	51	0	2	40	5	16	0	2	0	0	0	120
8:30 AM	3	50	0	0	35	3	19	0	4	0	0	0	114
8:45 AM	5	52	0	1	29	6	21	0	2	0	0	0	116
VOLUMES	25	545	0	3	287	29	131	0	12	0	0	0	1,032
APPROACH %	4%	96%	0%	1%	90%	9%	92%	0%	8%	0%	0%	0%	
APP/DEPART	570	/	679	319	/	299	143	/	0	0	/	54	0
BEGIN PEAK HR	7:15 AM												
VOLUMES	12	335	0	0	150	14	63	0	4	0	0	0	578
APPROACH %	3%	97%	0%	0%	91%	9%	94%	0%	6%	0%	0%	0%	
PEAK HR FACTOR	0.818			0.577			0.798			0.000			0.860
APP/DEPART	347	/	398	164	/	154	67	/	0	0	/	26	0
PM													
1:00 PM	11	39	0	2	42	12	80	0	6	0	0	0	192
1:15 PM	10	36	0	0	53	12	93	0	10	0	0	0	214
1:30 PM	12	49	0	2	54	16	89	0	16	0	0	0	238
1:45 PM	14	39	0	1	56	11	85	0	13	0	0	0	219
2:00 PM	8	39	0	2	54	12	80	0	10	0	0	0	205
2:15 PM	17	86	0	0	44	8	75	0	11	0	0	0	241
2:30 PM	10	48	0	0	42	13	94	0	6	0	0	0	213
2:45 PM	7	41	0	0	53	13	72	0	10	0	0	0	196
VOLUMES	89	377	0	7	398	97	668	0	82	0	0	0	1,718
APPROACH %	19%	81%	0%	1%	79%	19%	89%	0%	11%	0%	0%	0%	
APP/DEPART	466	/	1,052	502	/	480	750	/	0	0	/	186	0
BEGIN PEAK HR	1:30 PM												
VOLUMES	51	213	0	5	208	47	329	0	50	0	0	0	903
APPROACH %	19%	81%	0%	2%	80%	18%	87%	0%	13%	0%	0%	0%	
PEAK HR FACTOR	0.641			0.903			0.902			0.000			0.937
APP/DEPART	264	/	547	260	/	258	379	/	0	0	/	98	0

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	2	0	0	2
0	1	0	0	1
0	2	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	7	0	0	7



	PEDESTRIAN + BIKE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM					
7:00 AM	0	2	0	1	3
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	2	0	1	3
PM					
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	2	0	0	2
2:15 PM	0	3	0	2	5
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	5	0	2	7

	PEDESTRIAN CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM					
7:00 AM	0	2	0	1	3
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	2	0	1	3
PM					
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	2	0	0	2
2:15 PM	0	3	0	2	5
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	5	0	2	7

	BICYCLE CROSSINGS				
	NS	SS	ES	WS	TOTAL
AM					
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	0	0	0	0
PM					
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	0	0	0	0

	PEDESTRIAN + BIKE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM					
7:00 AM	0	2	0	1	3
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	2	0	1	3
PM					
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	2	0	0	2
2:15 PM	0	3	0	2	5
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	5	0	2	7

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Oct 4, 16

LOCATION: Jurupa Valley
NORTH & SOUTH: Pats Ranch
EAST & WEST: 65th

PROJECT #: SC1095
LOCATION #: 2
CONTROL: SIGNAL

NOTES:

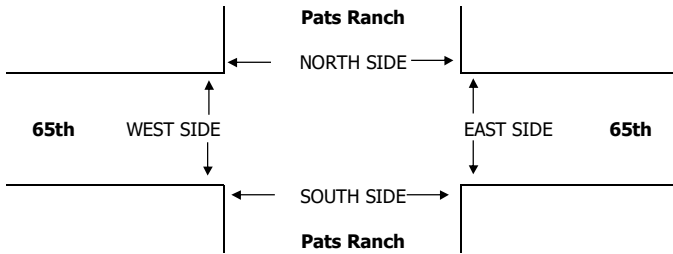
AM	▲ N	E ►
PM		
MD	▼ S	◀ W
OTHER		
OTHER		

Add U-Turns to Left Turns

LANES:	NORTHBOUND Pats Ranch			SOUTHBOUND Pats Ranch			EASTBOUND 65th			WESTBOUND 65th			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	

U-TURNS				
NB	SB	EB	WB	TTL

AM	7:00 AM	5	50	2	0	45	3	5	1	7	18	1	12	149	0	0	0	0	0	
	7:15 AM	5	77	7	5	60	0	5	0	3	16	0	9	187	0	1	0	0	1	
	7:30 AM	18	85	8	0	20	2	2	0	2	4	1	8	150	0	0	0	0	0	
	7:45 AM	14	58	5	2	22	0	3	0	3	4	3	4	118	0	0	0	0	0	
	8:00 AM	23	47	0	4	34	0	6	2	2	5	1	5	129	0	0	0	0	0	
	8:15 AM	14	40	3	4	19	4	2	1	8	6	1	5	107	0	0	0	0	0	0
	8:30 AM	13	40	6	5	22	3	7	1	9	1	0	3	110	0	0	0	0	0	0
	8:45 AM	13	42	3	7	24	0	2	0	8	3	2	11	115	0	0	0	0	0	0
	VOLUMES	105	439	34	27	246	12	32	5	42	57	9	57	1,065	0	1	0	0	1	
	APPROACH %	18%	76%	6%	9%	86%	4%	41%	6%	53%	46%	7%	46%							
APP/DEPART	578	/	529	285	/	345	79	/	65	123	/	126	0							
BEGIN PEAK HR	7:00 AM																			
VOLUMES	42	270	22	7	147	5	15	1	15	42	5	33	604							
APPROACH %	13%	81%	7%	4%	92%	3%	48%	3%	48%	53%	6%	41%								
PEAK HR FACTOR	0.752			0.612			0.596			0.645			0.807							
APP/DEPART	334	/	319	159	/	204	31	/	29	80	/	52	0							
PM	1:00 PM	13	34	1	8	36	1	4	0	3	1	3	4	108	0	0	0	0	0	
	1:15 PM	10	26	1	7	43	1	4	1	5	2	1	6	107	0	1	0	0	1	
	1:30 PM	11	48	3	11	53	0	3	1	3	1	1	3	138	0	0	0	0	0	
	1:45 PM	11	42	3	5	50	3	4	3	7	3	2	5	138	0	0	0	0	0	
	2:00 PM	12	49	1	8	52	1	1	1	9	3	1	8	146	0	0	0	0	0	
	2:15 PM	20	89	15	4	61	1	3	0	8	2	2	4	209	0	0	0	0	0	
	2:30 PM	7	36	4	1	37	0	6	0	11	5	2	5	114	0	0	0	0	0	
	2:45 PM	14	34	3	7	56	2	4	1	5	2	2	4	134	0	0	0	0	0	
	VOLUMES	98	358	31	51	388	9	29	7	51	19	14	39	1,094	0	1	0	0	1	
	APPROACH %	20%	74%	6%	11%	87%	2%	33%	8%	59%	26%	19%	54%							
APP/DEPART	487	/	427	448	/	458	87	/	88	72	/	121	0							
BEGIN PEAK HR	1:30 PM																			
VOLUMES	54	228	22	28	216	5	11	5	27	9	6	20	631							
APPROACH %	18%	75%	7%	11%	87%	2%	26%	12%	63%	26%	17%	57%								
PEAK HR FACTOR	0.613			0.943			0.768			0.729			0.755							
APP/DEPART	304	/	259	249	/	252	43	/	55	35	/	65	0							



	PEDESTRIAN + BIKE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL

	PEDESTRIAN CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL

	BICYCLE CROSSINGS				
	NS	SS	ES	WS	TOTAL

INTERSECTION TURNING MOVEMENT COUNTS

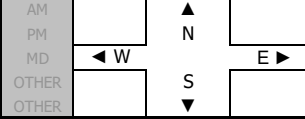
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Oct 4, 16

LOCATION: Jurupa Valley
NORTH & SOUTH: Pats Ranch
EAST & WEST: 68th

PROJECT #: SC1095
LOCATION #: 4
CONTROL: SIGNAL

NOTES:



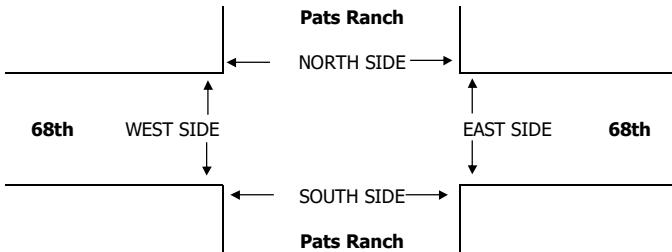
Add U-Turns to Left Turns

LANES:	NORTHBOUND Pats Ranch			SOUTHBOUND Pats Ranch			EASTBOUND 68th			WESTBOUND 68th			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	

U-TURNS				
NB	SB	EB	WB	TTL

7:00 AM	0	2	0	5	10	46	51	74	4	1	72	5	270	0	0	0	0	0
7:15 AM	1	1	0	5	8	62	76	189	2	0	131	10	485	0	0	0	0	0
7:30 AM	1	0	0	7	4	39	98	182	0	0	130	22	483	0	0	0	0	0
7:45 AM	0	1	0	2	4	27	64	73	1	0	54	7	233	0	0	0	0	0
8:00 AM	1	0	0	1	4	31	48	40	0	0	40	4	169	0	0	0	0	0
8:15 AM	0	2	0	2	1	32	48	51	0	0	32	4	172	0	0	0	0	0
8:30 AM	0	2	0	2	2	30	48	48	1	0	19	3	155	0	0	0	0	0
8:45 AM	1	1	0	4	3	36	25	31	1	3	27	3	135	0	0	0	0	0
VOLUMES	4	9	0	28	36	303	458	688	9	4	505	58	2,102	0	0	0	0	0
APPROACH %	31%	69%	0%	8%	10%	83%	40%	60%	1%	1%	89%	10%						
APP/DEPART	13	/	525	367	/	49	1,155	/	716	567	/	812	0					
BEGIN PEAK HR	7:00 AM																	
VOLUMES	2	4	0	19	26	174	289	518	7	1	387	44	1,471					
APPROACH %	33%	67%	0%	9%	12%	79%	36%	64%	1%	0%	90%	10%						
PEAK HR FACTOR	0.750			0.730						0.727								
APP/DEPART	6	/	337	219	/	34	814	/	537	432	/	563	0					
1:00 PM	0	2	0	3	3	29	36	27	0	0	13	10	123	0	0	0	0	0
1:15 PM	0	3	0	5	6	33	29	39	1	1	18	4	139	0	0	0	0	0
1:30 PM	0	3	0	6	2	45	43	31	1	0	22	4	157	0	0	0	0	0
1:45 PM	0	3	0	9	2	44	42	66	1	2	24	9	202	0	0	0	0	0
2:00 PM	1	4	1	11	2	45	43	76	1	0	43	7	234	0	0	0	0	0
2:15 PM	1	9	0	10	3	96	49	67	1	1	111	35	383	0	0	0	0	0
2:30 PM	0	4	0	3	0	49	36	42	2	0	51	4	191	0	0	0	0	0
2:45 PM	2	1	1	2	0	56	48	56	0	0	58	3	227	0	0	0	0	0
VOLUMES	4	29	2	49	18	397	326	404	7	4	340	76	1,656					
APPROACH %	11%	83%	6%	11%	4%	86%	44%	55%	1%	1%	81%	18%						
APP/DEPART	35	/	431	464	/	29	737	/	455	420	/	741	0					
BEGIN PEAK HR	2:00 PM																	
VOLUMES	4	18	2	26	5	246	176	241	4	1	263	49	1,035					
APPROACH %	17%	75%	8%	9%	2%	89%	42%	57%	1%	0%	84%	16%						
PEAK HR FACTOR	0.600			0.635						0.877								
APP/DEPART	24	/	243	277	/	10	421	/	269	313	/	513	0					

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0



	PEDESTRIAN + BIKE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL

	PEDESTRIAN CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL

	BICYCLE CROSSINGS				
	NS	SS	ES	WS	TOTAL

7:00 AM	1	0	0	0	1
7:15 AM	2	0	0	0	2
7:30 AM	1	0	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	4	0	0	0	4
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	8	0	0	0	8
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	1	0	0	0	1
1:45 PM	1	0	0	0	1
2:00 PM	4	1	1	0	6
2:15 PM	16	0	0	0	16
2:30 PM	3	0	0	0	3
2:45 PM	2	0	0	0	2
TOTAL	27	1	1	0	29

INTERSECTION TURNING MOVEMENT COUNTS

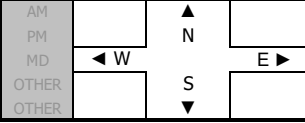
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Oct 4, 16

LOCATION: Jurupa Valley
NORTH & SOUTH: Carnelian
EAST & WEST: 68th

PROJECT #: SC1095
LOCATION #: 3
CONTROL: STOP ALL

NOTES:

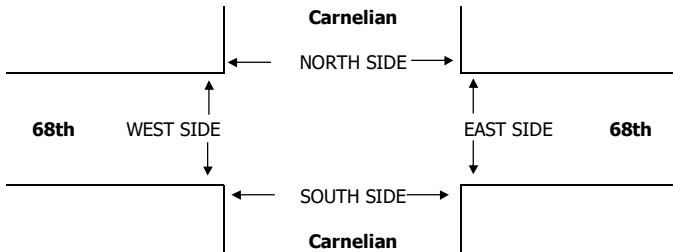


Add U-Turns to Left Turns

	NORTHBOUND Carnelian			SOUTHBOUND Carnelian			EASTBOUND 68th			WESTBOUND 68th			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	X	X	X	0.5	X	0.5	1	2	X	X	2	1	
7:00 AM	0	0	0	1	0	21	34	44	0	0	64	11	175
7:15 AM	0	0	0	0	0	29	97	81	0	1	109	28	345
7:30 AM	0	0	0	1	0	36	84	118	0	2	107	36	384
7:45 AM	0	0	0	0	0	23	9	69	0	0	38	6	145
8:00 AM	0	0	0	1	0	8	4	37	0	0	37	1	88
8:15 AM	0	0	0	0	0	6	4	46	0	0	29	1	86
8:30 AM	0	0	0	0	0	5	4	49	0	0	17	0	75
8:45 AM	0	0	0	1	0	5	7	31	0	0	28	1	73
VOLUMES	0	0	0	4	0	133	243	475	0	3	429	84	1,371
APPROACH %	0%	0%	0%	3%	0%	97%	34%	66%	0%	1%	83%	16%	
APP/DEPART	0	/	325	137	/	0	718	/	482	516	/	564	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	0	0	0	2	0	109	224	312	0	3	318	81	1,049
APPROACH %	0%	0%	0%	2%	0%	98%	42%	58%	0%	1%	79%	20%	
PEAK HR FACTOR	0.000			0.750			0.663			0.693			0.683
APP/DEPART	0	/	303	111	/	0	536	/	317	402	/	429	0
1:00 PM	0	0	0	0	0	4	6	24	0	0	18	4	56
1:15 PM	0	0	0	0	0	4	11	33	0	0	19	3	70
1:30 PM	0	0	0	0	0	2	13	21	0	0	24	5	65
1:45 PM	0	0	0	0	0	6	42	29	0	0	33	9	119
2:00 PM	0	0	0	1	0	7	16	55	0	0	42	8	129
2:15 PM	0	0	0	12	0	71	38	48	0	0	78	17	264
2:30 PM	0	0	0	1	0	20	4	44	0	0	34	2	105
2:45 PM	0	0	0	1	0	9	7	54	0	0	48	0	119
VOLUMES	0	0	0	15	0	123	137	308	0	0	296	48	927
APPROACH %	0%	0%	0%	11%	0%	89%	31%	69%	0%	0%	86%	14%	
APP/DEPART	0	/	180	138	/	0	445	/	323	344	/	424	0
BEGIN PEAK HR	2:00 PM												
VOLUMES	0	0	0	15	0	107	65	201	0	0	202	27	617
APPROACH %	0%	0%	0%	12%	0%	88%	24%	76%	0%	0%	88%	12%	
PEAK HR FACTOR	0.000			0.367			0.773			0.603			0.584
APP/DEPART	0	/	90	122	/	0	266	/	216	229	/	311	0

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	1	1	2
0	0	1	2	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	2	3	5

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	3	0	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	2	0	2
0	0	5	0	5



	7:00 AM	7:15 AM	7:30 AM	7:45 AM	8:00 AM	8:15 AM	8:30 AM	8:45 AM	TOTAL
AM	0	0	0	0	0	0	0	0	0
PM	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
8	0	0	0	8
15	0	0	0	15
1	0	0	0	1
2	0	0	0	2
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
27	0	0	0	27
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2
2	0	0	0	2
25	0	0	0	25
87	0	0	0	87
6	0	1	0	7
1	0	1	0	2
123	0	2	0	125

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
6	0	0	0	6
14	0	0	0	14
1	0	0	0	1
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
22	0	0	0	22
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2
2	0	0	0	2
25	0	0	0	25
86	0	0	0	86
5	0	0	0	5
0	0	0	0	0
120	0	0	0	120

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	0	0
2	0	0	0	2
1	0	0	0	1
0	0	0	0	0
2	0	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
5	0	0	0	5
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
1	0	1	0	2
1	0	1	0	2
3	0	2	0	5

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Dec 6, 16

LOCATION: Jurupa Valley
NORTH & SOUTH: Etiwanda
EAST & WEST: Cantu-Galleano Ranch

PROJECT #: SC1147
LOCATION #: 3
CONTROL: SIGNAL

NOTES: PM E Leg constructions

AM	▲ N	E ►
PM		
MD	◀ W	
OTHER		S ▼
OTHER		

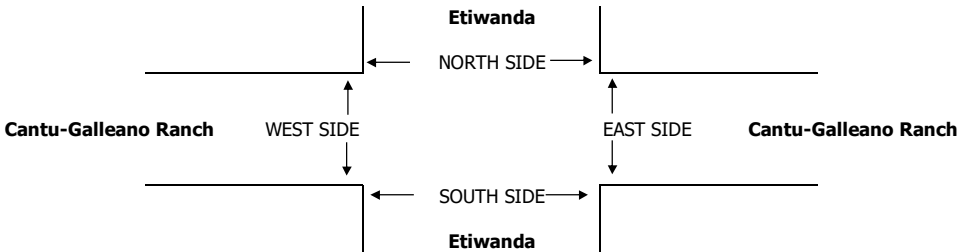
Add U-Turns to Left Turns

LANES:	NORTHBOUND Etiwanda			SOUTHBOUND Etiwanda			EASTBOUND Cantu-Galleano Ranch			WESTBOUND Cantu-Galleano Ranch			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	1	1	0	1	0	1	1	0	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1

AM	NORTHBOUND Etiwanda			SOUTHBOUND Etiwanda			EASTBOUND Cantu-Galleano Ranch			WESTBOUND Cantu-Galleano Ranch			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	31	94	18	19	30	20	12	5	17	10	4	13	273
7:15 AM	52	97	4	11	33	26	13	2	15	1	0	4	258
7:30 AM	50	97	4	3	35	22	20	2	14	0	0	4	251
7:45 AM	40	111	6	10	44	27	16	6	16	3	1	0	280
8:00 AM	39	69	2	10	54	21	10	4	13	1	1	4	228
8:15 AM	45	81	1	7	32	25	12	4	15	4	2	2	230
8:30 AM	46	73	5	8	45	17	12	2	14	7	1	0	230
8:45 AM	38	75	5	12	40	17	13	3	12	1	0	1	217
VOLUMES	341	697	45	80	313	175	108	28	116	27	9	28	1,967
APPROACH %	31%	64%	4%	14%	55%	31%	43%	11%	46%	42%	14%	44%	
APP/DEPART	1,083	/	834	568	/	456	252	/	152	64	/	525	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	173	399	32	43	142	95	61	15	62	14	5	21	1,062
APPROACH %	29%	66%	5%	15%	51%	34%	44%	11%	45%	35%	13%	53%	
PEAK HR FACTOR	0.962			0.864			0.908			0.370			0.948
APP/DEPART	604	/	482	280	/	218	138	/	89	40	/	273	0
1:00 PM	18	75	2	4	64	6	6	6	24	4	2	3	214
1:15 PM	32	51	1	2	75	6	9	2	28	0	2	6	214
1:30 PM	36	54	2	5	77	13	18	1	40	2	3	1	252
1:45 PM	34	57	3	3	86	19	10	3	17	0	2	5	239
2:00 PM	34	51	15	6	74	7	9	3	27	7	12	6	251
2:15 PM	46	73	9	6	77	12	19	2	40	32	7	8	331
2:30 PM	30	59	3	6	125	19	21	3	32	10	5	3	316
2:45 PM	21	51	5	5	131	18	27	1	34	9	7	10	319
VOLUMES	251	471	40	37	709	100	119	21	242	64	40	42	2,136
APPROACH %	33%	62%	5%	4%	84%	12%	31%	5%	63%	44%	27%	29%	
APP/DEPART	762	/	633	846	/	1,015	382	/	97	146	/	391	0
BEGIN PEAK HR	2:00 PM												
VOLUMES	131	234	32	23	407	56	76	9	133	58	31	27	1,217
APPROACH %	33%	59%	8%	5%	84%	12%	35%	4%	61%	50%	27%	23%	
PEAK HR FACTOR	0.775			0.789			0.879			0.617			0.919
APP/DEPART	397	/	337	486	/	598	218	/	64	116	/	218	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1



AM	PEDESTRIAN + BIKE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	1	0	1	0	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	1	0	1	0	2
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	0	0	0	0

PM	PEDESTRIAN + BIKE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	0	0	0	0
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	0	0	0	0

AM	PEDESTRIAN CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	0	0	0	0	0
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	0	0	0	0

PM	BICYCLE CROSSINGS				
	NS	SS	ES	WS	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	1	0	1	0	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL	1	0	1	0	2
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
TOTAL	0	0	0	0	0

Tuesday, October 04, 2016

Location: Jurupa Valley

PROJECT: SC1095

ADT1 Pats Ranch north of 65th.

Prepared by AimTD tel. 714 253 7888

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB		
0:00	2	9			12:00	61	59				
0:15	3	3			12:15	36	52				
0:30	0	0			12:30	45	60				
0:45	3	8	7	19	27	12:45	38	180	58	229	409
1:00	2	4			13:00	48	44				
1:15	4	4			13:15	40	59				
1:30	3	6			13:30	48	64				
1:45	0	9	3	17	26	13:45	42	178	58	225	403
2:00	3	0			14:00	45	64				
2:15	3	2			14:15	106	62				
2:30	3	0			14:30	48	39				
2:45	0	9	5	7	16	14:45	44	243	66	231	474
3:00	4	0			15:00	48	60				
3:15	5	2			15:15	78	73				
3:30	5	2			15:30	59	69				
3:45	6	20	3	7	27	15:45	51	236	61	263	499
4:00	6	0			16:00	59	58				
4:15	15	6			16:15	60	74				
4:30	24	7			16:30	51	69				
4:45	14	59	5	18	77	16:45	45	215	67	268	483
5:00	16	4			17:00	51	89				
5:15	19	9			17:15	62	87				
5:30	32	9			17:30	52	85				
5:45	28	95	14	36	131	17:45	52	217	82	343	560
6:00	23	24			18:00	52	80				
6:15	27	29			18:15	53	78				
6:30	52	28			18:30	55	104				
6:45	42	144	39	120	264	18:45	46	206	84	346	552
7:00	74	50			19:00	52	73				
7:15	96	65			19:15	45	77				
7:30	97	24			19:30	45	70				
7:45	74	341	25	164	505	19:45	33	175	68	288	463
8:00	53	38			20:00	37	71				
8:15	57	33			20:15	31	47				
8:30	57	33			20:30	27	58				
8:45	41	208	32	136	344	20:45	22	117	59	235	352
9:00	45	33			21:00	28	52				
9:15	42	41			21:15	14	27				
9:30	49	25			21:30	19	36				
9:45	51	187	25	124	311	21:45	12	73	37	152	225
10:00	43	35			22:00	18	28				
10:15	51	33			22:15	17	36				
10:30	42	38			22:30	3	16				
10:45	52	188	47	153	341	22:45	7	45	11	91	136
11:00	37	46			23:00	11	16				
11:15	56	53			23:15	5	13				
11:30	48	53			23:30	6	13				
11:45	47	188	51	203	391	23:45	2	24	7	49	73
Total Vol.	1456	1004			2460		1909	2720			4629

Daily Totals				
NB	SB	EB	WB	Combined
3365	3724			7089

	AM			PM		
Split %	59.2%	40.8%	34.7%	41.2%	58.8%	65.3%
Peak Hour	7:00	11:45	7:00	15:15	18:00	17:00
Volume	341	222	505	247	346	560
P.H.F.	0.88	0.93	0.78	0.77	0.83	0.94

Tuesday, October 04, 2016

Location: Jurupa Valley

PROJECT: SC1095

ADT2 68th east of Pats Ranch.

Prepared by AimTD tel. 714 253 7888

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
0:30			5	7	12:00			28	26			
0:15			0	0	12:15			32	34			
0:30			2	0	12:30			31	36			
0:45			0	7	5	12	19	30	121	19	115	236
1:00			2	0	13:00			31	18			
1:15			0	0	13:15			48	20			
1:30			4	0	13:30			36	21			
1:45			0	6	0	0	6	67	182	42	101	283
2:00			0	0	14:00			79	46			
2:15			2	2	14:15			66	169			
2:30			2	0	14:30			47	51			
2:45			0	4	0	2	6	64	256	55	321	577
3:00			0	0	15:00			92	52			
3:15			0	3	15:15			99	68			
3:30			2	0	15:30			109	83			
3:45			4	6	0	3	9	65	365	65	268	633
4:00			0	3	16:00			66	56			
4:15			2	5	16:15			63	55			
4:30			0	11	16:30			52	47			
4:45			3	5	12	31	36	60	241	52	210	451
5:00			6	9	17:00			50	64			
5:15			8	13	17:15			54	51			
5:30			14	7	17:30			42	67			
5:45			13	41	18	47	88	64	210	77	259	469
6:00			24	24	18:00			55	52			
6:15			39	26	18:15			62	56			
6:30			62	29	18:30			56	66			
6:45			89	214	45	124	338	40	213	43	217	430
7:00			80	86	19:00			42	34			
7:15			175	142	19:15			36	23			
7:30			176	145	19:30			34	39			
7:45			85	516	61	434	950	23	135	24	120	255
8:00			44	44	20:00			35	13			
8:15			54	40	20:15			33	20			
8:30			52	22	20:30			19	14			
8:45			37	187	35	141	328	27	114	11	58	172
9:00			28	24	21:00			20	13			
9:15			26	21	21:15			20	10			
9:30			30	29	21:30			14	9			
9:45			36	120	19	93	213	13	67	6	38	105
10:00			36	25	22:00			18	8			
10:15			18	29	22:15			8	7			
10:30			32	36	22:30			9	0			
10:45			21	107	31	121	228	6	41	5	20	61
11:00			33	29	23:00			10	4			
11:15			33	25	23:15			2	3			
11:30			37	32	23:30			4	3			
11:45			32	135	35	121	256	3	19	3	13	32
Total Vol.			1348	1129	2477			1964	1740	3704		

Daily Totals				
NB	SB	EB	WB	Combined
		3312	2869	6181

AM					PM				
Split %									
		54.4%	45.6%	40.1%		53.0%	47.0%	59.9%	
Peak Hour	0:30	0:30	6:45	7:00	7:00		15:00	14:15	15:00
Volume			520	434	950		365	327	633
P.H.F.			0.74	0.75	0.74		0.84	0.48	0.82

Tuesday, October 04, 2016

Location: Jurupa Valley

PROJECT: SC1095

ADT3 68th east of Wineville.

