4333-4337 Home Avenue MO

Access Analysis Study

City of San Diego Project #593686

Prepared for:
AVAD Investments, Inc.
4333 Home Avenue
San Diego, CA 92105

REGISTERED PROFESSIONAL ENGINEER
MARC MIZUTA
NO. 2716
TRAFFIC
STATE OF CALIFORNIA

03/27/19

Prepared by:
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MIZUTA
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5694 Mission Center Road, #602-121
San Diego, CA 92108

March 2019

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1 INTRODUCTION

This access analysis evaluates the traffic conditions associated with the proposed Marijuana Outlet (MO) project (herein referred to as "the Project") located at 4333-4337 Home Avenue in the City Heights Community within Mid-City Communities planning area in the City of San Diego. **Figure 1-1** shows the location of the project within the San Diego region and **Figure 1-2** shows the project area.

1.1 Project Description

The existing site (APN 541-060-19-00) is located at 4333 Home Avenue and is currently occupied by a gas station with a convenience store. The Project site's land use designation is Community Commercial/General Commercial with Light Manufacturing, which allows for the proposed Marijuana Outlet (MO) and gas station with mini mart with beer and wine sales. There are two zones on-site, which include a Commercial-Community (CC-1-3) and Industrial-Light (IL-3-1) zones. The Project requires a Neighborhood Use Permit (NUP) for the existing gas station, a Conditional Use Permit (CUP) for the existing Alcohol Beverage Outlet, and a CUP for the proposed MO. Access is being proposed through two existing driveways on Home Avenue. Both driveways will be improved to current City standards.

The Project proposes to construct a 2-story, 2,400 square-foot (sf) foot building near the eastern boundaries of the property located at 4333 Home Avenue. The Project proposes to create a new address of 4337 Home Avenue for the new building. The first floor (1,200 sf) will be used as the Marijuana Outlet and the second floor (1,200 sf) is proposed to remain vacant per the Applicant's request. The Project is estimated to be constructed by 2019. A total of 21 parking spaces are required for all the uses and 24 parking spaces will be provided on-site. Included in the parking total is one carpool/zero emission parking space and two motorcycle spaces. **Figure 1-3** illustrates the Project site plan.

1.2 Study Area

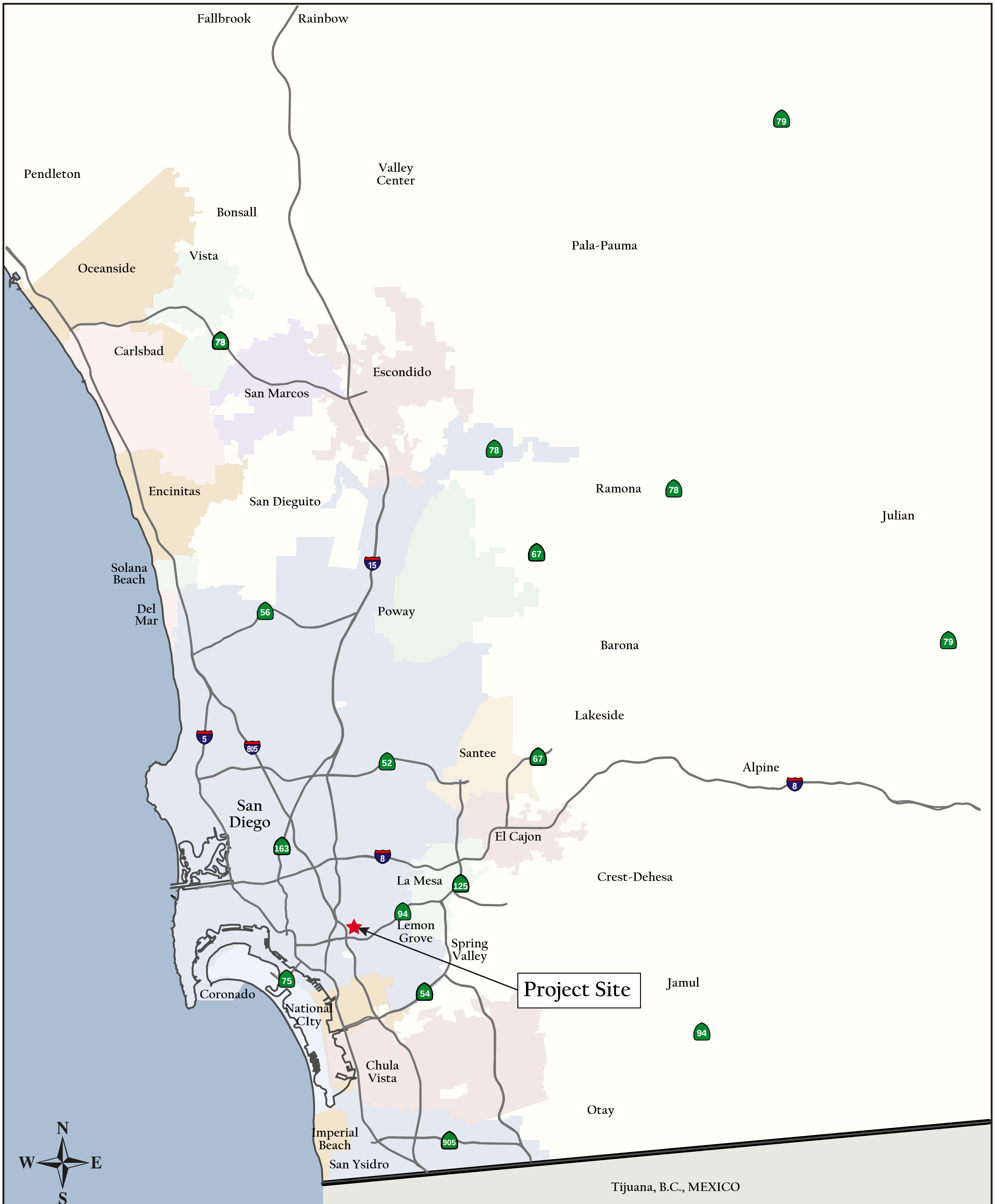
This transportation access study addresses potential operational impacts that could result from the addition of the Project traffic to the local circulation system. A scoping memo was prepared for the Project in accordance with the *City of San Diego Traffic Impact Study Manual* guidelines and with guidance from City staff on October 2, 2018. The following intersections and roadway segments, including the Project driveways, are evaluated in this report:

<u>Intersections</u>

1. Fairmount Avenue & Home Avenue
2. East Project Driveway & Home Avenue
3. West Project Driveway & Home Avenue
4. I-805 Northbound Ramps & Home Avenue
5. I-805 Southbound Ramps & Home Avenue

<u>Roadway Segments</u>

1. Home Avenue between I-805 Southbound Ramps and I-805 Northbound Ramps
2. Home Avenue between I-805 Northbound Ramps and Fairmount Avenue



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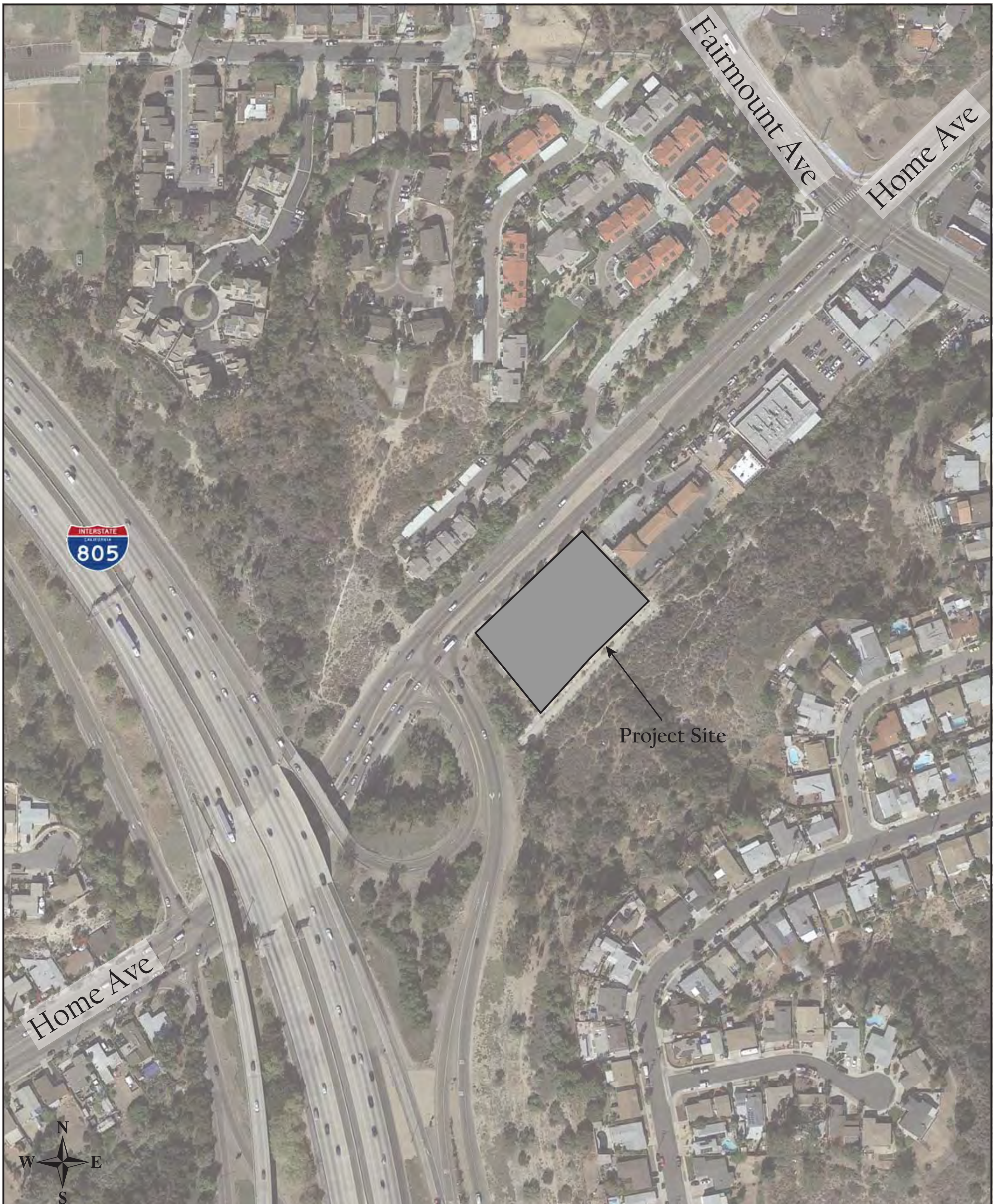
4333-4337 Home Avenue MO

Figure 1-1
Regional Vicinity Map



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4333-4337 Home Avenue MO

Figure 1-2
Project Area Map

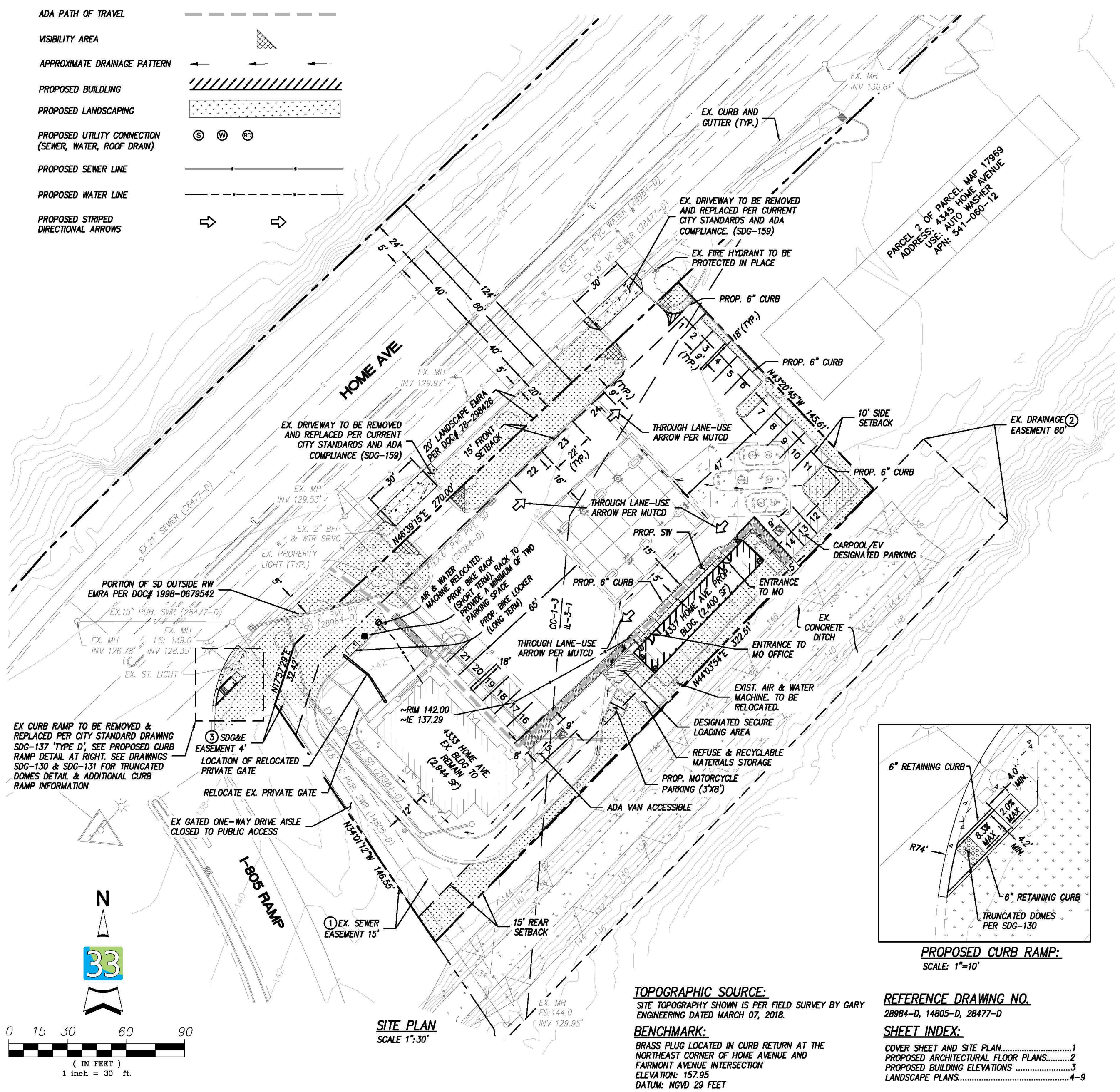
Figure 1-3 Site Plan

CONDITIONAL USE PERMIT # 2117121 FOR MARIJUANA OUTLET (MO)
CONDITIONAL USE PERMIT # 2225844 FOR ABC TYPE 20 LICENSE
NEIGHBORHOOD USE PERMIT # 2140441 FOR AUTO SERVICE STATION

4333-4337 HOME AVENUE, SAN DIEGO, CA 92105

LEGEND:

- PROPERTY LINE
- EXISTING SETBACKS
- ZONE DELINEATION
- EXISTING BUILDING
- EXISTING CURB & GUTTER
- EXISTING TREES
- ADA PATH OF TRAVEL
- VISIBILITY AREA
- APPROXIMATE DRAINAGE PATTERN
- PROPOSED BUILDING
- PROPOSED LANDSCAPING
- PROPOSED UTILITY CONNECTION (SEWER, WATER, ROOF DRAIN)
- PROPOSED SEWER LINE
- PROPOSED WATER LINE
- PROPOSED STRIPED DIRECTIONAL ARROWS



SITE PLAN
SCALE 1"=30'

PROPOSED CURB RAMP:
SCALE: 1"=10'

TOPOGRAPHIC SOURCE:
SITE TOPOGRAPHY SHOWN IS PER FIELD SURVEY BY GARY ENGINEERING DATED MARCH 07, 2018.

BENCHMARK:
BRASS PLUG LOCATED IN CURB RETURN AT THE NORTHEAST CORNER OF HOME AVENUE AND FAIRMONT AVENUE INTERSECTION
ELEVATION: 157.95
DATUM: NGVD 29 FEET

REFERENCE DRAWING NO.
28984-D, 14805-D, 28477-D

SHEET INDEX:

DEVELOPMENT SUMMARY
THE PROPOSED PROJECT IS SEEKING:
-APPROVAL OF A NEIGHBORHOOD USE PERMIT (NUP) TO CONTINUE THE AUTO SERVICE STATION OPERATION W/ EXISTING MINI-MARKET.
-APPROVAL OF A CONDITIONAL USE PERMIT (CUP) TO CONTINUE ABC TYPE 20 BEER AND WINE LICENSE FOR OFF-SITE CONSUMPTION ALCOHOL BEVERAGE SALE, LOCATED AT 4333 HOME AVE IN THE CC-1-3-ZONE.
-APPROVAL OF A CONDITIONAL USE PERMIT (CUP) TO OPERATE A 1,200 SF MARIJUANA OUTLET (MO) ON THE FIRST FLOOR OF A 2,400 SF BUILDING THAT IS TO BE CONSTRUCTED.

PROJECT TEAM:
LATITUDE 33 PLANNING AND ENGINEERING
9968 HIBERT STREET 2ND FLOOR, SAN DIEGO, CA 92131
92121 (858) 751-0633 FAX (858) 751-0634

OWNER:
AVAD INVESTMENTS, INC.
4333 & 4337 HOME AVE.
SAN DIEGO, CA 92105

LEGAL DESCRIPTION:
PARCEL 1 OF PARCEL MAP NO. 17969 IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON DECEMBER 22, 1997 AS INSTRUMENT NO. 1997-0651626 OF OFFICIAL RECORDS.

ASSESSOR'S PARCEL NO.
541-060-19-00

ZONING DESIGNATION:
CC-1-3 & IL-3-1

OVERLAY ZONE DESIGNATION:
-HILLSIDE REVIEW OVERLAY ZONE

EXISTING/PROPOSED USE:
-EXISTING: COMMUNITY COMMERCIAL/GENERAL COMMERCIAL WITH LIGHT MANUFACTURING: GAS STATION AND MINI MART WITH BEER & WINE SALES
-PROPOSED: COMMUNITY COMMERCIAL/GENERAL COMMERCIAL, MARIJUANA OUTLET, & GAS STATION WITH MINI MART WITH BEER & WINE SALES

EASEMENTS:
1. SEWER EASEMENT RESERVED PER DEED REC. 10-31-1980 AS F/P. 80-364441, O.R. (CITY DWG. NO. 14805-2-D).
2. DRAINAGE EASEMENT RESERVED PER DEED REC. 10-31-1980 AS F/P 80-364441, O.R.
3. 4' WIDE SDG&E EASEMENT PER DEED REC. 2-01-1977, F/P 77-038930, O.R.

GEOLOGIC HAZARD CATEGORY:
32 - LOW POTENTIAL, FLUCTUATING GROUNDWATER MINOR DRAINAGES

ENVIRONMENTALLY SENSITIVE LAND:
NONE

LIMIT OF WORK:
ASSESSORS PARCEL NUMBER 541-060-19-00

TRANSIT STOPS:
TRANSIT STOPS DIRECTLY ADJACENT TO PROJECT: NONE
SEE VICINITY MAP ABOVE.

PARKING REQUIREMENTS:

PARKING REQUIREMENTS				
	PROPOSED USE/SQ.FT.	RATIO	MIN. REQUIRED	PROVIDED
ZONE IL-3-1				
GROUND FLOOR	MO/1200	5	6	6
SECOND FLOOR	VACANT/1200	N/A	0	3
ZONE CC-3-1				
SINGLE STORY	GAS SERVICE STATION/2944	5	15	15
TOTAL:			21	24

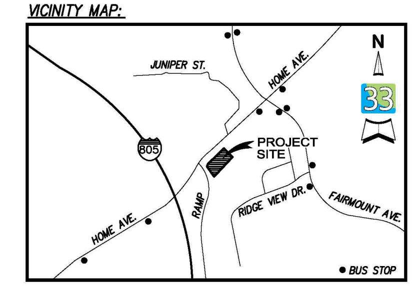
PROVIDED PARKING		
	MIN. REQUIRED	PROVIDED
ADA PARKING	1	1
VAN ACCESSIBLE ADA PARKING	1	1
STANDARD PARKING	21	22
TOTAL PROVIDED:		24

PROVIDED CARPOOL/ZERO EMISSION PARKING		
	MIN. REQUIRED	PROVIDED
CARPOOL/ZERO EMISSION PARKING	1	1
TOTAL PROVIDED:		1

	MIN. REQUIRED	PROVIDED
MOTORCYCLE PARKING	2	2
TOTAL PROVIDED:		2

PROVIDED BICYCLE PARKING		
	MIN. REQUIRED	PROVIDED
LONG TERM	1	1
SHORT TERM	2	5
TOTAL PROVIDED:		6

VICINITY MAP:



GROSS SITE AREA/FLOOR AREA:
-GROSS SITE AREA: 46,952 SF (1.08 ACRES)
-EXISTING FLOOR AREA: 2,944 SF (0.07 ACRES)
-EXISTING FLOOR AREA RATIO: 6.3%

-PROPOSED FLOOR AREA: 5,344 (0.12 ACRES)
-PROPOSED FLOOR AREA RATIO: 11.4%

LANDSCAPE AREA SQUARE FOOTAGE:
EXIST: 9,000 SF
PROPOSED: 15,174 SF

BUILDING HEIGHT:
(E) MINI MARKET: 24'-6" (1 STORY)
(E) CANOPY: 19'-1" (1 STORY)
(P) MO BUILDING: 34'-4" (2 STORIES)

YEAR CONSTRUCTED:
(E) MINI MARKET: 1998
(E) CANOPY: 1998
(P) MO BUILDING: PROPOSED

TYPE OF CONSTRUCTION:
(E) MINI MARKET: V-B
(E) CANOPY: II-N
(P) MO BUILDING: III

OCCUPANCY CLASSIFICATION:
(E) MINI MARKET: M
(E) CANOPY: S3
(P) MO BUILDING: V-B

NOTES:
1. OWNER SHALL PROVIDE BUILDING ADDRESS NUMBERS, VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY PER FHPS P-00-6 (UFC 901.4.4)
2. NO OBSTRUCTION INCLUDING LANDSCAPING OR WALLS IN THE VISIBILITY AREA SHALL EXCEED 3 FEET IN HEIGHT.
3. EXISTING WATER AND SEWER SERVICES TO REMAIN.
4. PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITTEE SHALL SUBMIT A WATER POLLUTION CONTROL PLAN (WPCP). THE WPCP SHALL BE PREPARED IN ACCORDANCE WITH THE GUIDELINES IN PART 2 CONSTRUCTION BMP STANDARDS CHAPTER 4 OF THE CITY'S STORM WATER STANDARDS.
5. PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITTEE SHALL INCORPORATE ANY CONSTRUCTION BEST MANAGEMENT PRACTICES NECESSARY TO COMPLY WITH CHAPTER 14, ARTICLE 2, DIVISION 1 (GRADING REGULATIONS) OF THE SAN DIEGO MUNICIPAL CODE, INTO THE CONSTRUCTION PLANS OR SPECIFICATIONS.

GRADING QUANTITIES
SITE DISTURBANCE: 15,530 SF
- 10,300 SF OF PERVIOUS AREA DISTURBED
- 5,230 SF OF IMPERVIOUS AREA DISTURBED
  - * IMPERVIOUS DISTURBED AREA REPLACED W/ PROPOSED IMPERVIOUS SURFACE: 3,180 SF
  - * IMPERVIOUS DISTURBED AREA REPLACED W/ PROPOSED PERVIOUS LANDSCAPE: 2,050 SF

TOTAL EXPORT: 210 CUBIC YARDS (CUT)
- 190 CY FOR LANDSCAPING
- 15 CY FOR BUILDING ADDITION FOUNDATION
- 5 CY FOR WATER AND SEWER LATERALS

MAXIMUM EXCAVATION DEPTH FOR SITE WORK:
- 1.5' FOR PROPOSED CONCRETE PAVEMENT
- 5.5' FOR PROPOSED SEWER LATERAL
- 3.5' FOR PROPOSED BUILDING ADDITION FOOTING

Prepared By:
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SAN DIEGO, CA 92131
Phone #: (858) 751-0633
Fax #: (858) 751-0634

Project Address:
4333 HOME AVENUE
SAN DIEGO, CA 92105

Project Name:
4333-4337 HOME AVENUE CUP

Project Number:
593686

PREPARED IN THE OFFICE OF:
latitude 33 PLANNING & ENGINEERING
9968 Hibert Street 2nd Floor, San Diego, CA 92131
Tel 858.751.0633

Sheet Title:
COVER SHEET & SITE PLAN

DEP#

Revision 14:
Revision 13:
Revision 12:
Revision 11:
Revision 10:
Revision 9:
Revision 8:
Revision 7:
Revision 6: 3/26/2019
Revision 5: 3/7/2019
Revision 4: 12/10/2018
Revision 3: 10/29/2018
Revision 2: 9/20/2018
Revision 1: 7/26/2018

Original Date: 1/8/2018

Sheet 1 of 8

2 Analysis Approach and Methodology

This section summarizes the analysis approach and methodology used to evaluate the study intersections and roadway segments associated with the Project.

2.1 Analysis Scenarios

The following scenarios were evaluated in this transportation access study:

- Existing Conditions (2018): This scenario reflects the conditions on the ground at the time the traffic volume data was obtained (October 2018).
- Existing Plus Project: This scenario reflects existing conditions with the addition of Project traffic.
- Near Term (Opening Day Year 2019): This scenario reflects the conditions within the study area at the anticipated date of opening and includes traffic volumes from a general growth in the area and other identified cumulative projects.
- Near Term (Opening Day Year 2019) With Project: This scenario reflects near term conditions with the addition of Project traffic.

The traditional weekday peak-hour coinciding with the highest volume of traffic between 7:00 and 9:00 AM and between 4:00 and 6:00 PM was evaluated for each analysis scenario.

2.2 Methodology

2.2.1 Intersection Delay Analysis

Signalized and unsignalized intersection operations were analyzed with Synchro 10 software (Trafficware), using the methodologies outlined in the *2010 Highway Capacity Manual (HCM)*. The HCM methodology calculates delay, which corresponds to a particular LOS, to describe the overall operation of an intersection. Delay is a measure of driver and/or passenger discomfort, frustration, fuel consumption and lost travel time.

Signal timing data and parameters such as cycle lengths, splits, clearance intervals, etc. were based on existing City of San Diego timing plans that are currently implemented in the field and were calibrated into the Synchro model. **Appendix A** contains a copy of the signal timing plans. The LOS for unsignalized intersections is determined by the computed or measured control delay and is defined for each minor movement. At a one-way or two-way stop control intersection, the delay reported represents the worst movement, which is typically the left-turns from the minor street approach. The criteria for the LOS grade designations are provided in **Table 2-1**.

Within the City of San Diego, the threshold for acceptable operating conditions for signalized and unsignalized intersections is LOS D or better.

Table 2-1
LOS Criteria for Intersections

LOS	LOS Criteria (sec/veh)		Description
	Signalized Intersections	Unsignalized Intersections	
A	≤10	≤10	EXCELLENT. Operations with very low delay and most vehicles do not stop.
B	>10 and ≤20	>10 and ≤15	VERY GOOD. Operations with good progression but with some restricted movements.
C	>20 and ≤35	>15 and ≤25	GOOD. Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	>35 and ≤55	>25 and ≤35	FAIR. Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines.
E	>55 and ≤80	>35 and ≤50	POOR. Operations where there is significant delay, extensive queuing, and poor progression.
F	>80	>50	FAILURE. Operations that are unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Source: *2010 Highway Capacity Manual*

2.2.2 Roadway Segment Analysis

Roadway segment LOS standards and thresholds provide the basis for analysis of arterial roadway segment performance. This analysis is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and the daily traffic volumes.

Table 2-2 summarizes the capacities for the various roadway classifications with the City of San Diego for each respective LOS.

Table 2-2
Roadway Classifications, Level of Service (LOS), and Average Daily Traffic (ADT)

Roadway Functional Classification	Level of Service				
	A	B	C	D	E
Expressway (6-lane)	< 30,000	< 42,000	< 60,000	< 70,000	< 80,000
Prime Arterial (6-lane)	< 25,000	< 35,000	< 50,000	< 55,000	< 60,000
Major Arterial (6-lane, divided)	< 20,000	< 28,000	< 40,000	< 45,000	< 50,000
Major Arterial (4-lane, divided)	< 15,000	< 21,000	< 30,000	< 35,000	< 40,000
Collector (4-lane w/center lane)	< 10,000	< 14,000	< 20,000	< 25,000	< 30,000
Collector (4-lane w/o center lane)	< 5,000	< 7,000	< 10,000	< 13,000	< 15,000
Collector (2-lane w/ continuous left-turn lane)					
Collector (2-lane no fronting property)	< 4,000	< 5,500	< 7,500	< 9,000	< 10,000
Collector (2-lane w/ commercial fronting)	< 2,500	< 3,500	< 5,000	< 6,500	< 8,000
Collector (2-lane multi-family)					
Sub-Collector (2-lane single-family)	-	-	< 2,200	-	-

Source: Table 2 from the *City of San Diego Traffic Impact Study Manual, July 1998*

2.3 Significance Threshold Criteria

To determine the Project impacts to roadway segments and intersections, the *City of San Diego California Environmental Quality Act (CEQA) Significance Determination Thresholds, July 2016* has developed thresholds based on allowable increases in delay at intersections and volume to capacity ratios (v/c Ratio) for roadway segments. At intersections, the measurement of effectiveness (MOE) is based on allowable increases in delay. Along roadway segments, the MOE is based on allowable increases in the volume-to-capacity (v/c) ratio. A project's impact on a transportation facility is also significant if it takes the facility from acceptable to unacceptable levels of service.

Table 2-3 summarizes the significance impact thresholds for intersections and roadway segments.

Table 2-3
Significance Criteria for Intersections and Roadway Segments

LOS with Project	Allowable Change Due to Impact	
	Roadway Segments	Intersections
	v/c Ratio	Delay (sec)
E	0.02	2.0
F	0.01	1.0

Source: CEQA Significance Determination Thresholds, City of San Diego Development Services Department, July 2016

3 Existing Conditions

This section describes the existing roadway network, peak hour and daily traffic volumes, and operations at the study area intersections and roadway segments.

3.1 Roadway Network

Home Avenue is classified as a 4-lane major roadway with a raised median and generally runs in the east-west direction adjacent to the Project site. This street is constructed to its Community Plan ultimate classification. On-street parking is provided on the south side of the roadway and restricted to 2-hours between 8 AM and 6 PM on weekdays and prohibited between 3 AM and 6 AM daily. On-street parking is prohibited on the north side of the roadway. Curb, gutters, and 5-foot contiguous sidewalks are provided on both sides of the roadway. The posted speed limit is 35 miles per hour.

Fairmount Avenue is classified as a 4-lane collector south of Home Avenue and a 2-lane collector north of Home Avenue and generally runs in the north-south direction in the study area. On-street parking is prohibited on both sides of the roadway. However, north of 44th Street, on-street parallel parking is allowed on both sides of the roadway. Curb, gutters, 5-foot contiguous sidewalks, and Class II bicycle lanes are also provided on both sides of the roadway. The posted speed limit is 35 miles per hour.

Figure 3-1 illustrates the existing geometrics at the study area intersections.

3.2 Alternate Modes of Travel

In addition to the vehicular roadway network, alternative modes of travel are provided within the study area and described in more detail below.

3.2.1 Transit Service

The San Diego Metropolitan Transit System (MTS) provides bus service in the study area with Routes 13 and 965. Route 965 primarily provides service within the City Heights community every day except for Sundays with service generally every 30 minutes between the hours of 5:00 AM and 9:00 PM. The nearest transit stop for Route 965 is located on the south side of Home Avenue approximately 550 feet east of the Project site.

Route 13 provides daily service between the 24th Street Transit Station in National City and Kaiser Hospital in Allied Gardens. Service is provided every 12 minutes on the weekdays between the hours of 4:30 AM and 12:00 AM and between 20 to 30 minutes on Saturday and Sunday between the hours of 6:00 AM and 9:00 PM . The nearest transit stop for Route 13 is located on both sides of Fairmount Avenue just south of Home Avenue and approximately 800 feet east of the Project site.

3.2.2 Pedestrian Access

Five-foot contiguous sidewalks are provided on both sides of Home Avenue. The nearest location to cross Home Avenue is located at the intersection with Fairmount Avenue, which is approximately 700 east of the Project site. Pedestrians would cross Home Avenue in the marked continental style crosswalk during the pedestrian phase of this intersection.

3.2.3 Bicycle Access

There are no bicycle facilities along Home Avenue in the immediate vicinity of the Project site. A review of the *City of San Diego Bicycle Master Plan, December 2013* shows a proposed Class II or III bicycle facility along Home Avenue in the study area. A Class II bicycle facility is located along both sides of Fairmount Avenue.

Appendix B contains excerpts of the City's Bicycle Master Plan and Community Plan.

3.3 Traffic Volumes

Traffic volumes at the study area intersections and along Home Avenue were measured on Wednesday, October 3, 2018 when schools were in session. **Figure 3-2** illustrates the study area traffic volumes.

Appendix C contains a copy of the traffic volume data sheets.