Prepared by AimTD tel. 714 253 7888

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
0:30			0	0	12:00			11	6			
0:15			0	2	12:15			10	9			
0:30			2	4	12:30			16	13			
0:45			0	2	0	6	8	9	46	5	33	79
1:00			2	0	13:00			15	13			
1:15			0	0	13:15			10	16			
1:30			4	0	13:30			7	14			
1:45			0	6	0	0	6	12	44	16	59	103
2:00			0	0	14:00			23	17			
2:15			0	0	14:15			18	16			
2:30			0	0	14:30			11	17			
2:45			0	0	0	0	0	8	60	15	65	125
3:00			0	0	15:00			15	7			
3:15			0	0	15:15			14	10			
3:30			0	0	15:30			18	10			
3:45			0	0	0	0	0	16	63	11	38	101
4:00			0	0	16:00			9	16			
4:15			0	0	16:15			12	15			
4:30			3	7	16:30			6	6			
4:45			0	3	3	10	13	10	37	10	47	84
5:00			2	0	17:00			4	5			
5:15			4	3	17:15			15	7			
5:30			2	5	17:30			3	18			
5:45			4	12	4	12	24	10	32	6	36	68
6:00			6	2	18:00			9	6			
6:15			7	6	18:15			12	21			
6:30			6	4	18:30			8	22			
6:45			7	26	4	16	42	12	41	12	61	102
7:00			9	8	19:00			4	7			
7:15			17	14	19:15			6	11			
7:30			15	10	19:30			5	3			
7:45			11	52	5	37	89	0	15	0	21	36
8:00			8	4	20:00			4	0			
8:15			12	5	20:15			4	3			
8:30			12	5	20:30			4	0			
8:45			10	42	4	18	60	4	16	0	3	19
9:00			7	3	21:00			2	0			
9:15			7	5	21:15			0	0			
9:30			11	4	21:30			0	0			
9:45			6	31	5	17	48	2	4	0	0	4
10:00			3	10	22:00			2	0			
10:15			12	4	22:15			2	0			
10:30			11	4	22:30			3	0			
10:45			4	30	5	23	53	0	7	0	0	7
11:00			19	8	23:00			0	0			
11:15			11	5	23:15			2	0			
11:30			9	9	23:30			0	0			
11:45			7	46	9	31	77	0	2	0	0	2
Total Vol.			250	170	420			367	363	730		

Daily Totals				
NB	SB	EB	WB	Combined
		617	533	1150

Split %	AM			PM				
	59.5%	40.5%	36.5%	50.3%	49.7%	63.5%		
Peak Hour	0:30	0:30	7:00	7:00	7:00	13:45	13:45	13:45
Volume			52	37	89	64	66	130
P.H.F.			0.76	0.66	0.72	0.70	0.97	0.81

Tuesday, October 04, 2016

Location: Jurupa Valley

PROJECT: SC1095

ADT4 Limonite west of Wineville.

Prepared by AimTD tel. 714 253 7888

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
0:30			40	14	12:00			197	210			
0:15			42	18	12:15			201	219			
0:30			23	22	12:30			214	226			
0:45			30	135	13	67	202	239	851	210	865	1716
1:00			29	12	13:00			229	211			
1:15			24	8	13:15			211	211			
1:30			24	7	13:30			258	244			
1:45			26	103	8	35	138	273	971	243	909	1880
2:00			14	11	14:00			252	192			
2:15			20	15	14:15			254	220			
2:30			21	23	14:30			269	212			
2:45			10	65	17	66	131	239	1014	237	861	1875
3:00			12	20	15:00			281	196			
3:15			16	43	15:15			300	237			
3:30			23	60	15:30			280	243			
3:45			25	76	97	220	296	255	1116	250	926	2042
4:00			29	122	16:00			339	217			
4:15			27	180	16:15			276	232			
4:30			33	229	16:30			335	237			
4:45			48	137	207	738	875	264	1214	271	957	2171
5:00			38	205	17:00			341	250			
5:15			49	229	17:15			314	264			
5:30			46	268	17:30			276	264			
5:45			77	210	219	921	1131	284	1215	230	1008	2223
6:00			74	229	18:00			268	220			
6:15			90	228	18:15			292	280			
6:30			108	250	18:30			259	269			
6:45			134	406	277	984	1390	257	1076	256	1025	2101
7:00			137	273	19:00			227	192			
7:15			166	264	19:15			265	214			
7:30			174	269	19:30			241	179			
7:45			152	629	216	1022	1651	218	951	175	760	1711
8:00			151	227	20:00			217	151			
8:15			161	269	20:15			211	151			
8:30			184	264	20:30			217	134			
8:45			156	652	230	990	1642	178	823	115	551	1374
9:00			147	205	21:00			162	111			
9:15			139	205	21:15			167	103			
9:30			158	202	21:30			135	87			
9:45			187	631	181	793	1424	130	594	80	381	975
10:00			156	172	22:00			102	70			
10:15			174	178	22:15			95	58			
10:30			158	207	22:30			70	44			
10:45			194	682	185	742	1424	96	363	48	220	583
11:00			185	205	23:00			67	39			
11:15			194	217	23:15			72	21			
11:30			182	232	23:30			60	30			
11:45			207	768	217	871	1639	59	258	31	121	379
Total Vol.			4494	7449	11943			10446	8584	19030		
								Daily Totals				
								NB	SB	EB	WB	Combined
										14940	16033	30973
			AM						PM			
Split %			37.6%	62.4%	38.6%			54.9%	45.1%	61.4%		
Peak Hour	0:30	0:30	11:45	6:45	6:45			16:30	16:45	16:30		
Volume			819	1083	1694			1254	1049	2276		
P.H.F.			0.96	0.98	0.96			0.92	0.97	0.96		

Tuesday, October 04, 2016

Location: Jurupa Valley

PROJECT: SC1095

ADT5 Limonite west of Veterans Memorial.

Prepared by AimTD tel. 714 253 7888

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
0:30			52	27	12:00			306	291			
0:15			60	34	12:15			312	320			
0:30			43	20	12:30			323	293			
0:45			47	202	15	96	298	341	1282	286	1190	2472
1:00			37	19	13:00			313	303			
1:15			37	14	13:15			314	317			
1:30			38	11	13:30			327	297			
1:45			23	135	17	61	196	333	1287	333	1250	2537
2:00			26	13	14:00			344	283			
2:15			32	18	14:15			355	327			
2:30			30	23	14:30			323	304			
2:45			22	110	21	75	185	309	1331	312	1226	2557
3:00			31	22	15:00			319	306			
3:15			29	38	15:15			370	318			
3:30			40	59	15:30			342	328			
3:45			52	152	84	203	355	335	1366	294	1246	2612
4:00			45	94	16:00			342	298			
4:15			108	158	16:15			316	313			
4:30			81	197	16:30			360	298			
4:45			102	336	194	643	979	308	1326	323	1232	2558
5:00			104	199	17:00			309	308			
5:15			118	262	17:15			317	323			
5:30			138	280	17:30			338	360			
5:45			162	522	276	1017	1539	297	1261	347	1338	2599
6:00			172	260	18:00			326	375			
6:15			239	252	18:15			332	339			
6:30			280	296	18:30			347	330			
6:45			236	927	291	1099	2026	334	1339	314	1358	2697
7:00			280	299	19:00			323	335			
7:15			360	301	19:15			381	304			
7:30			316	326	19:30			304	283			
7:45			251	1207	296	1222	2429	300	1308	264	1186	2494
8:00			226	276	20:00			284	236			
8:15			273	330	20:15			252	255			
8:30			258	308	20:30			291	224			
8:45			285	1042	292	1206	2248	251	1078	182	897	1975
9:00			248	235	21:00			233	181			
9:15			257	297	21:15			219	164			
9:30			273	276	21:30			202	127			
9:45			253	1031	266	1074	2105	189	843	116	588	1431
10:00			280	223	22:00			168	93			
10:15			259	263	22:15			185	88			
10:30			274	280	22:30			123	65			
10:45			286	1099	269	1035	2134	123	599	68	314	913
11:00			260	290	23:00			105	55			
11:15			313	278	23:15			80	32			
11:30			317	285	23:30			83	39			
11:45			303	1193	312	1165	2358	57	325	48	174	499
Total Vol.			7956	8896	16852			13345	11999	25344		
								Daily Totals				
								NB	SB	EB	WB	Combined
										21301	20895	42196
			AM						PM			
Split %			47.2%	52.8%	39.9%			52.7%	47.3%	60.1%		
Peak Hour	0:30	0:30	11:45	7:30	11:45			15:15	17:30	17:30		
Volume			1244	1228	2460			1389	1421	2714		
P.H.F.			0.96	0.93	0.97			0.94	0.95	0.97		

Tuesday, October 04, 2016

Location: Jurupa Valley

PROJECT: SC1095

ADT6 68th west of Pats Ranch.

Prepared by AimTD tel. 714 253 7888

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
0:30			4	15	12:00			54	59			
0:15			3	3	12:15			55	62			
0:30			0	0	12:30			54	63			
0:45			2	9	7	25	34	56	219	59	243	462
1:00			4	6	13:00			62	43			
1:15			3	4	13:15			73	51			
1:30			5	6	13:30			74	64			
1:45			3	15	3	19	34	117	326	71	229	555
2:00			2	0	14:00			116	87			
2:15			5	2	14:15			116	228			
2:30			4	0	14:30			79	96			
2:45			0	11	3	5	16	98	409	113	524	933
3:00			2	0	15:00			159	101			
3:15			2	3	15:15			151	124			
3:30			6	3	15:30			149	124			
3:45			11	21	5	11	32	104	563	111	460	1023
4:00			8	3	16:00			110	96			
4:15			13	11	16:15			105	98			
4:30			14	17	16:30			96	106			
4:45			20	55	16	47	102	105	416	104	404	820
5:00			12	14	17:00			92	137			
5:15			17	22	17:15			93	120			
5:30			27	17	17:30			96	136			
5:45			35	91	22	75	166	116	397	134	527	924
6:00			31	35	18:00			118	123			
6:15			43	42	18:15			89	111			
6:30			81	45	18:30			111	138			
6:45			82	237	63	185	422	86	404	112	484	888
7:00			125	122	19:00			92	97			
7:15			258	196	19:15			83	85			
7:30			263	168	19:30			67	98			
7:45			128	774	97	583	1357	53	295	71	351	646
8:00			86	69	20:00			52	69			
8:15			102	62	20:15			64	59			
8:30			92	51	20:30			42	67			
8:45			55	335	48	230	565	48	206	63	258	464
9:00			59	49	21:00			36	52			
9:15			45	43	21:15			25	35			
9:30			70	41	21:30			25	35			
9:45			60	234	28	161	395	28	114	38	160	274
10:00			73	43	22:00			30	31			
10:15			53	43	22:15			18	30			
10:30			58	58	22:30			12	24			
10:45			56	240	64	208	448	9	69	14	99	168
11:00			49	53	23:00			13	25			
11:15			70	60	23:15			7	13			
11:30			73	59	23:30			6	9			
11:45			55	247	73	245	492	5	31	14	61	92
Total Vol.			2269	1794	4063			3449	3800	7249		

Daily Totals				
NB	SB	EB	WB	Combined
		5718	5594	11312

AM					PM					
Split %										
	55.8%	44.2%	35.9%		47.6%	52.4%	64.1%			
Peak Hour	0:30	0:30	7:00	7:00	7:00			15:00	14:15	15:00
Volume			774	583	1357			563	538	1023
P.H.F.			0.74	0.74	0.75			0.89	0.59	0.93



APPENDIX B
Intersection Level of Service Worksheets
Existing Conditions (Year 2016)

HCM 2010 Signalized Intersection Summary

1: I-15 SB On Ramp/I-15 SB Off Ramp & Limonite Ave
























11/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	1067	459	592	634	0	0	0	0	130	2	426
Future Volume (veh/h)	0	1067	459	592	634	0	0	0	0	130	2	426
Number	5	2	12	1	6	16				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1147	494	637	682	0				94	0	509
Adj No. of Lanes	0	2	1	2	2	0				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, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1522	681	747	2469	0				358	0	638
Arrive On Green	0.00	0.43	0.43	0.22	0.70	0.00				0.20	0.00	0.20
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	0	3167
Grp Volume(v), veh/h	0	1147	494	637	682	0				94	0	509
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	24.4	23.1	15.9	6.4	0.0				4.0	0.0	13.7
Cycle Q Clear(g_c), s	0.0	24.4	23.1	15.9	6.4	0.0				4.0	0.0	13.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1522	681	747	2469	0				358	0	638
V/C Ratio(X)	0.00	0.75	0.73	0.85	0.28	0.00				0.26	0.00	0.80
Avail Cap(c_a), veh/h	0	1704	762	983	2893	0				358	0	638
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	21.5	21.1	33.6	5.1	0.0				30.1	0.0	33.9
Incr Delay (d2), s/veh	0.0	1.7	3.1	5.7	0.1	0.0				1.8	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	0.0	12.2	10.6	8.1	3.1	0.0				2.1	0.0	6.8
LnGrp Delay(d),s/veh	0.0	23.2	24.1	39.3	5.1	0.0				31.8	0.0	43.9
LnGrp LOS		C	C	D	A					C		D
Approach Vol, veh/h		1641			1319						603	
Approach Delay, s/veh		23.5			21.6						42.0	
Approach LOS		C			C						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	23.9	42.9				66.8		22.5				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	25.5	43.0				73.0		18.0				
Max Q Clear Time (g_c+I1), s	17.9	26.4				8.4		15.7				
Green Ext Time (p_c), s	1.5	12.0				25.6		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			25.9									
HCM 2010 LOS			C									
Notes												

HCM 2010 Signalized Intersection Summary

2: I-15 NB Off Ramp/I-15 NB On Ramp & Limonite Ave

























11/17/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (veh/h)	763	443	0	0	1030	299	208	2	291	0	0	0
Future Volume (veh/h)	763	443	0	0	1030	299	208	2	291	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	829	482	0	0	1120	325	339	0	196			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
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	917	2566	0	0	1463	655	656	0	293			
Arrive On Green	0.27	0.73	0.00	0.00	0.41	0.41	0.19	0.00	0.19			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	3548	0	1583			
Grp Volume(v), veh/h	829	482	0	0	1120	325	339	0	196			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	23.3	4.3	0.0	0.0	27.2	15.1	8.6	0.0	11.5			
Cycle Q Clear(g_c), s	23.3	4.3	0.0	0.0	27.2	15.1	8.6	0.0	11.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	917	2566	0	0	1463	655	656	0	293			
V/C Ratio(X)	0.90	0.19	0.00	0.00	0.77	0.50	0.52	0.00	0.67			
Avail Cap(c_a), veh/h	1015	2566	0	0	1463	655	656	0	293			
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	35.4	4.4	0.0	0.0	25.2	21.6	36.7	0.0	37.9			
Incr Delay (d2), s/veh	10.5	0.2	0.0	0.0	3.9	2.7	2.9	0.0	11.5			
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	12.4	2.1	0.0	0.0	14.0	7.1	4.5	0.0	5.9			
LnGrp Delay(d),s/veh	46.0	4.5	0.0	0.0	29.0	24.3	39.6	0.0	49.4			
LnGrp LOS	D	A			C	C	D		D			
Approach Vol, veh/h		1311			1445			535				
Approach Delay, s/veh		30.7			28.0			43.2				
Approach LOS		C			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.0			31.2	45.8		23.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		72.5			29.5	38.5		18.5				
Max Q Clear Time (g_c+I1), s		6.3			25.3	29.2		13.5				
Green Ext Time (p_c), s		19.0			1.4	6.8		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay				31.6								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary

3: Pats Ranch Rd & Limonite Ave

11/17/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	562	96	76	965	2	324	3	71	1	7	28
Future Volume (veh/h)	18	562	96	76	965	2	324	3	71	1	7	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	19	604	103	82	1038	0	348	3	76	1	8	30
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	1487	665	106	1624	726	436	600	510	2	68	254
Arrive On Green	0.02	0.42	0.42	0.06	0.46	0.00	0.13	0.32	0.32	0.00	0.20	0.20
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	344	1291
Grp Volume(v), veh/h	19	604	103	82	1038	0	348	3	76	1	0	38
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	0	1635
Q Serve(g_s), s	1.0	10.9	3.7	4.2	20.6	0.0	9.0	0.1	3.1	0.1	0.0	1.7
Cycle Q Clear(g_c), s	1.0	10.9	3.7	4.2	20.6	0.0	9.0	0.1	3.1	0.1	0.0	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	37	1487	665	106	1624	726	436	600	510	2	0	322
V/C Ratio(X)	0.51	0.41	0.15	0.78	0.64	0.00	0.80	0.00	0.15	0.41	0.00	0.12
Avail Cap(c_a), veh/h	107	1487	665	203	1624	726	620	600	510	97	0	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.3	18.6	16.5	42.4	19.0	0.0	38.8	21.1	22.1	45.7	0.0	30.2
Incr Delay (d2), s/veh	10.5	0.8	0.5	11.5	1.9	0.0	4.8	0.0	0.6	84.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.5	1.7	2.4	10.4	0.0	4.5	0.1	1.5	0.1	0.0	0.9
LnGrp Delay(d),s/veh	54.8	19.4	17.0	53.9	20.9	0.0	43.7	21.1	22.7	130.2	0.0	31.0
LnGrp LOS	D	B	B	D	C		D	C	C	F		C
Approach Vol, veh/h		726			1120			427				39
Approach Delay, s/veh		20.0			23.3			39.8				33.5
Approach LOS		B			C			D				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	43.0	16.1	22.5	6.4	46.5	4.6	34.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	37.0	16.5	18.0	5.5	42.0	5.0	29.5				
Max Q Clear Time (g_c+I1), s	6.2	12.9	11.0	3.7	3.0	22.6	2.1	5.1				
Green Ext Time (p_c), s	0.1	12.3	0.6	0.3	0.0	10.9	0.0	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			25.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

4: Wineville Ave & Limonite Ave













11/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	488	43	31	800	47	79	84	49	37	67	170
Future Volume (veh/h)	108	488	43	31	800	47	79	84	49	37	67	170
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	542	48	34	889	52	88	93	54	41	74	189
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	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	154	1626	727	62	1443	646	114	345	187	135	593	265
Arrive On Green	0.09	0.46	0.46	0.04	0.41	0.41	0.06	0.16	0.16	0.08	0.17	0.17
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	2217	1203	1774	3539	1583
Grp Volume(v), veh/h	120	542	48	34	889	52	88	73	74	41	74	189
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1650	1774	1770	1583
Q Serve(g_s), s	4.4	6.4	1.1	1.2	13.1	1.3	3.2	2.4	2.6	1.4	1.2	7.4
Cycle Q Clear(g_c), s	4.4	6.4	1.1	1.2	13.1	1.3	3.2	2.4	2.6	1.4	1.2	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.73	1.00		1.00
Lane Grp Cap(c), veh/h	154	1626	727	62	1443	646	114	275	257	135	593	265
V/C Ratio(X)	0.78	0.33	0.07	0.54	0.62	0.08	0.77	0.26	0.29	0.30	0.12	0.71
Avail Cap(c_a), veh/h	248	1626	727	162	1443	646	273	485	452	486	1395	624
HCM Platoon Ratio	1.00	1.00	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	29.4	11.3	9.9	31.2	15.4	11.9	30.3	24.4	24.5	28.7	23.3	25.9
Incr Delay (d2), s/veh	8.3	0.6	0.2	7.2	2.0	0.2	10.6	0.5	0.6	1.3	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.2	0.5	0.7	6.7	0.6	1.9	1.2	1.2	0.8	0.6	3.5
LnGrp Delay(d),s/veh	37.7	11.9	10.1	38.4	17.4	12.2	40.8	24.9	25.1	30.0	23.4	29.4
LnGrp LOS	D	B	B	D	B	B	D	C	C	C	C	C
Approach Vol, veh/h		710			975			235			304	
Approach Delay, s/veh		16.1			17.8			31.0			28.0	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	34.7	8.7	15.5	10.2	31.3	9.5	14.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.0	30.0	10.1	25.9	9.2	26.8	18.0	18.0				
Max Q Clear Time (g_c+I1), s	3.2	8.4	5.2	9.4	6.4	15.1	3.4	4.6				
Green Ext Time (p_c), s	0.0	9.9	0.1	1.6	0.1	6.9	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			20.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

5: Pats Ranch Rd & Mall Entrance





















11/17/2016

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	63	4	12	335	150	14		
Future Volume (veh/h)	63	4	12	335	150	14		
Number	5	12	3	8	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	73	5	14	390	174	16		
Adj No. of Lanes	2	1	1	2	2	1		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	239	110	812	2583	608	272		
Arrive On Green	0.07	0.07	0.46	0.73	0.17	0.17		
Sat Flow, veh/h	3442	1583	1774	3632	3632	1583		
Grp Volume(v), veh/h	73	5	14	390	174	16		
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770	1770	1583		
Q Serve(g_s), s	0.9	0.1	0.2	1.5	1.9	0.4		
Cycle Q Clear(g_c), s	0.9	0.1	0.2	1.5	1.9	0.4		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	239	110	812	2583	608	272		
V/C Ratio(X)	0.31	0.05	0.02	0.15	0.29	0.06		
Avail Cap(c_a), veh/h	2036	937	812	4305	2330	1043		
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	19.8	19.5	6.6	1.8	16.2	15.5		
Incr Delay (d2), s/veh	0.7	0.2	0.0	0.0	0.3	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.1	0.7	1.0	0.2		
LnGrp Delay(d),s/veh	20.5	19.6	6.7	1.9	16.4	15.6		
LnGrp LOS	C	B	A	A	B	B		
Approach Vol, veh/h	78			404	190			
Approach Delay, s/veh	20.5			2.0	16.3			
Approach LOS	C			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		7.6	25.0	12.2				37.2
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		26.5	20.5	29.5				54.5
Max Q Clear Time (g_c+I1), s		2.9	2.2	3.9				3.5
Green Ext Time (p_c), s		0.2	0.0	3.8				4.1
Intersection Summary								
HCM 2010 Ctrl Delay			8.2					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary

6: Pats Ranch Rd & Dwy/65th St























11/17/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1	15	42	5	33	42	270	22	7	147	5
Future Volume (veh/h)	15	1	15	42	5	33	42	270	22	7	147	5
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	19	1	19	52	6	41	52	333	27	9	181	6
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	897	44	845	510	81	347	89	610	49	21	516	231
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.05	0.18	0.18	0.01	0.15	0.15
Sat Flow, veh/h	1353	80	1516	734	145	622	1774	3318	268	1774	3539	1583
Grp Volume(v), veh/h	19	0	20	99	0	0	52	177	183	9	181	6
Grp Sat Flow(s),veh/h/ln	1353	0	1595	1501	0	0	1774	1770	1816	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.3	0.0	0.0	0.0	1.6	5.0	5.0	0.3	2.5	0.2
Cycle Q Clear(g_c), s	0.3	0.0	0.3	1.5	0.0	0.0	1.6	5.0	5.0	0.3	2.5	0.2
Prop In Lane	1.00		0.95	0.53		0.41	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	897	0	889	937	0	0	89	326	334	21	516	231
V/C Ratio(X)	0.02	0.00	0.02	0.11	0.00	0.00	0.59	0.54	0.55	0.43	0.35	0.03
Avail Cap(c_a), veh/h	897	0	889	937	0	0	568	1116	1145	373	1844	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.4	0.0	5.4	5.7	0.0	0.0	25.4	20.2	20.3	26.9	21.0	20.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	6.0	1.4	1.4	13.7	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.7	0.0	0.0	0.9	2.5	2.6	0.2	1.3	0.1
LnGrp Delay(d),s/veh	5.5	0.0	5.5	5.9	0.0	0.0	31.5	21.6	21.7	40.5	21.4	20.1
LnGrp LOS	A		A	A			C	C	C	D	C	C
Approach Vol, veh/h		39			99			412			196	
Approach Delay, s/veh		5.5			5.9			22.9			22.3	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	7.2	12.5		35.0	5.1	14.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		30.5	17.5	28.5		30.5	11.5	34.5				
Max Q Clear Time (g_c+I1), s		2.3	3.6	4.5		3.5	2.3	7.0				
Green Ext Time (p_c), s		0.7	0.1	3.0		0.7	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			19.6									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

7: Pats Ranch Rd & 68th St

11/17/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	289	518	7	1	387	44	2	4	0	19	26	174
Future Volume (veh/h)	289	518	7	1	387	44	2	4	0	19	26	174
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	380	682	9	1	509	58	3	5	0	25	34	229
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	1736	23	3	856	383	62	249	0	145	336	286
Arrive On Green	0.24	0.49	0.49	0.00	0.24	0.24	0.04	0.13	0.00	0.08	0.18	0.18
Sat Flow, veh/h	1774	3577	47	1774	3539	1583	1774	1863	0	1774	1863	1583
Grp Volume(v), veh/h	380	337	354	1	509	58	3	5	0	25	34	229
Grp Sat Flow(s),veh/h/ln	1774	1770	1854	1774	1770	1583	1774	1863	0	1774	1863	1583
Q Serve(g_s), s	12.5	7.3	7.3	0.0	7.7	1.7	0.1	0.1	0.0	0.8	0.9	8.4
Cycle Q Clear(g_c), s	12.5	7.3	7.3	0.0	7.7	1.7	0.1	0.1	0.0	0.8	0.9	8.4
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	859	900	3	856	383	62	249	0	145	336	286
V/C Ratio(X)	0.87	0.39	0.39	0.34	0.59	0.15	0.05	0.02	0.00	0.17	0.10	0.80
Avail Cap(c_a), veh/h	513	907	950	147	1082	484	528	554	0	528	554	471
HCM Platoon Ratio	1.00	1.00	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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	9.9	9.9	30.2	20.3	18.0	28.2	22.8	0.0	25.9	20.7	23.8
Incr Delay (d2), s/veh	13.8	0.3	0.3	57.5	0.7	0.2	0.3	0.0	0.0	0.6	0.1	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	3.6	3.8	0.1	3.8	0.8	0.1	0.1	0.0	0.4	0.5	4.1
LnGrp Delay(d),s/veh	35.7	10.2	10.2	87.7	21.0	18.2	28.5	22.8	0.0	26.4	20.8	28.9
LnGrp LOS	D	B	B	F	C	B	C	C		C	C	C
Approach Vol, veh/h		1071			568			8			288	
Approach Delay, s/veh		19.2			20.8			24.9			27.8	
Approach LOS		B			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	33.9	6.6	15.4	19.3	19.1	9.5	12.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	31.0	18.0	18.0	17.5	18.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	2.0	9.3	2.1	10.4	14.5	9.7	2.8	2.1				
Green Ext Time (p_c), s	0.0	8.4	0.0	0.5	0.4	4.9	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			21.0									
HCM 2010 LOS			C									

HCM 2010 AWSC

8: 68th St & Carnelian St

11/17/2016

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations		↘	↕↕		↕↕	↘		↘↘	
Traffic Vol, veh/h	0	224	312	0	318	81	0	2	109
Future Vol, veh/h	0	224	312	0	318	81	0	2	109
Peak Hour Factor	0.92	0.68	0.68	0.92	0.68	0.68	0.92	0.68	0.68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	329	459	0	468	119	0	3	160
Number of Lanes	0	1	2	0	2	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	3
HCM Control Delay	13	11.4	12
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	0%	2%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	98%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	224	156	156	159	159	81	111
LT Vol	224	0	0	0	0	0	2
Through Vol	0	156	156	159	159	0	0
RT Vol	0	0	0	0	0	81	109
Lane Flow Rate	329	229	229	234	234	119	163
Geometry Grp	7	7	7	7	7	7	7
Degree of Util (X)	0.575	0.368	0.256	0.39	0.39	0.117	0.295
Departure Headway (Hd)	6.284	5.778	4.024	6.005	6.005	3.54	6.51
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	573	622	890	599	599	1007	552
Service Time	4.023	3.517	1.761	3.747	3.747	1.281	4.26
HCM Lane V/C Ratio	0.574	0.368	0.257	0.391	0.391	0.118	0.295
HCM Control Delay	17.2	11.9	8.2	12.6	12.6	6.8	12
HCM Lane LOS	C	B	A	B	B	A	B
HCM 95th-tile Q	3.6	1.7	1	1.8	1.8	0.4	1.2

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

11/17/2016

Intersection

Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations			↑		↑	↑		↑	↑
Traffic Vol, veh/h	0	212	28	0	41	1	0	27	127
Future Vol, veh/h	0	212	28	0	41	1	0	27	127
Peak Hour Factor	0.74	0.74	0.74	0.92	0.74	0.74	0.92	0.74	0.74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	286	38	0	55	1	0	36	172
Number of Lanes	0	0	1	0	1	1	0	1	1