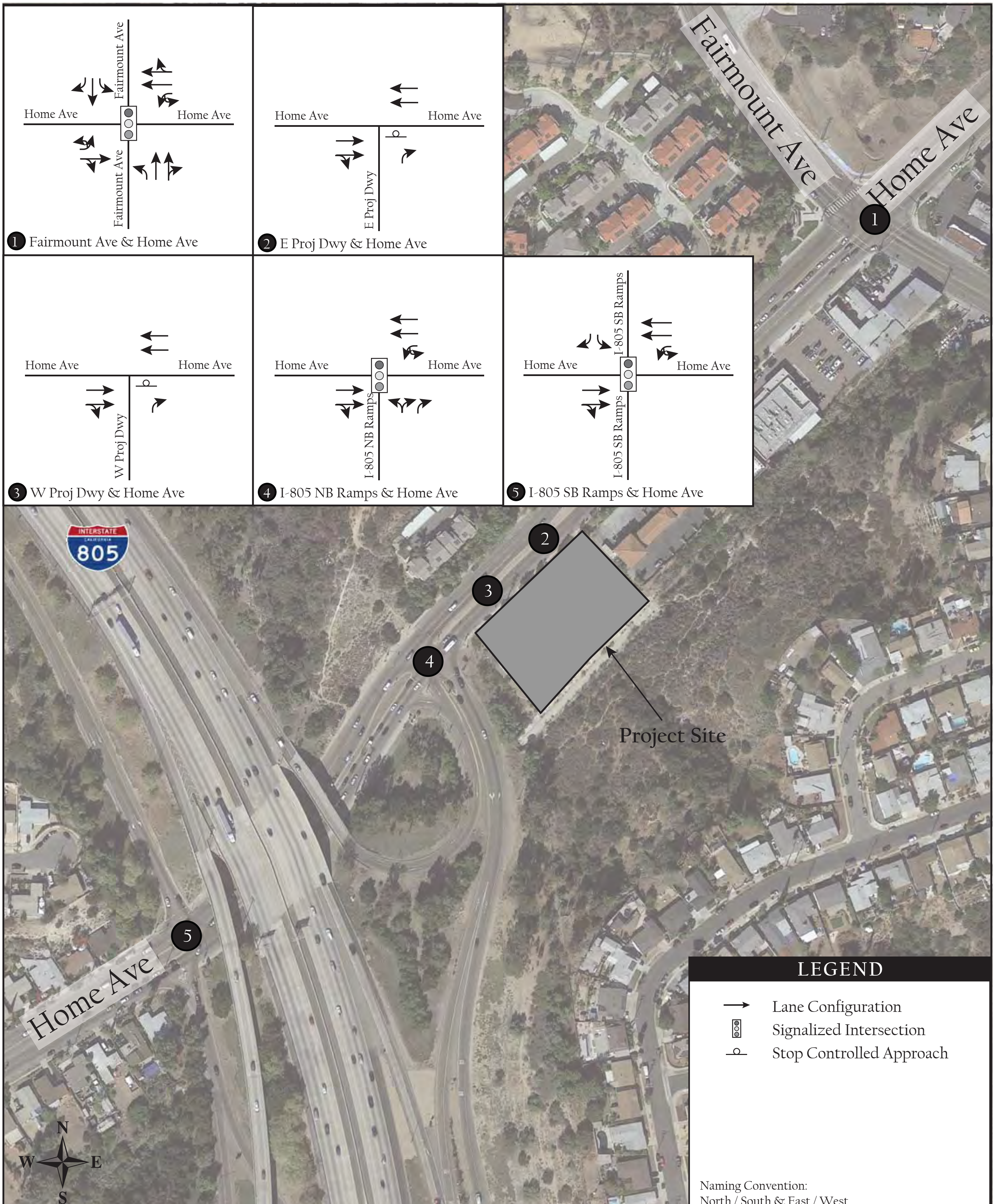

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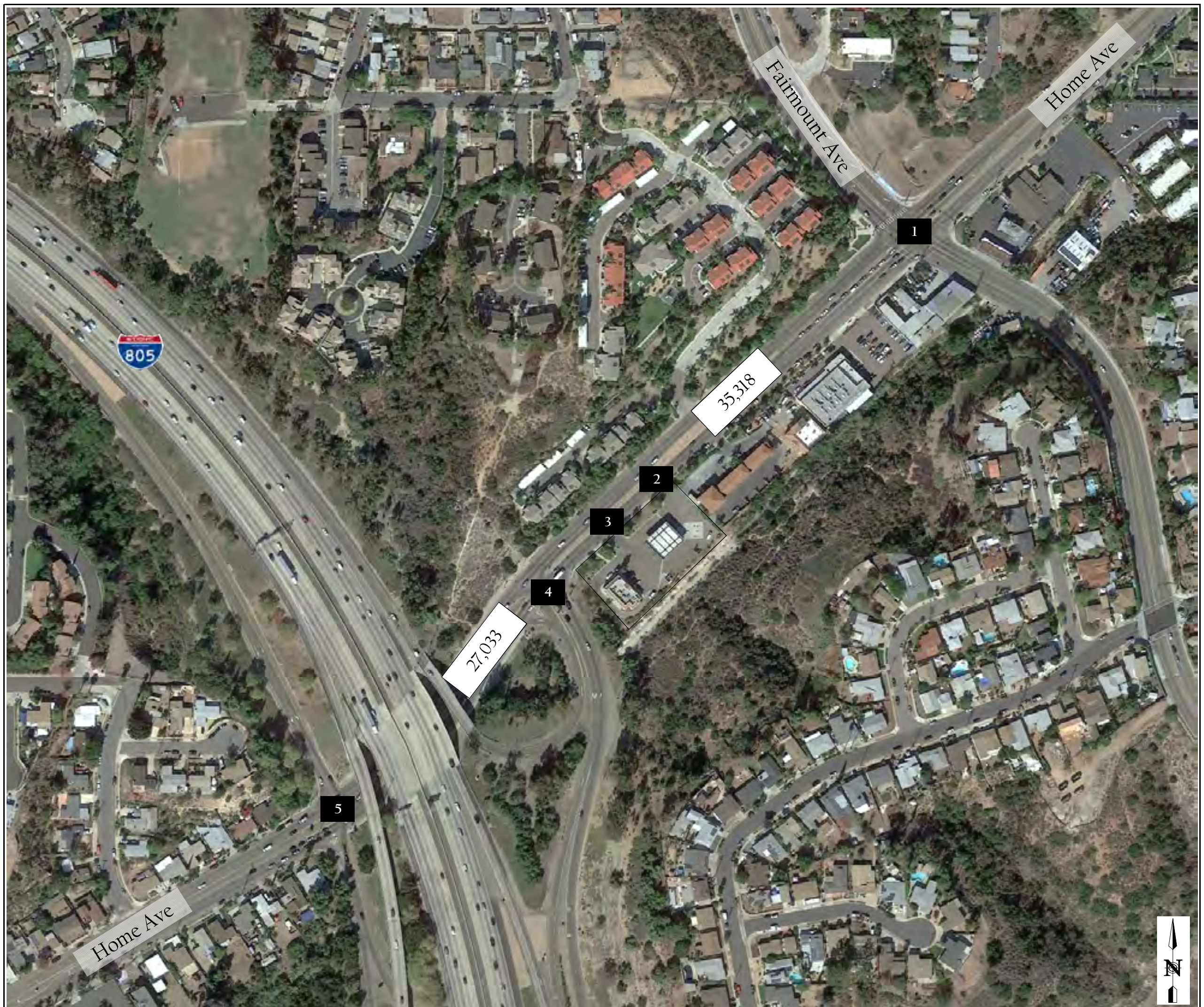
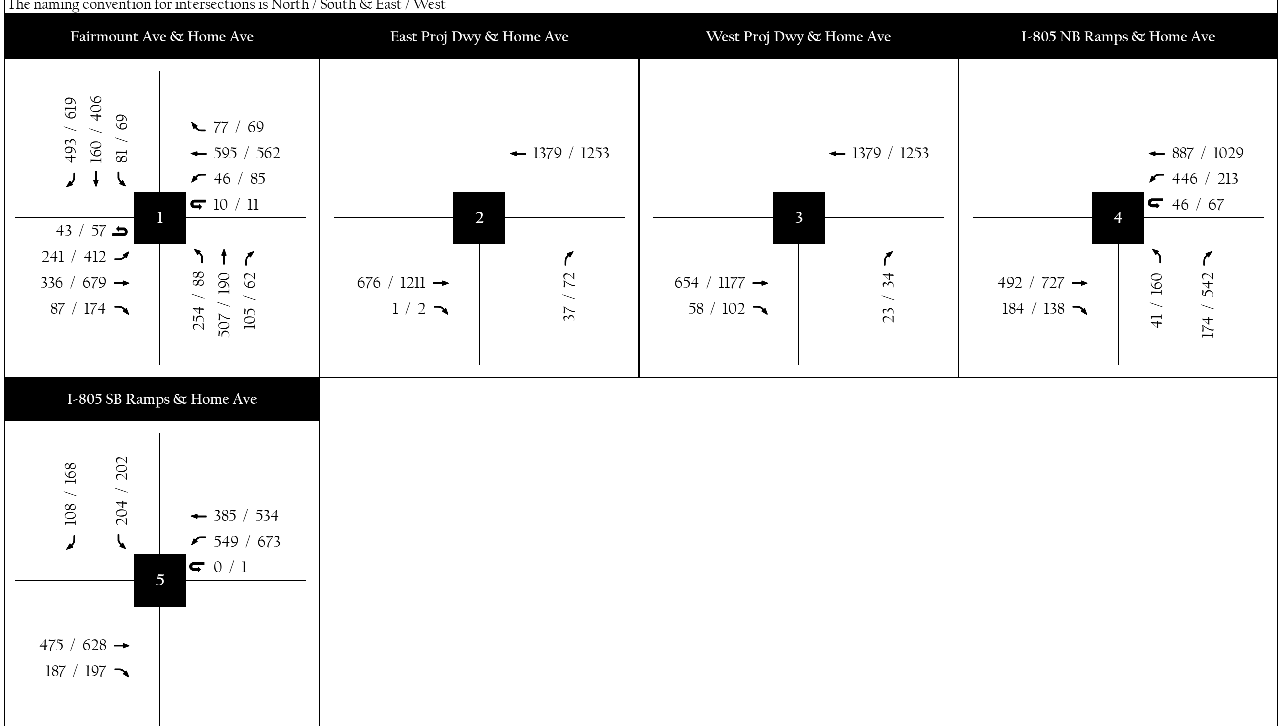
Figure 3-1
Existing Intersection Geometrics



xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North / South & East / West

xx,xxx ADT



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Existing Conditions Traffic Volumes

Figure 3-2

3.4 Intersection Analysis

Table 3-1 displays the LOS analysis results for the study area intersections under Existing Conditions. As shown in the table, all intersections operates at LOS D or better during the weekday peak-hours except for the following intersection:

- Fairmount Avenue & Home Avenue (LOS E – AM Peak, LOS F – PM Peak)

Appendix D contains the intersection LOS worksheets.

Table 3-1
Existing Peak Hour Intersection LOS Summary

#	Intersection	Traffic Control	Peak Hour	Existing Conditions	
				Delay [(a)]	LOS [(b)]
1	Fairmount Ave & Home Ave	Signal	AM	**62.7**	**E**
			PM	**86.5**	**F**
2	East Dwy & Home Ave	OWSC	AM	10.9	B
			PM	15.4	C
3	West Dwy & Home Ave	OWSC	AM	10.9	B
			PM	15.0	C
4	I-805 NB Ramps & Home Ave	Signal	AM	30.9	C
			PM	30.4	C
5	I-805 SB Ramps & Home Ave	Signal	AM	35.2	D
			PM	36.7	D

Notes:
Signal: Traffic signal, OWSC: One-Way Stop Control
(a) Delays are reported as the average control delay for the entire intersection at signalized intersections and the worst movement at unsignalized intersections.
(b) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* (HCM) and performed using Synchro 10.

3.5 Roadway Segment Analysis

Table 3-2 displays the LOS analysis for the two roadway segments along Home Avenue under Existing Conditions. As shown in the table, the Home Avenue segment between the I-805 NB Ramps and Fairmount Avenue functions at LOS E while the other segment functions at LOS C.

Table 3-2
Existing Roadway LOS Summary

Roadway Segment	Classification	Capacity (LOS E)	ADT	v/c Ratio	LOS
Home Ave					
I-805 SB Ramps to I-805 NB Ramps	4-Lane Major	40,000	27,033	0.68	C
I-805 NB Ramps to Fairmount Ave	4-Lane Major	40,000	35,318	0.88	E

Notes:
Bold values indicate roadway segments operating at LOS E or F.

4 PROJECT TRAFFIC

This section describes the estimated trip generation, trip distribution, and assignment of trips to the adjacent roadway network.

4.1 Project Trip Generation

Trip generation rates for the Project were developed utilizing rates contained in the *City of San Diego Trip Generation Manual, May 2003* and supplemented with rates published in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition* for marijuana dispensaries.

Table 4-1 summarizes the weekday trip generation rates and calculations.

Table 4-1
Project Trip Generation

TRIP GENERATION RATES						
		AM PEAK		PM PEAK		
Land Use	Weekday Daily	% ADT	In:Out Ratio	% ADT	In:Out Ratio	
Marijuana Outlet[1]	250 trips / ksf	9%	0.50 : 0.50	16%	0.50 : 0.50	

TRIP GENERATION CALCULATIONS								
			AM PEAK			PM PEAK		
Land Use	Amount	ADT	In	Out	Total	In	Out	Total
Marijuana Outlet	1.200 ksf	300	14	13	27	24	24	48
Driveway Trips		**300**	**14**	**13**	**27**	**24**	**24**	**48**

Notes:
ksf: 1,000 square feet
The trip rates are based on the *City of San Diego's Trip Generation Manual, May 2003* unless otherwise noted by a footnote.
1. Compilation of source rates based on the *ITE Trip Generation Manual, 10th Edition* for Marijuana Dispensaries provided by the City of San Diego for new marijuana outlet projects.

As shown in the table, the Project is estimated to generate 300 daily trips (ADT) with 27 trips (14 inbound, 13 outbound) during the AM peak hour and 48 trips (24 inbound, 24 outbound) in the PM peak-hour.

4.2 Project Trip Distribution

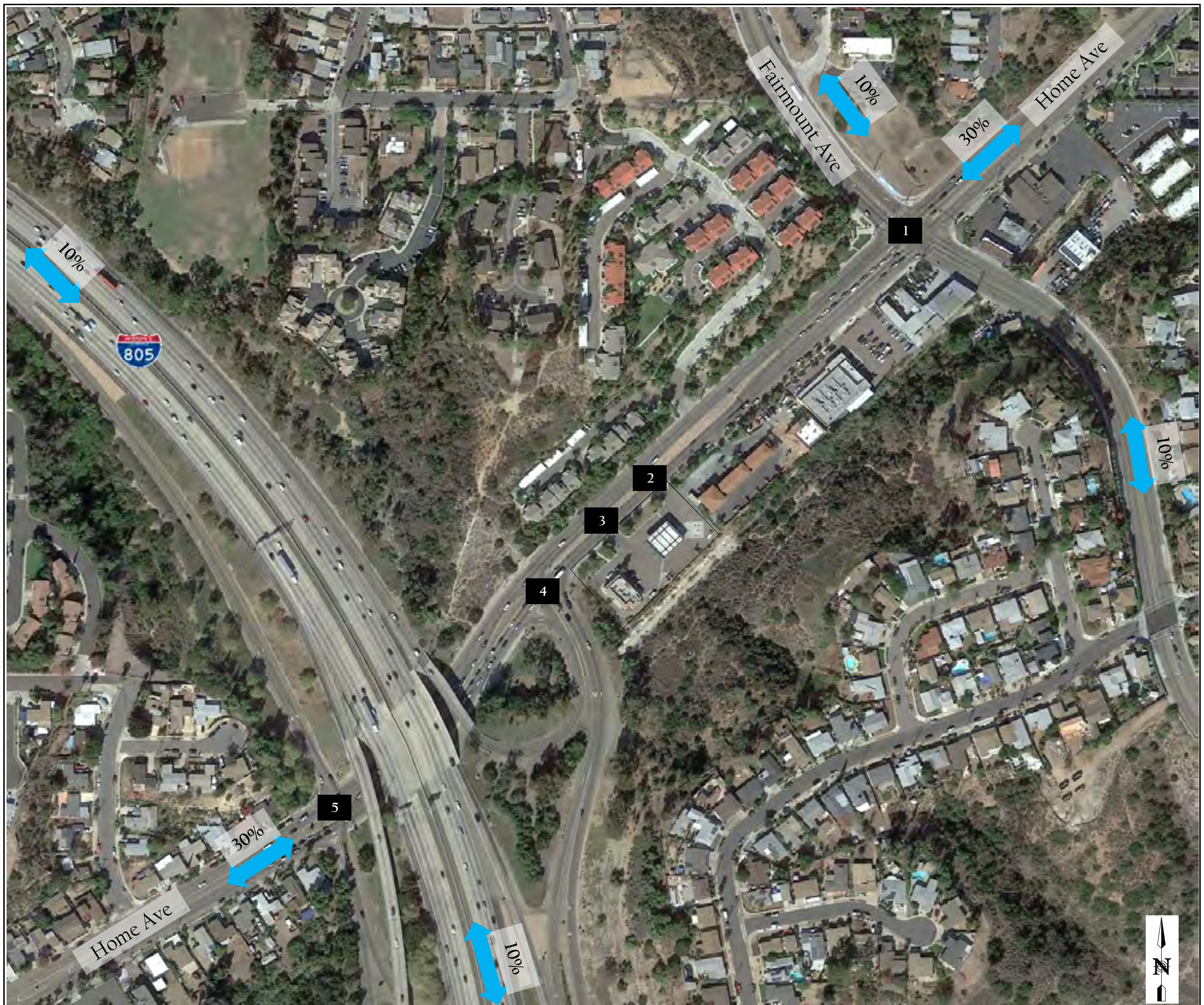
Based on existing travel patterns in the study area and on logical connections to regional facilities, the following list shows the assumed Project trip distribution for the proposed Project:

- 20 percent to/from the north
  - 10 percent via I-805
  - 10 percent via Fairmount Avenue
- 20 percent to/from the south
  - 10 percent via I-805
  - 10 percent via Fairmount Avenue
- 30 percent to/from the east via Home Avenue
- 30 percent to/from the west via Home Avenue

Figure 4-1 displays the assumed Project trip distribution through the study intersections and Project driveways.

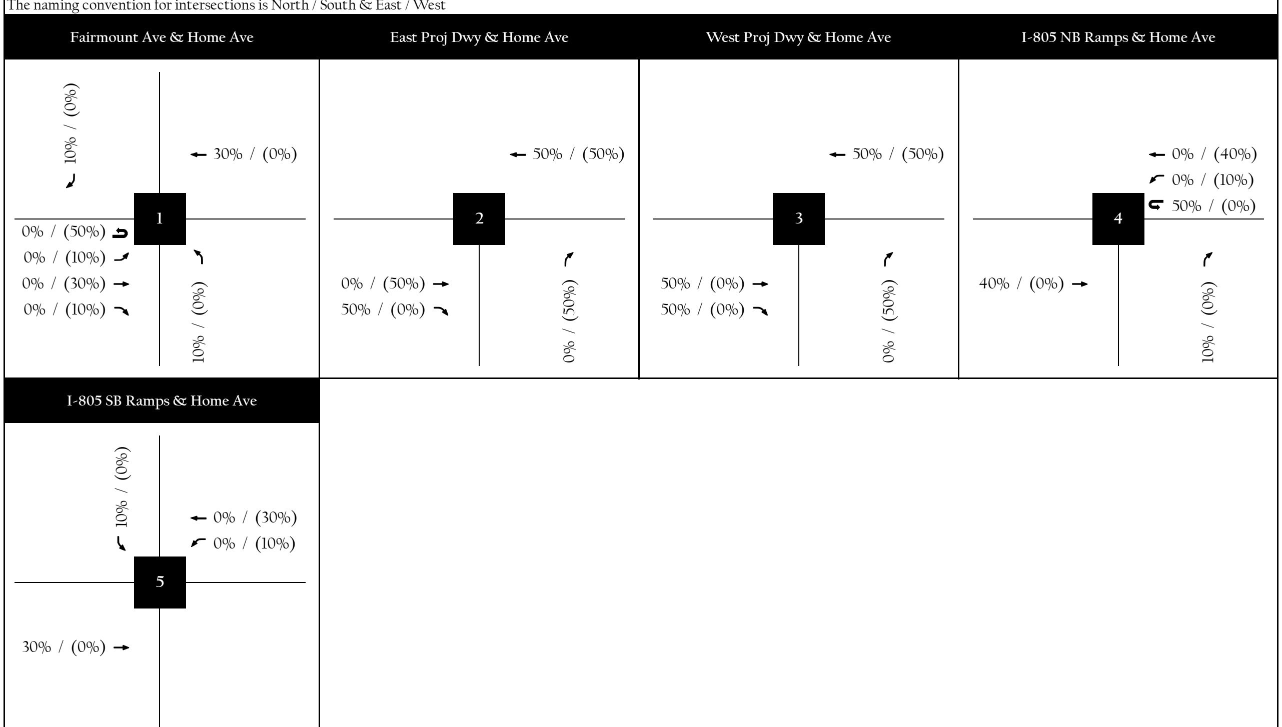
4.3 Project Trip Assignment

Based on the Project trip generation and distribution, the Project trips were assigned to the intersections, roadway segments, and Project driveways in the study area. **Figure 4-2** illustrates the weekday Project trip assignment.



xx% / (yy%) = Enter % / (Exit %)
The naming convention for intersections is North / South & East / West

xx% Trip Distribution Percentage

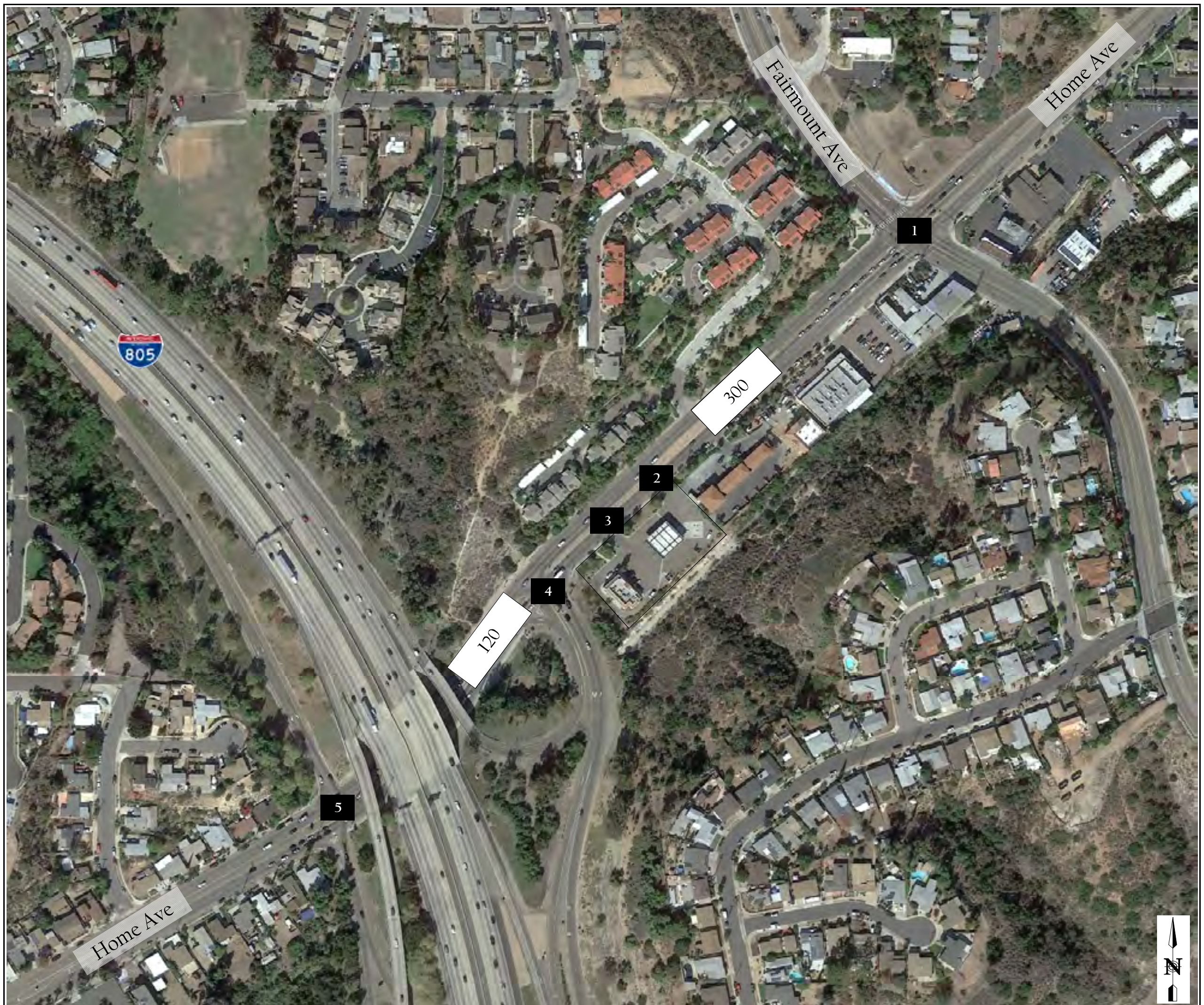


MIZUTA TRAFFIC CONSULTING

4333-37 Home Avenue MO

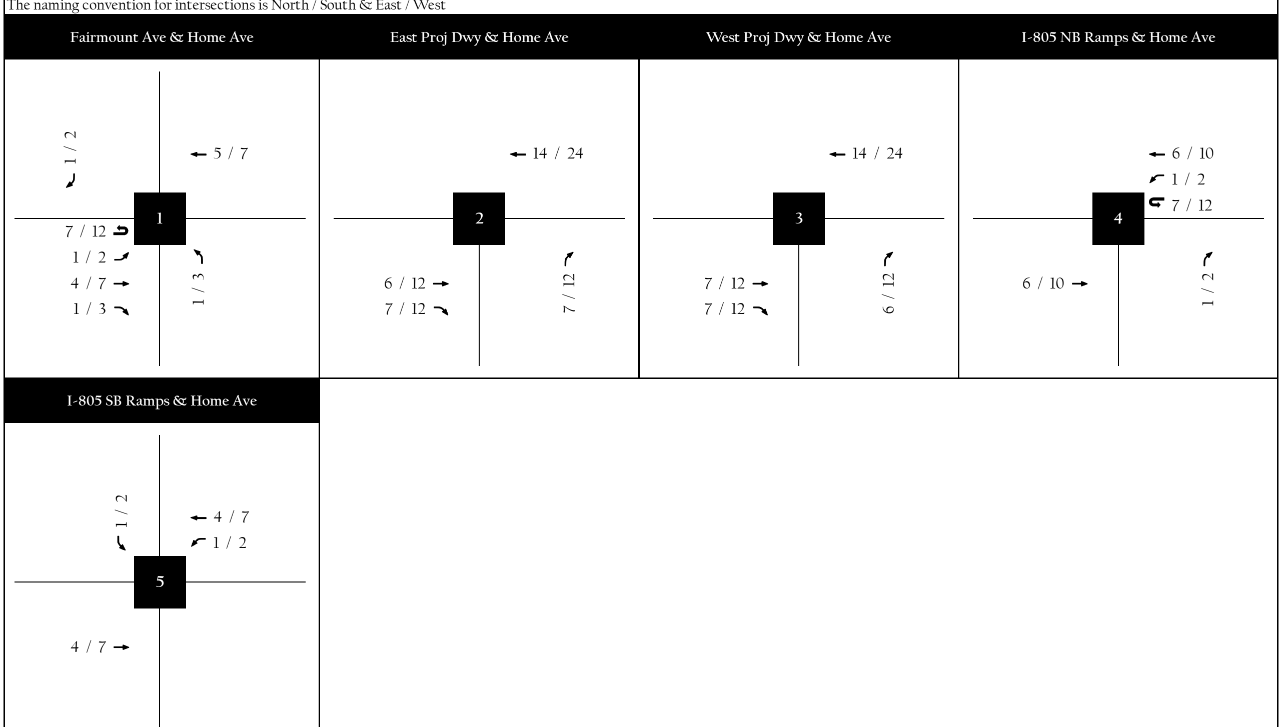
Project Trip Distribution

Figure 4-1



xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North / South & East / West

xx,xxx ADT



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4333-37 Home Avenue MO

Project Trip Assignment

Figure 4-2

5 EXISTING PLUS PROJECT

This section provides a summary of operations at the study area intersections and roadway segments under Existing Conditions with the addition of Project traffic. This scenario has been prepared pursuant to the California Environmental Quality Act (CEQA) guidelines, which require that the potential impacts of a Project be evaluated upon the circulation system as it currently exists.

5.1 Roadway Network

No changes to the existing roadway network are proposed with the construction of the Project. The Project driveways will remain unsignalized with stop-controls on the Project driveway approach and restricted to right-in/right-out movements only. As a result, the intersection geometrics will remain the same as shown in Figure 3-1.

5.2 Traffic Volumes

The Project trips were added to the existing traffic volumes. **Figure 5-1** illustrates the Existing Plus Project traffic volumes in the study area.

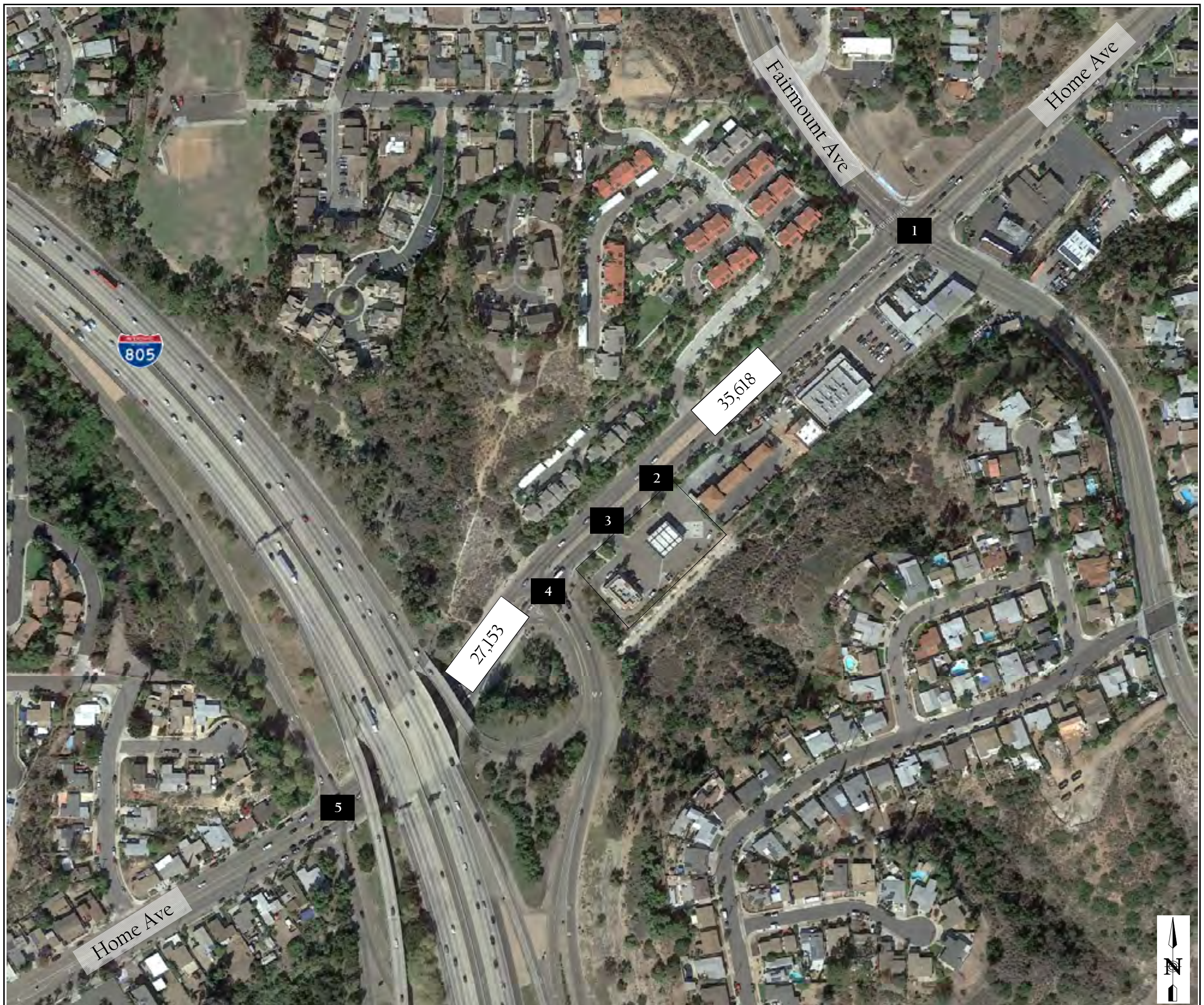
5.3 Intersection Analysis

Table 5-1 displays the LOS analysis results for the study intersections under the Existing Plus Project scenario.

Table 5-1
Existing Plus Project Peak Hour Intersection LOS Summary

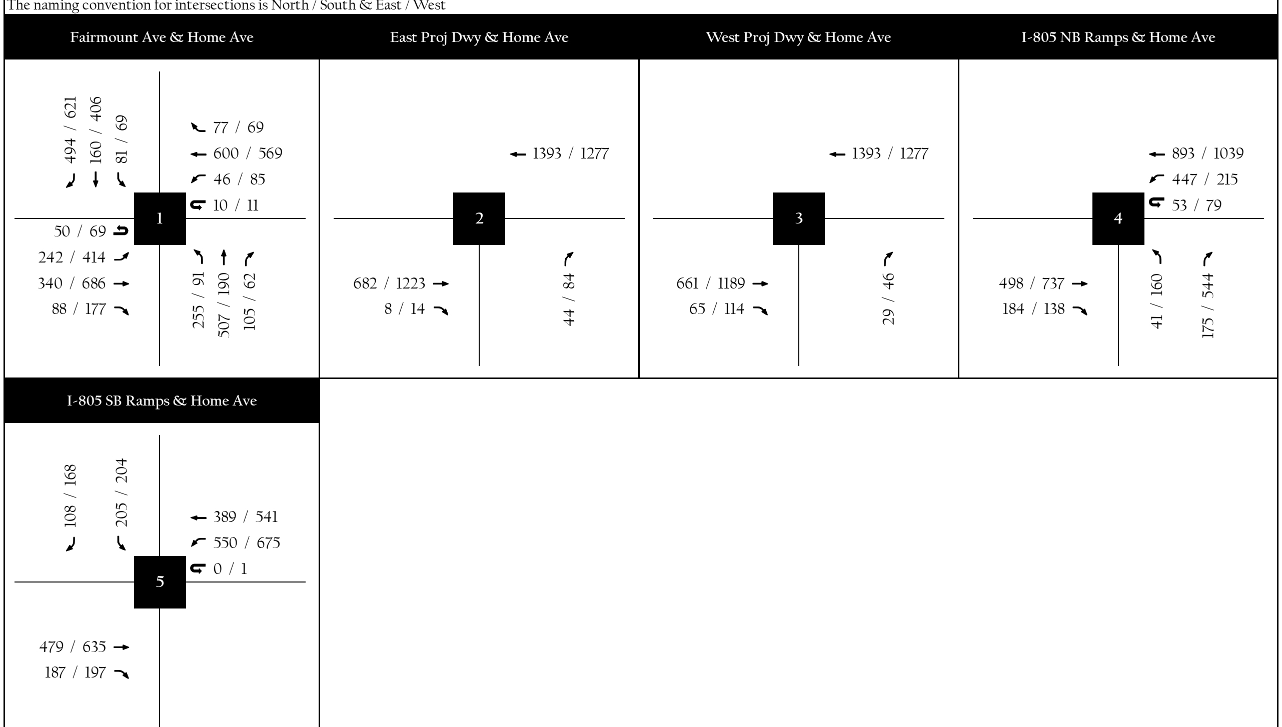
#	Intersection	Traffic Control	Peak Hour	Existing Conditions		Existing Plus Proj		Δ in Delay	Sig?
				Delay[a]	LOS[b]	Delay[a]	LOS[b]		
1	Fairmount Ave & Home Ave	Signal	AM	62.7	E	63.2	E	0.5	No
			PM	86.5	F	87.0	F	0.5	No
2	East Dwy & Home Ave	OWSC	AM	10.9	B	11.1	B	0.2	No
			PM	15.4	C	15.5	C	0.1	No
3	West Dwy & Home Ave	OWSC	AM	10.9	B	11.1	B	0.2	No
			PM	15.0	C	15.0	C	0.0	No
4	I-805 NB Ramps & Home Ave	Signal	AM	30.9	C	31.0	C	0.1	No
			PM	30.4	C	30.8	C	0.4	No
5	I-805 SB Ramps & Home Ave	Signal	AM	35.2	D	35.3	D	0.1	No
			PM	36.7	D	36.8	D	0.1	No

Notes:
Signal: Traffic signal, OWSC: One-Way Stop Control
(a) Delays are reported as the average control delay for the entire intersection at signalized intersections and the worst movement at unsignalized intersections.
(b) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* (HCM) and performed using Synchro 10.



xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North / South & East / West

xx,xxx ADT



MIZUTA TRAFFIC CONSULTING

4333-37 Home Avenue MO

Existing Plus Project Traffic Volumes

Figure 5-1

As shown in the table, all intersections, including the Project driveways, are expected to operate at LOS D or better with the addition of the Project traffic except for the following intersection

- Fairmount Avenue & Home Avenue (LOS E – AM Peak, LOS F – PM Peak)

Although the intersection would continue to operate at LOS E/F with the addition of the Project traffic, the increase in delay does not exceed the significance threshold. As a result, no additional intersection improvements are required and/or recommended.

Appendix D contains the intersection LOS worksheets.

5.4 Roadway Segment Analysis

Table 5-2 displays the LOS analysis for the Home Avenue segments under Existing Plus Project Conditions. As shown in the table, the Home Avenue segment between the I-805 Ramps would continue to function at LOS C with the addition of the proposed Project traffic. The Home Avenue segment between the I-805 NB Ramps and Fairmount Avenue would continue to function at LOS E. However, the increase in v/c ratio would not exceed the significance threshold. As a result, the proposed Project is not considered to have a direct significant impact along the roadway segments within the study area.

Table 5-2
Existing Plus Project Roadway LOS Summary

Roadway Segment	Existing			Existing Plus Project			Δ in v/c	Sig?
	ADT	v/c Ratio(a)	LOS	ADT	v/c Ratio(a)	LOS		
Home Ave								
I-805 SB Ramps to I-805 NB Ramps	27,033	0.68	C	27,153	0.68	C	0.00	NO
I-805 NB Ramps to Fairmount Ave	35,318	0.88	E	35,618	0.89	E	0.01	NO

Notes:
Bold values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate a project significant impact
(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

6 NEAR TERM (OPENING YEAR 2019)

This section provides a summary of operations at the study area intersections and roadway segments under Near Term (Opening Year 2019) conditions. It is assumed that the Project will be constructed and in operation by the Year 2019.

6.1 Roadway Network

No changes to the existing roadway network are expected within the next year. As a result, all intersection and roadway segment geometrics will remain the same as Existing Conditions.

6.2 Cumulative Projects

There are several proposed Marijuana Outlets in the vicinity of the Project site. There is a proposed Marijuana Outlet at 2281 Fairmount Avenue and a proposed Marijuana Outlet / Marijuana Production Facility at 3940 Home Avenue. However, the proposed Marijuana Outlet at 2281 Fairmount Avenue is located within 1,000 feet of the Project. The City's Municipal Code precludes MO's from locating within 1,000 feet of each other (SDMC 141.0504(a)(1)); as such, it would not be possible for both the project at 2281 Fairmount Avenue and this Project to develop concurrently as cumulative projects to each other. It was therefore excluded from the cumulative analysis.

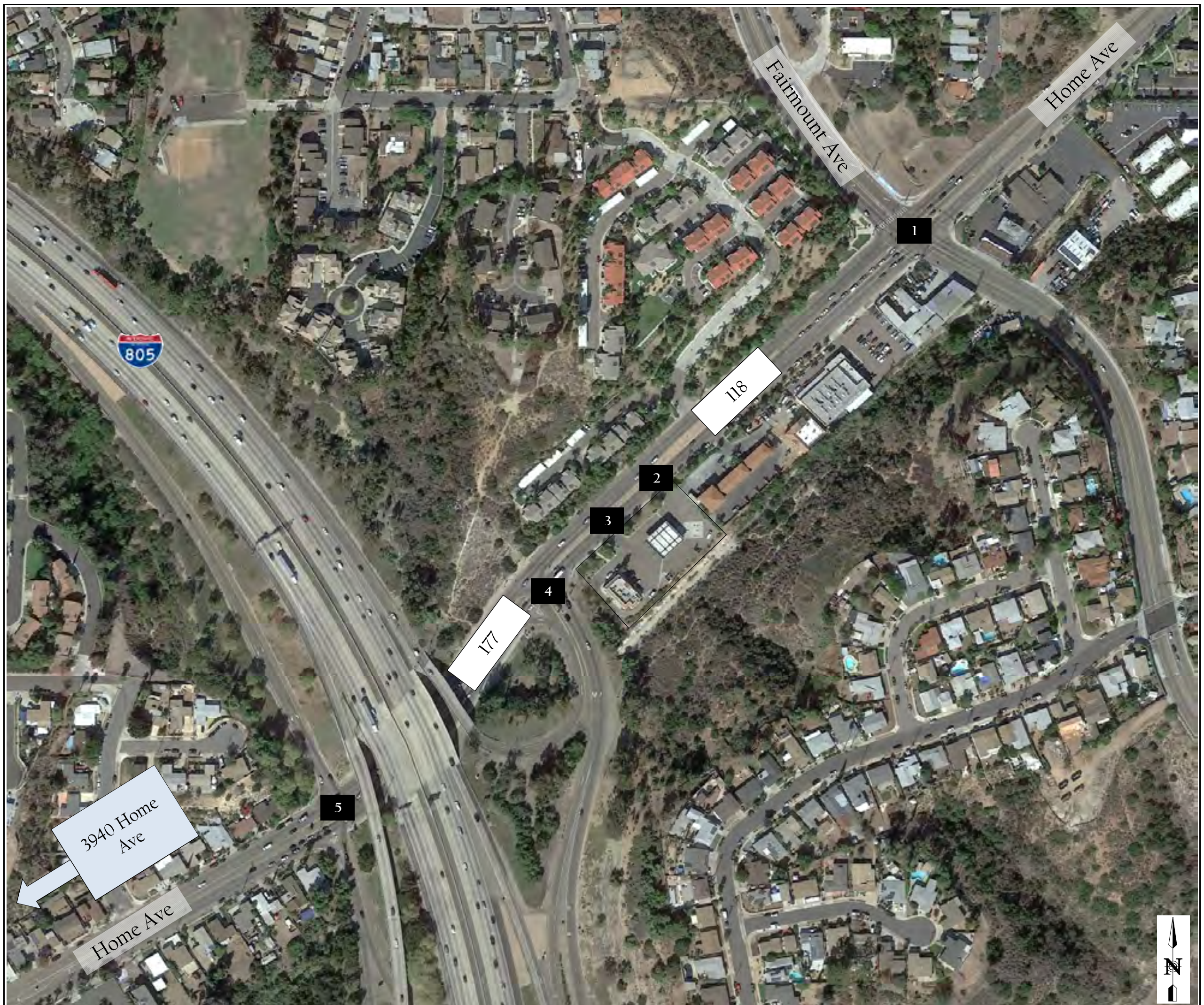
The MO/MPF Project located at 3940 Home Avenue consists of a 2,200 sf of MO and 6,480 sf of MPF. The trip generation for the entire Project is 590 ADT with 57 trips (31 inbound, 26 outbound) during the AM peak-hour and 95 trips (45 inbound, 50 outbound) during the PM peak-hour. It is estimated that approximately 40 percent of the Project trips related to the 3940 Home Avenue Project will be assigned to the study area.

Figure 6-1 illustrates the traffic volumes of the cumulative MO/MPF projects proposed to be located at 3940 Home Avenue.

6.3 Traffic Volumes

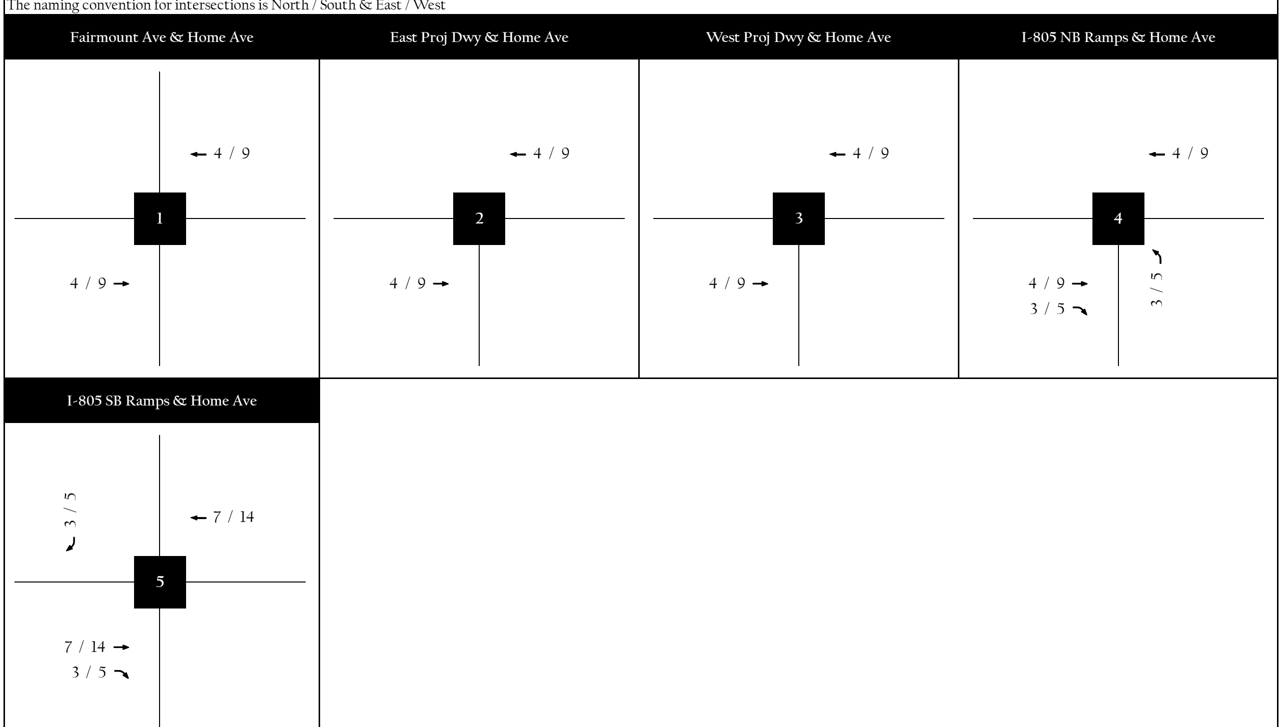
An ambient growth factor of 1.0 percent per year was applied to existing traffic volumes to account for regular growth in traffic volumes due to the development of Projects outside of the study area. The growth factor was determined from comparing counts in the Project vicinity along Home Avenue between I-805 and Fairmount Avenue. **Appendix E** contains a copy of the historical traffic volumes used to calculate the ambient growth factor.