Approach

WB

Opposing Approach	EB
Opposing Lanes	2
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	11.3
HCM LOS	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3	SWLn1
Vol Left, %	100%	88%	0%	0%	100%	100%	0%	0%
Vol Thru, %	0%	12%	100%	0%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	0%	100%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	240	41	2	11	27	127	252
LT Vol	73	212	0	0	11	27	0	0
Through Vol	0	28	41	0	0	0	0	0
RT Vol	0	0	0	2	0	0	127	252
Lane Flow Rate	99	324	55	3	15	36	172	341
Geometry Grp	8	8	8	8	7	7	7	7
Degree of Util (X)	0.186	0.606	0.116	0.005	0.03	0.074	0.29	0.507
Departure Headway (Hd)	6.784	6.725	7.568	6.846	7.301	7.301	6.076	5.359
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	528	535	470	519	489	489	589	671
Service Time	4.544	4.485	5.364	4.642	5.07	5.07	3.843	3.115
HCM Lane V/C Ratio	0.188	0.606	0.117	0.006	0.031	0.074	0.292	0.508
HCM Control Delay	11.1	19.4	11.4	9.7	10.3	10.7	11.3	13.6
HCM Lane LOS	B	C	B	A	B	B	B	B
HCM 95th-tile Q	0.7	4	0.4	0	0.1	0.2	1.2	2.9

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

11/17/2016

Intersection

Intersection Delay, s/veh





















Intersection LOS

Movement	SWU	SWL	SWR
Lane Configurations			
Traffic Vol, veh/h	0	0	239
Future Vol, veh/h	0	0	239
Peak Hour Factor	0.92	0.74	0.74
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	0	323
Number of Lanes	0	1	0

Approach	SW
Opposing Approach	
Opposing Lanes	0
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	13.6
HCM LOS	B













HCM 2010 Signalized Intersection Summary
10: Etiwanda Ave & Cantu-Galleano Ranch Rd

12/12/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	15	62	14	5	21	173	399	32	43	142	95
Future Volume (veh/h)	61	15	62	14	5	21	173	399	32	43	142	95
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	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	64	16	65	15	5	22	182	420	34	45	149	100
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	264	37	101	479	44	196	249	1134	91	93	473	402
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.34	0.34	0.05	0.25	0.25
Sat Flow, veh/h	597	248	686	1312	302	1327	1774	3318	268	1774	1863	1583
Grp Volume(v), veh/h	145	0	0	15	0	27	182	223	231	45	149	100
Grp Sat Flow(s),veh/h/ln	1531	0	0	1312	0	1629	1774	1770	1816	1774	1863	1583
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.4	2.9	2.8	2.8	0.7	1.9	1.5
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.2	0.0	0.4	2.9	2.8	2.8	0.7	1.9	1.5
Prop In Lane	0.44		0.45	1.00		0.81	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	402	0	0	479	0	240	249	605	621	93	473	402
V/C Ratio(X)	0.36	0.00	0.00	0.03	0.00	0.11	0.73	0.37	0.37	0.49	0.32	0.25
Avail Cap(c_a), veh/h	1537	0	0	1466	0	1465	1536	2374	2435	633	1550	1317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	10.8	0.0	10.9	12.1	7.3	7.3	13.6	8.9	8.8
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.0	0.0	0.2	4.1	0.4	0.4	3.9	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.1	0.0	0.2	1.7	1.4	1.5	0.5	1.0	0.7
LnGrp Delay(d),s/veh	12.3	0.0	0.0	10.8	0.0	11.1	16.2	7.7	7.7	17.5	9.3	9.1
LnGrp LOS	B			B		B	B	A	A	B	A	A
Approach Vol, veh/h		145			42			636			294	
Approach Delay, s/veh		12.3			11.0			10.1			10.5	
Approach LOS		B			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		8.8	8.6	12.0		8.8	6.0	14.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		26.5	25.5	24.5		26.5	10.5	39.5				
Max Q Clear Time (g_c+I1), s		4.6	4.9	3.9		2.4	2.7	4.8				
Green Ext Time (p_c), s		0.9	0.4	3.6		1.0	0.0	3.9				
Intersection Summary												
HCM 2010 Ctrl Delay			10.5									
HCM 2010 LOS			B									
























HCM 2010 Signalized Intersection Summary

1: I-15 SB On Ramp/I-15 SB Off Ramp & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↗↗	↑↑					↖	↔	↖
Traffic Volume (veh/h)	0	1045	470	427	963	0	0	0	0	246	1	761
Future Volume (veh/h)	0	1045	470	427	963	0	0	0	0	246	1	761
Number	5	2	12	1	6	16				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1100	495	449	1014	0				173	0	894
Adj No. of Lanes	0	2	1	2	2	0				1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1399	626	530	2110	0				549	0	980
Arrive On Green	0.00	0.40	0.40	0.15	0.60	0.00				0.31	0.00	0.31
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	0	3167
Grp Volume(v), veh/h	0	1100	495	449	1014	0				173	0	894
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	26.0	26.2	12.1	15.5	0.0				7.1	0.0	25.9
Cycle Q Clear(g_c), s	0.0	26.0	26.2	12.1	15.5	0.0				7.1	0.0	25.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1399	626	530	2110	0				549	0	980
V/C Ratio(X)	0.00	0.79	0.79	0.85	0.48	0.00				0.32	0.00	0.91
Avail Cap(c_a), veh/h	0	1466	656	632	2283	0				549	0	980
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	25.3	25.4	39.3	10.9	0.0				25.2	0.0	31.7
Incr Delay (d2), s/veh	0.0	2.8	6.3	9.1	0.2	0.0				1.5	0.0	14.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.2	12.5	6.4	7.5	0.0				3.7	0.0	13.2
LnGrp Delay(d),s/veh	0.0	28.1	31.7	48.4	11.1	0.0				26.7	0.0	45.8
LnGrp LOS		C	C	D	B					C		D
Approach Vol, veh/h		1595			1463						1067	
Approach Delay, s/veh		29.2			22.5						42.7	
Approach LOS		C			C						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	19.2	42.2				61.4		34.0				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	17.5	39.5				61.5		29.5				
Max Q Clear Time (g_c+I1), s	14.1	28.2				17.5		27.9				
Green Ext Time (p_c), s	0.6	9.5				26.3		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			30.3									
HCM 2010 LOS			C									
Notes												

























HCM 2010 Signalized Intersection Summary

2: I-15 NB Off Ramp/I-15 NB On Ramp & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (veh/h)	436	852	0	0	993	223	390	0	724	0	0	0
Future Volume (veh/h)	436	852	0	0	993	223	390	0	724	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	449	878	0	0	1024	230	268	0	890			
Adj No. of Lanes	2	2	0	0	2	1	1	0	2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	527	2141	0	0	1440	644	541	0	966			
Arrive On Green	0.15	0.61	0.00	0.00	0.41	0.41	0.31	0.00	0.31			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	3167			
Grp Volume(v), veh/h	449	878	0	0	1024	230	268	0	890			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	12.7	13.0	0.0	0.0	24.2	10.1	12.4	0.0	27.2			
Cycle Q Clear(g_c), s	12.7	13.0	0.0	0.0	24.2	10.1	12.4	0.0	27.2			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	527	2141	0	0	1440	644	541	0	966			
V/C Ratio(X)	0.85	0.41	0.00	0.00	0.71	0.36	0.50	0.00	0.92			
Avail Cap(c_a), veh/h	637	2141	0	0	1440	644	541	0	966			
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	41.2	10.4	0.0	0.0	24.8	20.6	28.4	0.0	33.6			
Incr Delay (d2), s/veh	9.2	0.6	0.0	0.0	3.0	1.5	3.2	0.0	15.3			
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	6.7	6.5	0.0	0.0	12.4	4.7	6.5	0.0	13.9			
LnGrp Delay(d),s/veh	50.5	11.0	0.0	0.0	27.8	22.1	31.7	0.0	48.9			
LnGrp LOS	D	B			C	C	C		D			
Approach Vol, veh/h		1327			1254			1158				
Approach Delay, s/veh		24.3			26.7			44.9				
Approach LOS		C			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		65.0			19.8	45.2		35.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		60.5			18.5	37.5		30.5				
Max Q Clear Time (g_c+I1), s		15.0			14.7	26.2		29.2				
Green Ext Time (p_c), s		20.9			0.6	8.6		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				31.5								
HCM 2010 LOS				C								
Notes												

























HCM 2010 Signalized Intersection Summary

3: Pats Ranch Rd & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1130	192	170	868	0	309	16	131	0	7	26
Future Volume (veh/h)	33	1130	192	170	868	0	309	16	131	0	7	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	34	1165	198	175	895	0	319	16	135	0	7	27
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	1402	627	208	1707	764	390	646	549	2	63	242
Arrive On Green	0.03	0.40	0.40	0.12	0.48	0.00	0.11	0.35	0.35	0.00	0.19	0.19
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	336	1297
Grp Volume(v), veh/h	34	1165	198	175	895	0	319	16	135	0	0	34
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	0	1634
Q Serve(g_s), s	1.8	28.6	8.3	9.3	16.9	0.0	8.7	0.5	5.9	0.0	0.0	1.7
Cycle Q Clear(g_c), s	1.8	28.6	8.3	9.3	16.9	0.0	8.7	0.5	5.9	0.0	0.0	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	55	1402	627	208	1707	764	390	646	549	2	0	305
V/C Ratio(X)	0.62	0.83	0.32	0.84	0.52	0.00	0.82	0.02	0.25	0.00	0.00	0.11
Avail Cap(c_a), veh/h	114	1402	627	250	1707	764	435	646	549	92	0	305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	46.2	26.2	20.1	41.7	17.3	0.0	41.8	20.8	22.5	0.0	0.0	32.6
Incr Delay (d2), s/veh	10.8	5.9	1.3	19.1	1.2	0.0	10.7	0.1	1.1	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	15.1	3.9	5.7	8.5	0.0	4.7	0.3	2.7	0.0	0.0	0.8
LnGrp Delay(d),s/veh	56.9	32.1	21.4	60.8	18.4	0.0	52.5	20.8	23.6	0.0	0.0	33.3
LnGrp LOS	E	C	C	E	B		D	C	C			C
Approach Vol, veh/h		1397			1070			470				34
Approach Delay, s/veh		31.2			25.4			43.1				33.3
Approach LOS		C			C			D				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	42.7	15.4	22.5	7.5	51.0	0.0	37.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.6	38.2	12.2	18.0	6.2	45.6	5.0	25.2				
Max Q Clear Time (g_c+I1), s	11.3	30.6	10.7	3.7	3.8	18.9	0.0	7.9				
Green Ext Time (p_c), s	0.1	6.4	0.2	0.5	0.0	17.2	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			31.0									
HCM 2010 LOS			C									
















HCM 2010 Signalized Intersection Summary

4: Wineville Ave & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1130	192	170	868	0	53	40	31	0	7	26
Future Volume (veh/h)	33	1130	192	170	868	0	53	40	31	0	7	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	34	1165	198	175	895	0	55	41	32	0	7	27
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1621	725	218	1928	863	89	386	271	3	245	110
Arrive On Green	0.04	0.46	0.46	0.12	0.54	0.00	0.05	0.19	0.19	0.00	0.07	0.07
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1989	1396	1774	3539	1583
Grp Volume(v), veh/h	34	1165	198	175	895	0	55	36	37	0	7	27
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1616	1774	1770	1583
Q Serve(g_s), s	1.1	16.0	4.7	5.8	9.2	0.0	1.8	1.0	1.1	0.0	0.1	1.0
Cycle Q Clear(g_c), s	1.1	16.0	4.7	5.8	9.2	0.0	1.8	1.0	1.1	0.0	0.1	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	64	1621	725	218	1928	863	89	344	314	3	245	110
V/C Ratio(X)	0.53	0.72	0.27	0.80	0.46	0.00	0.62	0.10	0.12	0.00	0.03	0.25
Avail Cap(c_a), veh/h	148	1621	725	251	1928	863	210	531	485	532	1704	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	13.1	10.1	25.6	8.3	0.0	28.0	19.9	19.9	0.0	26.1	26.5
Incr Delay (d2), s/veh	6.7	2.8	0.9	15.1	0.8	0.0	6.9	0.1	0.2	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	8.4	2.2	3.7	4.7	0.0	1.1	0.5	0.5	0.0	0.1	0.5
LnGrp Delay(d),s/veh	35.1	15.9	11.0	40.7	9.1	0.0	34.8	20.0	20.1	0.0	26.1	27.6
LnGrp LOS	D	B	B	D	A		C	C	C		C	C
Approach Vol, veh/h		1397			1070			128			34	
Approach Delay, s/veh		15.7			14.3			26.4			27.3	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	32.0	7.5	8.7	6.7	37.2	0.0	16.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	27.5	7.1	28.9	5.0	31.0	18.0	18.0				
Max Q Clear Time (g_c+I1), s	7.8	18.0	3.8	3.0	3.1	11.2	0.0	3.1				
Green Ext Time (p_c), s	0.0	7.7	0.0	0.4	0.0	13.9	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			15.8									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

5: Pats Ranch Rd

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	 			 	 			
Traffic Volume (veh/h)	299	91	79	163	258	49		
Future Volume (veh/h)	299	91	79	163	258	49		
Number	5	12	3	8	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	311	95	82	170	269	51		
Adj No. of Lanes	2	1	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	508	234	782	2420	562	251		
Arrive On Green	0.15	0.15	0.44	0.68	0.16	0.16		
Sat Flow, veh/h	3442	1583	1774	3632	3632	1583		
Grp Volume(v), veh/h	311	95	82	170	269	51		
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770	1770	1583		
Q Serve(g_s), s	4.5	2.9	1.4	0.9	3.7	1.5		
Cycle Q Clear(g_c), s	4.5	2.9	1.4	0.9	3.7	1.5		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	508	234	782	2420	562	251		
V/C Ratio(X)	0.61	0.41	0.10	0.07	0.48	0.20		
Avail Cap(c_a), veh/h	1774	816	782	3550	1692	757		
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	21.3	20.6	8.8	2.8	20.4	19.5		
Incr Delay (d2), s/veh	1.2	1.1	0.3	0.0	0.6	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.2	1.3	0.8	0.4	1.8	0.7		
LnGrp Delay(d),s/veh	22.5	21.8	9.0	2.8	21.1	19.9		
LnGrp LOS	C	C	A	A	C	B		
Approach Vol, veh/h	406			252	320			
Approach Delay, s/veh	22.3			4.8	20.9			
Approach LOS	C			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	2		3	4				8
Phs Duration (G+Y+Rc), s	12.4		28.0	13.0				41.0
Change Period (Y+Rc), s	4.5		4.5	4.5				4.5
Max Green Setting (Gmax), s	27.5		23.5	25.5				53.5
Max Q Clear Time (g_c+I1), s	6.5		3.4	5.7				2.9
Green Ext Time (p_c), s	1.4		0.2	2.8				3.2
Intersection Summary								
HCM 2010 Ctrl Delay			17.3					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

6: Pats Ranch Rd & Dwy/65th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	9	24	8	8	23	75	197	18	32	286	5
Future Volume (veh/h)	21	9	24	8	8	23	75	197	18	32	286	5
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	21	9	24	8	8	23	77	201	18	33	292	5
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	2	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	832	225	600	201	215	475	115	654	58	65	603	270
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.07	0.20	0.20	0.04	0.17	0.17
Sat Flow, veh/h	1373	450	1201	231	430	951	1774	3289	292	1774	3539	1583
Grp Volume(v), veh/h	21	0	33	39	0	0	77	107	112	33	292	5
Grp Sat Flow(s),veh/h/ln	1373	0	1651	1612	0	0	1774	1770	1811	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.5	0.0	0.0	0.0	2.2	2.6	2.7	0.9	3.8	0.1
Cycle Q Clear(g_c), s	0.3	0.0	0.5	0.6	0.0	0.0	2.2	2.6	2.7	0.9	3.8	0.1
Prop In Lane	1.00		0.73	0.21		0.59	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	832	0	825	891	0	0	115	352	360	65	603	270
V/C Ratio(X)	0.03	0.00	0.04	0.04	0.00	0.00	0.67	0.30	0.31	0.51	0.48	0.02
Avail Cap(c_a), veh/h	832	0	825	891	0	0	713	1266	1296	504	2116	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.5	0.0	6.5	6.5	0.0	0.0	23.3	17.4	17.4	24.1	19.1	17.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.0	6.5	0.5	0.5	6.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	0.3	0.0	0.0	1.3	1.3	1.4	0.6	1.9	0.1
LnGrp Delay(d),s/veh	6.5	0.0	6.6	6.6	0.0	0.0	29.8	17.9	17.9	30.1	19.7	17.6
LnGrp LOS	A		A	A			C	B	B	C	B	B
Approach Vol, veh/h		54			39			296			330	
Approach Delay, s/veh		6.6			6.6			21.0			20.7	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.0	7.8	13.2		30.0	6.4	14.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		25.5	20.5	30.5		25.5	14.5	36.5				
Max Q Clear Time (g_c+I1), s		2.5	4.2	5.8		2.6	2.9	4.7				
Green Ext Time (p_c), s		0.4	0.1	2.9		0.4	0.0	3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			19.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

7: Pats Ranch Rd & 68th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	351	0	2	236	31	4	12	3	7	0	232
Future Volume (veh/h)	229	351	0	2	236	31	4	12	3	7	0	232
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	252	386	0	2	259	34	4	13	3	8	0	255
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	323	1296	0	5	662	296	58	199	46	186	388	329
Arrive On Green	0.18	0.37	0.00	0.00	0.19	0.19	0.03	0.14	0.14	0.10	0.00	0.21
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1465	338	1774	1863	1583
Grp Volume(v), veh/h	252	386	0	2	259	34	4	0	16	8	0	255
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	0	1803	1774	1863	1583
Q Serve(g_s), s	6.2	3.6	0.0	0.1	3.0	0.8	0.1	0.0	0.4	0.2	0.0	7.0
Cycle Q Clear(g_c), s	6.2	3.6	0.0	0.1	3.0	0.8	0.1	0.0	0.4	0.2	0.0	7.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	323	1296	0	5	662	296	58	0	245	186	388	329
V/C Ratio(X)	0.78	0.30	0.00	0.41	0.39	0.11	0.07	0.00	0.07	0.04	0.00	0.77
Avail Cap(c_a), veh/h	673	2378	0	192	1419	635	692	0	704	692	727	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	10.4	0.0	23.0	16.4	15.6	21.6	0.0	17.4	18.6	0.0	17.2
Incr Delay (d2), s/veh	4.1	0.1	0.0	47.3	0.4	0.2	0.5	0.0	0.1	0.1	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	1.7	0.0	0.1	1.5	0.4	0.1	0.0	0.2	0.1	0.0	3.4
LnGrp Delay(d),s/veh	22.1	10.5	0.0	70.3	16.8	15.8	22.1	0.0	17.5	18.7	0.0	21.1
LnGrp LOS	C	B		E	B	B	C		B	B		C
Approach Vol, veh/h		638			295			20			263	
Approach Delay, s/veh		15.1			17.1			18.4			21.1	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	21.4	6.0	14.1	12.9	13.1	9.3	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	31.0	18.0	18.0	17.5	18.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	2.1	5.6	2.1	9.0	8.2	5.0	2.2	2.4				
Green Ext Time (p_c), s	0.0	4.6	0.0	0.6	0.5	3.7	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			16.9									
HCM 2010 LOS			B									

HCM 2010 AWSC

8: 68th St & Carnelian St

Intersection

Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations		↘	↕↕		↕↕	↘		↘↘	
Traffic Vol, veh/h	0	43	315	0	210	11	0	8	58
Future Vol, veh/h	0	43	315	0	210	11	0	8	58
Peak Hour Factor	0.92	0.80	0.80	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	54	394	0	263	14	0	10	73
Number of Lanes	0	1	2	0	2	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	3
HCM Control Delay	8.2	8.8	8.9
HCM LOS	A	A	A

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	0%	12%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	88%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	158	158	105	105	11	66
LT Vol	43	0	0	0	0	0	8
Through Vol	0	158	158	105	105	0	0
RT Vol	0	0	0	0	0	11	58
Lane Flow Rate	54	197	197	131	131	14	82
Geometry Grp	7	7	7	7	7	7	7
Degree of Util (X)	0.082	0.273	0.178	0.186	0.186	0.01	0.123
Departure Headway (Hd)	5.502	5	3.259	5.101	5.101	2.657	5.359
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	652	719	1099	704	704	1339	667
Service Time	3.229	2.727	0.986	2.834	2.834	0.389	3.103
HCM Lane V/C Ratio	0.083	0.274	0.179	0.186	0.186	0.01	0.123
HCM Control Delay	8.7	9.6	6.7	9	9	5.4	8.9
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.3	1.1	0.6	0.7	0.7	0	0.4

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

Intersection

Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations		↔	↑		↑	↔		↔	↔
Traffic Vol, veh/h	0	192	47	0	27	16	0	16	53
Future Vol, veh/h	0	192	47	0	27	16	0	16	53
Peak Hour Factor	0.92	0.87	0.87	0.92	0.87	0.87	0.92	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	221	54	0	31	18	0	18	61
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach

WB

Opposing Approach	EB
Opposing Lanes	2
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	9.1
HCM LOS	A

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3	SWLn1
Vol Left, %	100%	0%	0%	0%	100%	100%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	0%	100%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	272	47	27	17	3	16	53	147
LT Vol	272	0	0	0	3	16	0	0
Through Vol	0	47	27	0	0	0	0	0
RT Vol	0	0	0	17	0	0	53	147
Lane Flow Rate	313	54	31	20	3	18	61	169
Geometry Grp	8	8	8	8	7	7	7	7
Degree of Util (X)	0.498	0.078	0.054	0.03	0.006	0.033	0.089	0.214
Departure Headway (Hd)	5.731	5.23	6.253	5.541	6.481	6.481	5.266	4.56
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	625	681	568	640	549	550	676	782
Service Time	3.493	2.991	4.042	3.33	4.253	4.253	3.036	2.319
HCM Lane V/C Ratio	0.501	0.079	0.055	0.031	0.005	0.033	0.09	0.216
HCM Control Delay	14.1	8.4	9.4	8.5	9.3	9.5	8.6	8.6
HCM Lane LOS	B	A	A	A	A	A	A	A
HCM 95th-tile Q	2.8	0.3	0.2	0.1	0	0.1	0.3	0.8

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

Intersection

Intersection Delay, s/veh





















Intersection LOS

Movement	SWU	SWL	SWR
Lane Configurations			
Traffic Vol, veh/h	0	0	144
Future Vol, veh/h	0	0	144
Peak Hour Factor	0.92	0.87	0.87
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	0	166
Number of Lanes	0	1	0

Approach	SW
Opposing Approach	
Opposing Lanes	0
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	8.6
HCM LOS	A

HCM 2010 Signalized Intersection Summary
10: Etiwanda Ave & Cantu-Galleano Ranch Rd

12/12/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	9	133	58	31	27	131	234	32	23	407	56
Future Volume (veh/h)	76	9	133	58	31	27	131	234	32	23	407	56
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	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	83	10	145	63	34	29	142	254	35	25	442	61
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	44	211	451	210	179	188	1346	183	53	659	561
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.11	0.43	0.43	0.03	0.35	0.35
Sat Flow, veh/h	407	193	936	1227	930	793	1774	3131	427	1774	1863	1583
Grp Volume(v), veh/h	238	0	0	63	0	63	142	142	147	25	442	61
Grp Sat Flow(s),veh/h/ln	1536	0	0	1227	0	1723	1774	1770	1787	1774	1863	1583
Q Serve(g_s), s	3.9	0.0	0.0	0.0	0.0	1.3	3.3	2.1	2.2	0.6	8.6	1.1
Cycle Q Clear(g_c), s	6.0	0.0	0.0	1.7	0.0	1.3	3.3	2.1	2.2	0.6	8.6	1.1
Prop In Lane	0.35		0.61	1.00		0.46	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	460	0	0	451	0	389	188	761	768	53	659	561
V/C Ratio(X)	0.52	0.00	0.00	0.14	0.00	0.16	0.76	0.19	0.19	0.47	0.67	0.11
Avail Cap(c_a), veh/h	1010	0	0	903	0	1023	640	1875	1894	227	1540	1309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	0.0	0.0	13.5	0.0	13.4	18.7	7.6	7.6	20.5	11.7	9.3
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.1	0.0	0.2	6.1	0.1	0.1	6.3	1.2	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	2.7	0.0	0.0	0.6	0.0	0.6	1.9	1.1	1.1	0.4	4.6	0.5
LnGrp Delay(d),s/veh	16.0	0.0	0.0	13.7	0.0	13.6	24.7	7.7	7.7	26.8	12.9	9.4
LnGrp LOS	B			B		B	C	A	A	C	B	A
Approach Vol, veh/h		238			126			431			528	
Approach Delay, s/veh		16.0			13.6			13.3			13.2	
Approach LOS		B			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		14.2	9.0	19.7		14.2	5.8	23.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		25.5	15.5	35.5		25.5	5.5	45.5				
Max Q Clear Time (g_c+I1), s		8.0	5.3	10.6		3.7	2.6	4.2				
Green Ext Time (p_c), s		1.8	0.2	4.6		2.0	0.0	4.9				
Intersection Summary												
HCM 2010 Ctrl Delay			13.8									
HCM 2010 LOS			B									















APPENDIX C
Intersection Level of Service Worksheets
Existing With Ambient Growth Traffic Conditions

HCM 2010 Signalized Intersection Summary

1: I-15 SB On Ramp/I-15 SB Off Ramp & Limonite Ave

11/17/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	1174	505	651	697	0	0	0	0	143	2	469
Future Volume (veh/h)	0	1174	505	651	697	0	0	0	0	143	2	469
Number	5	2	12	1	6	16				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1276	549	708	758	0				104	0	566
Adj No. of Lanes	0	2	1	2	2	0				1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1540	689	801	2532	0				337	0	601
Arrive On Green	0.00	0.43	0.43	0.23	0.72	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	0	3167
Grp Volume(v), veh/h	0	1276	549	708	758	0				104	0	566
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	30.2	28.4	18.8	7.4	0.0				4.8	0.0	16.7
Cycle Q Clear(g_c), s	0.0	30.2	28.4	18.8	7.4	0.0				4.8	0.0	16.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1540	689	801	2532	0				337	0	601
V/C Ratio(X)	0.00	0.83	0.80	0.88	0.30	0.00				0.31	0.00	0.94
Avail Cap(c_a), veh/h	0	1605	718	925	2724	0				337	0	601
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	23.7	23.2	35.1	4.9	0.0				33.1	0.0	37.9
Incr Delay (d2), s/veh	0.0	3.7	6.1	9.2	0.1	0.0				2.4	0.0	24.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.5	13.5	10.0	3.6	0.0				2.6	0.0	9.4
LnGrp Delay(d),s/veh	0.0	27.3	29.2	44.3	5.0	0.0				35.4	0.0	62.8
LnGrp LOS		C	C	D	A					D		E
Approach Vol, veh/h		1825			1466						670	
Approach Delay, s/veh		27.9			23.9						58.5	
Approach LOS		C			C						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	26.6	45.8				72.3		22.5				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	25.5	43.0				73.0		18.0				
Max Q Clear Time (g_c+I1), s	20.8	32.2				9.4		18.7				
Green Ext Time (p_c), s	1.2	9.0				31.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			31.6									
HCM 2010 LOS			C									
Notes												