Figures 6-2 and **6-3** illustrate the Near Term (2019) Baseline and Near Term (2019) With Project Opening Day traffic volumes within the study area, respectively. It should be noted that these volumes include the cumulative traffic volumes from the 3940 Home Avenue Project and the added growth estimated from the growth factor in the study area.

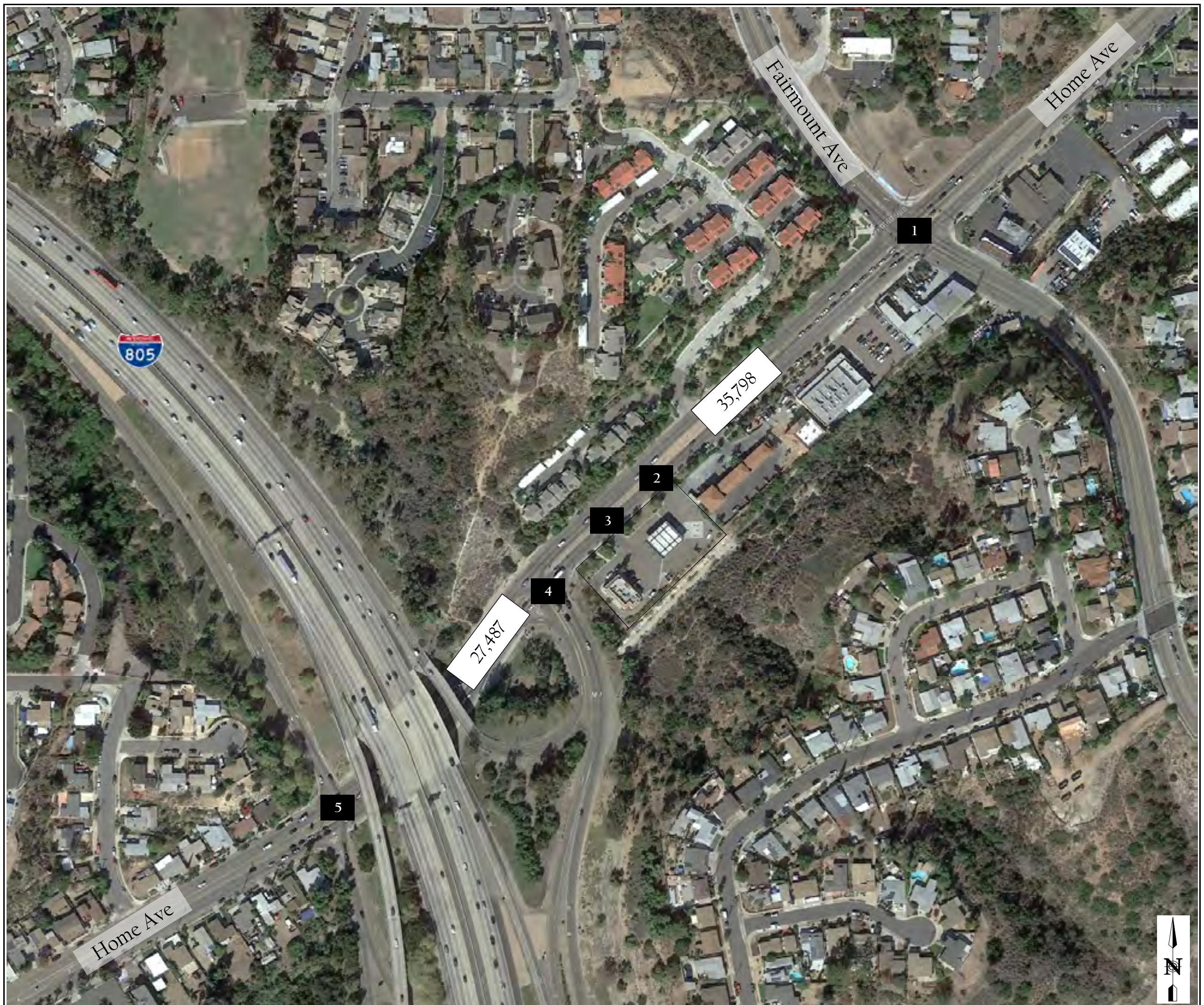


xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North / South & East / West

xx,xxx ADT



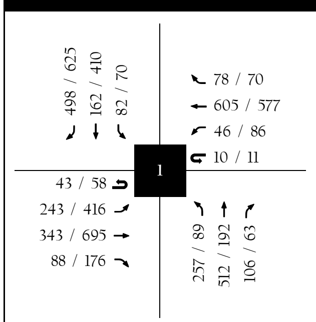
MIZUTA TRAFFIC CONSULTING	4333-37 Home Avenue MO **3940 Home Avenue Cumulative Trip Assignement**	Figure 6-1



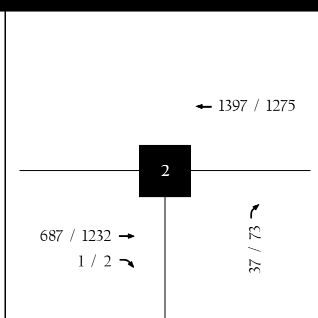
xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North / South & East / West

xx,xxx ADT

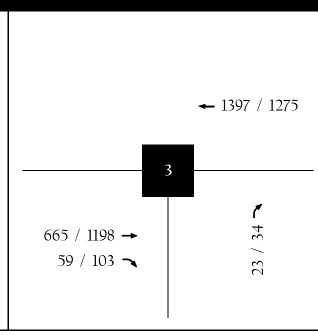
Fairmount Ave & Home Ave



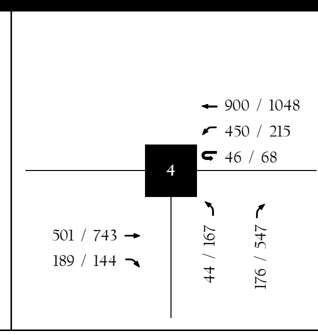
East Proj Dwy & Home Ave



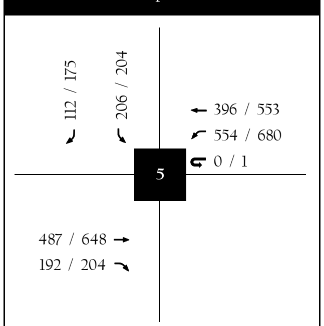
West Proj Dwy & Home Ave



I-805 NB Ramps & Home Ave



I-805 SB Ramps & Home Ave



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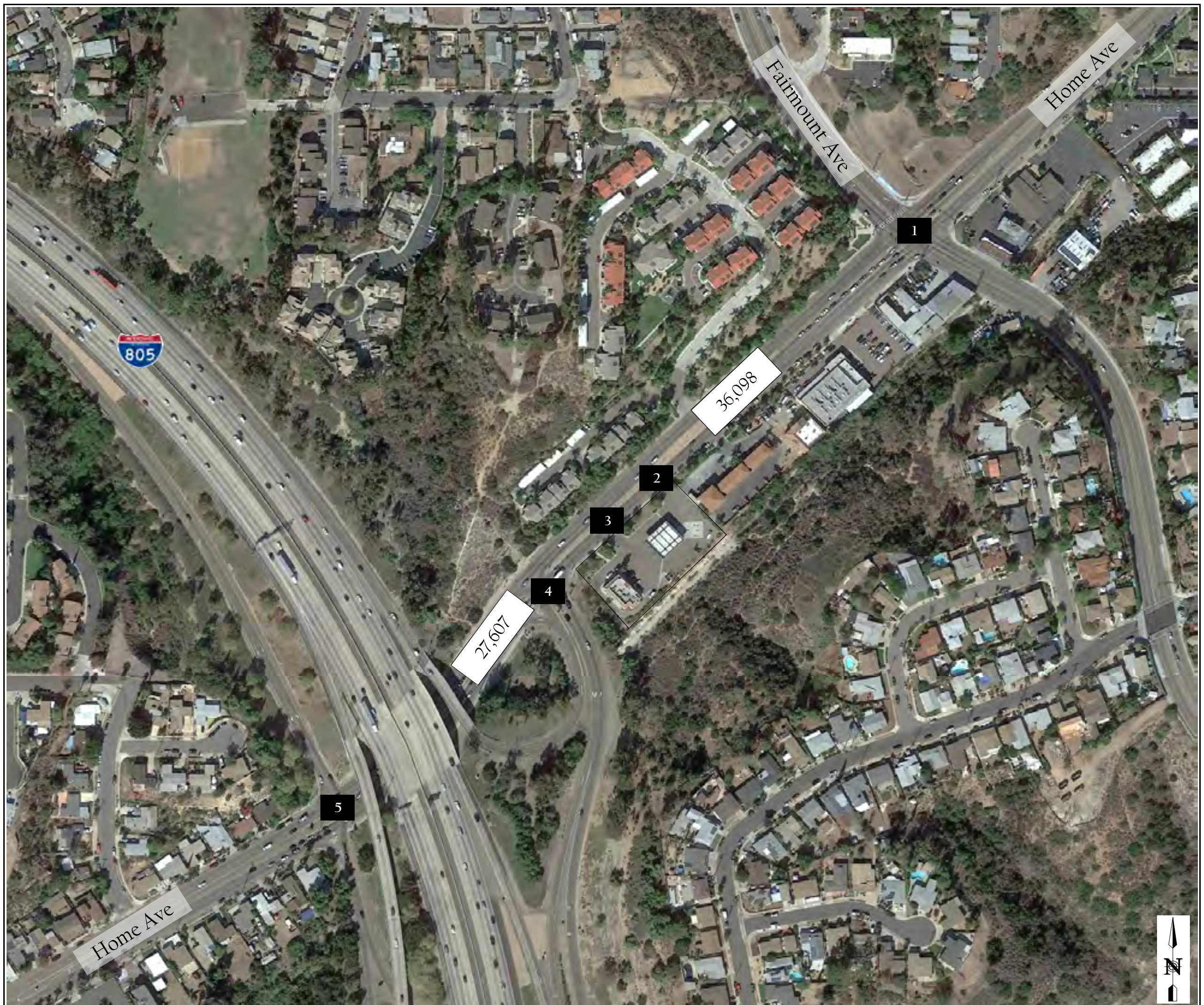
4333-37 Home Avenue MO

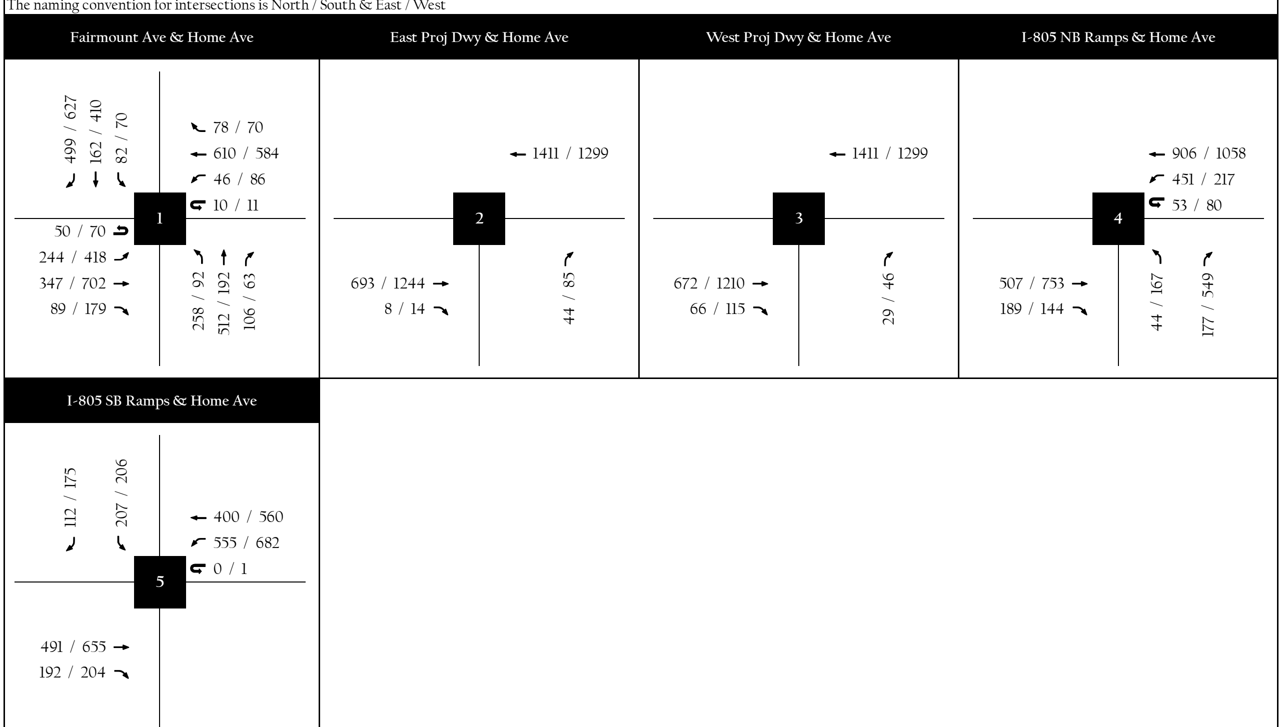
Near Term (Opening Year 2019) Traffic Volumes

Figure 6-2



xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North / South & East / West

xx,xxx ADT



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4333-37 Home Avenue MO

Near Term (Opening Year 2019) With Project Traffic Volumes

Figure 6-3

6.4 Intersection Analysis

Table 6-1 displays the LOS analysis results for the study intersections under the Near Term (Year 2019) scenario for the baseline analysis and with Project scenario. As shown in the table, all intersections, including the Project driveways, are expected to operate at LOS D or better with the addition of the Project traffic except for the following intersection

- Fairmount Avenue & Home Avenue (LOS E – AM Peak, LOS F – PM Peak)

Although the intersection would continue to operate at LOS E/F with the addition of the Project traffic, the increase in delay does not exceed the significance threshold. As a result, no additional intersection improvements are required and/or recommended.

Appendix D contains the intersection LOS worksheets.

Table 6-1
Near Term (Opening Year 2019) Peak Hour Intersection LOS Summary

#	Intersection	Traffic Control	Peak Hour	Near Term Baseline		Near Term With Project		Δ in Delay	Sig?
				Delay(a)	LOS(b)	Delay(a)	LOS(b)		
1	Fairmount Ave & Home Ave	Signal	AM	**64.4**	E	**65.0**	E	0.6	No
			PM	**88.9**	F	**89.4**	F	0.5	No
2	East Dwy & Home Ave	OWSC	AM	11.0	B	11.1	B	0.1	No
			PM	15.7	C	15.7	C	0.0	No
3	West Dwy & Home Ave	OWSC	AM	11.0	B	11.1	B	0.1	No
			PM	15.1	C	15.2	C	0.1	No
4	I-805 NB Ramps & Home Ave	Signal	AM	31.1	C	31.2	C	0.1	No
			PM	30.7	C	30.8	C	0.1	No
5	I-805 SB Ramps & Home Ave	Signal	AM	35.4	D	35.4	D	0.0	No
			PM	37.4	D	37.5	D	0.1	No

Notes:
Signal: Traffic signal, OWSC: One-Way Stop Control
(a) Delays are reported as the average control delay for the entire intersection at signalized intersections and the worst movement at unsignalized intersections.
(b) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* (HCM) and performed using Synchro 10.

6.5 Roadway Segment Analysis

Table 6-2 displays the LOS analysis for the Home Avenue segments under the Near Term (Opening Year 2019) Baseline and Near-Term (2019) With Project scenarios. As shown in the table, the Home Avenue segment between the I-805 Ramps would continue to function at LOS C with the addition of the proposed Project traffic. The Home Avenue segment between the I-805 NB Ramps and Fairmount Avenue would continue to function at LOS E. However, the increase in v/c ratio would not exceed the significance threshold. As a result, the proposed Project is not considered to have a cumulative impact along the roadway segments within the study area.

Table 6-2
Near Term (Opening Year 2019) Roadway LOS Summary

Roadway Segment	Near Term Baseline			Near Term With Project			Δ in v/c	Sig?
	ADT	v/c Ratio[a]	LOS	ADT	v/c Ratio[a]	LOS		
Home Ave								
I-805 SB Ramps to I-805 NB Ramps	27,487	0.69	C	27,607	0.69	C	0.00	NO
I-805 NB Ramps to Fairmount Ave	35,798	0.89	E	36,098	0.90	E	0.01	NO

Notes:
Bold values indicate roadway segments operating at LOS E or F. **Bold and shaded** values indicate a project significant impact
(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

7 PARKING

All parking for the Project will be provided on-site. The minimum parking ratios for the various uses on-site was based on the parking requirements specified in the San Diego Municipal Code Section 142.0530, Nonresidential Uses – Parking Ratios. **Table 7-1** summarizes the parking for the Project.

Table 7-1
On-Site Parking Summary

Use	Zoning	Min Required Parking Rate (per 1,000 sf)	Gross Floor Area (sf)	Required Parking	Provided Parking[1, 2]
Existing					
Gas Station w/Conv. Store	CC-3-1	5	2,944	15	15
Proposed					
Marijuana Outlet (MO)	IL-3-1	5	1,200	6	6
Vacant (per Applicant's request)	IL-3-1	n/a	1,200	0	3
Total Parking				**21**	**24**
ADA Parking				1	1
Van Accessible ADA				1	1
Motorcycle Parking				2	2
Bicycle Parking[2]				3	6

Notes:
Values shown in table were based on the site plan provided by Latitude 33.
1. There is 1 ADA parking space and 1 Van Accessible ADA parking space within the 24 provided parking spaces.
2. Bicycle parking includes 5 short-term bicycle racks and 1 long-term bicycle locker and is not included in the "total provided parking" count. Motorcycle parking is also not included in the "total provided parking" count.

The Project will provide 24 automobile parking spaces on-site, which exceeds the minimum required parking spaces by three spaces (as long as the second floor 1,200 sf is kept vacant per the Applicant's request). One handicapped and one van-accessible space will be provided as part of the total parking spaces, which meet the City's requirements for this use. Two motorcycle spaces and six bicycle parking spaces (five short-term bicycle racks and one long-term bicycle locker) are also proposed for the premises, as shown in Figure 1-2.

8 SUMMARY OF FINDINGS AND RECOMMENDATIONS

The following list provides a summary of the key findings for the Project:

- The Project consists of constructing a 2-story, 2,400 sf building near the eastern boundaries of the property to include a 1,200 sf MO on the first floor and a 1,200 sf vacant space on the second floor.
- The Project is forecasted to generate a total of 300 daily trips with 27 trips (14 inbound, 13 outbound) during the AM peak hour and 48 trips (24 inbound, 24 outbound) in the PM peak-hour.
- All intersections along Home Avenue in the study area, including the Project driveways, are expected to operate at an acceptable LOS D or better during the peak-hours except at Fairmount Avenue, which is anticipated to operate at LOS E/F under all Existing and Near Term (Opening Year 2019) scenarios.
    - The increase in delay at the Fairmount Avenue & Home Avenue intersection would not exceed the significance threshold and no mitigations are required and/or recommended.
- The Home Avenue segment between the I-805 Northbound Ramps and Fairmount Avenue is expected to function at LOS E under all Existing and Near Term (Opening Year 2019) scenarios.
    - The increase in v/c Ratio would not exceed the significance threshold and no mitigations are required and/or recommended.
- The Project will improve the two existing two-way driveways to current City Standards.
- The Project is providing 24 automobile parking spaces on-site, which exceeds the minimum parking requirements by three spaces.

The proposed Project will not significantly impact the key intersections and roadway segments in the study area under all scenarios evaluated in this study. As a result, it is recommended that no intersection and roadway improvements are required or recommended of the proposed Project.

Appendix A

Signal Timing Sheets

INTERSECTION: FAIRMOUNT @ HOME

2 Program

Group Assignment: NONE
Field Master Assignment: NONE

N/S Street Name: FAIRMOUNT
E/W Street Name: HOME

Last Database Change:
Timing Sheet By: DOC
System Ref. Number:
Approved By: VAC
Drawing Number: 26065-28-D
Timing Implemented On: 8/20/2002

52A 1/4/08

① NPA 3/6/18

Column # ---> Phase

Row	Phase # --->	1	2	3	4	5	6	7	8
0	Ped Walk		7		7		7		7
1	Ped FDW		24① ~~19~~		①29 ~~24~~		①23 ~~19~~		~~25~~ ① ~~23~~ 24
2	Min Green	4	10	4	7	27 ~~4~~	10	4	7
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn	2.0	4.6 ~~3.9~~	2.0	4.3 ~~4.9~~	2.0	3.9 ~~3.4~~	2.0	4.1 ~~6.3~~
6	Max Gap	2.0	4.6 ~~3.9~~	2.0	4.3 ~~4.9~~	2.0	3.9 ~~3.4~~	2.0	4.1 ~~6.3~~
7	Min Gap	2.0	0.2	2.0	0.2	2.0	0.2	2.0	0.2
8	Max Limit	30	~~40~~	30	~~40~~	30 ~~50~~	50	30	40
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By		0.1		0.1		0.1		0.1
D	Every	~~1.0~~	0.7 ~~0.8~~		0.7 ~~0.6~~		~~0.8~~ 0.9		0.7 ~~0.5~~
E	Yellow	3.4 ~~3.0~~	3.9	3.4 ~~3.0~~	5.7 ~~4.9~~ ~~5.5~~	3.4 ~~3.0~~	4.3① ~~4.2~~	3.4 ~~3.0~~	5.7 ~~5.5~~ ~~4.3~~
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1
F + Phase + Row

MB 8/20/03

<F Page>

Preempt	E
RR-1 Delay	
RR-1 Clear	
EV-A Delay	0
EV-A Clear	0
EV-B Delay	0
EV-B Clear	0
EV-C Delay	0
EV-C Clear	0
EV-D Delay	0
EV-D Clear	0
RR-2 Delay	
RR-2 Clear	
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing
F + E + Row

Row	Phase Function	F
0	Permit	12345678
1	Red Lock	
2	Yellow Lock	
3	Min Recall	_2_6_
4	Ped Recall	
5	Peds (View)	_2_4_6_8
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	~~2~~ ~~6~~
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	_2___6__
F	1st Phases	___4___8

Phase Functions <F Page>
F + F + Row

Max Initial	0	F + 0 + E
Red Revert	5.0	F + 0 + F
All Red Start	0.0	F + C + O

Start / Revert Times

Drop Number	4	C + 0 + 0
Zone Number	4	C + 0 + 1
Area Number	2	C + 0 + 2
Area Address	128	C + 0 + 3
QuicNet Channel	DIGI74:	(QuicNet)

Communication Addresses

C + F + O	F	Row
Free Lag	~~2~~ ~~7~~ 4_6_8	0

Lag Phases <C Page>

LER 5/6/03

Overlap Timing

	Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
Overlap A	A				
Overlap B	B				
Overlap C	C				
Overlap D	D				

<F Page> <D Page>
F + COLOR + D + 0 + OVERLAP

Manual Plan	14	C + A + 1
Manual Offset	0	C + B + 1

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports _234_

Disable Communication Ports
D + D + 9

Printed on 8/15/02 2:48 PM

City of San Diego

INTERSECTION: FAIRMOUNT @ HOME

223 Program

Row	Time	Function	Day of Week	Column F Phases/Bits
0	:			
1	:			
2	:			
3	:			
4	:			
5	:			
6	:			
7	:			
8	:			
9	:			
A	:			
B	:			
C	:			
D	:			
E	:			
F	:			

TOD Function <D Page>

7 + ROW D + F + ROW

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Row		F
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	_2_____
6	Ped 6P	_____6__
7	Ped 4P	___4____
8	Ped 8P	_______8
9	Yellow Flash Phases	
A	Overlap A - Phases	
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	

Configuration <E Page>

E + F + ROW

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	_2__5___
B	EV-B Phases	____4__7_
C	EV-C Phases	1____6__
D	EV-D Phases	__3____8
E	Extra 1 Config. Bits	1_345____
F	IC Select (Interconnect)	_2______

Configuration

For access, set F + 9 + E = 1 E + E + ROW

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 = Remote Download
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Day of Week
1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday

Assign 5 Outputs
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Time and Date
8-0 Hour, Minute, Day-of-Week
8-1 Day-of-Month, Year, Month
8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Program Information
C + C + 0 = program
C + C + F = version

Remote Download
C + 0 + 4 = 1 -255
w/ E + E + E bit 5 on

INTERSECTION: FAIRMOUNT @ HOME

223 Program

Row	1 Delay	3 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		1.8
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	1I1	14
	2I2U	1
	2I2L	5
	2I3U	21
	2I3L	25
	2I4	9
	3I5	16
	4I6U	3
	4I6L	7
	4I7U	23
	4I7L	27
	4I8	11
	1I9U	18
	3I9L	20
---	---	---
---	---	---

Row	2 Delay	4 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		1.8
8		
9		1.8
A	10.0	
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	5J1	13
	6J2U	2
	6J2L	6
	6J3U	22
	6J3L	26
	6J4	10
	7J5	15
	8J6U	4
	8J6L	8
	8J7U	24
	8J7L	28
	8J8	12
	5J9U	17
	7J9L	19
---	---	---
---	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers	E
	1 2 3 4 5 6 7 8	12345678
	9 10 11 12 – – – –	1234____
	13 14 15 16 17 18 19 20	12345678
	– – – – 21 22 23 24	____5678
	– – – – – – – –	1234____
	– 25 26 27 28 – – –	_2345___

Active Detectors <D Page>

Row		0 Detector #
	System Det. # 1	
	System Det. # 2	
	System Det. # 3	
	System Det. # 4	
	System Det. # 5	
	System Det. # 6	
	System Det. # 7	
	System Det. # 8	

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number		F+C+1
Time Before Yellow		F+C+3

Advance Warning Beacon - Sign 1

Phase Number		F+D+1
Time Before Yellow		F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

I-805 NB Ramps & Home Avenue

Caltrans has requested that the existing signal timing data for the I-805 Ramps & Home Avenue intersections to not be duplicated or included in the traffic report.

Appendix B

Bicycle Map Excerpts

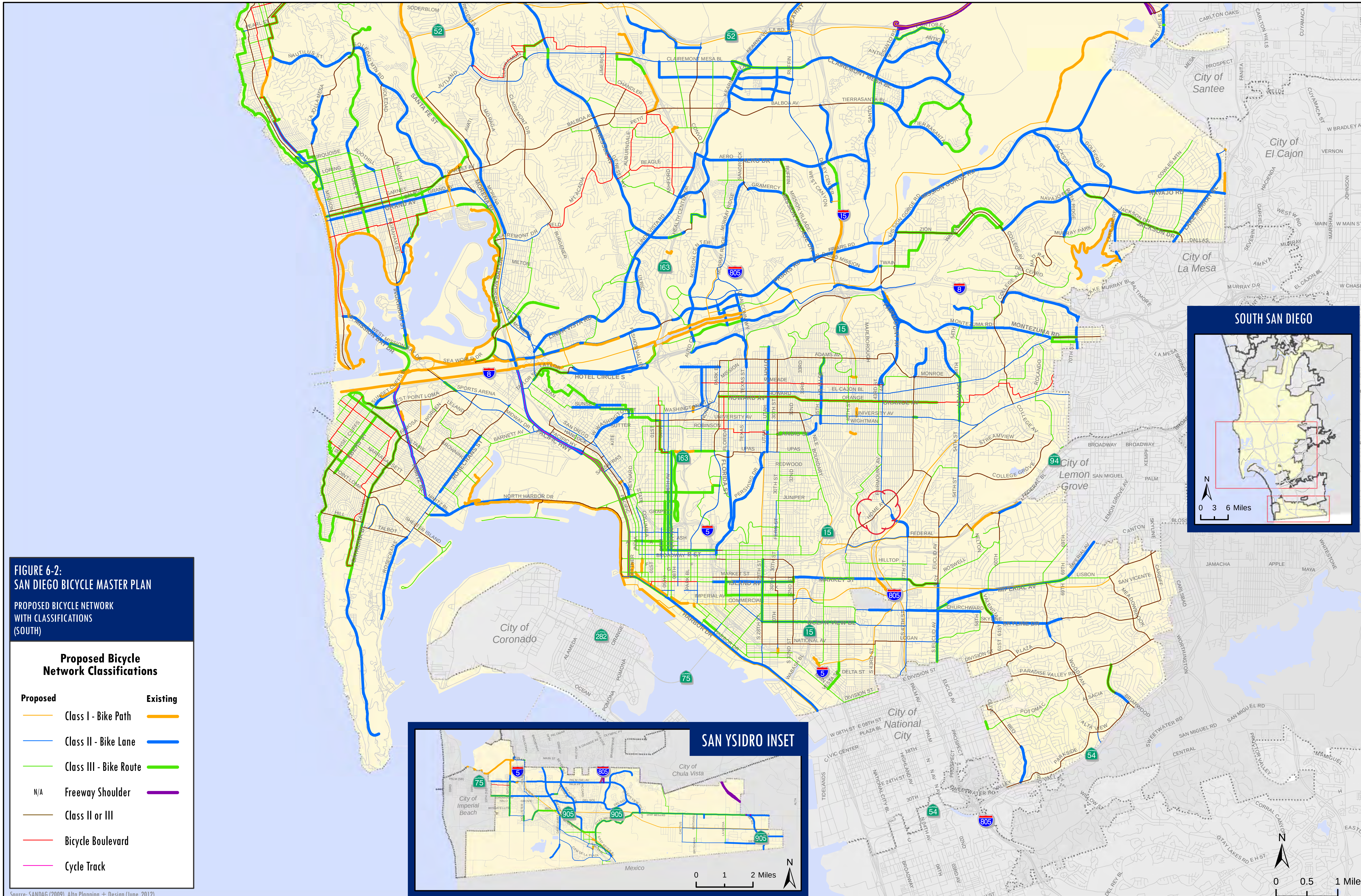
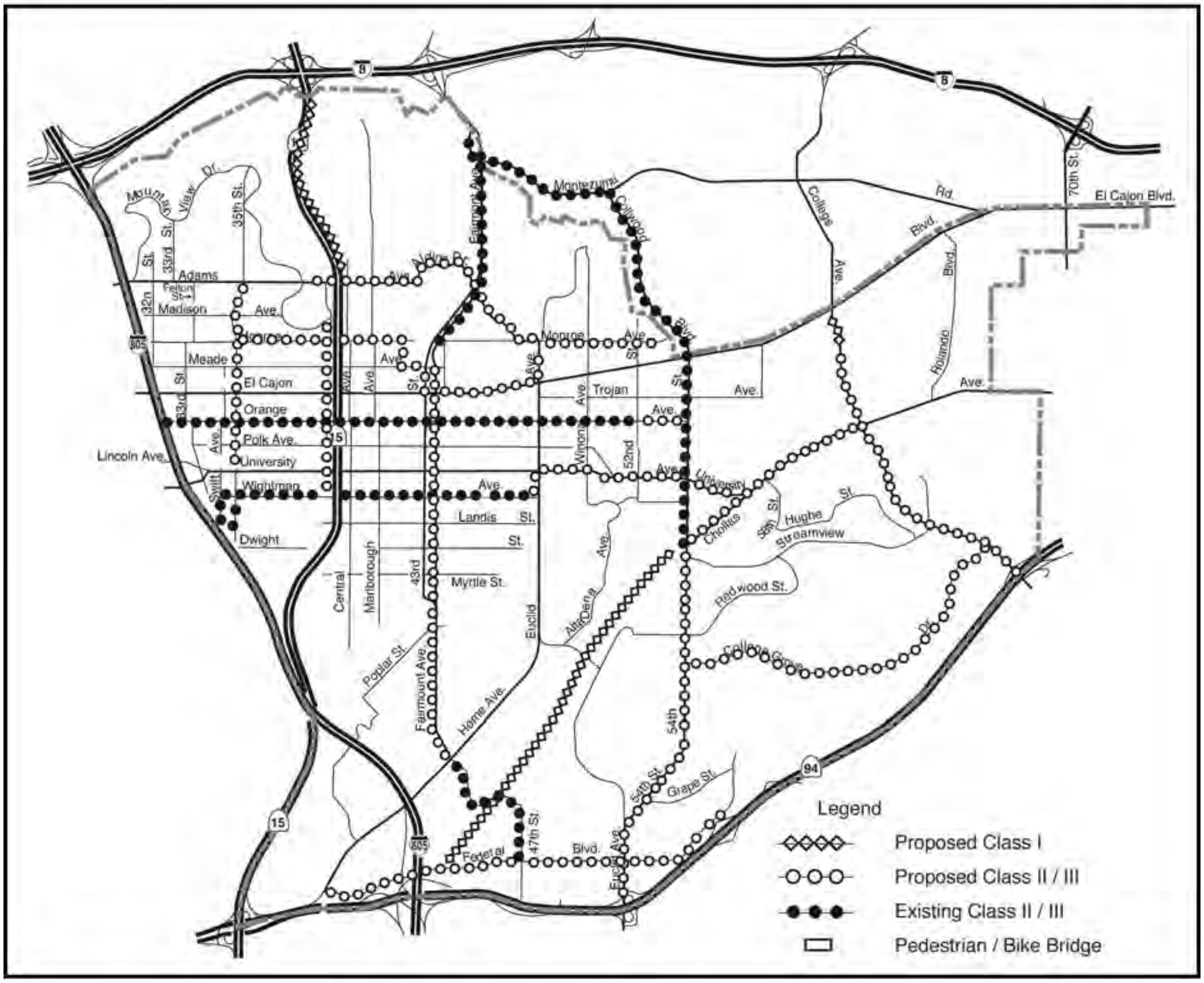


FIGURE 6-2:
SAN DIEGO BICYCLE MASTER PLAN
PROPOSED BICYCLE NETWORK
WITH CLASSIFICATIONS
(SOUTH)
Proposed Bicycle Network Classifications
Proposed
Existing
Class I - Bike Path
Class II - Bike Lane
Class III - Bike Route
N/A
Freeway Shoulder
Class II or III
Bicycle Boulevard
Cycle Track
Source: SANDAG (2009), Alta Planning + Design (June, 2012)
SOUTH SAN DIEGO
0 3 6 Miles
SAN YSIDRO INSET
City of Chula Vista
City of Imperial Beach
Mexico
0 1 2 Miles
City of Santee
City of El Cajon
City of La Mesa
City of Lemon Grove
City of Coronado
City of National City
0 0.5 1 Miles

Figure 29

Bikeways



Appendix C

Traffic Volume Data

Prepared by National Data & Surveying Services

Fairmount Ave & Home Ave

Peak Hour Turning Movement Count

ID: 18-04362-005
City: San Diego

Day: Wednesday
Date: 10/03/2018

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Fairmount Ave — SOUTHBOUND

	Right	Thru	Left	U-Turn	Approach total (northbound departure)
AM	493	160	81	0	825
NOON	0	0	0	0	0
PM	619	406	69	0	671
Lanes	1	1	1	0	

Home Ave — EASTBOUND

	AM	NOON	PM	Lanes
Westbound departure	1383	0	1326	
U-Turn	43	0	57	0
Left	241	0	412	1
Thru	336	0	679	2
Right	87	0	174	0

Home Ave — WESTBOUND

	PM	NOON	AM	Lanes
Right	69	0	77	0
Thru	562	0	595	2
Left	85	0	46	1
U-Turn	11	0	10	0
Eastbound departure	821	0	532	

Fairmount Ave — NORTHBOUND

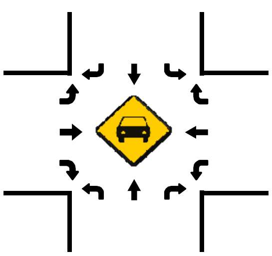
	Southbound departure	U-Turn	Left	Thru	Right
Lanes		0	1	2	0
PM	665	0	88	190	62
NOON	0	0	0	0	0
AM	295	2	252	507	105

CONTROL

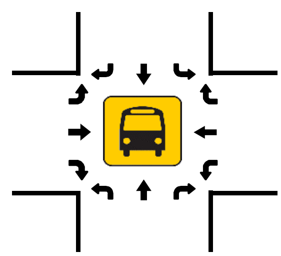
Signalized

	AM	NOON	PM
TEV	3035	0	3483
PHF	0.96		0.96

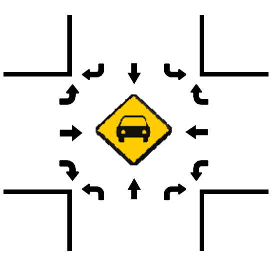
Total Vehicles (AM)



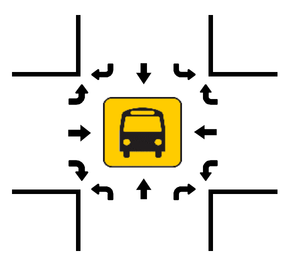
Total Vehicles (AM)



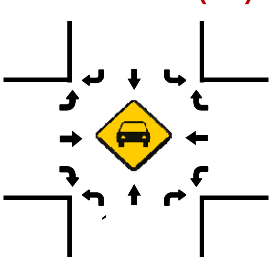
Total Vehicles (NOON)



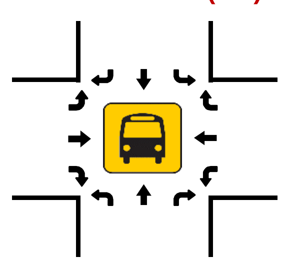
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg (westward)	0	0	0
North leg (eastward)	0	0	0
South leg (eastward)	0	0	0
South leg (westward)	0	0	0
West leg (southward)	0	0	0
West leg (northward)	0	0	0
East leg (southward)	0	0	0
East leg (northward)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Fairmount Ave & Home Ave
City: San Diego
Control: Signalized

Project ID: 18-04362-005
Date: 10/3/2018

Total

NS/EW Streets:	Fairmount Ave				Fairmount Ave				Home Ave				Home Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	78	139	21	0	13	43	101	0	50	69	13	5	12	146	9	3	702
7:15 AM	55	127	26	1	16	44	133	0	73	64	23	9	17	147	35	4	774
7:30 AM	76	131	29	0	30	36	135	0	47	71	16	14	12	148	13	1	759
7:45 AM	62	126	34	1	22	41	122	0	56	100	18	14	11	166	12	3	788
8:00 AM	59	123	16	0	13	39	103	0	65	101	30	6	6	134	17	2	714
8:15 AM	45	110	22	0	16	35	92	0	49	94	31	13	11	127	11	0	656
8:30 AM	50	74	18	0	9	29	96	0	57	62	15	13	16	154	13	4	610
8:45 AM	36	82	16	0	15	46	104	0	51	81	11	10	10	125	10	2	599
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	461	912	182	2	134	313	886	0	448	642	157	84	95	1147	120	19	5602
APPROACH %'s :	29.61%	58.57%	11.69%	0.13%	10.05%	23.48%	66.47%	0.00%	33.66%	48.23%	11.80%	6.31%	6.88%	83.06%	8.69%	1.38%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	252	507	105	2	81	160	493	0	241	336	87	43	46	595	77	10	3035
PEAK HR FACTOR :	0.829	0.968	0.772	0.500	0.675	0.909	0.913	0.000	0.825	0.832	0.725	0.768	0.676	0.896	0.550	0.625	0.963
	0.917				0.913				0.875				0.897				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	2	0	0	1	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	24	48	15	0	17	96	132	0	95	146	37	14	22	127	11	11	795
4:15 PM	20	39	19	0	13	99	146	0	101	146	34	19	26	119	9	6	796
4:30 PM	29	47	15	0	13	104	131	0	80	161	27	20	27	135	8	3	800
4:45 PM	23	45	14	0	17	112	166	0	82	171	36	13	22	122	10	3	836
5:00 PM	19	56	10	0	12	96	146	0	120	179	54	16	23	151	25	2	909
5:15 PM	17	49	19	0	19	93	136	0	108	168	47	17	20	165	23	2	883
5:30 PM	29	40	19	0	21	105	171	0	102	161	37	11	20	124	11	4	855
5:45 PM	29	47	8	0	18	100	136	0	108	154	36	9	12	113	9	2	781
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	190	371	119	0	130	805	1164	0	796	1286	308	119	172	1056	106	33	6655
APPROACH %'s :	27.94%	54.56%	17.50%	0.00%	6.19%	38.35%	55.45%	0.00%	31.73%	51.26%	12.28%	4.74%	12.58%	77.25%	7.75%	2.41%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	88	190	62	0	69	406	619	0	412	679	174	57	85	562	69	11	3483
PEAK HR FACTOR :	0.759	0.848	0.816	0.000	0.821	0.906	0.905	0.000	0.858	0.948	0.806	0.838	0.924	0.852	0.690	0.688	0.958
	0.966				0.921				0.896				0.865				