HCM 2010 Signalized Intersection Summary

2: I-15 NB Off Ramp/I-15 NB On Ramp & Limonite Ave

11/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	839	487	0	0	1133	329	229	2	320	0	0	0
Future Volume (veh/h)	839	487	0	0	1133	329	229	2	320	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	912	529	0	0	1232	358	373	0	216			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
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	981	2584	0	0	1416	633	639	0	285			
Arrive On Green	0.29	0.73	0.00	0.00	0.40	0.40	0.18	0.00	0.18			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	3548	0	1583			
Grp Volume(v), veh/h	912	529	0	0	1232	358	373	0	216			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	25.8	4.7	0.0	0.0	32.0	17.5	9.6	0.0	13.0			
Cycle Q Clear(g_c), s	25.8	4.7	0.0	0.0	32.0	17.5	9.6	0.0	13.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	981	2584	0	0	1416	633	639	0	285			
V/C Ratio(X)	0.93	0.20	0.00	0.00	0.87	0.57	0.58	0.00	0.76			
Avail Cap(c_a), veh/h	1015	2584	0	0	1416	633	639	0	285			
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	34.8	4.3	0.0	0.0	27.6	23.3	37.6	0.0	38.9			
Incr Delay (d2), s/veh	14.1	0.2	0.0	0.0	7.6	3.6	3.9	0.0	17.1			
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	14.1	2.3	0.0	0.0	17.1	8.3	5.1	0.0	7.0			
LnGrp Delay(d),s/veh	48.9	4.5	0.0	0.0	35.2	26.9	41.4	0.0	56.0			
LnGrp LOS	D	A			D	C	D		E			
Approach Vol, veh/h		1441			1590			589				
Approach Delay, s/veh		32.6			33.3			46.8				
Approach LOS		C			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.5			33.0	44.5		22.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		73.0			29.5	39.0		18.0				
Max Q Clear Time (g_c+I1), s		6.7			27.8	34.0		15.0				
Green Ext Time (p_c), s		22.8			0.7	4.1		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				35.2								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary

3: Pats Ranch Rd & Limonite Ave

























11/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	618	106	84	1062	2	356	3	78	1	8	31
Future Volume (veh/h)	20	618	106	84	1062	2	356	3	78	1	8	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	672	115	91	1154	0	387	3	85	1	9	34
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	1459	653	117	1609	720	471	611	520	2	66	249
Arrive On Green	0.02	0.41	0.41	0.07	0.45	0.00	0.14	0.33	0.33	0.00	0.19	0.19
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	342	1293
Grp Volume(v), veh/h	22	672	115	91	1154	0	387	3	85	1	0	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	0	1635
Q Serve(g_s), s	1.1	12.9	4.3	4.7	24.7	0.0	10.2	0.1	3.6	0.1	0.0	2.0
Cycle Q Clear(g_c), s	1.1	12.9	4.3	4.7	24.7	0.0	10.2	0.1	3.6	0.1	0.0	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	41	1459	653	117	1609	720	471	611	520	2	0	315
V/C Ratio(X)	0.53	0.46	0.18	0.78	0.72	0.00	0.82	0.00	0.16	0.41	0.00	0.14
Avail Cap(c_a), veh/h	95	1459	653	222	1609	720	608	611	520	95	0	315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.1	19.9	17.4	43.0	20.6	0.0	39.2	21.1	22.3	46.6	0.0	31.3
Incr Delay (d2), s/veh	10.2	1.0	0.6	10.6	2.8	0.0	7.0	0.0	0.7	84.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.5	2.0	2.7	12.6	0.0	5.3	0.1	1.7	0.1	0.0	1.0
LnGrp Delay(d),s/veh	55.4	21.0	18.0	53.6	23.4	0.0	46.2	21.1	23.0	131.3	0.0	32.2
LnGrp LOS	E	C	B	D	C		D	C	C	F		C
Approach Vol, veh/h		809			1245			475				44
Approach Delay, s/veh		21.5			25.6			41.9				34.4
Approach LOS		C			C			D				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	43.0	17.3	22.5	6.7	47.0	4.6	35.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.7	35.8	16.5	18.0	5.0	42.5	5.0	29.5				
Max Q Clear Time (g_c+I1), s	6.7	14.9	12.2	4.0	3.1	26.7	2.1	5.6				
Green Ext Time (p_c), s	0.1	12.8	0.6	0.4	0.0	10.6	0.0	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			27.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

4: Wineville Ave & Limonite Ave
















11/17/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	537	47	34	880	52	87	92	54	41	74	187
Future Volume (veh/h)	119	537	47	34	880	52	87	92	54	41	74	187
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	129	584	51	37	957	57	95	100	59	45	80	203
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1615	723	65	1419	635	123	378	208	129	620	277
Arrive On Green	0.09	0.46	0.46	0.04	0.40	0.40	0.07	0.17	0.17	0.07	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	2203	1215	1774	3539	1583
Grp Volume(v), veh/h	129	584	51	37	957	57	95	79	80	45	80	203
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1648	1774	1770	1583
Q Serve(g_s), s	4.9	7.4	1.2	1.4	15.2	1.5	3.6	2.7	2.9	1.7	1.3	8.3
Cycle Q Clear(g_c), s	4.9	7.4	1.2	1.4	15.2	1.5	3.6	2.7	2.9	1.7	1.3	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	164	1615	723	65	1419	635	123	304	283	129	620	277
V/C Ratio(X)	0.79	0.36	0.07	0.57	0.67	0.09	0.77	0.26	0.28	0.35	0.13	0.73
Avail Cap(c_a), veh/h	220	1615	723	158	1419	635	269	464	433	466	1321	591
HCM Platoon Ratio	1.00	1.00	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	30.5	12.1	10.5	32.5	16.9	12.8	31.4	24.6	24.7	30.2	23.9	26.8
Incr Delay (d2), s/veh	12.7	0.6	0.2	7.5	2.6	0.3	9.8	0.5	0.5	1.6	0.1	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.7	0.6	0.8	7.8	0.7	2.1	1.3	1.4	0.9	0.6	3.9
LnGrp Delay(d),s/veh	43.1	12.8	10.7	39.9	19.5	13.0	41.2	25.1	25.3	31.8	24.0	30.5
LnGrp LOS	D	B	B	D	B	B	D	C	C	C	C	C
Approach Vol, veh/h		764			1051			254			328	
Approach Delay, s/veh		17.8			19.8			31.2			29.1	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	35.8	9.3	16.5	10.8	32.0	9.5	16.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.1	29.9	10.4	25.6	8.5	27.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	3.4	9.4	5.6	10.3	6.9	17.2	3.7	4.9				
Green Ext Time (p_c), s	0.0	10.5	0.1	1.7	0.0	6.7	0.1	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			21.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

5: Pats Ranch Rd & Mall Entrance

11/17/2016

									
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	 			 	 				
Traffic Volume (veh/h)	69	4	13	369	165	15			
Future Volume (veh/h)	69	4	13	369	165	15			
Number	5	12	3	8	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	75	4	14	401	179	16			
Adj No. of Lanes	2	1	1	2	2	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Cap, veh/h	240	110	808	2585	619	277			
Arrive On Green	0.07	0.07	0.46	0.73	0.17	0.17			
Sat Flow, veh/h	3442	1583	1774	3632	3632	1583			
Grp Volume(v), veh/h	75	4	14	401	179	16			
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770	1770	1583			
Q Serve(g_s), s	0.9	0.1	0.2	1.6	2.0	0.4			
Cycle Q Clear(g_c), s	0.9	0.1	0.2	1.6	2.0	0.4			
Prop In Lane	1.00	1.00	1.00			1.00			
Lane Grp Cap(c), veh/h	240	110	808	2585	619	277			
V/C Ratio(X)	0.31	0.04	0.02	0.16	0.29	0.06			
Avail Cap(c_a), veh/h	2026	932	808	4285	2319	1038			
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	19.9	19.5	6.7	1.8	16.1	15.5			
Incr Delay (d2), s/veh	0.7	0.1	0.0	0.0	0.3	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.5	0.1	0.1	0.7	1.0	0.2			
LnGrp Delay(d),s/veh	20.6	19.7	6.8	1.9	16.4	15.6			
LnGrp LOS	C	B	A	A	B	B			
Approach Vol, veh/h	79			415	195				
Approach Delay, s/veh	20.6			2.0	16.3				
Approach LOS	C			A	B				
Timer	1	2	3	4	5	6	7	8	
Assigned Phs	2		3	4				8	
Phs Duration (G+Y+Rc), s	7.6		25.0	12.4				37.4	
Change Period (Y+Rc), s	4.5		4.5	4.5				4.5	
Max Green Setting (Gmax), s	26.5		20.5	29.5				54.5	
Max Q Clear Time (g_c+I1), s	2.9		2.2	4.0				3.6	
Green Ext Time (p_c), s	0.2		0.0	3.9				4.2	
Intersection Summary									
HCM 2010 Ctrl Delay			8.2						
HCM 2010 LOS			A						

HCM 2010 Signalized Intersection Summary

6: Pats Ranch Rd & Dwy/65th St























11/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	1	17	46	6	36	46	297	24	8	162	6
Future Volume (veh/h)	17	1	17	46	6	36	46	297	24	8	162	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	18	1	18	50	7	39	50	323	26	9	176	7
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	902	47	847	509	92	343	86	598	48	21	506	226
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.05	0.18	0.18	0.01	0.14	0.14
Sat Flow, veh/h	1354	84	1512	729	164	611	1774	3320	266	1774	3539	1583
Grp Volume(v), veh/h	18	0	19	96	0	0	50	171	178	9	176	7
Grp Sat Flow(s),veh/h/ln	1354	0	1596	1505	0	0	1774	1770	1816	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.3	0.0	0.0	0.0	1.5	4.8	4.8	0.3	2.4	0.2
Cycle Q Clear(g_c), s	0.2	0.0	0.3	1.4	0.0	0.0	1.5	4.8	4.8	0.3	2.4	0.2
Prop In Lane	1.00		0.95	0.52		0.41	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	902	0	894	944	0	0	86	319	327	21	506	226
V/C Ratio(X)	0.02	0.00	0.02	0.10	0.00	0.00	0.58	0.54	0.54	0.43	0.35	0.03
Avail Cap(c_a), veh/h	902	0	894	944	0	0	570	1122	1151	375	1853	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.3	0.0	5.3	5.6	0.0	0.0	25.3	20.3	20.3	26.7	21.0	20.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	6.0	1.4	1.4	13.7	0.4	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	0.1	0.0	0.1	0.7	0.0	0.0	0.9	2.5	2.5	0.2	1.2	0.1
LnGrp Delay(d),s/veh	5.4	0.0	5.4	5.8	0.0	0.0	31.3	21.7	21.7	40.4	21.4	20.1
LnGrp LOS	A		A	A			C	C	C	D	C	C
Approach Vol, veh/h		37			96			399			192	
Approach Delay, s/veh		5.4			5.8			22.9			22.3	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	7.2	12.3		35.0	5.1	14.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		30.5	17.5	28.5		30.5	11.5	34.5				
Max Q Clear Time (g_c+I1), s		2.3	3.5	4.4		3.4	2.3	6.8				
Green Ext Time (p_c), s		0.7	0.1	2.9		0.7	0.0	3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			19.6									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

7: Pats Ranch Rd & 68th St

11/17/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	318	570	8	1	426	48	2	4	0	21	29	191
Future Volume (veh/h)	318	570	8	1	426	48	2	4	0	21	29	191
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	346	620	9	1	463	52	2	4	0	23	32	208
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	410	1677	24	3	849	380	58	214	0	158	319	271
Arrive On Green	0.23	0.47	0.47	0.00	0.24	0.24	0.03	0.11	0.00	0.09	0.17	0.17
Sat Flow, veh/h	1774	3571	52	1774	3539	1583	1774	1863	0	1774	1863	1583
Grp Volume(v), veh/h	346	307	322	1	463	52	2	4	0	23	32	208
Grp Sat Flow(s),veh/h/ln	1774	1770	1854	1774	1770	1583	1774	1863	0	1774	1863	1583
Q Serve(g_s), s	10.3	6.2	6.2	0.0	6.3	1.4	0.1	0.1	0.0	0.7	0.8	6.9
Cycle Q Clear(g_c), s	10.3	6.2	6.2	0.0	6.3	1.4	0.1	0.1	0.0	0.7	0.8	6.9
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	410	831	870	3	849	380	58	214	0	158	319	271
V/C Ratio(X)	0.84	0.37	0.37	0.31	0.55	0.14	0.03	0.02	0.00	0.15	0.10	0.77
Avail Cap(c_a), veh/h	568	992	1039	160	1171	524	577	606	0	577	606	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	9.4	9.4	27.6	18.4	16.5	25.9	21.7	0.0	23.3	19.3	21.9
Incr Delay (d2), s/veh	8.3	0.3	0.3	47.6	0.5	0.2	0.2	0.0	0.0	0.4	0.1	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	3.0	3.2	0.1	3.2	0.6	0.0	0.1	0.0	0.3	0.4	3.3
LnGrp Delay(d),s/veh	28.6	9.7	9.7	75.2	18.9	16.7	26.2	21.8	0.0	23.7	19.5	26.4
LnGrp LOS	C	A	A	E	B	B	C	C		C	B	C
Approach Vol, veh/h		975			516			6			263	
Approach Delay, s/veh		16.4			18.8			23.2			25.3	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	30.5	6.3	14.0	17.3	17.8	9.4	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	31.0	18.0	18.0	17.7	18.3	18.0	18.0				
Max Q Clear Time (g_c+I1), s	2.0	8.2	2.1	8.9	12.3	8.3	2.7	2.1				
Green Ext Time (p_c), s	0.0	7.7	0.0	0.5	0.5	4.9	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			18.5									
HCM 2010 LOS			B									

HCM 2010 AWSC

8: 68th St & Carnelian St

11/17/2016

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations		↘	↕↕		↕↕	↘		↘↘	
Traffic Vol, veh/h	0	246	343	0	350	89	0	2	120
Future Vol, veh/h	0	246	343	0	350	89	0	2	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	267	373	0	380	97	0	2	130
Number of Lanes	0	1	2	0	2	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	3
HCM Control Delay	10.6	9.8	10.5
HCM LOS	B	A	B

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	0%	2%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	98%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	246	172	172	175	175	89	122
LT Vol	246	0	0	0	0	0	2
Through Vol	0	172	172	175	175	0	0
RT Vol	0	0	0	0	0	89	120
Lane Flow Rate	267	186	186	190	190	97	133
Geometry Grp	7	7	7	7	7	7	7
Degree of Util (X)	0.436	0.278	0.188	0.298	0.298	0.086	0.223
Departure Headway (Hd)	5.983	5.479	3.73	5.646	5.646	3.19	6.045
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	607	660	967	641	641	1130	597
Service Time	3.683	3.179	1.43	3.346	3.346	0.89	3.759
HCM Lane V/C Ratio	0.44	0.282	0.192	0.296	0.296	0.086	0.223
HCM Control Delay	13.2	10.3	7.3	10.7	10.7	6.2	10.5
HCM Lane LOS	B	B	A	B	B	A	B
HCM 95th-tile Q	2.2	1.1	0.7	1.2	1.2	0.3	0.8

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

11/17/2016

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations			↑		↑	↑		↑	↑
Traffic Vol, veh/h	0	233	31	0	45	1	0	30	140
Future Vol, veh/h	0	233	31	0	45	1	0	30	140
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	253	34	0	49	1	0	33	152
Number of Lanes	0	0	1	0	1	1	0	1	1

Approach		WB
Opposing Approach		EB
Opposing Lanes		2
Conflicting Approach Left		
Conflicting Lanes Left		0
Conflicting Approach Right		SB
Conflicting Lanes Right		3
HCM Control Delay		10.6
HCM LOS		B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3	SWLn1
Vol Left, %	100%	88%	0%	0%	100%	100%	0%	0%
Vol Thru, %	0%	12%	100%	0%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	0%	100%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	264	45	2	12	30	140	277
LT Vol	80	233	0	0	12	30	0	0
Through Vol	0	31	45	0	0	0	0	0
RT Vol	0	0	0	2	0	0	140	277
Lane Flow Rate	87	287	49	2	13	33	152	301
Geometry Grp	8	8	8	8	7	7	7	7
Degree of Util (X)	0.158	0.515	0.097	0.004	0.025	0.063	0.244	0.428
Departure Headway (Hd)	6.523	6.463	7.15	6.432	7	7	5.778	5.118
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	550	557	500	554	511	511	621	705
Service Time	4.261	4.202	4.914	4.195	4.748	4.748	3.526	2.853
HCM Lane V/C Ratio	0.158	0.515	0.098	0.004	0.025	0.065	0.245	0.427
HCM Control Delay	10.5	15.9	10.7	9.2	9.9	10.2	10.4	11.7
HCM Lane LOS	B	C	B	A	A	B	B	B
HCM 95th-tile Q	0.6	2.9	0.3	0	0.1	0.2	1	2.2

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

11/17/2016

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SWU	SWL	SWR
Lane Configurations			
Traffic Vol, veh/h	0	0	263
Future Vol, veh/h	0	0	263
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	0	286
Number of Lanes	0	1	0

Approach	SW
Opposing Approach	
Opposing Lanes	0
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	11.7
HCM LOS	B













HCM 2010 Signalized Intersection Summary
10: Etiwanda Ave & Cantu-Galleano Ranch Rd

12/12/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	17	68	15	6	23	190	439	35	47	156	105
Future Volume (veh/h)	67	17	68	15	6	23	190	439	35	47	156	105
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	73	18	74	16	7	25	207	477	38	51	170	114
Adj No. of Lanes	1	2	1	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	531	237	36	36	128	277	1038	82	97	745	333
Arrive On Green	0.07	0.15	0.15	0.02	0.10	0.10	0.16	0.31	0.31	0.05	0.21	0.21
Sat Flow, veh/h	1774	3539	1583	1774	358	1279	1774	3322	264	1774	3539	1583
Grp Volume(v), veh/h	73	18	74	16	0	32	207	253	262	51	170	114
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	0	1637	1774	1770	1816	1774	1770	1583
Q Serve(g_s), s	1.6	0.2	1.6	0.3	0.0	0.7	4.3	4.5	4.5	1.1	1.5	2.4
Cycle Q Clear(g_c), s	1.6	0.2	1.6	0.3	0.0	0.7	4.3	4.5	4.5	1.1	1.5	2.4
Prop In Lane	1.00		1.00	1.00		0.78	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	124	531	237	36	0	164	277	553	567	97	745	333
V/C Ratio(X)	0.59	0.03	0.31	0.44	0.00	0.20	0.75	0.46	0.46	0.53	0.23	0.34
Avail Cap(c_a), veh/h	479	2320	1038	251	0	863	981	1479	1518	388	1774	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	14.1	14.7	18.8	0.0	16.1	15.7	10.7	10.7	17.9	12.7	13.1
Incr Delay (d2), s/veh	4.3	0.0	0.7	8.2	0.0	0.6	4.0	0.6	0.6	4.4	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	0.7	0.2	0.0	0.3	2.4	2.3	2.3	0.6	0.8	1.1
LnGrp Delay(d),s/veh	21.9	14.1	15.5	27.1	0.0	16.6	19.7	11.3	11.3	22.3	12.9	13.7
LnGrp LOS	C	B	B	C		B	B	B	B	C	B	B
Approach Vol, veh/h		165			48			722			335	
Approach Delay, s/veh		18.2			20.1			13.7			14.6	
Approach LOS		B			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	5.3	10.3	10.6	12.7	7.2	8.4	6.6	16.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	25.5	21.5	19.5	10.5	20.5	8.5	32.5				
Max Q Clear Time (g_c+I1), s	2.3	3.6	6.3	4.4	3.6	2.7	3.1	6.5				
Green Ext Time (p_c), s	0.0	0.4	0.5	3.8	0.1	0.4	0.0	4.5				
Intersection Summary												
HCM 2010 Ctrl Delay			14.8									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

1: I-15 SB On Ramp/I-15 SB Off Ramp & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	1150	517	470	1059	0	0	0	0	271	1	837
Future Volume (veh/h)	0	1150	517	470	1059	0	0	0	0	271	1	837
Number	5	2	12	1	6	16				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1250	562	511	1151	0				197	0	1016
Adj No. of Lanes	0	2	1	2	2	0				1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1425	637	570	2171	0				526	0	938
Arrive On Green	0.00	0.40	0.40	0.17	0.61	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	0	3167
Grp Volume(v), veh/h	0	1250	562	511	1151	0				197	0	1016
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	32.5	32.7	14.5	18.6	0.0				8.8	0.0	29.5
Cycle Q Clear(g_c), s	0.0	32.5	32.7	14.5	18.6	0.0				8.8	0.0	29.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1425	637	570	2171	0				526	0	938
V/C Ratio(X)	0.00	0.88	0.88	0.90	0.53	0.00				0.37	0.00	1.08
Avail Cap(c_a), veh/h	0	1439	644	570	2186	0				526	0	938
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	27.5	27.5	40.7	11.0	0.0				27.7	0.0	35.0
Incr Delay (d2), s/veh	0.0	6.4	13.4	16.8	0.2	0.0				2.0	0.0	54.6
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	17.1	16.6	8.2	9.0	0.0				4.6	0.0	20.0
LnGrp Delay(d),s/veh	0.0	33.9	41.0	57.5	11.3	0.0				29.8	0.0	89.6
LnGrp LOS		C	D	E	B					C		F
Approach Vol, veh/h		1812			1662						1213	
Approach Delay, s/veh		36.1			25.5						79.9	
Approach LOS		D			C						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	21.0	44.6				65.6		34.0				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	16.5	40.5				61.5		29.5				
Max Q Clear Time (g_c+I1), s	16.5	34.7				20.6		31.5				
Green Ext Time (p_c), s	0.0	5.4				29.5		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			43.7									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary

2: I-15 NB Off Ramp/I-15 NB On Ramp & Limonite Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	937	0	0	1092	245	429	0	796	0	0	0
Future Volume (veh/h)	480	937	0	0	1092	245	429	0	796	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	522	1018	0	0	1187	266	311	0	1031			
Adj No. of Lanes	2	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	591	2177	0	0	1409	630	523	0	934			
Arrive On Green	0.17	0.62	0.00	0.00	0.40	0.40	0.29	0.00	0.29			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	3167			
Grp Volume(v), veh/h	522	1018	0	0	1187	266	311	0	1031			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	14.8	15.5	0.0	0.0	30.4	12.2	15.0	0.0	29.5			
Cycle Q Clear(g_c), s	14.8	15.5	0.0	0.0	30.4	12.2	15.0	0.0	29.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	591	2177	0	0	1409	630	523	0	934			
V/C Ratio(X)	0.88	0.47	0.00	0.00	0.84	0.42	0.59	0.00	1.10			
Avail Cap(c_a), veh/h	637	2177	0	0	1409	630	523	0	934			
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	40.4	10.4	0.0	0.0	27.3	21.8	30.1	0.0	35.2			
Incr Delay (d2), s/veh	13.1	0.7	0.0	0.0	6.3	2.1	4.9	0.0	62.1			
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	8.1	7.7	0.0	0.0	16.1	5.7	8.1	0.0	20.9			
LnGrp Delay(d),s/veh	53.6	11.1	0.0	0.0	33.5	23.8	35.0	0.0	97.3			
LnGrp LOS	D	B			C	C	D		F			
Approach Vol, veh/h		1540			1453			1342				
Approach Delay, s/veh		25.5			31.7			82.9				
Approach LOS		C			C			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			21.7	44.3		34.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		61.5			18.5	38.5		29.5				
Max Q Clear Time (g_c+I1), s		17.5			16.8	32.4		31.5				
Green Ext Time (p_c), s		25.6			0.4	5.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				45.4								
HCM 2010 LOS				D								
Notes												

























HCM 2010 Signalized Intersection Summary

3: Pats Ranch Rd & Limonite Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1243	211	187	955	0	340	18	144	0	8	29
Future Volume (veh/h)	36	1243	211	187	955	0	340	18	144	0	8	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	39	1351	229	203	1038	0	370	20	157	0	9	32
Adj No. of Lanes	1	2	1	1	2	1	2	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	1405	629	222	1730	774	406	639	543	2	65	230
Arrive On Green	0.03	0.40	0.40	0.13	0.49	0.00	0.12	0.34	0.34	0.00	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	1863	1583	1774	359	1278
Grp Volume(v), veh/h	39	1351	229	203	1038	0	370	20	157	0	0	41
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1863	1583	1774	0	1637
Q Serve(g_s), s	2.2	37.2	10.2	11.3	21.2	0.0	10.6	0.7	7.2	0.0	0.0	2.1
Cycle Q Clear(g_c), s	2.2	37.2	10.2	11.3	21.2	0.0	10.6	0.7	7.2	0.0	0.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	59	1405	629	222	1730	774	406	639	543	2	0	295
V/C Ratio(X)	0.66	0.96	0.36	0.92	0.60	0.00	0.91	0.03	0.29	0.00	0.00	0.14
Avail Cap(c_a), veh/h	115	1405	629	222	1730	774	406	639	543	89	0	295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	47.8	29.4	21.3	43.2	18.5	0.0	43.6	21.8	24.0	0.0	0.0	34.5
Incr Delay (d2), s/veh	12.2	16.4	1.6	38.1	1.5	0.0	24.3	0.1	1.3	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	21.2	4.8	7.9	10.8	0.0	6.4	0.4	3.4	0.0	0.0	1.0
LnGrp Delay(d),s/veh	60.0	45.8	22.9	81.3	20.0	0.0	67.9	21.9	25.3	0.0	0.0	35.5
LnGrp LOS	E	D	C	F	C		E	C	C			D
Approach Vol, veh/h		1619			1241			547				41
Approach Delay, s/veh		42.9			30.1			54.0				35.5
Approach LOS		D			C			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	44.2	16.3	22.5	7.8	53.4	0.0	38.8				
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	12.5	39.7	11.8	18.0	6.5	45.7	5.0	24.8				
Max Q Clear Time (g_c+I1), s	13.3	39.2	12.6	4.1	4.2	23.2	0.0	9.2				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.7	0.0	17.4	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			40.0									
HCM 2010 LOS			D									













HCM 2010 Signalized Intersection Summary

4: Wineville Ave & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	1132	76	32	849	59	58	44	34	67	100	237
Future Volume (veh/h)	200	1132	76	32	849	59	58	44	34	67	100	237
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	217	1230	83	35	923	64	63	48	37	73	109	258
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	1613	722	62	1221	546	89	370	258	125	728	326
Arrive On Green	0.15	0.46	0.46	0.04	0.34	0.34	0.05	0.19	0.19	0.07	0.21	0.21
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1997	1390	1774	3539	1583
Grp Volume(v), veh/h	217	1230	83	35	923	64	63	42	43	73	109	258
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1617	1774	1770	1583
Q Serve(g_s), s	8.5	20.6	2.1	1.4	16.4	2.0	2.5	1.4	1.6	2.8	1.8	11.0
Cycle Q Clear(g_c), s	8.5	20.6	2.1	1.4	16.4	2.0	2.5	1.4	1.6	2.8	1.8	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	259	1613	722	62	1221	546	89	328	300	125	728	326
V/C Ratio(X)	0.84	0.76	0.12	0.56	0.76	0.12	0.71	0.13	0.14	0.58	0.15	0.79
Avail Cap(c_a), veh/h	287	1613	722	125	1221	546	220	448	410	450	1355	606
HCM Platoon Ratio	1.00	1.00	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	29.5	16.1	11.1	33.7	20.6	15.9	33.2	24.1	24.2	32.0	23.1	26.8
Incr Delay (d2), s/veh	17.8	3.5	0.3	7.7	4.4	0.4	9.9	0.2	0.2	4.3	0.1	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	10.7	1.0	0.8	8.7	0.9	1.5	0.7	0.7	1.5	0.9	5.2
LnGrp Delay(d),s/veh	47.3	19.6	11.4	41.4	25.0	16.3	43.2	24.3	24.4	36.3	23.2	31.1
LnGrp LOS	D	B	B	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1530			1022			148			440	
Approach Delay, s/veh		23.1			25.0			32.4			30.0	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	36.9	8.1	19.1	14.9	29.0	9.5	17.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	31.0	8.8	27.2	11.5	24.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	3.4	22.6	4.5	13.0	10.5	18.4	4.8	3.6				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.6	0.1	5.2	0.1	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			25.1									
HCM 2010 LOS			C									





















HCM 2010 Signalized Intersection Summary

5: Pats Ranch Rd

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	329	100	87	179	284	54		
Future Volume (veh/h)	329	100	87	179	284	54		
Number	5	12	3	8	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	358	109	95	195	309	59		
Adj No. of Lanes	2	1	1	2	2	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	557	256	750	2394	612	274		
Arrive On Green	0.16	0.16	0.42	0.68	0.17	0.17		
Sat Flow, veh/h	3442	1583	1774	3632	3632	1583		
Grp Volume(v), veh/h	358	109	95	195	309	59		
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1770	1770	1583		
Q Serve(g_s), s	5.4	3.4	1.8	1.0	4.4	1.8		
Cycle Q Clear(g_c), s	5.4	3.4	1.8	1.0	4.4	1.8		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	557	256	750	2394	612	274		
V/C Ratio(X)	0.64	0.43	0.13	0.08	0.51	0.22		
Avail Cap(c_a), veh/h	1702	783	750	3405	1623	726		
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	21.8	21.0	9.8	3.1	20.8	19.8		
Incr Delay (d2), s/veh	1.2	1.1	0.3	0.0	0.6	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.7	1.6	0.9	0.5	2.2	0.8		
LnGrp Delay(d),s/veh	23.1	22.1	10.1	3.1	21.5	20.2		
LnGrp LOS	C	C	B	A	C	C		
Approach Vol, veh/h	467			290	368			
Approach Delay, s/veh	22.8			5.4	21.3			
Approach LOS	C			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		13.5	28.0	14.1				42.1
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		27.5	23.5	25.5				53.5
Max Q Clear Time (g_c+I1), s		7.4	3.8	6.4				3.0
Green Ext Time (p_c), s		1.6	0.2	3.2				3.7
Intersection Summary								
HCM 2010 Ctrl Delay			17.8					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

6: Pats Ranch Rd & Dwy/65th St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	10	26	9	9	25	83	217	20	35	315	6
Future Volume (veh/h)	23	10	26	9	9	25	83	217	20	35	315	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	25	11	28	10	10	27	90	236	22	38	342	7
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	804	226	575	201	214	448	123	717	66	72	672	301
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.07	0.22	0.22	0.04	0.19	0.19
Sat Flow, veh/h	1365	466	1187	243	442	925	1774	3276	303	1774	3539	1583
Grp Volume(v), veh/h	25	0	39	47	0	0	90	127	131	38	342	7
Grp Sat Flow(s),veh/h/ln	1365	0	1653	1610	0	0	1774	1770	1809	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.7	0.0	0.0	0.0	2.6	3.2	3.2	1.1	4.6	0.2
Cycle Q Clear(g_c), s	0.4	0.0	0.7	0.8	0.0	0.0	2.6	3.2	3.2	1.1	4.6	0.2
Prop In Lane	1.00		0.72	0.21		0.57	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	804	0	801	863	0	0	123	387	396	72	672	301
V/C Ratio(X)	0.03	0.00	0.05	0.05	0.00	0.00	0.73	0.33	0.33	0.53	0.51	0.02
Avail Cap(c_a), veh/h	804	0	801	863	0	0	691	1260	1288	455	2050	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.1	0.0	7.2	7.2	0.0	0.0	24.0	17.3	17.3	24.8	19.1	17.4
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.0	8.0	0.5	0.5	5.9	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	0.4	0.0	0.0	1.5	1.6	1.7	0.7	2.3	0.1
LnGrp Delay(d),s/veh	7.2	0.0	7.3	7.3	0.0	0.0	32.0	17.8	17.8	30.7	19.7	17.4
LnGrp LOS	A		A	A			C	B	B	C	B	B
Approach Vol, veh/h		64			47			348			387	
Approach Delay, s/veh		7.2			7.3			21.5			20.8	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.0	8.2	14.5		30.0	6.6	16.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		25.5	20.5	30.5		25.5	13.5	37.5				
Max Q Clear Time (g_c+I1), s		2.7	4.6	6.6		2.8	3.1	5.2				
Green Ext Time (p_c), s		0.5	0.2	3.4		0.5	0.0	3.6				
Intersection Summary												
HCM 2010 Ctrl Delay			19.3									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

7: Pats Ranch Rd & 68th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	386	0	2	260	34	4	13	3	8	0	255
Future Volume (veh/h)	252	386	0	2	260	34	4	13	3	8	0	255
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	274	420	0	2	283	37	4	14	3	9	0	277
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	343	1349	0	5	673	301	61	228	49	176	407	346
Arrive On Green	0.19	0.38	0.00	0.00	0.19	0.19	0.03	0.15	0.15	0.10	0.00	0.22
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1488	319	1774	1863	1583
Grp Volume(v), veh/h	274	420	0	2	283	37	4	0	17	9	0	277
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	0	1806	1774	1863	1583
Q Serve(g_s), s	7.3	4.1	0.0	0.1	3.5	1.0	0.1	0.0	0.4	0.2	0.0	8.2
Cycle Q Clear(g_c), s	7.3	4.1	0.0	0.1	3.5	1.0	0.1	0.0	0.4	0.2	0.0	8.2
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	343	1349	0	5	673	301	61	0	277	176	407	346
V/C Ratio(X)	0.80	0.31	0.00	0.41	0.42	0.12	0.07	0.00	0.06	0.05	0.00	0.80
Avail Cap(c_a), veh/h	627	2217	0	179	1323	592	645	0	657	645	678	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	10.8	0.0	24.6	17.6	16.6	23.1	0.0	17.9	20.2	0.0	18.3
Incr Delay (d2), s/veh	4.3	0.1	0.0	47.4	0.4	0.2	0.5	0.0	0.1	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	2.0	0.0	0.1	1.7	0.4	0.1	0.0	0.2	0.1	0.0	3.9
LnGrp Delay(d),s/veh	23.3	10.9	0.0	72.1	18.1	16.8	23.6	0.0	18.0	20.3	0.0	22.7
LnGrp LOS	C	B		E	B	B	C		B	C		C
Approach Vol, veh/h		694			322			21			286	
Approach Delay, s/veh		15.8			18.2			19.1			22.6	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	23.4	6.2	15.3	14.1	13.9	9.4	12.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	31.0	18.0	18.0	17.5	18.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	2.1	6.1	2.1	10.2	9.3	5.5	2.2	2.4				
Green Ext Time (p_c), s	0.0	5.1	0.0	0.6	0.5	3.9	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay				17.9								
HCM 2010 LOS				B								

HCM 2010 AWSC

8: 68th St & Carnelian St

Intersection

Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations		↘	↕↕		↕↕	↘		↘↘	
Traffic Vol, veh/h	0	47	347	0	231	12	0	9	64
Future Vol, veh/h	0	47	347	0	231	12	0	9	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	51	377	0	251	13	0	10	70
Number of Lanes	0	1	2	0	2	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	3
HCM Control Delay	8.1	8.7	8.8
HCM LOS	A	A	A

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	0%	12%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	88%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	174	174	116	116	12	73
LT Vol	47	0	0	0	0	0	9
Through Vol	0	174	174	116	116	0	0
RT Vol	0	0	0	0	0	12	64
Lane Flow Rate	51	189	189	126	126	13	79
Geometry Grp	7	7	7	7	7	7	7
Degree of Util (X)	0.078	0.261	0.17	0.177	0.177	0.01	0.117
Departure Headway (Hd)	5.478	4.977	3.236	5.072	5.072	2.628	5.303
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	655	722	1107	707	707	1355	674
Service Time	3.203	2.701	0.96	2.803	2.803	0.358	3.049
HCM Lane V/C Ratio	0.078	0.262	0.171	0.178	0.178	0.01	0.117
HCM Control Delay	8.7	9.5	6.6	8.9	8.9	5.4	8.8
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.3	1	0.6	0.6	0.6	0	0.4

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

Intersection

Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations		↘	↑		↑	↗		↘	↗
Traffic Vol, veh/h	0	211	52	0	30	18	0	18	58
Future Vol, veh/h	0	211	52	0	30	18	0	18	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	229	57	0	33	20	0	20	63
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach

WB

Opposing Approach	EB
Opposing Lanes	2
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	9.2
HCM LOS	A

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3	SWLn1
Vol Left, %	100%	0%	0%	0%	100%	100%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	0%	100%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	299	52	30	19	3	18	58	161
LT Vol	299	0	0	0	3	18	0	0
Through Vol	0	52	30	0	0	0	0	0
RT Vol	0	0	0	19	0	0	58	161
Lane Flow Rate	325	57	33	21	3	20	63	175
Geometry Grp	8	8	8	8	7	7	7	7
Degree of Util (X)	0.52	0.083	0.057	0.032	0.006	0.036	0.093	0.224
Departure Headway (Hd)	5.763	5.262	6.325	5.613	6.541	6.541	5.325	4.599
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	621	676	561	631	544	544	667	775
Service Time	3.532	3.03	4.122	3.409	4.32	4.32	3.103	2.364
HCM Lane V/C Ratio	0.523	0.084	0.059	0.033	0.006	0.037	0.094	0.226
HCM Control Delay	14.7	8.5	9.5	8.6	9.4	9.6	8.7	8.7
HCM Lane LOS	B	A	A	A	A	A	A	A
HCM 95th-tile Q	3	0.3	0.2	0.1	0	0.1	0.3	0.9

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SWU	SWL	SWR
Lane Configurations			
Traffic Vol, veh/h	0	0	158
Future Vol, veh/h	0	0	158
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	0	172
Number of Lanes	0	1	0

Approach	SW
Opposing Approach	
Opposing Lanes	0
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	8.7
HCM LOS	A

HCM 2010 Signalized Intersection Summary

10: Etiwanda Ave & Cantu-Galleano Ranch Rd

12/12/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	10	146	64	34	30	144	257	35	25	448	62
Future Volume (veh/h)	84	10	146	64	34	30	144	257	35	25	448	62
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	91	11	159	70	37	33	157	279	38	27	487	67
Adj No. of Lanes	1	2	1	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	548	245	115	131	117	208	1083	146	57	919	411
Arrive On Green	0.08	0.15	0.15	0.06	0.14	0.14	0.12	0.35	0.35	0.03	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	909	811	1774	3135	423	1774	3539	1583
Grp Volume(v), veh/h	91	11	159	70	0	70	157	156	161	27	487	67
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	0	1720	1774	1770	1788	1774	1770	1583
Q Serve(g_s), s	2.2	0.1	4.2	1.7	0.0	1.6	3.8	2.8	2.9	0.7	5.3	1.5
Cycle Q Clear(g_c), s	2.2	0.1	4.2	1.7	0.0	1.6	3.8	2.8	2.9	0.7	5.3	1.5
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	134	548	245	115	0	248	208	611	617	57	919	411
V/C Ratio(X)	0.68	0.02	0.65	0.61	0.00	0.28	0.75	0.26	0.26	0.48	0.53	0.16
Avail Cap(c_a), veh/h	457	1783	798	417	0	828	695	1288	1301	258	1704	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	16.0	17.7	20.3	0.0	17.1	19.1	10.5	10.5	21.3	14.2	12.8
Incr Delay (d2), s/veh	5.8	0.0	2.9	5.1	0.0	0.6	5.4	0.2	0.2	6.1	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.1	2.0	1.0	0.0	0.8	2.2	1.4	1.5	0.4	2.6	0.7
LnGrp Delay(d),s/veh	25.9	16.0	20.6	25.4	0.0	17.7	24.5	10.7	10.7	27.4	14.7	13.0
LnGrp LOS	C	B	C	C		B	C	B	B	C	B	B
Approach Vol, veh/h		261			140			474			581	
Approach Delay, s/veh		22.3			21.5			15.3			15.1	
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	7.4	11.4	9.7	16.1	7.9	10.9	5.9	19.9				
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	10.5	22.5	17.5	21.5	11.5	21.5	6.5	32.5				
Max Q Clear Time (g_c+I1), s	3.7	6.2	5.8	7.3	4.2	3.6	2.7	4.9				
Green Ext Time (p_c), s	0.1	0.8	0.3	4.3	0.1	0.8	0.0	5.4				
Intersection Summary												
HCM 2010 Ctrl Delay			17.1									
HCM 2010 LOS			B									















APPENDIX D
Intersection Level of Service Worksheets
Existing With Ambient Growth Plus Construction Traffic Conditions

HCM 2010 Signalized Intersection Summary
























1: I-15 SB On Ramp/I-15 SB Off Ramp & Limonite Ave

12/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	1174	505	651	697	0	0	0	0	156	2	469
Future Volume (veh/h)	0	1174	505	651	697	0	0	0	0	156	2	469
Number	5	2	12	1	6	16				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1276	549	708	758	0				114	0	571
Adj No. of Lanes	0	2	1	2	2	0				1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1540	689	801	2532	0				337	0	601
Arrive On Green	0.00	0.43	0.43	0.23	0.72	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	0	3167
Grp Volume(v), veh/h	0	1276	549	708	758	0				114	0	571
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	30.2	28.4	18.8	7.4	0.0				5.3	0.0	16.9
Cycle Q Clear(g_c), s	0.0	30.2	28.4	18.8	7.4	0.0				5.3	0.0	16.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1540	689	801	2532	0				337	0	601
V/C Ratio(X)	0.00	0.83	0.80	0.88	0.30	0.00				0.34	0.00	0.95
Avail Cap(c_a), veh/h	0	1605	718	925	2724	0				337	0	601
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	23.7	23.2	35.1	4.9	0.0				33.3	0.0	38.0
Incr Delay (d2), s/veh	0.0	3.7	6.1	9.2	0.1	0.0				2.7	0.0	26.3
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	15.5	13.5	10.0	3.6	0.0				2.9	0.0	9.6
LnGrp Delay(d),s/veh	0.0	27.3	29.2	44.3	5.0	0.0				36.0	0.0	64.3
LnGrp LOS		C	C	D	A					D		E
Approach Vol, veh/h		1825			1466						685	
Approach Delay, s/veh		27.9			23.9						59.5	
Approach LOS		C			C						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	26.6	45.8				72.3		22.5				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	25.5	43.0				73.0		18.0				
Max Q Clear Time (g_c+I1), s	20.8	32.2				9.4		18.9				
Green Ext Time (p_c), s	1.2	9.0				31.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			31.9									
HCM 2010 LOS			C									
Notes												

HCM 2010 Signalized Intersection Summary
2: I-15 NB Off Ramp/I-15 NB On Ramp & Limonite Ave






















12/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (veh/h)	839	500	0	0	1133	341	229	2	320	0	0	0
Future Volume (veh/h)	839	500	0	0	1133	341	229	2	320	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	912	543	0	0	1232	371	373	0	216			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
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	981	2584	0	0	1416	633	639	0	285			
Arrive On Green	0.29	0.73	0.00	0.00	0.40	0.40	0.18	0.00	0.18			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	3548	0	1583			
Grp Volume(v), veh/h	912	543	0	0	1232	371	373	0	216			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	25.8	4.9	0.0	0.0	32.0	18.4	9.6	0.0	13.0			
Cycle Q Clear(g_c), s	25.8	4.9	0.0	0.0	32.0	18.4	9.6	0.0	13.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	981	2584	0	0	1416	633	639	0	285			
V/C Ratio(X)	0.93	0.21	0.00	0.00	0.87	0.59	0.58	0.00	0.76			
Avail Cap(c_a), veh/h	1015	2584	0	0	1416	633	639	0	285			
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	34.8	4.3	0.0	0.0	27.6	23.5	37.6	0.0	38.9			
Incr Delay (d2), s/veh	14.1	0.2	0.0	0.0	7.6	3.9	3.9	0.0	17.1			
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	14.1	2.4	0.0	0.0	17.1	8.7	5.1	0.0	7.0			
LnGrp Delay(d),s/veh	48.9	4.5	0.0	0.0	35.2	27.4	41.4	0.0	56.0			
LnGrp LOS	D	A			D	C	D		E			
Approach Vol, veh/h		1455			1603			589				
Approach Delay, s/veh		32.3			33.4			46.8				
Approach LOS		C			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.5			33.0	44.5		22.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		73.0			29.5	39.0		18.0				
Max Q Clear Time (g_c+I1), s		6.9			27.8	34.0		15.0				
Green Ext Time (p_c), s		23.2			0.7	4.2		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				35.1								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary

3: Pats Ranch Rd & Limonite Ave

























12/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	625	112	84	1074	2	356	3	93	1	8	31
Future Volume (veh/h)	20	625	112	84	1074	2	356	3	93	1	8	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	22	679	122	91	1167	0	387	3	101	1	9	34
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	1153	516	116	1303	583	418	22	724	0	64	241
Arrive On Green	0.02	0.33	0.33	0.07	0.37	0.00	0.24	0.47	0.47	0.00	0.19	0.19
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	46	1544	0	342	1293
Grp Volume(v), veh/h	22	679	122	91	1167	0	387	0	104	0	0	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1590	0	0	1635
Q Serve(g_s), s	1.2	15.4	5.4	4.9	30.0	0.0	20.6	0.0	3.6	0.0	0.0	2.1
Cycle Q Clear(g_c), s	1.2	15.4	5.4	4.9	30.0	0.0	20.6	0.0	3.6	0.0	0.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	0.00		0.79
Lane Grp Cap(c), veh/h	41	1153	516	116	1303	583	418	0	745	0	0	305
V/C Ratio(X)	0.54	0.59	0.24	0.78	0.90	0.00	0.93	0.00	0.14	0.00	0.00	0.14
Avail Cap(c_a), veh/h	92	1153	516	195	1303	583	432	0	745	0	0	305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	46.6	27.1	23.8	44.4	28.7	0.0	36.0	0.0	14.6	0.0	0.0	32.8
Incr Delay (d2), s/veh	10.5	2.2	1.1	10.8	9.8	0.0	25.6	0.0	0.4	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.9	2.5	2.8	16.4	0.0	13.1	0.0	1.6	0.0	0.0	1.0
LnGrp Delay(d),s/veh	57.1	29.3	24.8	55.2	38.5	0.0	61.6	0.0	14.9	0.0	0.0	33.7
LnGrp LOS	E	C	C	E	D		E		B			C
Approach Vol, veh/h		823			1258			491				43
Approach Delay, s/veh		29.4			39.7			51.7				33.7
Approach LOS		C			D			D				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	35.9	27.2	22.5	6.7	40.0	0.0	49.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.6	29.9	23.5	18.0	5.0	35.5	5.0	36.5				
Max Q Clear Time (g_c+I1), s	6.9	17.4	22.6	4.1	3.2	32.0	0.0	5.6				
Green Ext Time (p_c), s	0.1	8.9	0.1	0.6	0.0	3.0	0.0	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			38.6									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary

4: Wineville Ave & Limonite Ave













12/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	537	54	34	880	52	99	106	54	41	74	187
Future Volume (veh/h)	134	537	54	34	880	52	99	106	54	41	74	187
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	146	584	59	37	957	57	108	115	59	45	80	203
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	1614	722	65	1379	617	140	420	204	126	614	275
Arrive On Green	0.10	0.46	0.46	0.04	0.39	0.39	0.08	0.18	0.18	0.07	0.17	0.17
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	2313	1122	1774	3539	1583
Grp Volume(v), veh/h	146	584	59	37	957	57	108	86	88	45	80	203
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1665	1774	1770	1583
Q Serve(g_s), s	5.7	7.6	1.5	1.4	16.0	1.6	4.2	3.0	3.2	1.7	1.3	8.6
Cycle Q Clear(g_c), s	5.7	7.6	1.5	1.4	16.0	1.6	4.2	3.0	3.2	1.7	1.3	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	183	1614	722	65	1379	617	140	321	302	126	614	275
V/C Ratio(X)	0.80	0.36	0.08	0.57	0.69	0.09	0.77	0.27	0.29	0.36	0.13	0.74
Avail Cap(c_a), veh/h	214	1614	722	153	1379	617	302	451	425	452	1204	538
HCM Platoon Ratio	1.00	1.00	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	30.9	12.5	10.8	33.5	18.0	13.6	31.9	24.9	25.0	31.3	24.7	27.6
Incr Delay (d2), s/veh	16.7	0.6	0.2	7.7	2.9	0.3	8.7	0.4	0.5	1.7	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	3.8	0.7	0.8	8.3	0.7	2.4	1.5	1.5	0.9	0.7	4.0
LnGrp Delay(d),s/veh	47.6	13.1	11.1	41.1	20.9	13.9	40.6	25.3	25.5	33.0	24.7	31.5
LnGrp LOS	D	B	B	D	C	B	D	C	C	C	C	C
Approach Vol, veh/h		789			1051			282			328	
Approach Delay, s/veh		19.4			21.2			31.2			30.1	
Approach LOS		B			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	36.7	10.1	16.8	11.8	32.0	9.5	17.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.1	29.9	12.0	24.0	8.5	27.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	3.4	9.6	6.2	10.6	7.7	18.0	3.7	5.2				
Green Ext Time (p_c), s	0.0	10.5	0.1	1.7	0.0	6.3	0.1	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			23.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

5: Pats Ranch Rd & Mall Entrance




















12/14/2016

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	69	4	13	384	171	15		
Future Volume (veh/h)	69	4	13	384	171	15		
Number	5	12	3	8	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	75	4	14	417	186	16		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	121	108	772	1379	390	332		
Arrive On Green	0.07	0.07	0.44	0.74	0.21	0.21		
Sat Flow, veh/h	1774	1583	1774	1863	1863	1583		
Grp Volume(v), veh/h	75	4	14	417	186	16		
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583		
Q Serve(g_s), s	1.9	0.1	0.2	3.5	4.1	0.4		
Cycle Q Clear(g_c), s	1.9	0.1	0.2	3.5	4.1	0.4		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	121	108	772	1379	390	332		
V/C Ratio(X)	0.62	0.04	0.02	0.30	0.48	0.05		
Avail Cap(c_a), veh/h	961	858	772	2196	1207	1026		
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	21.3	20.5	7.6	2.0	16.3	14.9		
Incr Delay (d2), s/veh	5.0	0.1	0.0	0.1	0.9	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.1	1.8	2.2	0.2		
LnGrp Delay(d),s/veh	26.4	20.6	7.6	2.2	17.2	14.9		
LnGrp LOS	C	C	A	A	B	B		
Approach Vol, veh/h	79			431	202			
Approach Delay, s/veh	26.1			2.3	17.1			
Approach LOS	C			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		7.7	25.0	14.4				39.4
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		25.5	20.5	30.5				55.5
Max Q Clear Time (g_c+I1), s		3.9	2.2	6.1				5.5
Green Ext Time (p_c), s		0.2	0.0	3.7				4.1
Intersection Summary								
HCM 2010 Ctrl Delay			9.2					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary

6: Pats Ranch Rd & Dwy/65th St





















12/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	1	17	46	6	36	46	312	24	8	168	6
Future Volume (veh/h)	17	1	17	46	6	36	46	312	24	8	168	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	18	1	18	50	7	39	50	339	26	9	183	7
Adj No. of Lanes	1	1	0	0	1	0	1	1	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	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	784	40	717	440	82	290	86	466	36	21	421	16
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.05	0.27	0.27	0.01	0.24	0.24
Sat Flow, veh/h	1354	84	1512	722	173	612	1774	1709	131	1774	1783	68
Grp Volume(v), veh/h	18	0	19	96	0	0	50	0	365	9	0	190
Grp Sat Flow(s),veh/h/ln	1354	0	1596	1507	0	0	1774	0	1840	1774	0	1851
Q Serve(g_s), s	0.0	0.0	0.4	0.0	0.0	0.0	1.5	0.0	10.1	0.3	0.0	4.9
Cycle Q Clear(g_c), s	0.3	0.0	0.4	1.7	0.0	0.0	1.5	0.0	10.1	0.3	0.0	4.9
Prop In Lane	1.00		0.95	0.52		0.41	1.00		0.07	1.00		0.04
Lane Grp Cap(c), veh/h	784	0	757	813	0	0	86	0	501	21	0	437
V/C Ratio(X)	0.02	0.00	0.03	0.12	0.00	0.00	0.58	0.00	0.73	0.43	0.00	0.44
Avail Cap(c_a), veh/h	784	0	757	813	0	0	365	0	1399	238	0	1275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.8	0.0	7.8	8.2	0.0	0.0	26.0	0.0	18.4	27.4	0.0	18.2
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.3	0.0	0.0	6.2	0.0	2.0	13.7	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	0.9	0.0	0.0	0.9	0.0	5.4	0.2	0.0	2.6
LnGrp Delay(d),s/veh	7.9	0.0	7.9	8.5	0.0	0.0	32.2	0.0	20.5	41.2	0.0	18.9
LnGrp LOS	A		A	A			C		C	D		B
Approach Vol, veh/h		37			96			415			199	
Approach Delay, s/veh		7.9			8.5			21.9			19.9	
Approach LOS		A			A			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		31.0	7.2	17.7		31.0	5.2	19.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		26.5	11.5	38.5		26.5	7.5	42.5				
Max Q Clear Time (g_c+I1), s		2.4	3.5	6.9		3.7	2.3	12.1				
Green Ext Time (p_c), s		0.7	0.0	3.2		0.6	0.0	3.2				
Intersection Summary												
HCM 2010 Ctrl Delay			18.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

7: Pats Ranch Rd & 68th St

12/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	318	570	8	1	426	48	2	4	0	21	29	191
Future Volume (veh/h)	318	570	8	1	426	48	2	4	0	21	29	191
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	346	620	9	1	463	52	2	4	0	23	32	208
Adj No. of Lanes	1	1	0	1	1	1	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	923	13	3	531	452	56	531	0	0	40	258
Arrive On Green	0.22	0.50	0.50	0.00	0.29	0.29	0.03	0.29	0.00	0.00	0.18	0.18
Sat Flow, veh/h	1774	1831	27	1774	1863	1583	1774	1863	0	0	215	1400
Grp Volume(v), veh/h	346	0	629	1	463	52	2	4	0	0	0	240
Grp Sat Flow(s),veh/h/ln	1774	0	1858	1774	1863	1583	1774	1863	0	0	0	1616
Q Serve(g_s), s	12.2	0.0	16.4	0.0	15.2	1.6	0.1	0.1	0.0	0.0	0.0	9.2
Cycle Q Clear(g_c), s	12.2	0.0	16.4	0.0	15.2	1.6	0.1	0.1	0.0	0.0	0.0	9.2
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.00	0.00		0.87
Lane Grp Cap(c), veh/h	391	0	936	3	531	452	56	531	0	0	0	297
V/C Ratio(X)	0.89	0.00	0.67	0.36	0.87	0.12	0.04	0.01	0.00	0.00	0.00	0.81
Avail Cap(c_a), veh/h	399	0	936	138	621	528	495	531	0	0	0	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	12.0	32.2	21.9	17.0	30.3	16.5	0.0	0.0	0.0	25.2
Incr Delay (d2), s/veh	20.3	0.0	1.9	65.7	11.5	0.1	0.3	0.0	0.0	0.0	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	8.7	0.1	9.5	0.7	0.0	0.1	0.0	0.0	0.0	4.6
LnGrp Delay(d),s/veh	44.7	0.0	13.9	97.8	33.4	17.1	30.5	16.5	0.0	0.0	0.0	31.5
LnGrp LOS	D		B	F	C	B	C	B				C
Approach Vol, veh/h		975			516			6			240	
Approach Delay, s/veh		24.8			31.9			21.2			31.5	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	37.0	6.5	16.4	18.7	22.9	0.0	22.9				
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	31.0	18.0	18.0	14.5	21.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	2.0	18.4	2.1	11.2	14.2	17.2	0.0	2.1				
Green Ext Time (p_c), s	0.0	6.0	0.0	0.7	0.0	1.1	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			27.8									
HCM 2010 LOS			C									

HCM 2010 AWSC

8: 68th St & Carnelian St

12/14/2016

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations		↖	↗		↖	↗		↖↗	
Traffic Vol, veh/h	0	246	343	0	350	89	0	2	120
Future Vol, veh/h	0	246	343	0	350	89	0	2	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	267	373	0	380	97	0	2	130
Number of Lanes	0	1	1	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	14.4	15	10.3
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	2%
Vol Thru, %	0%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	100%	98%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	246	343	350	89	122
LT Vol	246	0	0	0	2
Through Vol	0	343	350	0	0
RT Vol	0	0	0	89	120
Lane Flow Rate	267	373	380	97	133
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.443	0.565	0.602	0.134	0.21
Departure Headway (Hd)	5.965	5.46	5.693	4.986	5.704
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	604	664	635	720	630
Service Time	3.685	3.18	3.418	2.71	3.733
HCM Lane V/C Ratio	0.442	0.562	0.598	0.135	0.211
HCM Control Delay	13.4	15.1	16.7	8.5	10.3
HCM Lane LOS	B	C	C	A	B
HCM 95th-tile Q	2.3	3.5	4	0.5	0.8

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

12/14/2016

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations						↗		↘	↗
Traffic Vol, veh/h	0	233	31	0	45	27	0	37	140
Future Vol, veh/h	0	233	31	0	45	27	0	37	140
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	253	34	0	49	29	0	40	152
Number of Lanes	0	0	0	0	0	1	0	1	1