Prepared by National Data & Surveying Services

Dwy 1 & Home Ave

Peak Hour Turning Movement Count

ID: 18-04362-003
City: San Diego

Day: Wednesday
Date: 10/03/2018

	PEAK HOURS	COUNT PERIODS
AM	07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Dwy 1 — SOUTHBOUND

AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
	0	0	0	0	

Home Ave — EASTBOUND

	AM	NOON	PM	
	0	0	0	
	0	0	0	0
	0	0	0	0
	0	0	0	2
	58	0	102	0

Home Ave — WESTBOUND

	PM	NOON	AM
0	0	0	0
3	0	0	0
0	0	0	0
0	0	0	0
	34	0	23

Dwy 1 — NORTHBOUND

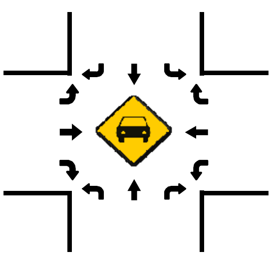
		0	0	1	0
PM	102	0	0	0	34
NOON	0	0	0	0	0
AM	58	0	0	0	23

CONTROL

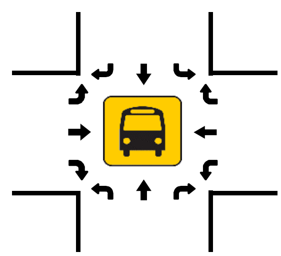
No Control

	AM	NOON	PM
TEV	81	0	136
PHF	0.81		0.76

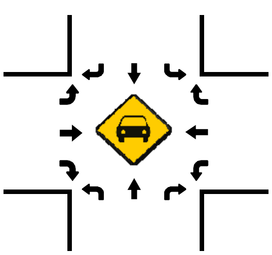
Total Vehicles (AM)



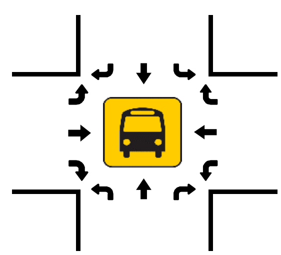
Total Vehicles (AM)



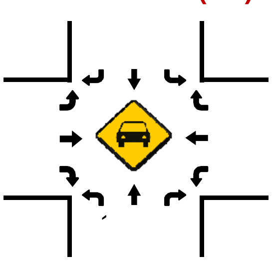
Total Vehicles (NOON)



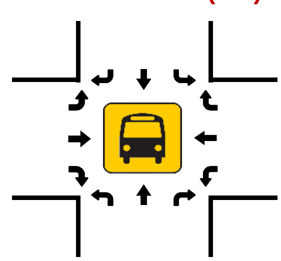
Total Vehicles (NOON)



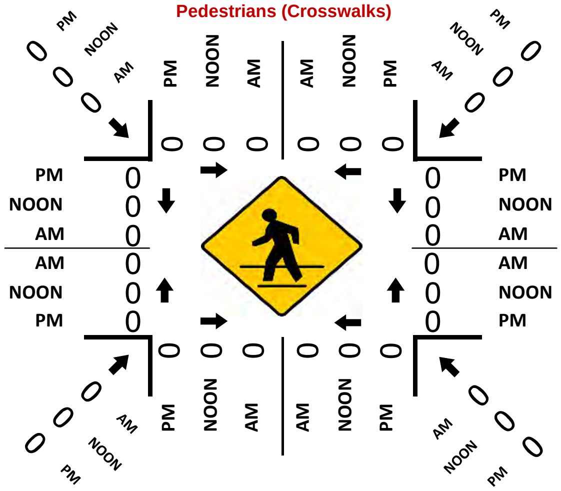
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Dwy 1 & Home Ave
City: San Diego
Control: No Control

Project ID: 18-04362-003
Date: 10/3/2018

Total

NS/EW Streets:	Dwy 1				Dwy 1				Home Ave				Home Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	6	0	0	0	0	0	0	0	19	0	0	0	0	0	25
7:15 AM	0	0	7	0	0	0	0	0	0	0	14	0	0	0	0	0	21
7:30 AM	0	0	4	0	0	0	0	0	0	0	12	0	0	0	0	0	16
7:45 AM	0	0	6	0	0	0	0	0	0	0	13	0	0	0	0	0	19
8:00 AM	0	0	6	0	0	0	0	0	0	0	19	0	0	0	0	0	25
8:15 AM	0	0	5	0	0	0	0	0	0	0	7	0	0	0	0	0	12
8:30 AM	0	0	3	0	0	0	0	0	0	0	8	0	0	0	0	0	11
8:45 AM	0	0	3	0	0	0	0	0	0	0	9	0	0	0	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	40	0	0	0	0	0	0	0	101	0	0	0	0	0	141
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	0.00%	100.00%	0.00%					
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	23	0	0	0	0	0	0	0	58	0	0	0	0	0	81
PEAK HR FACTOR :	0.000	0.000	0.821	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.763	0.000	0.000	0.000	0.000	0.000	0.810
	0.821								0.763								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	7	0	0	0	0	0	0	0	18	0	0	0	0	0	25
4:15 PM	0	0	2	0	0	0	0	0	0	0	17	0	0	0	0	0	19
4:30 PM	0	0	4	0	0	0	0	0	0	0	15	0	0	0	0	0	19
4:45 PM	0	0	9	0	0	0	0	0	0	0	24	0	0	0	0	0	33
5:00 PM	0	0	11	0	0	0	0	0	0	0	34	0	0	0	0	0	45
5:15 PM	0	0	7	0	0	0	0	0	0	0	22	0	0	0	0	0	29
5:30 PM	0	0	7	0	0	0	0	0	0	0	22	0	0	0	0	0	29
5:45 PM	0	0	5	0	0	0	0	0	0	0	21	0	0	0	0	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	52	0	0	0	0	0	0	0	173	0	0	0	0	0	225
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	0.00%	100.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	34	0	0	0	0	0	0	0	102	0	0	0	0	0	136
PEAK HR FACTOR :	0.000	0.000	0.773	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.756
	0.773								0.750								

Prepared by National Data & Surveying Services

Dwy 2 & Home Ave

Peak Hour Turning Movement Count

ID: 18-04362-004
City: San Diego

Day: Wednesday
Date: 10/03/2018

	PEAK HOURS	COUNT PERIODS
AM	07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Dwy 2 — SOUTHBOUND

	U-turn	Right	Thru	Left	Departing
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
Peak total	0	0	0	0	

Home Ave — WESTBOUND

Movement	Peak total	PM	NOON	AM
Right	0	0	0	0
Thru	3	0	0	0
Left	0	0	0	0
U-turn	0	0	0	0
Departing		72	0	37

Home Ave — EASTBOUND

Movement	AM	NOON	PM	Peak total
Departing	0	0	0	
U-turn	0	0	0	0
Left	0	0	0	0
Thru	0	0	0	2
Right	1	0	2	0

Dwy 2 — NORTHBOUND

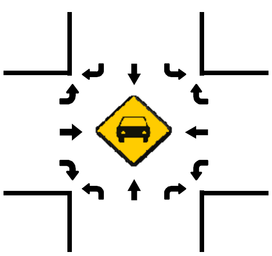
	Departing	U-turn	Left	Thru	Right
Peak total		0	0	1	0
PM	2	0	0	0	72
NOON	0	0	0	0	0
AM	1	0	0	0	37

CONTROL

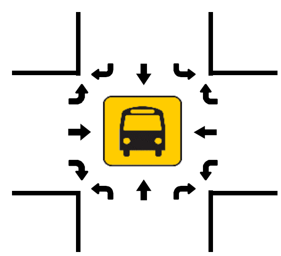
No Control

	AM	NOON	PM
TEV	38	0	74
PHF	0.68		0.80

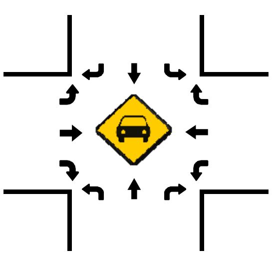
Total Vehicles (AM)



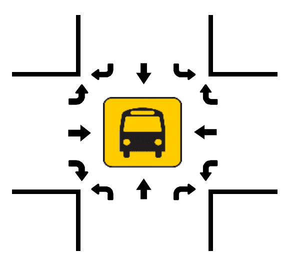
Total Vehicles (AM)



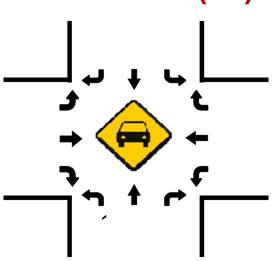
Total Vehicles (NOON)



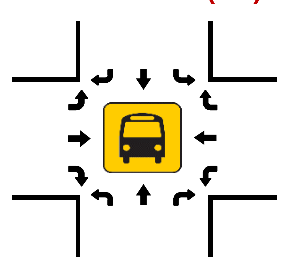
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
North leg	0	0	0
South leg	0	0	0
South leg	0	0	0
West leg	0	0	0
West leg	0	0	0
East leg	0	0	0
East leg	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Dwy 2 & Home Ave
City: San Diego
Control: No Control

Project ID: 18-04362-004
Date: 10/3/2018

Total

NS/EW Streets:	Dwy 2				Dwy 2				Home Ave				Home Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	13	0	0	0	0	0	0	0	1	0	0	0	0	0	14
7:15 AM	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
7:30 AM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
7:45 AM	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11
8:00 AM	0	0	9	0	0	0	0	0	0	0	1	0	0	0	0	0	10
8:15 AM	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
8:30 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:45 AM	0	0	12	0	0	0	0	0	0	0	4	0	0	0	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	69	0	0	0	0	0	0	0	6	0	0	0	0	0	75
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	0.00%	100.00%	0.00%					
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	37	0	0	0	0	0	0	0	1	0	0	0	0	0	38
PEAK HR FACTOR :	0.000	0.000	0.712	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.679
	0.712								0.250								

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	19
4:15 PM	0	0	12	0	0	0	0	0	0	0	1	0	0	0	0	0	13
4:30 PM	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	15
4:45 PM	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11
5:00 PM	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	19
5:15 PM	0	0	22	0	0	0	0	0	0	0	1	0	0	0	0	0	23
5:30 PM	0	0	20	0	0	0	0	0	0	0	1	0	0	0	0	0	21
5:45 PM	0	0	9	0	0	0	0	0	0	0	2	0	0	0	0	0	11
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	127	0	0	0	0	0	0	0	5	0	0	0	0	0	132
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	0.00%	100.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	72	0	0	0	0	0	0	0	2	0	0	0	0	0	74
PEAK HR FACTOR :	0.000	0.000	0.818	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.804
	0.818								0.500								

Prepared by National Data & Surveying Services

I-805 NB Ramps & Home Ave

Peak Hour Turning Movement Count

ID: 18-04362-002
City: San Diego

Day: Wednesday
Date: 10/03/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

I-805 NB Ramps — SOUTHBOUND

	Right	Thru	Left	U-Turn	Exit
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
%	0	0	0	0	

Home Ave — WESTBOUND

	%	PM	NOON	AM
U-Turn	0	0	0	0
Thru	3	1029	0	887
Left	0	213	0	446
Right	0	67	0	46
Exit		1336	0	712

Home Ave — EASTBOUND

	AM	NOON	PM	%
Exit	928	0	1189	
U-Turn	0	0	0	0
Left	0	0	0	0
Thru	492	0	727	1.5
Right	184	0	138	0.5

CONTROL

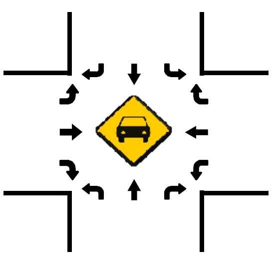
Signalized

	AM	NOON	PM
TEV	2270	0	2876
PHF	0.97		0.98

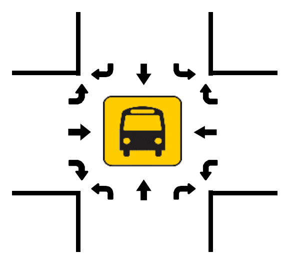
I-805 NB Ramps — NORTHBOUND

	Exit	U-Turn	Left	Thru	Right
%		0	0.5	0	1.5
PM	351	0	160	0	542
NOON	0	0	0	0	0
AM	630	0	41	0	174

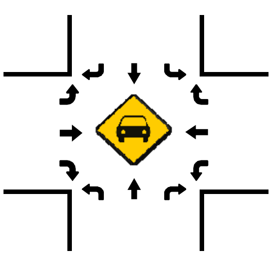
Total Vehicles (AM)



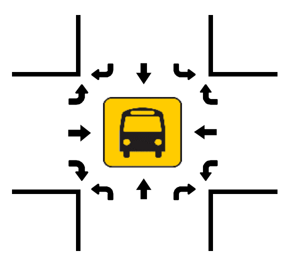
Total Vehicles (AM)



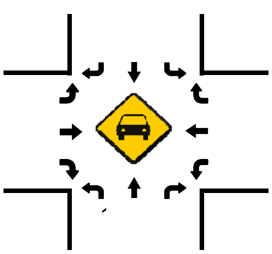
Total Vehicles (NOON)



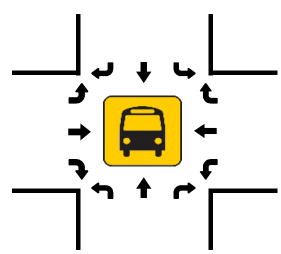
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (eastward)	0	0	0
North (westward)	0	0	0
West (southward)	0	0	0
West (northward)	0	0	0
East (southward)	0	0	0
East (northward)	0	0	0
South (eastward)	0	0	0
South (westward)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-805 NB Ramps & Home Ave
City: San Diego
Control: Signalized

Project ID: 18-04362-002
Date: 10/3/2018

Total

NS/EW Streets:	I-805 NB Ramps				I-805 NB Ramps				Home Ave				Home Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0	1.5	0	0	0	0	0	0	1.5	0.5	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	15	0	45	0	0	0	0	0	0	95	49	0	126	199	0	15	544
7:15 AM	6	0	41	0	0	0	0	0	0	101	48	0	129	213	0	15	553
7:30 AM	6	0	35	0	0	0	0	0	0	125	48	0	132	230	0	12	588
7:45 AM	11	0	40	0	0	0	0	0	0	129	31	0	106	233	0	12	562
8:00 AM	18	0	58	0	0	0	0	0	0	137	57	0	79	211	0	7	567
8:15 AM	21	0	66	1	0	0	0	0	0	116	27	0	81	193	0	7	512
8:30 AM	26	0	74	0	0	0	0	0	0	70	37	0	84	222	0	9	522
8:45 AM	34	0	75	0	0	0	0	0	0	98	46	1	57	200	0	13	524
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	137	0	434	1	0	0	0	0	0	871	343	1	794	1701	0	90	4372
APPROACH %'s :	23.95%	0.00%	75.87%	0.17%					0.00%	71.69%	28.23%	0.08%	30.72%	65.80%	0.00%	3.48%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	41	0	174	0	0	0	0	0	0	492	184	0	446	887	0	46	2270
PEAK HR FACTOR :	0.569	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.898	0.807	0.000	0.845	0.952	0.000	0.767	0.965
	0.707								0.871				0.922				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0	1.5	0	0	0	0	0	0	1.5	0.5	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	37	0	128	0	0	0	0	0	0	146	27	0	69	230	0	11	648
4:15 PM	54	0	132	0	0	0	0	0	0	161	32	0	50	211	0	18	658
4:30 PM	33	0	126	1	0	0	0	0	0	128	35	0	62	259	0	17	661
4:45 PM	40	0	134	0	0	0	0	0	0	193	37	0	39	252	0	13	708
5:00 PM	32	0	145	0	0	0	0	0	0	165	33	0	52	255	0	32	714
5:15 PM	43	0	146	0	0	0	0	0	0	179	37	0	57	250	0	18	730
5:30 PM	45	0	117	0	0	0	0	0	0	190	31	0	65	272	0	4	724
5:45 PM	40	0	119	0	0	0	0	0	0	160	27	0	40	245	0	13	644
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	324	0	1047	1	0	0	0	0	0	1322	259	0	434	1974	0	126	5487
APPROACH %'s :	23.62%	0.00%	76.31%	0.07%					0.00%	83.62%	16.38%	0.00%	17.13%	77.90%	0.00%	4.97%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	160	0	542	0	0	0	0	0	0	727	138	0	213	1029	0	67	2876
PEAK HR FACTOR :	0.889	0.000	0.928	0.000	0.000	0.000	0.000	0.000	0.000	0.942	0.932	0.000	0.819	0.946	0.000	0.523	0.985
	0.929								0.940				0.960				

Prepared by National Data & Surveying Services

I-805 SB Ramps & Home Ave

Peak Hour Turning Movement Count

ID: 18-04362-001
City: San Diego

Day: Wednesday
Date: 10/03/2018

PEAK HOURS		COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

I-805 SB Ramps — SOUTHBOUND

AM	108	0	204	0	0
NOON	0	0	0	0	0
PM	168	1	202	0	0
	1	0	1	0	

Home Ave — EASTBOUND

	AM	NOON	PM	
	493	0	702	
	0	0	0	0
	0	0	0	1
	475	0	628	0.5
	187	0	197	0.5

Home Ave — WESTBOUND

	PM	NOON	AM
0	0	0	0
3	534	0	385
0	673	0	549
0	1	0	0
	831	0	679

I-805 SB Ramps — NORTHBOUND

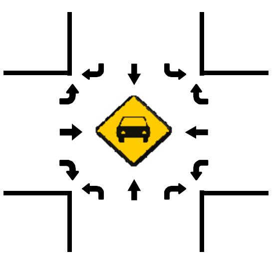
		0	0	0	0
PM	871	0	0	0	0
NOON	0	0	0	0	0
AM	736	0	0	0	0

CONTROL

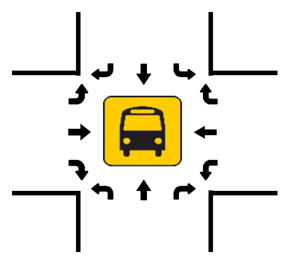
Signalized

	AM	NOON	PM
TEV	1908	0	2404
PHF	0.96		0.97

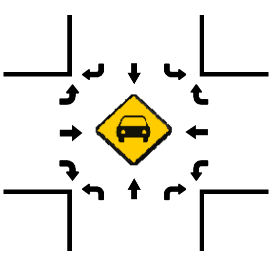
Total Vehicles (AM)



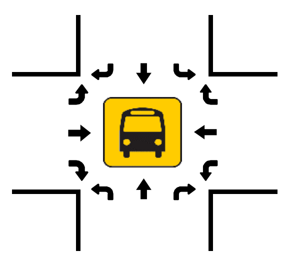
Total Vehicles (AM)



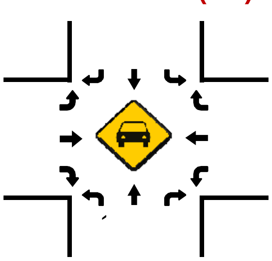
Total Vehicles (NOON)



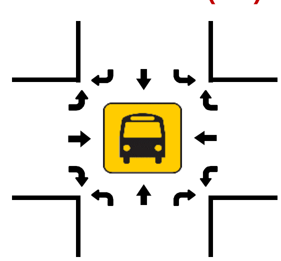
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)