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

Lane	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3	SWLn1
Vol Left, %	91%	0%	100%	100%	0%	0%
Vol Thru, %	9%	62%	0%	0%	0%	0%
Vol Right, %	0%	38%	0%	0%	100%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	344	73	12	37	140	277
LT Vol	313	0	12	37	0	0
Through Vol	31	45	0	0	0	0
RT Vol	0	28	0	0	140	277
Lane Flow Rate	374	79	13	40	152	301
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.648	0.147	0.026	0.08	0.25	0.44
Departure Headway (Hd)	6.24	6.647	7.136	7.136	5.912	5.258
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	580	537	500	501	606	683
Service Time	3.985	4.418	4.895	4.895	3.671	3.006
HCM Lane V/C Ratio	0.645	0.147	0.026	0.08	0.251	0.441
HCM Control Delay	19.8	10.6	10.1	10.5	10.6	12.1
HCM Lane LOS	C	B	B	B	B	B
HCM 95th-tile Q	4.7	0.5	0.1	0.3	1	2.3

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

12/14/2016

Intersection

Intersection Delay, s/veh























Intersection LOS

Movement	SWU	SWL	SWR
Lane Configurations			
Traffic Vol, veh/h	0	0	263
Future Vol, veh/h	0	0	263
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	0	286
Number of Lanes	0	1	0

Approach	SW
Opposing Approach	
Opposing Lanes	0
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	12.1
HCM LOS	B













HCM 2010 Signalized Intersection Summary
10: Etiwanda Ave & Cantu-Galleano Ranch Rd

12/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	17	68	15	6	23	190	439	35	47	156	105
Future Volume (veh/h)	96	17	68	15	6	23	190	439	35	47	156	105
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	104	18	74	16	7	25	207	477	38	51	170	114
Adj No. of Lanes	1	2	1	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	583	261	36	35	127	276	1019	81	96	726	325
Arrive On Green	0.09	0.16	0.16	0.02	0.10	0.10	0.16	0.31	0.31	0.05	0.21	0.21
Sat Flow, veh/h	1774	3539	1583	1774	358	1279	1774	3322	264	1774	3539	1583
Grp Volume(v), veh/h	104	18	74	16	0	32	207	253	262	51	170	114
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	0	1637	1774	1770	1816	1774	1770	1583
Q Serve(g_s), s	2.3	0.2	1.6	0.4	0.0	0.7	4.4	4.6	4.6	1.1	1.6	2.4
Cycle Q Clear(g_c), s	2.3	0.2	1.6	0.4	0.0	0.7	4.4	4.6	4.6	1.1	1.6	2.4
Prop In Lane	1.00		1.00	1.00		0.78	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	153	583	261	36	0	162	276	543	557	96	726	325
V/C Ratio(X)	0.68	0.03	0.28	0.44	0.00	0.20	0.75	0.47	0.47	0.53	0.23	0.35
Avail Cap(c_a), veh/h	559	2455	1098	246	0	846	917	1406	1443	336	1651	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	13.9	14.5	19.2	0.0	16.4	16.0	11.1	11.1	18.3	13.2	13.5
Incr Delay (d2), s/veh	5.3	0.0	0.6	8.3	0.0	0.6	4.1	0.6	0.6	4.5	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.1	0.7	0.3	0.0	0.3	2.4	2.3	2.3	0.7	0.8	1.1
LnGrp Delay(d),s/veh	22.9	13.9	15.1	27.5	0.0	17.0	20.1	11.7	11.7	22.7	13.3	14.1
LnGrp LOS	C	B	B	C		B	C	B	B	C	B	B
Approach Vol, veh/h		196			48			722			335	
Approach Delay, s/veh		19.1			20.5			14.1			15.0	
Approach LOS		B			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	5.3	11.0	10.7	12.6	7.9	8.4	6.6	16.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	27.5	20.5	18.5	12.5	20.5	7.5	31.5				
Max Q Clear Time (g_c+I1), s	2.4	3.6	6.4	4.4	4.3	2.7	3.1	6.6				
Green Ext Time (p_c), s	0.0	0.4	0.5	3.7	0.1	0.4	0.0	4.5				
Intersection Summary												
HCM 2010 Ctrl Delay			15.3									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

1: I-15 SB On Ramp/I-15 SB Off Ramp & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	1150	517	470	1059	0	0	0	0	294	1	837
Future Volume (veh/h)	0	1150	517	470	1059	0	0	0	0	294	1	837
Number	5	2	12	1	6	16				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1250	562	511	1151	0				214	0	1025
Adj No. of Lanes	0	2	1	2	2	0				1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1425	637	570	2171	0				526	0	938
Arrive On Green	0.00	0.40	0.40	0.17	0.61	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	3632	1583	3442	3632	0				1774	0	3167
Grp Volume(v), veh/h	0	1250	562	511	1151	0				214	0	1025
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	32.5	32.7	14.5	18.6	0.0				9.6	0.0	29.5
Cycle Q Clear(g_c), s	0.0	32.5	32.7	14.5	18.6	0.0				9.6	0.0	29.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1425	637	570	2171	0				526	0	938
V/C Ratio(X)	0.00	0.88	0.88	0.90	0.53	0.00				0.41	0.00	1.09
Avail Cap(c_a), veh/h	0	1439	644	570	2186	0				526	0	938
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	27.5	27.5	40.7	11.0	0.0				28.0	0.0	35.0
Incr Delay (d2), s/veh	0.0	6.4	13.4	16.8	0.2	0.0				2.3	0.0	58.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.1	16.6	8.2	9.0	0.0				5.0	0.0	20.5
LnGrp Delay(d),s/veh	0.0	33.9	41.0	57.5	11.3	0.0				30.4	0.0	93.0
LnGrp LOS		C	D	E	B					C		F
Approach Vol, veh/h		1812			1662						1239	
Approach Delay, s/veh		36.1			25.5						82.2	
Approach LOS		D			C						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	21.0	44.6				65.6		34.0				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	16.5	40.5				61.5		29.5				
Max Q Clear Time (g_c+I1), s	16.5	34.7				20.6		31.5				
Green Ext Time (p_c), s	0.0	5.4				29.5		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			44.5									
HCM 2010 LOS			D									
Notes												






















HCM 2010 Signalized Intersection Summary

2: I-15 NB Off Ramp/I-15 NB On Ramp & Limonite Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	960	0	0	1092	252	429	0	796	0	0	0
Future Volume (veh/h)	480	960	0	0	1092	252	429	0	796	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	522	1043	0	0	1187	274	311	0	1031			
Adj No. of Lanes	2	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	591	2177	0	0	1409	630	523	0	934			
Arrive On Green	0.17	0.62	0.00	0.00	0.40	0.40	0.29	0.00	0.29			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	3167			
Grp Volume(v), veh/h	522	1043	0	0	1187	274	311	0	1031			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	14.8	16.1	0.0	0.0	30.4	12.6	15.0	0.0	29.5			
Cycle Q Clear(g_c), s	14.8	16.1	0.0	0.0	30.4	12.6	15.0	0.0	29.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	591	2177	0	0	1409	630	523	0	934			
V/C Ratio(X)	0.88	0.48	0.00	0.00	0.84	0.43	0.59	0.00	1.10			
Avail Cap(c_a), veh/h	637	2177	0	0	1409	630	523	0	934			
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	40.4	10.5	0.0	0.0	27.3	21.9	30.1	0.0	35.2			
Incr Delay (d2), s/veh	13.1	0.8	0.0	0.0	6.3	2.2	4.9	0.0	62.1			
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	8.1	8.1	0.0	0.0	16.1	5.9	8.1	0.0	20.9			
LnGrp Delay(d),s/veh	53.6	11.3	0.0	0.0	33.5	24.1	35.0	0.0	97.3			
LnGrp LOS	D	B			C	C	D		F			
Approach Vol, veh/h		1565			1461			1342				
Approach Delay, s/veh		25.4			31.7			82.9				
Approach LOS		C			C			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			21.7	44.3		34.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		61.5			18.5	38.5		29.5				
Max Q Clear Time (g_c+I1), s		18.1			16.8	32.4		31.5				
Green Ext Time (p_c), s		25.9			0.4	5.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				45.2								
HCM 2010 LOS				D								
Notes												
























HCM 2010 Signalized Intersection Summary

3: Pats Ranch Rd & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1255	222	202	962	0	340	18	144	0	8	29
Future Volume (veh/h)	36	1255	222	202	962	0	340	18	144	0	8	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	39	1364	241	220	1046	0	370	20	157	0	9	32
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	1239	554	204	1529	684	310	73	571	0	65	230
Arrive On Green	0.03	0.35	0.35	0.12	0.43	0.00	0.17	0.40	0.40	0.00	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	182	1429	0	359	1278
Grp Volume(v), veh/h	39	1364	241	220	1046	0	370	0	177	0	0	41
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1611	0	0	1637
Q Serve(g_s), s	2.2	35.0	11.7	11.5	23.8	0.0	17.5	0.0	7.4	0.0	0.0	2.1
Cycle Q Clear(g_c), s	2.2	35.0	11.7	11.5	23.8	0.0	17.5	0.0	7.4	0.0	0.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.89	0.00		0.78
Lane Grp Cap(c), veh/h	59	1239	554	204	1529	684	310	0	644	0	0	295
V/C Ratio(X)	0.66	1.10	0.43	1.08	0.68	0.00	1.19	0.00	0.27	0.00	0.00	0.14
Avail Cap(c_a), veh/h	89	1239	554	204	1529	684	310	0	644	0	0	295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	47.8	32.5	24.9	44.3	22.9	0.0	41.3	0.0	20.2	0.0	0.0	34.5
Incr Delay (d2), s/veh	12.2	57.9	2.5	85.4	2.5	0.0	113.7	0.0	1.1	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	27.0	5.5	10.4	12.2	0.0	18.3	0.0	3.5	0.0	0.0	1.0
LnGrp Delay(d),s/veh	60.0	90.4	27.4	129.6	25.4	0.0	154.9	0.0	21.3	0.0	0.0	35.5
LnGrp LOS	E	F	C	F	C		F		C			D
Approach Vol, veh/h		1644			1266			547				41
Approach Delay, s/veh		80.5			43.5			111.7				35.5
Approach LOS		F			D			F				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	39.5	22.0	22.5	7.8	47.7	0.0	44.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.5	35.0	17.5	18.0	5.0	41.5	5.0	30.5				
Max Q Clear Time (g_c+I1), s	13.5	37.0	19.5	4.1	4.2	25.8	0.0	9.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.0	13.0	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			71.5									
HCM 2010 LOS			E									













HCM 2010 Signalized Intersection Summary

4: Wineville Ave & Limonite Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	1132	88	32	849	59	65	44	34	67	114	252
Future Volume (veh/h)	200	1132	88	32	849	59	65	44	34	67	114	252
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	217	1230	96	35	923	64	71	48	37	73	124	274
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	258	1589	711	62	1197	536	93	397	276	122	762	341
Arrive On Green	0.15	0.45	0.45	0.03	0.34	0.34	0.05	0.20	0.20	0.07	0.22	0.22
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1997	1390	1774	3539	1583
Grp Volume(v), veh/h	217	1230	96	35	923	64	71	42	43	73	124	274
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1617	1774	1770	1583
Q Serve(g_s), s	8.6	21.3	2.6	1.4	16.9	2.0	2.9	1.4	1.6	2.9	2.1	11.9
Cycle Q Clear(g_c), s	8.6	21.3	2.6	1.4	16.9	2.0	2.9	1.4	1.6	2.9	2.1	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	258	1589	711	62	1197	536	93	352	321	122	762	341
V/C Ratio(X)	0.84	0.77	0.14	0.57	0.77	0.12	0.76	0.12	0.13	0.60	0.16	0.80
Avail Cap(c_a), veh/h	282	1589	711	122	1197	536	225	440	402	441	1310	586
HCM Platoon Ratio	1.00	1.00	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	30.1	16.9	11.7	34.4	21.5	16.5	33.9	23.8	23.9	32.7	23.1	27.0
Incr Delay (d2), s/veh	18.6	3.7	0.4	7.9	4.8	0.5	12.1	0.1	0.2	4.6	0.1	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	11.1	1.2	0.8	9.0	0.9	1.7	0.7	0.7	1.6	1.0	5.6
LnGrp Delay(d),s/veh	48.8	20.6	12.1	42.3	26.3	17.0	45.9	24.0	24.1	37.3	23.2	31.4
LnGrp LOS	D	C	B	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1543			1022			156			471	
Approach Delay, s/veh		24.0			26.3			34.0			30.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	37.0	8.3	20.1	15.0	29.0	9.5	18.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	31.0	9.2	26.8	11.5	24.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	3.4	23.3	4.9	13.9	10.6	18.9	4.9	3.6				
Green Ext Time (p_c), s	0.0	6.5	0.0	1.7	0.1	4.9	0.1	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			26.1									
HCM 2010 LOS			C									




















HCM 2010 Signalized Intersection Summary

5: Pats Ranch Rd

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	329	100	87	179	310	54		
Future Volume (veh/h)	329	100	87	179	310	54		
Number	5	12	3	8	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	358	109	95	195	337	59		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	434	388	525	1139	454	386		
Arrive On Green	0.24	0.24	0.30	0.61	0.24	0.24		
Sat Flow, veh/h	1774	1583	1774	1863	1863	1583		
Grp Volume(v), veh/h	358	109	95	195	337	59		
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583		
Q Serve(g_s), s	11.9	3.5	2.5	2.8	10.5	1.8		
Cycle Q Clear(g_c), s	11.9	3.5	2.5	2.8	10.5	1.8		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	434	388	525	1139	454	386		
V/C Ratio(X)	0.82	0.28	0.18	0.17	0.74	0.15		
Avail Cap(c_a), veh/h	893	797	525	1474	789	671		
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	22.3	19.2	16.4	5.3	21.8	18.6		
Incr Delay (d2), s/veh	4.0	0.4	0.8	0.1	2.4	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	6.3	1.6	1.3	1.5	5.6	0.8		
LnGrp Delay(d),s/veh	26.3	19.5	17.2	5.4	24.3	18.8		
LnGrp LOS	C	B	B	A	C	B		
Approach Vol, veh/h	467			290	396			
Approach Delay, s/veh	24.8			9.2	23.5			
Approach LOS	C			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		19.8	23.0	19.7				42.7
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		31.5	18.5	26.5				49.5
Max Q Clear Time (g_c+I1), s		13.9	4.5	12.5				4.8
Green Ext Time (p_c), s		1.4	0.2	2.8				3.6
Intersection Summary								
HCM 2010 Ctrl Delay			20.4					
HCM 2010 LOS			C					





















HCM 2010 Signalized Intersection Summary

6: Pats Ranch Rd & Dwy/65th St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	10	26	9	9	25	83	217	20	35	341	6
Future Volume (veh/h)	23	10	26	9	9	25	83	217	20	35	341	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	25	11	28	10	10	27	90	236	22	38	371	7
Adj No. of Lanes	1	1	0	0	1	0	1	1	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	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	698	193	491	175	186	383	118	519	48	70	514	10
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.07	0.31	0.31	0.04	0.28	0.28
Sat Flow, veh/h	1365	466	1187	237	450	926	1774	1679	156	1774	1822	34
Grp Volume(v), veh/h	25	0	39	47	0	0	90	0	258	38	0	378
Grp Sat Flow(s),veh/h/ln	1365	0	1653	1613	0	0	1774	0	1835	1774	0	1857
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	0.0	2.8	0.0	6.4	1.2	0.0	10.4
Cycle Q Clear(g_c), s	0.5	0.0	0.8	1.0	0.0	0.0	2.8	0.0	6.4	1.2	0.0	10.4
Prop In Lane	1.00		0.72	0.21		0.57	1.00		0.09	1.00		0.02
Lane Grp Cap(c), veh/h	698	0	684	744	0	0	118	0	567	70	0	524
V/C Ratio(X)	0.04	0.00	0.06	0.06	0.00	0.00	0.76	0.00	0.45	0.54	0.00	0.72
Avail Cap(c_a), veh/h	698	0	684	744	0	0	453	0	1405	297	0	1258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.9	0.0	10.0	10.1	0.0	0.0	26.1	0.0	15.8	26.8	0.0	18.4
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.2	0.0	0.0	9.6	0.0	0.6	6.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	0.5	0.0	0.0	1.7	0.0	3.3	0.7	0.0	5.5
LnGrp Delay(d),s/veh	10.0	0.0	10.2	10.2	0.0	0.0	35.6	0.0	16.3	33.1	0.0	20.3
LnGrp LOS	B		B	B			D		B	C		C
Approach Vol, veh/h		64			47			348			416	
Approach Delay, s/veh		10.1			10.2			21.3			21.4	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.0	8.3	20.5		28.0	6.8	22.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		23.5	14.5	38.5		23.5	9.5	43.5				
Max Q Clear Time (g_c+I1), s		2.8	4.8	12.4		3.0	3.2	8.4				
Green Ext Time (p_c), s		0.5	0.1	3.6		0.5	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			20.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

7: Pats Ranch Rd & 68th St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	386	0	2	260	34	4	13	3	8	0	255
Future Volume (veh/h)	252	386	0	2	260	34	4	13	3	8	0	255
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	274	420	0	2	283	37	4	14	3	9	0	277
Adj No. of Lanes	1	1	0	1	1	1	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	338	777	0	5	427	363	59	497	106	0	0	346
Arrive On Green	0.19	0.42	0.00	0.00	0.23	0.23	0.03	0.33	0.33	0.00	0.00	0.22
Sat Flow, veh/h	1774	1863	0	1774	1863	1583	1774	1488	319	0	0	1583
Grp Volume(v), veh/h	274	420	0	2	283	37	4	0	17	0	0	277
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1774	1863	1583	1774	0	1806	0	0	1583
Q Serve(g_s), s	8.1	9.3	0.0	0.1	7.6	1.0	0.1	0.0	0.3	0.0	0.0	9.1
Cycle Q Clear(g_c), s	8.1	9.3	0.0	0.1	7.6	1.0	0.1	0.0	0.3	0.0	0.0	9.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.18	0.00		1.00
Lane Grp Cap(c), veh/h	338	777	0	5	427	363	59	0	603	0	0	346
V/C Ratio(X)	0.81	0.54	0.00	0.41	0.66	0.10	0.07	0.00	0.03	0.00	0.00	0.80
Avail Cap(c_a), veh/h	567	1054	0	162	629	535	583	0	603	0	0	520
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.2	12.0	0.0	27.3	19.2	16.7	25.6	0.0	12.3	0.0	0.0	20.3
Incr Delay (d2), s/veh	4.7	0.6	0.0	47.6	1.8	0.1	0.5	0.0	0.0	0.0	0.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	4.9	0.0	0.1	4.1	0.4	0.1	0.0	0.2	0.0	0.0	4.4
LnGrp Delay(d),s/veh	25.9	12.6	0.0	74.9	20.9	16.8	26.1	0.0	12.3	0.0	0.0	25.6
LnGrp LOS	C	B		E	C	B	C		B			C
Approach Vol, veh/h		694			322			21			277	
Approach Delay, s/veh		17.9			20.8			14.9			25.6	
Approach LOS		B			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	27.3	6.3	16.5	14.9	17.1	0.0	22.8				
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	31.0	18.0	18.0	17.5	18.5	18.0	18.0				
Max Q Clear Time (g_c+I1), s	2.1	11.3	2.1	11.1	10.1	9.6	0.0	2.3				
Green Ext Time (p_c), s	0.0	4.4	0.0	0.9	0.5	3.0	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			20.2									
HCM 2010 LOS			C									

HCM 2010 AWSC

8: 68th St & Carnelian St

Intersection

Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations		↘	↗		↗	↘		↘↗	
Traffic Vol, veh/h	0	47	347	0	231	12	0	9	64
Future Vol, veh/h	0	47	347	0	231	12	0	9	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	51	377	0	251	13	0	10	70
Number of Lanes	0	1	1	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.4	10.4	8.7
HCM LOS	B	B	A

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	12%
Vol Thru, %	0%	100%	100%	0%	0%
Vol Right, %	0%	0%	0%	100%	88%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	347	231	12	73
LT Vol	47	0	0	0	9
Through Vol	0	347	231	0	0
RT Vol	0	0	0	12	64
Lane Flow Rate	51	377	251	13	79
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.077	0.519	0.356	0.016	0.111
Departure Headway (Hd)	5.452	4.95	5.099	4.395	5.016
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	657	728	706	812	713
Service Time	3.187	2.684	2.836	2.132	3.063
HCM Lane V/C Ratio	0.078	0.518	0.356	0.016	0.111
HCM Control Delay	8.6	12.9	10.6	7.2	8.7
HCM Lane LOS	A	B	B	A	A
HCM 95th-tile Q	0.2	3	1.6	0	0.4

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

Intersection

Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	211	52	0	30	25	0	44	58
Future Vol, veh/h	0	211	52	0	30	25	0	44	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	229	57	0	33	27	0	48	63
Number of Lanes	0	1	0	0	1	0	0	1	1

Approach

WB

Opposing Approach	EB
Opposing Lanes	1
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	9.3
HCM LOS	A

Lane	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3	SWLn1
Vol Left, %	85%	0%	100%	100%	0%	0%
Vol Thru, %	15%	54%	0%	0%	0%	0%
Vol Right, %	0%	46%	0%	0%	100%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	351	56	3	44	58	161
LT Vol	299	0	3	44	0	0
Through Vol	52	30	0	0	0	0
RT Vol	0	26	0	0	58	161
Lane Flow Rate	382	61	3	48	63	175
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.592	0.101	0.006	0.088	0.094	0.229
Departure Headway (Hd)	5.587	5.975	6.592	6.592	5.375	4.717
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	641	603	539	539	659	753
Service Time	3.36	3.675	4.384	4.384	3.165	2.503
HCM Lane V/C Ratio	0.596	0.101	0.006	0.089	0.096	0.232
HCM Control Delay	16.2	9.3	9.4	10	8.7	8.9
HCM Lane LOS	C	A	A	A	A	A
HCM 95th-tile Q	3.9	0.3	0	0.3	0.3	0.9

HCM 2010 AWSC

9: 68th St & Wineville Ave & Holmes Ave

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SWU	SWL	SWR
Lane Configurations			
Traffic Vol, veh/h	0	0	158
Future Vol, veh/h	0	0	158
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2
Mvmt Flow	0	0	172
Number of Lanes	0	1	0

Approach	SW
Opposing Approach	
Opposing Lanes	0
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	SB
Conflicting Lanes Right	3
HCM Control Delay	8.9
HCM LOS	A

HCM 2010 Signalized Intersection Summary
10: Etiwanda Ave & Cantu-Galleano Ranch Rd

12/14/2016

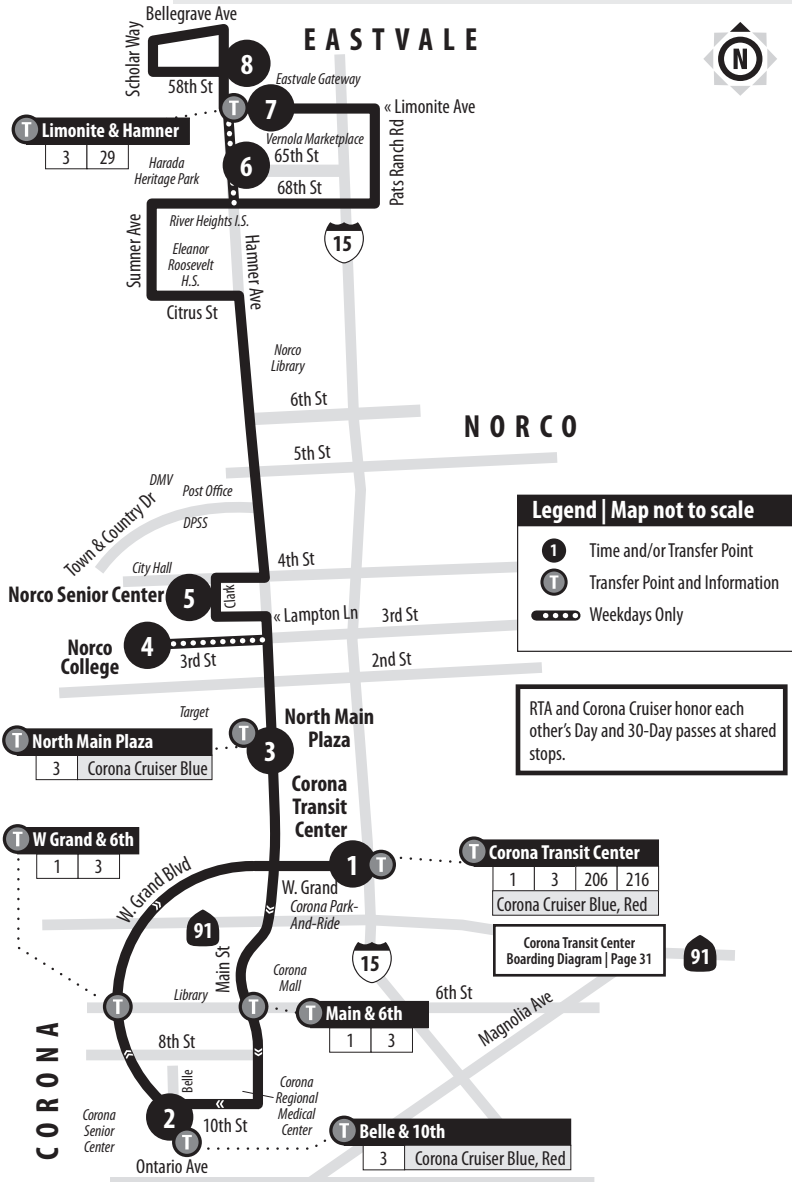
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	10	146	64	34	30	144	257	35	25	448	91
Future Volume (veh/h)	84	10	146	64	34	30	144	257	35	25	448	91
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	91	11	159	70	37	33	157	279	38	27	487	99
Adj No. of Lanes	1	2	1	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	547	245	115	131	117	208	1087	147	57	925	414
Arrive On Green	0.08	0.15	0.15	0.06	0.14	0.14	0.12	0.35	0.35	0.03	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	909	811	1774	3135	423	1774	3539	1583
Grp Volume(v), veh/h	91	11	159	70	0	70	157	156	161	27	487	99
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	0	1720	1774	1770	1788	1774	1770	1583
Q Serve(g_s), s	2.2	0.1	4.2	1.7	0.0	1.6	3.8	2.8	2.9	0.7	5.3	2.2
Cycle Q Clear(g_c), s	2.2	0.1	4.2	1.7	0.0	1.6	3.8	2.8	2.9	0.7	5.3	2.2
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	134	547	245	115	0	247	208	614	620	57	925	414
V/C Ratio(X)	0.68	0.02	0.65	0.61	0.00	0.28	0.75	0.25	0.26	0.48	0.53	0.24
Avail Cap(c_a), veh/h	455	1777	795	416	0	825	693	1284	1297	257	1698	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	16.1	17.8	20.4	0.0	17.1	19.1	10.5	10.5	21.3	14.2	13.0
Incr Delay (d2), s/veh	5.9	0.0	2.9	5.1	0.0	0.6	5.5	0.2	0.2	6.1	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.1	2.0	1.0	0.0	0.8	2.2	1.4	1.5	0.4	2.6	1.0
LnGrp Delay(d),s/veh	26.0	16.1	20.7	25.5	0.0	17.7	24.6	10.7	10.7	27.5	14.6	13.3
LnGrp LOS	C	B	C	C		B	C	B	B	C	B	B
Approach Vol, veh/h		261			140			474			613	
Approach Delay, s/veh		22.4			21.6			15.3			15.0	
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	7.4	11.4	9.8	16.2	7.9	10.9	5.9	20.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	22.5	17.5	21.5	11.5	21.5	6.5	32.5				
Max Q Clear Time (g_c+I1), s	3.7	6.2	5.8	7.3	4.2	3.6	2.7	4.9				
Green Ext Time (p_c), s	0.1	0.8	0.3	4.4	0.1	0.8	0.0	5.5				
Intersection Summary												
HCM 2010 Ctrl Delay			17.0									
HCM 2010 LOS			B									



APPENDIX E
Supplemental Information

Routing and timetables subject to change.
Rutas y horarios son sujetos a cambios.

Also serving: Norco, Norco Senior Center, Norco City Hall, RCC, North Main Plaza, Corona.
Sunday service on: Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and New Year's Day.



A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Corona Transit Center	Belle & 10th	Corona Transit Center	Main & Parkridge	Norco College	Norco Senior Center	Hammer & 65th	Limonite & Hammer	Hammer & Swan Lake MHP
1	2	1	3	4	5	6	7	8
—	—	5:22	5:28	5:36	5:43	—	6:01	6:06
—	—	5:54	6:00	6:08	6:15	6:31	—	6:35
6:11	6:16	6:27	6:34	6:44	6:51	—	7:12	7:17
6:42	6:47	6:58	7:05	7:17	7:26	7:46	—	7:50
7:18	7:23	7:34	7:41	7:51	8:00	—	8:23	8:28
7:56	8:01	8:12	8:19	8:29	8:38	8:57	—	9:01
8:31	8:36	8:47	8:54	9:04	9:11	—	9:30	9:35
9:07	9:12	9:23	9:29	9:39	9:46	10:02	—	10:06
9:43	9:48	9:59	10:05	10:15	10:25	—	10:44	10:49
10:16	10:21	10:32	10:38	10:48	10:58	11:14	—	11:18
10:51	10:56	11:07	11:13	11:23	11:33	—	11:52	11:57
11:26	11:31	11:42	11:48	11:58	12:08	12:24	—	12:28
12:01	12:06	12:17	12:23	12:33	12:43	—	1:02	1:07
12:35	12:40	12:51	12:57	1:07	1:17	1:34	—	1:38
1:10	1:15	1:26	1:33	1:45	1:55	—	2:15	2:20
1:45	1:50	2:01	2:08	2:20	2:30	2:49	—	2:53
2:19	2:24	2:35	2:42	2:52	3:02	—	3:28	3:33
2:56	3:01	3:12	3:19	3:29	3:39	3:58	—	4:02
3:36	3:41	3:52	4:00	4:10	4:20	—	4:42	4:47
4:14	4:19	4:30	4:38	4:48	4:58	5:17	—	5:21
4:50	4:55	5:06	5:14	5:24	5:34	—	5:56	6:01
5:24	5:29	5:40	5:48	6:00	6:10	6:29	—	6:34
6:02	6:07	6:18	6:26	6:36	6:44	—	7:05	7:10
6:41	6:46	6:57	7:05	7:15	7:23	7:41	—	7:45
7:12	7:17	7:28	7:35	7:45	7:53	—	8:11	8:16
7:44	7:49	8:00	8:07	8:16	8:23	—	8:41	8:46
8:20	8:25	8:35	8:42	8:51	8:58	—	9:14	9:19
9:05	9:10	9:20	9:27	9:35	9:41	—	9:57	10:02
9:53	9:58	10:08	10:14	10:22	10:28	—	10:44	10:49

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

C = Trip does not have a matching northbound trip to travel to Corona (Belle & 10th)

Hamner & Swan Lake MHP	Limonite & Hamner	Hamner & 65th	Norco Senior Center	Norco College	Main & Parkridge	Corona Transit Center
8	7	6	5	4	3	1
5:10	5:18	—	5:37	5:41	5:51	5:59
5:38	5:46	—	6:07	6:12	6:22	6:30
6:16	—	6:25	6:43	6:48	6:58	7:06
6:45	6:53	—	7:20	7:26	7:36	7:44
7:27	—	7:36	7:55	8:01	8:11	8:19
7:57	8:05	—	8:29	8:36	8:47	8:55
8:43	—	8:51	9:07	9:13	9:23	9:31
9:11	9:19	—	9:40	9:46	9:56	10:04
9:47	—	9:55	10:11	10:18	10:29	10:37
10:19	10:27	—	10:48	10:55	11:06	11:14
10:59	—	11:07	11:23	11:30	11:41	11:49
11:28	11:36	—	11:57	12:04	12:15	12:23
12:08	—	12:16	12:32	12:39	12:50	12:58
12:38	12:46	—	1:07	1:14	1:25	1:33
1:17	—	1:25	1:41	1:48	1:58	2:07
1:48	1:56	—	2:17	2:24	2:35	2:44
2:30	—	2:38	2:56	3:03	3:15	3:24
3:01	3:09	—	3:34	3:41	3:53	4:02
3:43	—	3:52	4:10	4:17	4:29	4:38
4:14	4:23	—	4:45	4:52	5:03	5:12
4:57	—	5:06	5:23	5:30	5:41	5:50
5:31	5:39	—	6:03	6:10	6:21	6:29
6:11	—	6:20	6:36	6:42	6:52	7:00
6:44	6:50	—	7:09	7:15	7:24	7:32
7:20	7:28	—	7:48	7:56	8:03	8:10
8:05	8:13	—	8:33	8:39	8:48	8:55
8:56	9:04	—	9:23	9:28	9:36	9:43
C 9:29	9:36	—	9:55	10:00	10:08	10:15

3

Weekends | Northbound to Corona

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Corona Transit Center	Belle & 10th	Corona Transit Center	Main & Parkridge	Norco Senior Center	Limonite & Hamner	Hamner & Swan Lake MHP
1	2	1	3	5	7	8
—	—	6:43	6:47	6:54	7:16	7:18
7:30	7:38	7:46	7:50	7:57	8:21	8:23
8:28	8:36	8:48	8:52	8:59	9:23	9:25
9:28	9:36	9:48	9:52	9:59	10:23	10:25
10:29	10:37	10:49	10:53	11:00	11:25	11:27
11:29	11:37	11:49	11:53	12:00	12:25	12:27
12:31	12:39	12:51	12:55	1:02	1:27	1:29
1:31	1:39	1:51	1:55	2:02	2:27	2:29
2:33	2:41	2:53	2:57	3:04	3:29	3:31
3:33	3:41	3:53	3:57	4:04	4:29	4:31
4:37	4:45	4:55	4:59	5:06	5:29	5:31
5:35	5:43	5:53	5:57	6:04	6:27	6:29
6:35	6:43	6:53	6:57	7:04	7:27	7:29

3

Weekends | Southbound to Corona

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

C = Trip does not have a matching northbound trip to travel to Corona (Belle & 10th)

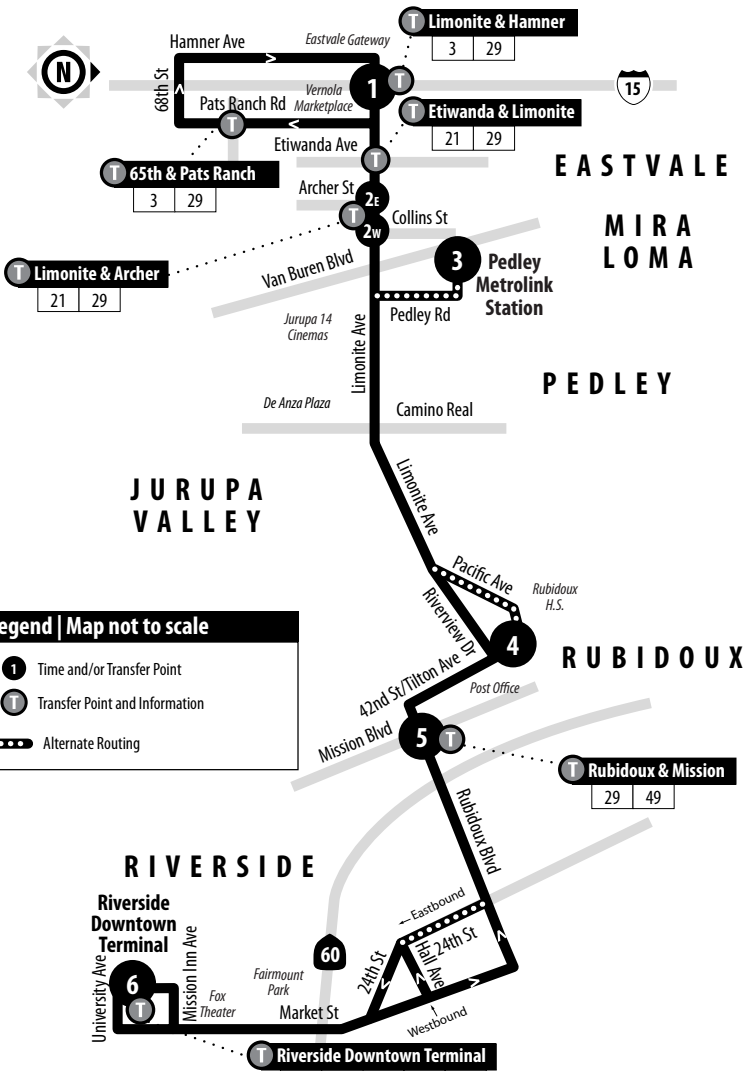
Hamner & Swan Lake MHP	Limonite & Hamner	Norco Senior Center	Main & Parkridge	Corona Transit Center
8	7	5	3	1
6:42	6:48	7:08	7:14	7:21
7:37	7:43	8:04	8:11	8:18
8:37	8:43	9:04	9:11	9:18
9:35	9:41	10:02	10:10	10:17
10:35	10:41	11:02	11:10	11:17
11:37	11:43	12:04	12:12	12:19
12:37	12:43	1:04	1:12	1:19
1:39	1:45	2:06	2:14	2:21
2:39	2:45	3:06	3:14	3:21
3:41	3:47	4:08	4:16	4:23
4:41	4:47	5:08	5:16	5:23
5:41	5:47	6:08	6:16	6:23
C 6:39	6:45	7:06	7:14	7:21



DID YOU KNOW? Every \$1 billion invested in public transportation supports/creates 36,000 jobs.

Routing and timetables subject to change.
 Rutas y horarios son sujetos a cambios.

Also serving: Belltown, Downtown Rubidoux, Rubidoux Academy, De Anza Plaza.
Sunday service on: Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and New Year's Day.



1	10	12	13	14
15	16	22	29	49
204	208	210	212	216
OmniTrans 215		SunLine 220		

Riverside Downtown Terminal Boarding Diagram | Page 35

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Limonite & Hamner	Limonite & Archer	Pedley Metrolink Station	Pacific & 42nd	Rubidoux & Mission	Riverside Downtown Terminal
1	2E	3	4	5	6
4:46	4:56	—	—	5:09	5:22
The 4:46 a.m. trip will start service at the first stop at Pats Ranch Mall at 4:39 a.m.					
5:33	5:43	5:46	—	6:00	6:14
6:33	6:45	6:49	7:03	7:10	7:26
7:35	7:47	7:51	—	8:08	8:24
8:45	8:57	—	—	9:13	9:29
9:38	9:51	—	—	10:07	10:23
10:46	10:59	—	—	11:15	11:31
11:40	11:53	—	—	12:09	12:25
12:42	12:55	—	—	1:11	1:27
1:38	1:52	—	—	2:09	2:25
2:37	2:51	—	3:04	3:11	3:27
3:47	4:01	—	4:14	4:21	4:37
4:43	4:59	—	—	5:16	5:33
5:55	6:10	6:14	—	6:31	6:46
6:48	7:01	7:05	—	7:22	7:37
7:58	8:10	8:14	—	8:31	8:46

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Riverside Downtown Terminal	Rubidoux & Mission	Pacific & 42nd	Pedley Metrolink Station	Limonite & Collins	Limonite & Hamner
6	5	4	3	2W	1
4:43	4:56	—	—	5:07	5:23
5:35	5:50	—	6:04	6:07	6:23
6:24	6:39	6:45	6:56	6:59	7:17
7:36	7:54	—	8:13	8:16	8:33
8:35	8:53	—	—	9:09	9:26
9:40	9:58	—	—	10:14	10:31
10:33	10:51	—	—	11:07	11:24
11:40	11:58	—	—	12:14	12:32
12:35	12:53	—	—	1:09	1:27
1:35	1:55	—	—	2:11	2:29
2:35	2:55	3:01	—	3:16	3:34
3:35	3:57	—	—	4:15	4:33
4:47	5:09	—	—	5:27	5:47
5:43	6:02	—	6:19	6:22	6:40
6:54	7:12	—	7:29	7:32	7:50
7:44	8:00	—	8:16	8:19	8:37

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Limonte & Hamner	Limonte & Archer	Rubidoux & Mission	Riverside Downtown Terminal
1	2E	5	6
7:18	7:28	7:42	7:55
8:20	8:31	8:45	9:00
9:29	9:41	9:55	10:10
10:39	10:51	11:05	11:20
11:44	11:58	12:15	12:30
12:54	1:08	1:25	1:40
2:04	2:18	2:35	2:50
3:16	3:30	3:47	4:00
4:26	4:40	4:57	5:10
5:36	5:50	6:07	6:20
6:50	7:03	7:17	7:30
7:51	8:04	8:18	8:31

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Riverside Downtown Terminal	Rubidoux & Mission	Limonte & Collins	Limonte & Hamner
6	5	2W	1
6:27	6:39	6:51	7:06
7:27	7:42	7:56	8:12
8:32	8:47	9:03	9:19
9:37	9:52	10:08	10:24
10:47	11:03	11:21	11:37
11:57	12:13	12:31	12:47
1:07	1:23	1:41	1:57
2:17	2:33	2:51	3:07
3:27	3:43	3:59	4:15
4:37	4:53	5:09	5:25
5:47	6:03	6:19	6:35
6:57	7:13	7:27	7:43

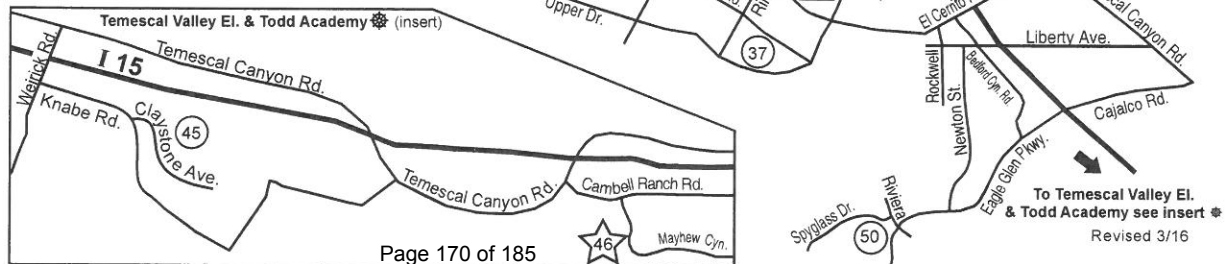
- 1- Centennial High 1820 Rimpau Ave., Corona 739-5670
- 2- Corona High 1150 W. 10th St., Corona 736-3211
- 3- Norco High 2065 Temescal Ave., Norco 736-3241
- 4- Santiago High 1395 Foothill Pkwy., Corona 739-5600
- 5- Pollard High 185 Magnolia Ave., Corona 736-3367
- 6- Kennedy Middle College High 1951 Third St., Norco 738-2200
- 7- Orange Grove High 300 Buena Vista Ave., Corona 736-3339
- 8- Roosevelt High 7447 Scholar Way, Eastvale 738-2100
- 9- Victress Bower School 1250 W. Parkridge Ave., Norco 736-4646
- 10- Adult Education 300 Buena Vista Ave., Corona 736-3325
- 11- Auburndale Intermediate 1255 River Rd., Corona 736-3231
- 12- Citrus Hills Intermediate 3211 S. Main St., Corona 736-4600
- 13- Corona Fundamental Intermediate 1230 S. Main St., Corona 736-3321
- 14- El Cerrito Middle 7610 El Cerrito Rd., Corona 736-3216
- 15- Norco Intermediate 2711 Temescal Ave., Norco 736-3206
- 16- Ramirez Intermediate 6905 Harrison Ave., Eastvale 736-8241
- 17- Raney Intermediate 1010 W. Citron St., Corona 736-3221

- 18- River Heights Intermediate 7227 Scholar Way, Eastvale 738-2155
- 19- Adams Elementary 2350 Border Ave., Corona 736-3313
- 20- Anthony Elementary 2665 Gilbert Ave., Corona 739-5655
- 21- Barton Elementary 7437 Corona Valley Ave., Eastvale 736-4545
- 22- Chavez Academy 1150 Paseo Grande, Corona 736-4640
- 23- Corona Ranch Elementary 785 Village Loop Dr., Corona 736-4626
- 24- Coronita Elementary 1757 Via Del Rio, Corona 736-3389
- *25- Eastvale Elementary 13031 Orange St., Eastvale 738-2180
- 26- Eisenhower Elementary 3355 Mountain Gate Dr., Corona 739-5960
- 27- Foothill Elementary 2601 S. Buena Vista Ave., Corona 736-3441
- 28- Franklin Elementary 2650 Oak Ave., Corona 739-5645
- 29- Garretson Elementary 1650 Garretson Ave., Corona 736-3345
- *30- Harada Elementary 12884 Oakdale St., Eastvale 739-6820
- 31- Highland Elementary 2301 Alhambra St., Norco 736-3308
- 32- Home Gardens Academy 13550 Tolton Ave., Corona 736-3219
- 33- Jefferson Elementary 1040 S. Vicentia Ave., Corona 736-3226
- 34- Lincoln Alternative Elementary 1041 Fullerton Ave., Corona 736-3336
- 35- McKinley Elementary 2050 Aztec Lane, Corona 736-7190
- 36- Norco Elementary 1700 Temescal Ave., Norco 736-3348
- 37- Orange Elementary 1350 Valencia Rd., Corona 736-3455

- 38- Parkridge Elementary 750 Corona Ave., Corona 736-3236
- *39- Parks Elementary 13830 Whispering Hills Dr., Eastvale 736-7305
- 40- Prado View Elementary 2800 Ridgeline Dr., Corona 736-3474
- *41- Reagan Elementary 8300 Fieldmaster St., Eastvale 736-7737
- 42- Riverview Elementary 4600 Pedley Ave., Norco 736-3245
- 43- Sierra Vista Elementary 3560 Corona Ave., Norco 736-3311
- 44- Stallings Elementary 1980 Fullerton Ave., Corona 736-3249
- 45- Temescal Valley Elementary 22950 Claystone Ave., Corona 736-7110
- 46- Todd Academy 25105 Mayhew Cyn. Rd., Corona 736-7035
- *47- VanderMolen Fund. Elementary 6744 Carnelian St., Jurupa Valley 739-7120
- 48- Vicentia Elementary 2005 S. Vicentia Ave., Corona 736-3228
- 49- Washington Elementary 1220 W. Parkridge Ave., Norco 736-3326
- 50- Wilson Elementary 1750 Spyglass Dr., Corona 739-5820

*denotes year-round school calendar

	Elementary School
	Academy
	Intermediate School
	High School
	Other Schools/Offices



City of Jurupa Valley

ENGINEERING DEPARTMENT

<i>FOR USE BY STAFF</i>	
<i>Engineering Acct #</i>	_____
<i>Permit #</i>	_____
<i>Received Date</i>	_____

APPLICATION FOR ENCROACHMENT PERMIT

The undersigned hereby applies for a permit to excavate, construct, and otherwise encroach on City of Jurupa Valley road right-of-way as follows:

Description of work and installation to be maintained – attach and refer to maps or other documents:

Name(s) of road(s) and specific location:

In consideration of the granting of this application, the applicant hereby agrees to:

1. Indemnify, defend and hold the City harmless in accordance with the provisions of the Exhibit A, Indemnification, attached hereto and incorporated herein as though set forth in full..
2. Pay for and maintain in full force and effect for the duration of the work all insurance as required in Exhibit B, Insurance, attached hereto and incorporated herein as though set forth in full..
3. Remove or relocate an encroachment installed or maintained under this permit, upon written notice from the City Engineer.
4. Notify the City Inspector at least 48 hours in advance of the time work will be started, and upon completion of the work, immediately notify the City Inspector in writing of such completion.
5. Comply with County Ordinance No. 499, any amendments thereto, the terms and conditions of the permit, and all applicable rules and regulations of the City of Jurupa Valley and other public agencies having jurisdiction.
6. The permittee shall accept full responsibility for complying with federal, State, and County environmental laws received; any necessary environmental clearances and/or permits, prior to commencing any work as authorized by this permit.

Name of Owner/Applicant: _____

Contact/Authorized Signature: _____

Email Address: _____ Phone: _____

Mailing Address: _____

Contractor Name: _____ CSLB #: _____

Contact: _____ Phone: _____

Email Address: _____ 24-HR Emergency Phone: _____

Mailing Address: _____

<i>FOR USE BY STAFF</i>	
Processing Fee:	_____
Inspection Fee:	_____
Total Fee:	_____
Receipt Number:	_____
Security Deposit:	_____
Receipt Deposit:	_____
Date Issued:	_____

**INDEMNIFICATION AND HOLD HARMLESS AGREEMENT
FOR ENCROACHMENT PERMIT**

In consideration for the issuance of an Encroachment Permit and to the furthest extent allowed by law, Permittee does hereby agree to indemnify, hold harmless and defend the City of Jurupa Valley ("City"), and its officers, officials, employees, agents and volunteers from any and all loss, liability, fines, penalties, forfeitures, costs and damages (whether in contract, tort or strict liability, including but not limited to personal injury, death at any time and property damage) incurred by City, Permittee or any other person, and from any and all claims, demands and actions in law or equity (including attorney's fees and litigation expenses), arising or alleged to have arisen directly or indirectly out of the issuance of the Encroachment Permit or any work permitted thereunder. Permittee's obligations under the preceding sentence shall apply regardless of whether City or any of its officers, officials, employees, agents or volunteers are passively negligent, but shall not apply to any loss, liability, fines, penalties, forfeitures, costs or damages caused by the active or sole negligence, or the willful misconduct, of City or any of its officers, officials, employees, agents or volunteers.

Throughout the life of the Encroachment Permit, Permittee shall pay for and maintain in full force and effect all insurance as required in Exhibit A, which is incorporated into and part of this Agreement, or as may be authorized or required in writing by City Manager or his/her designee at any time and in his/her sole discretion.

Permittee shall conduct all defense at his/her/its sole cost. The fact that insurance is obtained by Permittee shall not be deemed to release or diminish the liability of Permittee, including, without limitation, liability assumed under this Agreement. The duty to indemnify shall apply to all claims regardless of whether any insurance policies are applicable. The duty to defend hereunder is wholly independent of and separate from the duty to indemnify and such duty to defend exists regardless of any ultimate liability of Permittee. The policy limits do not act as a limitation upon the amount of defense and/or indemnification to be provided by Permittee. Approval or purchase of any insurance contracts or policies shall in no way relieve from liability nor limit the liability of Permittee, its principals, officers, employees, agents, persons under the supervision of Permittee, vendors, suppliers, invitees, consultants, sub-consultants, subcontractors, or anyone employed directly or indirectly by any of them.

City shall be reimbursed for all costs and attorney's fees incurred by City in enforcing this Agreement.

This Indemnification and Hold Harmless Agreement shall survive the expiration or revocation of the Encroachment Permit.

The undersigned acknowledges that he/she (i) has read and fully understands the content of this Indemnification and Hold Harmless Agreement; (ii) is aware that this is a contract between the City and Permittee; (iii) has had the opportunity to consult with his/her attorney, in his/her discretion; (iv) is fully aware of the legal consequences of signing this document; and (v) is the Permittee or his/her/its authorized signatory.

Signed, sealed and delivered this _____ day of _____ 20__.

Permittee

Witness

Print Name

Print Name

Address

Address

Telephone Number

Telephone Number

**CITY OF JURUPA VALLEY
ENGINEERING DEPARTMENT**

**EXHIBIT A
INSURANCE REQUIREMENTS FOR ENCROACHMENT PERMIT**

Throughout the life of the Encroachment Permit, the Permittee shall pay for and maintain in full force and effect all policies of insurance required hereunder with an insurance company(ies) either (i) admitted by the California Insurance Commissioner to do business in the State of California and rated not less than "A-VII" in Best's Insurance Rating Guide, or (ii) authorized by City Manager or his/her designee and in his/her sole discretion. The following policies of insurance are required:

(i) COMMERCIAL GENERAL LIABILITY insurance which shall be at least as broad as the most current version of Insurance Services Office (ISO) Commercial General Liability Coverage Form CG 00 01 and include insurance for "bodily injury," "property damage" and "personal and advertising injury" with coverage for premises and operations (including the use of owned and non-owned equipment), products and completed operations, and contractual liability (including, without limitation, indemnity obligations under the Contract) with limits of not less than \$1,000,000 per occurrence for bodily injury and property damage, \$1,000,000 per occurrence for personal and advertising injury, \$2,000,000 aggregate for products and completed operations and \$2,000,000 general aggregate.

(ii) COMMERCIAL AUTOMOBILE LIABILITY insurance which shall be at least as broad as the most current version of Insurance Services Office (ISO) form CA 00 01 and shall include coverage for "any auto" with limits of liability of not less than \$1,000,000 per accident for bodily and property damage. **Only required if automobiles are to be operated on city-owned property or within City right-of-way.**

(iii) WORKERS' COMPENSATION insurance as required under the California Labor Code.

(iv) EMPLOYERS' LIABILITY insurance with minimum limits of \$1,000,000 each accident, \$1,000,000 disease each employee and \$1,000,000 disease policy limit.

Permittee shall be responsible for payment of any deductibles or self-insured retentions contained in any insurance policies required hereunder.

All policies of insurance required hereunder shall be endorsed to provide that the coverage shall not be cancelled, non-renewed, reduced in coverage or in limits except after thirty (30) calendar day written notice by certified mail, return receipt requested, has been given to the City. Upon issuance by the insurer, broker or agent of a notice of cancellation, non-renewal or reduction in coverage or limits, Permittee shall furnish City with a new certificate and applicable endorsements for such policy(ies). **In the event any policy(ies) is due to expire during the Encroachment Permit, Permittee shall provide a new certificate and all applicable endorsements evidencing renewal of such policy(ies) not less than 15 calendar days prior to the expiration date of the expiring policy(ies).**

**CITY OF JURUPA VALLEY
ENGINEERING DEPARTMENT**

The General Liability (including ongoing operations and completed operations) and Automobile Liability insurance policies shall be written on an occurrence form and endorsed to name the City and its officers, officials, employees, agents and volunteers as an additional insured. Such policy(ies) of insurance shall be endorsed so Permittee's insurance shall be primary and no contribution shall be required of City, its officers, officials, employees, agents and volunteers. Any Workers' Compensation insurance policy shall contain a waiver of subrogation as to City, its officers, officials, employees and agents. The coverage shall contain no special limitations on the scope of protection afforded to City and its officers, officials, employees, agents and volunteers. Should Permittee maintain insurance with limits of liability greater than those shown above, the City requires and shall be entitled to coverage in the amount of the higher limits of liability maintained by the Permittee. **Permittee shall furnish City with the certificate(s) and applicable endorsements for ALL required insurance fourteen (14) days prior to the issuance of the Encroachment Permit.**

Upon request of City, Permittee shall immediately furnish City with a complete copy of any insurance policy required under this Agreement, including all endorsements, with said copy certified by the underwriter to be a true and correct copy of the original policy. This requirement shall survive the expiration or revocation of the Encroachment Permit.

If at any time during the Encroachment Permit, Permittee fails to maintain the required insurance in full force and effect, all work permitted thereunder shall be discontinued immediately until notice is received by City that the required insurance has been restored to full force and effect and that the premiums therefore have been paid for a period satisfactory to City. Any failure to maintain the required insurance shall be sufficient cause for the City to revoke the Encroachment Permit.

NOTE: The Certificate of insurance **must** be accompanied by the additional insured, primary insurance and waiver of subrogation endorsements.

**CITY OF JURUPA VALLEY
ENGINEERING DEPARTMENT**

INSURANCE REQUIREMENTS FOR SMALL LOW RISK PROJECTS INVOLVING HOMEOWNERS *NOT* USING A CONTRACTOR

Homeowner shall provide a Certificate (or Certificates of Insurance) documenting the following insurance, covering the activities of the Homeowner and any employees relating to the encroachment permit. The Encroachment Permit cannot be granted without this insurance documentation.

1. General Liability insurance in the amount of \$300,000 per occurrence for work in the public right-of-way estimated to be \$2500 or less, or \$500,000 per occurrence for work estimated to be over \$2500. The City of Jurupa Valley named as an additional insured and shall be provided with 30 days prior written notice of policy cancellation (10 days for non-payment of premium).
2. Automobile Liability insurance in the amount of \$300,000 per occurrence for work in the public right-of-way estimated to be \$2,500 or less, or \$500,000 per occurrence for work estimated to be over \$2,500. This requirement can be deleted if the homeowner certifies that vehicles will not be used for any of the work.
3. Workers' Compensation insurance with statutory limits as required by the State of California Labor Code. This requirement may be deleted if the homeowner certifies that no employees or contractors will be used for the work. The "Property Owner's Certification In-Lieu of Workers' Compensation Insurance" form must be used for this certification.

**CITY OF JURUPA VALLEY
ENGINEERING DEPARTMENT**

Property Owner's Certification In-Lieu of Workers' Compensation Insurance

I, the undersigned, hereby certify that I am the owner/co-owner of the property located at

_____,
Jurupa Valley, CA; and I am planning to perform construction in the City public right-of-way in front of the above listed property.

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California. I understand that if I become subject to the workers' compensation provisions of the law of California, I shall forthwith comply with the provisions of Labor Code S3700, or my permit will be deemed revoked.

The construction work is scheduled to begin on _____
and should be completed by _____
(Type or print name clearly)

(Signature) *(Date)*

(Street Address)

(City, State, Zip)

(Email Address) *(Phone Number)*

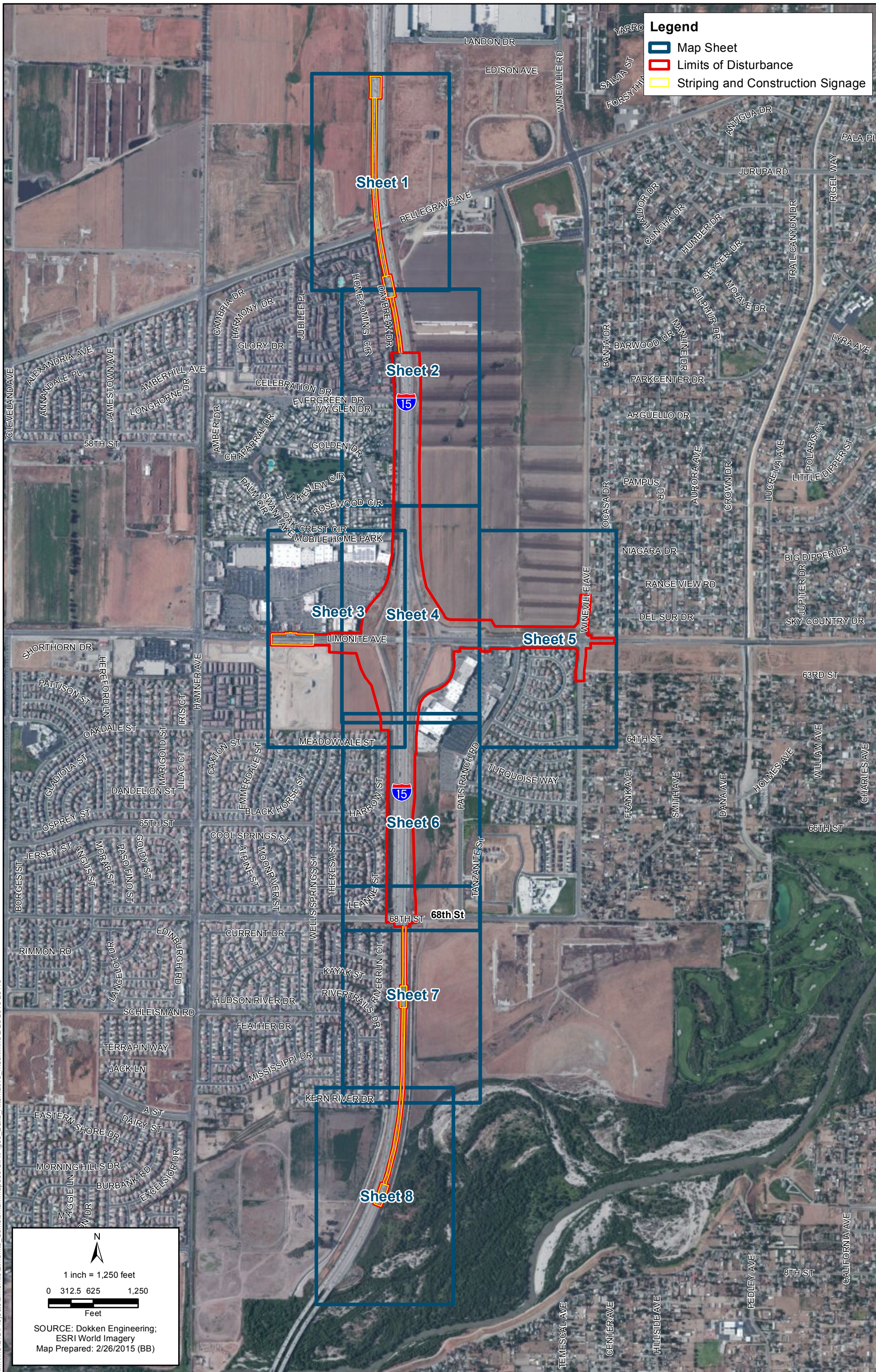


Figure 3 - Index
Build Alternative



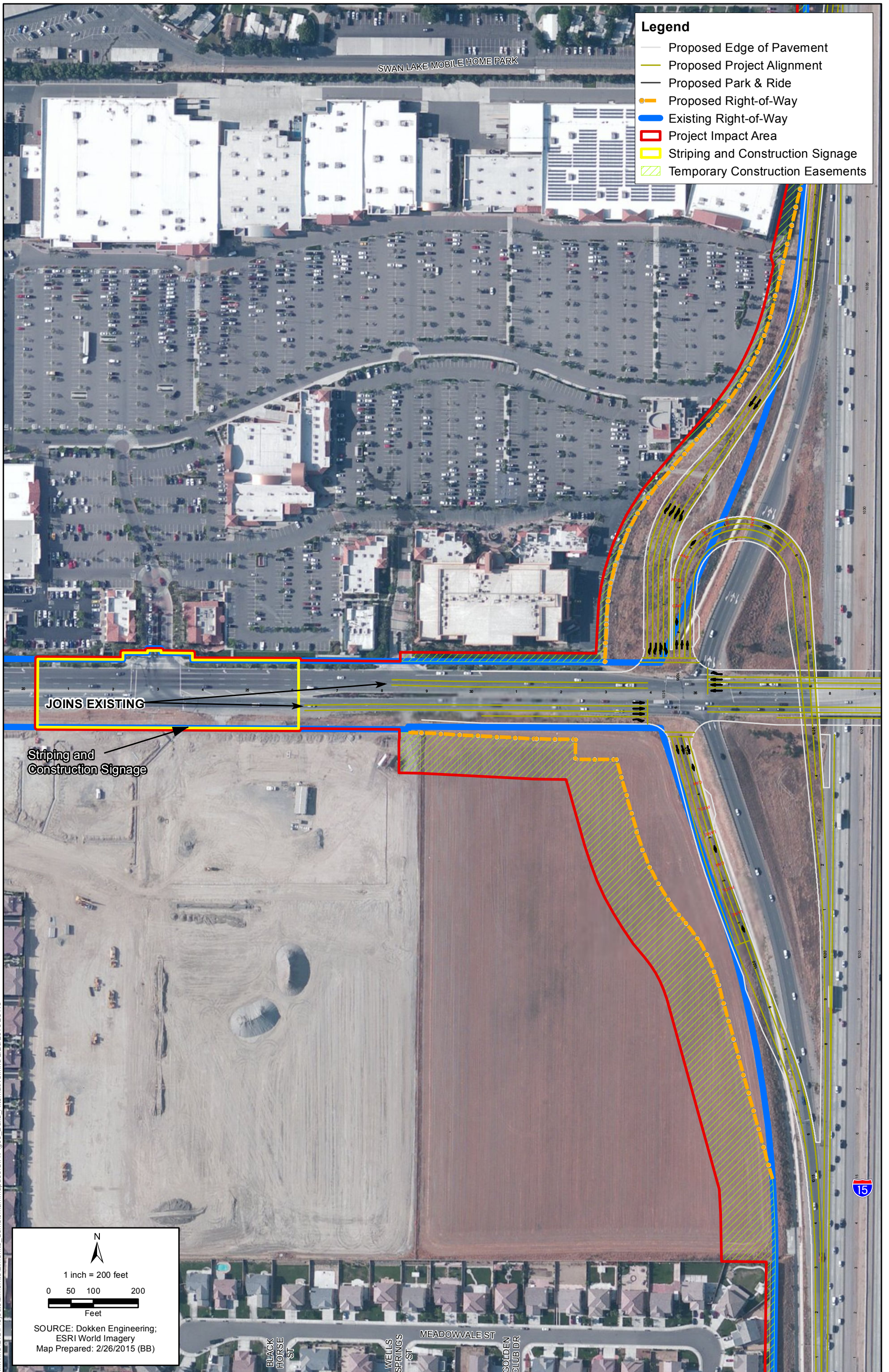
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Figure 3 - Sheet 1 of 8
Build Alternative



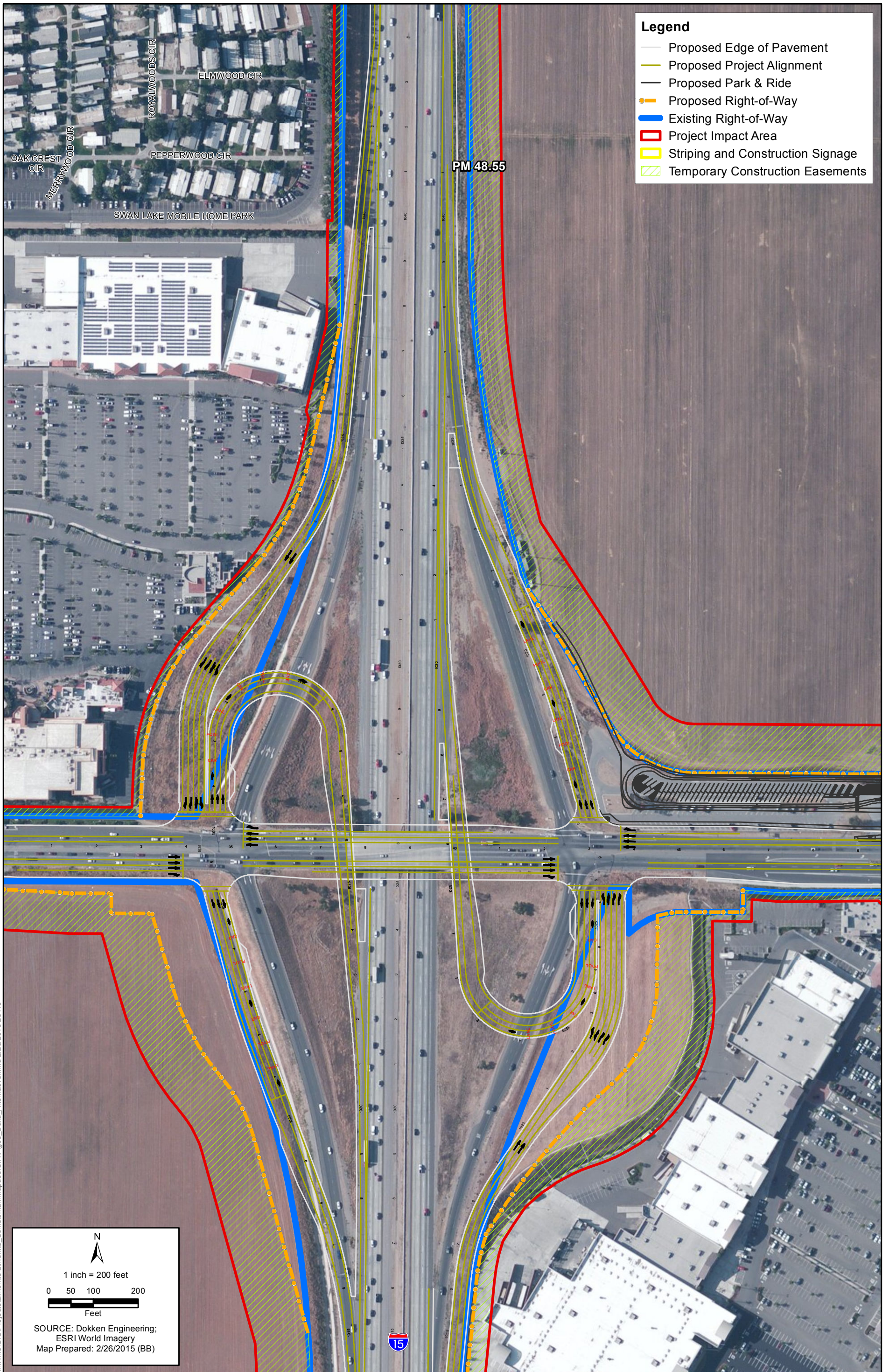
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Figure 3 - Sheet 2 of 8
Build Alternative



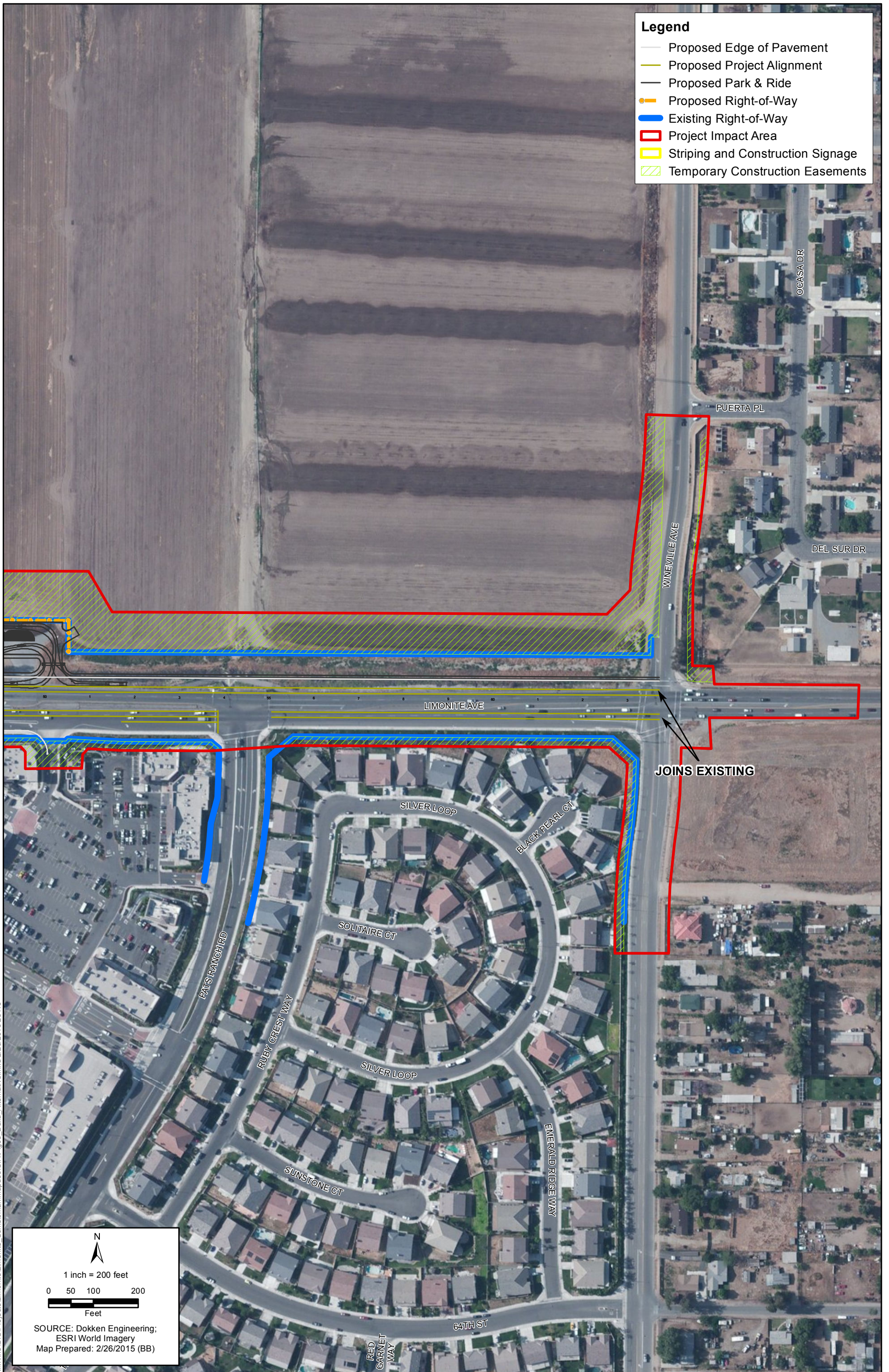
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Figure 3 - Sheet 3 of 8
Build Alternative



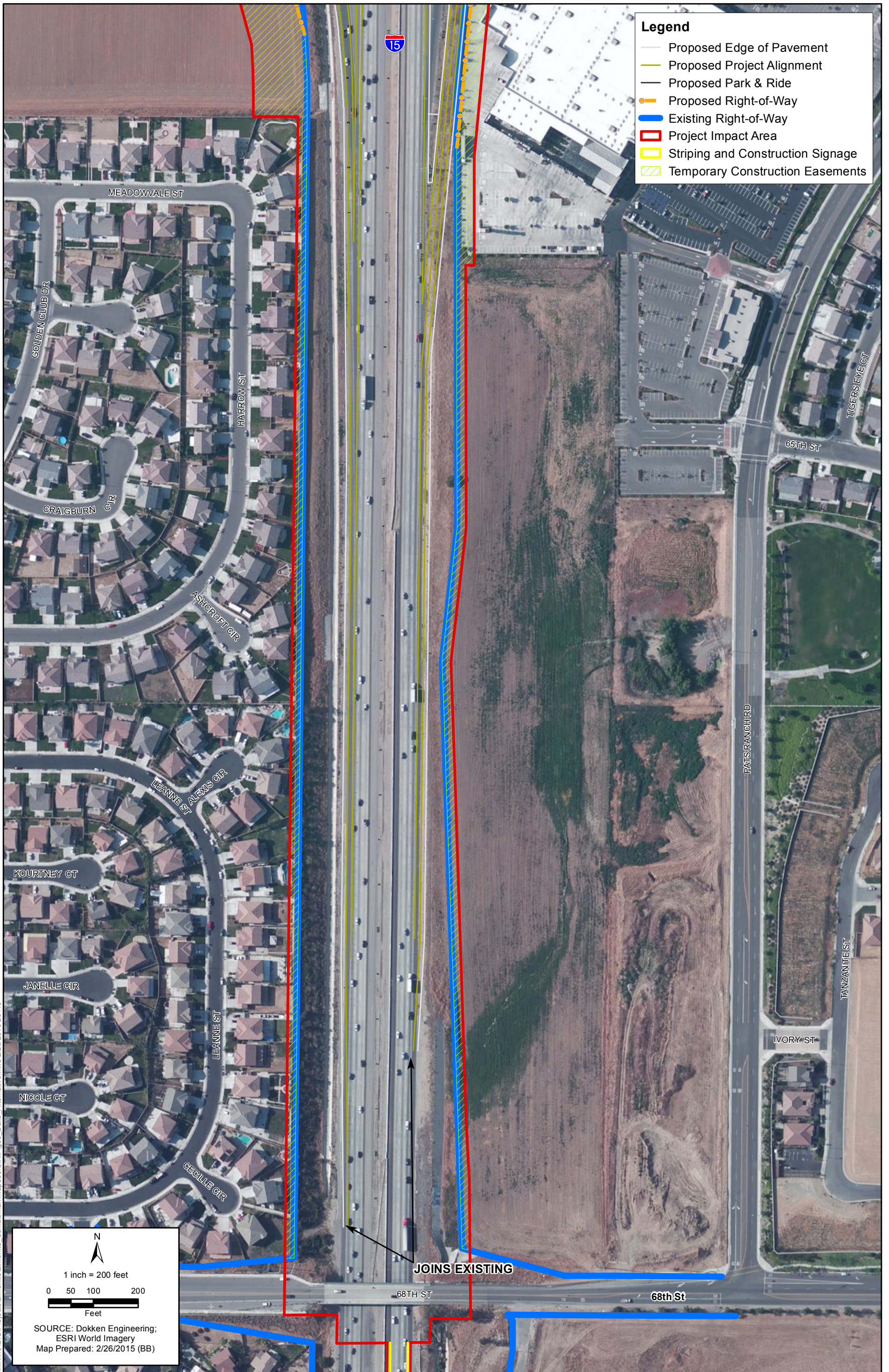
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Figure 3 - Sheet 4 of 8
Build Alternative



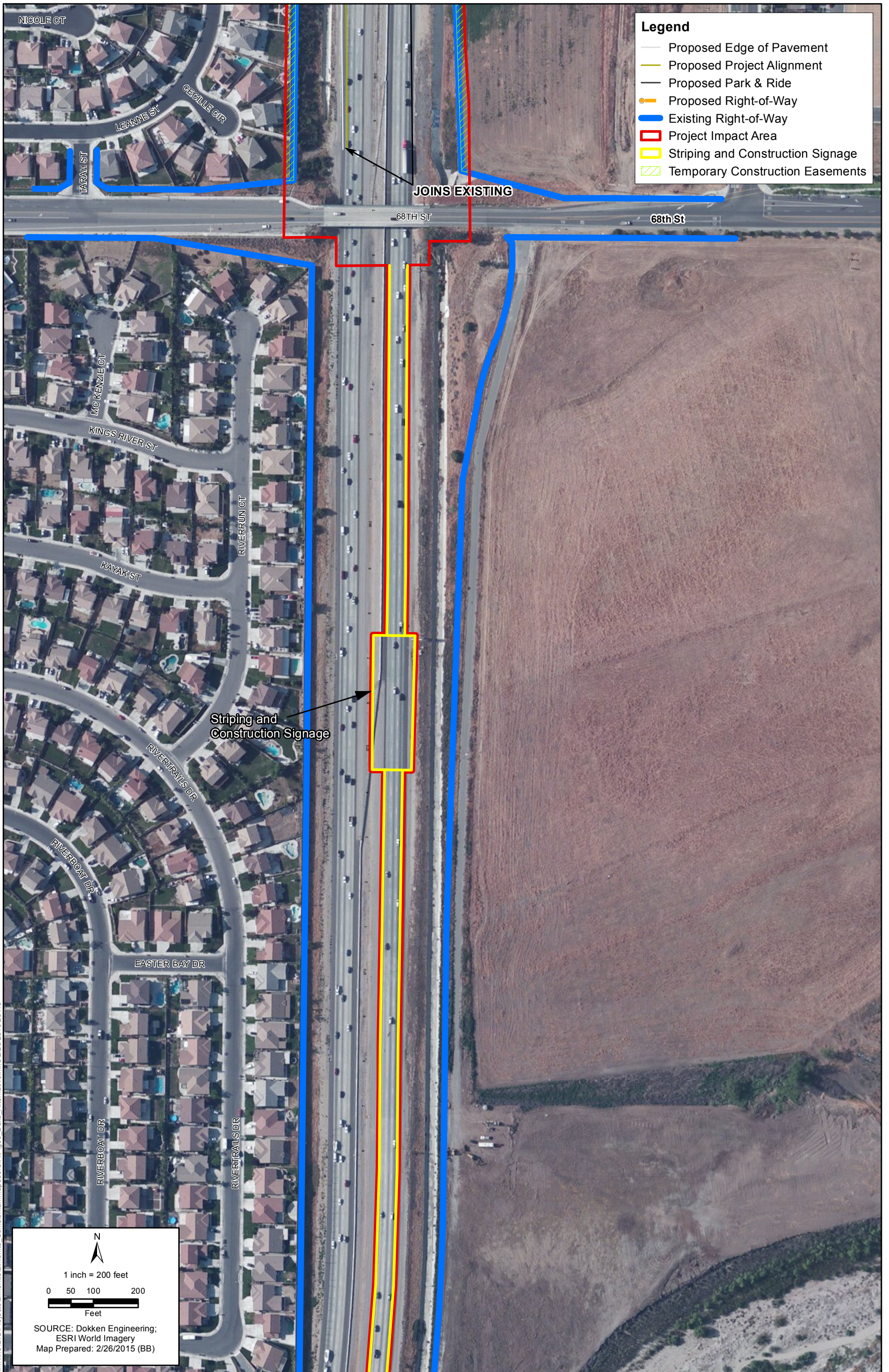
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Figure 3 - Sheet 5 of 8
Build Alternative



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Figure 3 - Sheet 6 of 8
Build Alternative



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Figure 3 - Sheet 7 of 8
Build Alternative

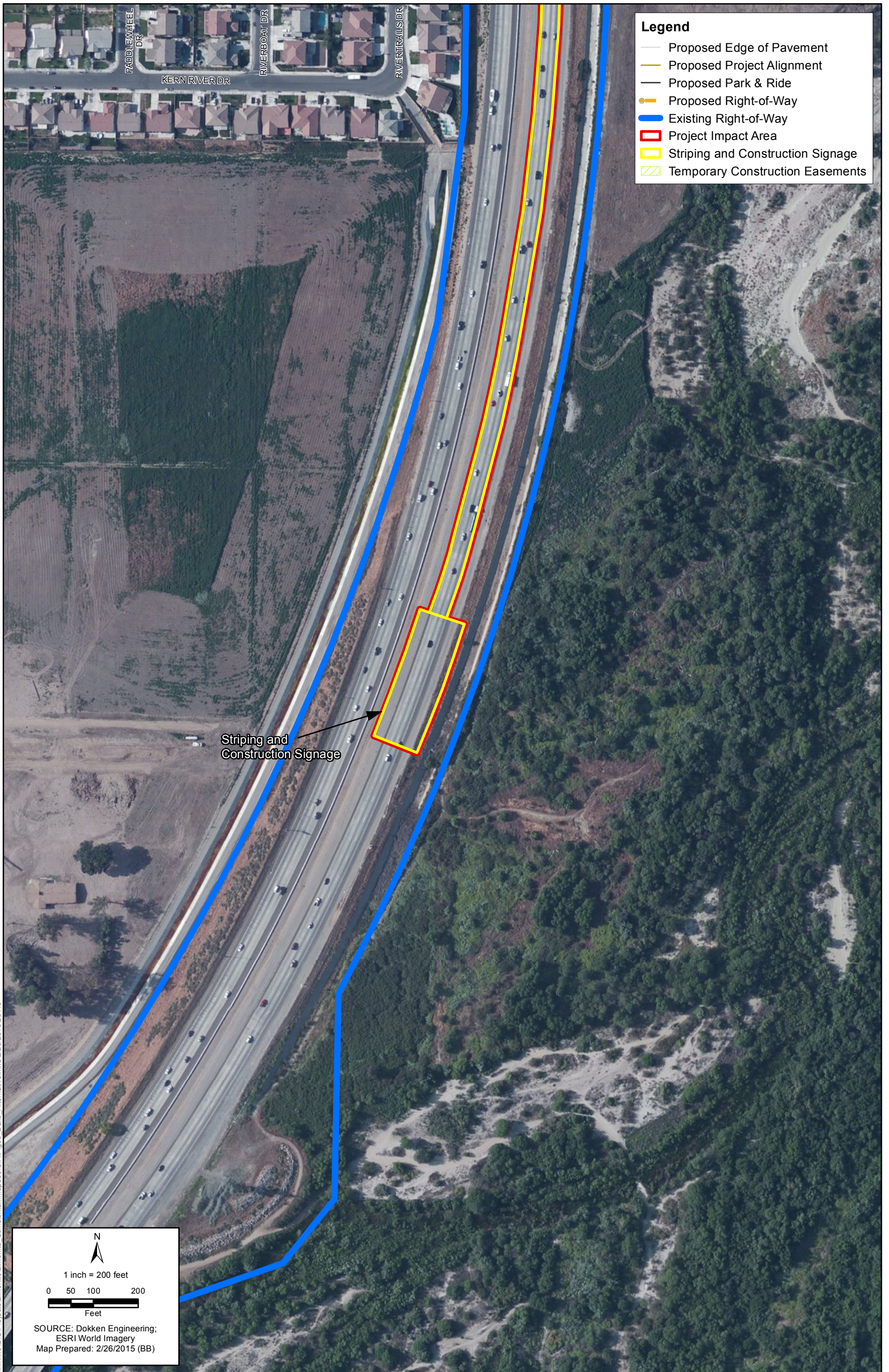


Figure 3 - Sheet 8 of 8
Build Alternative