	PM	NOON	AM
North leg (west side)	0	0	0
North leg (east side)	0	0	0
West leg (north side)	0	0	0
West leg (south side)	0	0	0
East leg (north side)	0	0	0
East leg (south side)	0	0	0
South leg (west side)	0	0	0
South leg (east side)	0	0	0
NW corner (diagonal)	0	0	0
NE corner (diagonal)	0	0	0
SW corner (diagonal)	0	0	0
SE corner (diagonal)	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-805 SB Ramps & Home Ave
City: San Diego
Control: Signalized

Project ID: 18-04362-001
Date: 10/3/2018

Total

NS/EW Streets:	I-805 SB Ramps				I-805 SB Ramps				Home Ave				Home Ave				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	0	0	0	1	0	1	0	1	0.5	0.5	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	30	0	35	0	0	117	60	0	125	90	0	0	457
7:15 AM	0	0	0	0	32	0	28	0	0	115	65	0	130	93	0	0	463
7:30 AM	0	0	0	0	36	0	24	0	0	131	57	0	133	99	0	0	480
7:45 AM	0	0	0	0	68	0	25	0	0	95	27	0	170	83	0	0	468
8:00 AM	0	0	0	0	68	0	31	0	0	134	38	0	116	110	0	0	497
8:15 AM	0	0	0	0	50	0	36	0	0	92	34	0	132	76	0	0	420
8:30 AM	0	0	0	0	29	0	17	0	0	84	44	0	116	124	0	0	414
8:45 AM	0	0	0	0	36	0	39	0	0	104	27	0	120	125	0	2	453
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	349	0	235	0	0	872	352	0	1042	800	0	2	3652
APPROACH %'s :					59.76%	0.00%	40.24%	0.00%	0.00%	71.24%	28.76%	0.00%	56.51%	43.38%	0.00%	0.11%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	204	0	108	0	0	475	187	0	549	385	0	0	1908
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.000	0.871	0.000	0.000	0.886	0.719	0.000	0.807	0.875	0.000	0.000	0.960
					0.788				0.880				0.923				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	1	0	1	0	1	0.5	0.5	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	51	0	45	0	0	136	57	0	157	117	0	1	564
4:15 PM	0	0	0	0	44	0	34	0	0	134	40	0	130	123	0	2	507
4:30 PM	0	0	0	0	53	1	39	0	0	128	73	0	147	147	0	0	588
4:45 PM	0	0	0	0	45	0	36	0	0	167	42	0	147	133	0	0	570
5:00 PM	0	0	0	0	54	0	33	0	0	161	59	0	158	141	0	0	606
5:15 PM	0	0	0	0	40	0	50	0	0	158	54	0	169	136	0	0	607
5:30 PM	0	0	0	0	59	0	45	0	0	167	42	0	157	149	0	1	620
5:45 PM	0	0	0	0	49	1	40	0	0	142	42	0	189	108	0	0	571
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	395	2	322	0	0	1193	409	0	1254	1054	0	4	4633
APPROACH %'s :					54.94%	0.28%	44.78%	0.00%	0.00%	74.47%	25.53%	0.00%	54.24%	45.59%	0.00%	0.17%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	202	1	168	0	0	628	197	0	673	534	0	1	2404
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.856	0.250	0.840	0.000	0.000	0.940	0.835	0.000	0.890	0.896	0.000	0.250	0.969
					0.892				0.938				0.984				

Prepared by NDS/ATD

VOLUME

Home Ave Bet. I-805 NB Ramps & Fairmount Ave

Day: Wednesday
Date: 10/3/2018

City: San Diego
Project #: CA18_4363_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	16,933	18,385	35,318

AM Period	NB	SB	EB		WB		TOTAL	
00:00			58		40		98	
00:15			68		36		104	
00:30			69		36		105	
00:45			47	242	31	143	78	385
01:00			37		21		58	
01:15			43		28		71	
01:30			34		23		57	
01:45			31	145	22	94	53	239
02:00			43		18		61	
02:15			29		19		48	
02:30			30		14		44	
02:45			38	140	22	73	60	213
03:00			32		35		67	
03:15			22		28		50	
03:30			28		35		63	
03:45			27	109	38	136	65	245
04:00			32		50		82	
04:15			23		71		94	
04:30			26		85		111	
04:45			36	117	95	301	131	418
05:00			47		122		169	
05:15			47		156		203	
05:30			69		200		269	
05:45			91	254	198	676	289	930
06:00			92		210		302	
06:15			91		269		360	
06:30			116		323		439	
06:45			117	416	267	1069	384	1485
07:00			148		351		499	
07:15			161		347		508	
07:30			171		382		553	
07:45			186	666	344	1424	530	2090
08:00			191		301		492	
08:15			190		273		463	
08:30			154		326		480	
08:45			179	714	270	1170	449	1884
09:00			188		233		421	
09:15			178		245		423	
09:30			165		264		429	
09:45			163	694	227	969	390	1663
10:00			196		209		405	
10:15			185		235		420	
10:30			199		229		428	
10:45			200	780	234	907	434	1687
11:00			193		206		399	
11:15			202		228		430	
11:30			228		217		445	
11:45			241	864	216	867	457	1731
TOTALS				5141		7829		12970
SPLIT %				39.6%		60.4%		36.7%

PM Period	NB	SB	EB		WB		TOTAL	
12:00			245		260		505	
12:15			270		234		504	
12:30			245		257		502	
12:45			263	1023	258	1009	521	2032
13:00			215		259		474	
13:15			248		237		485	
13:30			216		253		469	
13:45			260	939	255	1004	515	1943
14:00			258		276		534	
14:15			281		309		590	
14:30			316		280		596	
14:45			333	1188	269	1134	602	2322
15:00			330		280		610	
15:15			287		304		591	
15:30			270		285		555	
15:45			311	1198	275	1144	586	2342
16:00			306		316		622	
16:15			306		274		580	
16:30			275		330		605	
16:45			329	1216	313	1233	642	2449
17:00			333		344		677	
17:15			348		328		676	
17:30			321		340		661	
17:45			284	1286	297	1309	581	2595
18:00			264		276		540	
18:15			294		285		579	
18:30			333		247		580	
18:45			314	1205	282	1090	596	2295
19:00			272		234		506	
19:15			242		221		463	
19:30			247		211		458	
19:45			263	1024	157	823	420	1847
20:00			231		162		393	
20:15			220		159		379	
20:30			209		157		366	
20:45			229	889	155	633	384	1522
21:00			223		171		394	
21:15			211		155		366	
21:30			204		114		318	
21:45			195	833	107	547	302	1380
22:00			197		110		307	
22:15			157		106		263	
22:30			127		92		219	
22:45			117	598	86	394	203	992
23:00			118		78		196	
23:15			104		48		152	
23:30			98		62		160	
23:45			73	393	48	236	121	629
TOTALS				11792		10556		22348
SPLIT %				52.8%		47.2%		63.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	16,933	18,385	35,318

	NB	SB	EB	WB	TOTAL		NB	SB	EB	WB	TOTAL
AM Peak Hour			11:45	07:00	07:00	PM Peak Hour			16:45	16:45	16:45
AM Pk Volume			1001	1424	2090	PM Pk Volume			1331	1325	2656
Pk Hr Factor			0.927	0.932	0.945	Pk Hr Factor			0.956	0.963	0.981
7 - 9 Volume	0	0	1380	2594	3974	4 - 6 Volume	0	0	2502	2542	5044
7 - 9 Peak Hour			07:30	07:00	07:00	4 - 6 Peak Hour			16:45	16:45	16:45
7 - 9 Pk Volume	0	0	738	1424	2090	4 - 6 Pk Volume	0	0	1331	1325	2656
Pk Hr Factor	0.000	0.000	0.966	0.932	0.945	Pk Hr Factor	0.000	0.000	0.956	0.963	0.981

Prepared by NDS/ATD

VOLUME

Home Ave Bet. I-805 NB Ramps & I-805 SB Ramps

Day: Wednesday
Date: 10/3/2018

City: San Diego
Project #: CA18_4363_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	11,634	15,399	27,033

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			45		35		80		12:00			176		212		388	
00:15			39		29		68		12:15			159		227		386	
00:30			42		23		65		12:30			166		214		380	
00:45			30	156	22	109	52	265	12:45			214	715	216	869	430	1584
01:00			32		22		54		13:00			158		206		364	
01:15			21		29		50		13:15			178		200		378	
01:30			17		12		29		13:30			157		198		355	
01:45			20	90	18	81	38	171	13:45			197	690	231	835	428	1525
02:00			24		6		30		14:00			184		219		403	
02:15			19		16		35		14:15			194		251		445	
02:30			19		10		29		14:30			234		259		493	
02:45			25	87	11	43	36	130	14:45			237	849	246	975	483	1824
03:00			21		26		47		15:00			244		219		463	
03:15			12		14		26		15:15			174		262		436	
03:30			23		26		49		15:30			181		249		430	
03:45			9	65	23	89	32	154	15:45			204	803	245	975	449	1778
04:00			23		28		51		16:00			183		264		447	
04:15			15		44		59		16:15			201		262		463	
04:30			18		49		67		16:30			175		288		463	
04:45			37	93	61	182	98	275	16:45			222	781	281	1095	503	1876
05:00			30		86		116		17:00			195		293		488	
05:15			41		101		142		17:15			230		293		523	
05:30			47		144		191		17:30			216		324		540	
05:45			74	192	139	470	213	662	17:45			196	837	287	1197	483	2034
06:00			76		132		208		18:00			160		265		425	
06:15			65		166		231		18:15			226		295		521	
06:30			100		226		326		18:30			203		239		442	
06:45			122	363	183	707	305	1070	18:45			202	791	257	1056	459	1847
07:00			144		213		357		19:00			149		235		384	
07:15			155		218		373		19:15			156		220		376	
07:30			184		237		421		19:30			156		194		350	
07:45			164	647	261	929	425	1576	19:45			153	614	153	802	306	1416
08:00			201		237		438		20:00			134		156		290	
08:15			131		223		354		20:15			142		159		301	
08:30			118		247		365		20:30			116		142		258	
08:45			147	597	241	948	388	1545	20:45			148	540	141	598	289	1138
09:00			137		190		327		21:00			133		163		296	
09:15			130		199		329		21:15			123		144		267	
09:30			116		213		329		21:30			132		118		250	
09:45			128	511	204	806	332	1317	21:45			122	510	93	518	215	1028
10:00			143		180		323		22:00			131		108		239	
10:15			116		188		304		22:15			92		113		205	
10:30			134		194		328		22:30			84		76		160	
10:45			130	523	196	758	326	1281	22:45			67	374	79	376	146	750
11:00			146		184		330		23:00			64		71		135	
11:15			133		194		327		23:15			79		52		131	
11:30			140		198		338		23:30			54		48		102	
11:45			145	564	188	764	333	1328	23:45			45	242	46	217	91	459
TOTALS				3888		5886		**9774**	**TOTALS**				7746		9513		**17259**
SPLIT %				39.8%		60.2%		**36.2%**	**SPLIT %**				44.9%		55.1%		**63.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	11,634	15,399	27,033

	NB	SB	EB	WB	TOTAL		NB	SB	EB	WB	TOTAL
AM Peak Hour			07:15	07:45	**07:15**	**PM Peak Hour**			14:15	17:00	**16:45**
AM Pk Volume			704	968	**1657**	**PM Pk Volume**			909	1197	**2054**
Pk Hr Factor			0.876	0.927	**0.946**	**Pk Hr Factor**			0.931	0.924	**0.951**
7 - 9 Volume	0	0	1244	1877	**3121**	**4 - 6 Volume**	0	0	1618	2292	**3910**
7 - 9 Peak Hour			07:15	07:45	**07:15**	**4 - 6 Peak Hour**			16:45	17:00	**16:45**
7 - 9 Pk Volume	0	0	704	968	**1657**	**4 - 6 Pk Volume**	0	0	863	1197	**2054**
Pk Hr Factor	0.000	0.000	0.876	0.927	**0.946**	**Pk Hr Factor**	0.000	0.000	0.938	0.924	**0.951**

Appendix D

Intersection LOS Worksheets

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	43	241	336	87	10	46	595	77	254	507	105	81
Future Volume (veh/h)	43	241	336	87	10	46	595	77	254	507	105	81
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		251	350	91		48	620	80	265	528	109	84
Adj No. of Lanes		1	2	0		1	2	0	1	2	0	1
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		280	999	256		62	742	96	233	1096	225	106
Arrive On Green		0.16	0.36	0.36		0.03	0.24	0.24	0.13	0.37	0.37	0.06
Sat Flow, veh/h		1774	2790	716		1774	3154	406	1774	2925	601	1774
Grp Volume(v), veh/h		251	220	221		48	347	353	265	319	318	84
Grp Sat Flow(s),veh/h/ln		1774	1770	1736		1774	1770	1791	1774	1770	1757	1774
Q Serve(g_s), s		16.5	10.8	11.1		3.2	22.2	22.3	15.6	16.3	16.4	5.5
Cycle Q Clear(g_c), s		16.5	10.8	11.1		3.2	22.2	22.3	15.6	16.3	16.4	5.5
Prop In Lane		1.00		0.41		1.00		0.23	1.00		0.34	1.00
Lane Grp Cap(c), veh/h		280	633	622		62	416	421	233	663	658	106
V/C Ratio(X)		0.90	0.35	0.36		0.78	0.83	0.84	1.14	0.48	0.48	0.79
Avail Cap(c_a), veh/h		412	726	712		143	452	457	233	663	658	188
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		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		49.1	28.0	28.0		56.8	43.2	43.2	51.6	28.3	28.4	55.1
Incr Delay (d2), s/veh		12.4	0.6	0.6		7.6	15.9	15.9	100.8	0.8	0.8	4.9
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
%ile BackOfQ(50%),veh/ln		9.1	5.4	5.4		1.7	12.6	12.8	14.1	8.1	8.1	2.9
LnGrp Delay(d),s/veh		61.5	28.5	28.6		64.4	59.1	59.2	152.4	29.1	29.2	60.0
LnGrp LOS		E	C	C		E	E	E	F	C	C	E
Approach Vol, veh/h			692				748			902		
Approach Delay, s/veh			40.5				59.5			65.3		
Approach LOS			D				E			E		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	47.8	20.0	42.4	23.1	33.2	11.5	50.9
Change Period (Y+Rc), s	4.4	* 5.3	4.4	6.4	4.4	5.3	4.4	* 6.4
Max Green Setting (Gmax), s	9.6	* 49	15.6	36.0	27.6	30.3	12.6	* 39
Max Q Clear Time (g_c+I1), s	5.2	13.1	17.6	38.0	18.5	24.3	7.5	18.4
Green Ext Time (p_c), s	0.0	4.8	0.0	0.0	0.2	3.7	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	62.7
HCM 2010 LOS	E

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	160	493
Future Volume (veh/h)	160	493
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	167	514
Adj No. of Lanes	1	1
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	565	480
Arrive On Green	0.30	0.30
Sat Flow, veh/h	1863	1583
Grp Volume(v), veh/h	167	514
Grp Sat Flow(s),veh/h/ln	1863	1583
Q Serve(g_s), s	8.1	36.0
Cycle Q Clear(g_c), s	8.1	36.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	565	480
V/C Ratio(X)	0.30	1.07
Avail Cap(c_a), veh/h	565	480
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	31.7	41.4
Incr Delay (d2), s/veh	0.5	61.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	23.9
LnGrp Delay(d),s/veh	32.1	102.7
LnGrp LOS	C	F
Approach Vol, veh/h	765	
Approach Delay, s/veh	82.6	
Approach LOS	F	

Timer

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	676	1	0	1379	0	37
Future Vol, veh/h	676	1	0	1379	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	697	1	0	1422	0	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	349
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	647
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	647
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	647	-	-	-
HCM Lane V/C Ratio	0.059	-	-	-
HCM Control Delay (s)	10.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	654	58	0	1379	0	23
Future Vol, veh/h	654	58	0	1379	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	674	60	0	1422	0	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	367
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	630
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	630
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	630	-	-	-
HCM Lane V/C Ratio	0.038	-	-	-
HCM Control Delay (s)	10.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	492	184	46	446	887	41	174
Future Volume (veh/h)	492	184	46	446	887	41	174
Number	2	12		1	6	7	14
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	507	190		460	914	106	110
Adj No. of Lanes	2	0		1	2	1	1
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1305	487		493	2942	156	139
Arrive On Green	0.17	0.17		0.28	0.83	0.09	0.09
Sat Flow, veh/h	2618	941		1774	3632	1774	1583
Grp Volume(v), veh/h	355	342		460	914	106	110
Grp Sat Flow(s),veh/h/ln	1770	1697		1774	1770	1774	1583
Q Serve(g_s), s	23.1	23.3		32.8	7.6	7.5	8.9
Cycle Q Clear(g_c), s	23.1	23.3		32.8	7.6	7.5	8.9
Prop In Lane		0.55		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	915	877		493	2942	156	139
V/C Ratio(X)	0.39	0.39		0.93	0.31	0.68	0.79
Avail Cap(c_a), veh/h	915	877		673	2942	423	378
HCM Platoon Ratio	0.33	0.33		1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	35.7		45.7	2.5	57.5	58.1
Incr Delay (d2), s/veh	1.0	1.0		16.4	0.3	5.1	9.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	11.2		18.4	3.8	3.9	4.2
LnGrp Delay(d),s/veh	36.6	36.7		62.1	2.8	62.6	67.6
LnGrp LOS	D	D		E	A	E	E
Approach Vol, veh/h	697				1374	216	
Approach Delay, s/veh	36.7				22.7	65.1	
Approach LOS	D				C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	40.9	72.6		16.5		113.5		
Change Period (Y+Rc), s	* 4.7	5.4		5.1		5.4		
Max Green Setting (Gmax), s	* 49	34.5		31.0		88.5		
Max Q Clear Time (g_c+I1), s	34.8	25.3		10.9		9.6		
Green Ext Time (p_c), s	1.3	3.0		0.6		8.4		

Intersection Summary		
HCM 2010 Ctrl Delay		30.9
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	475	187	549	385	0	0	0	0	204	0	108
Future Volume (veh/h)	0	475	187	549	385	0	0	0	0	204	0	108
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	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	495	195	572	401	0				212	0	112
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1019	399	593	2761	0				247	0	220
Arrive On Green	0.00	0.41	0.41	0.56	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	2580	974	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	352	338	572	401	0				212	0	112
Grp Sat Flow(s),veh/h/ln	0	1770	1691	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	19.0	19.2	40.1	0.0	0.0				15.2	0.0	8.5
Cycle Q Clear(g_c), s	0.0	19.0	19.2	40.1	0.0	0.0				15.2	0.0	8.5
Prop In Lane	0.00		0.58	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	725	693	593	2761	0				247	0	220
V/C Ratio(X)	0.00	0.48	0.49	0.96	0.15	0.00				0.86	0.00	0.51
Avail Cap(c_a), veh/h	0	725	693	686	2761	0				452	0	403
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.95	0.95	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	28.3	28.3	28.0	0.0	0.0				54.7	0.0	51.9
Incr Delay (d2), s/veh	0.0	2.3	2.5	23.4	0.1	0.0				8.5	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.7	9.4	23.2	0.0	0.0				8.1	0.0	3.8
LnGrp Delay(d),s/veh	0.0	30.6	30.8	51.4	0.1	0.0				63.2	0.0	53.7
LnGrp LOS		C	C	D	A					E		D
Approach Vol, veh/h		690			973						324	
Approach Delay, s/veh		30.7			30.3						59.9	
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	48.2	58.7				106.8		23.2
Change Period (Y+Rc), s	* 4.7	5.4				5.4		5.1
Max Green Setting (Gmax), s	* 50	31.4				86.4		33.1
Max Q Clear Time (g_c+I1), s	42.1	21.2				2.0		17.2
Green Ext Time (p_c), s	1.4	3.2				3.0		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		35.2
HCM 2010 LOS		D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	57	412	679	174	11	85	562	69	88	190	62	69
Future Volume (veh/h)	57	412	679	174	11	85	562	69	88	190	62	69
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		429	707	181		89	585	72	92	198	65	72
Adj No. of Lanes		1	2	0		1	2	0	1	2	0	1
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		454	895	229		278	716	88	109	795	254	92
Arrive On Green		0.26	0.32	0.32		0.16	0.23	0.23	0.06	0.30	0.30	0.05
Sat Flow, veh/h		1774	2792	714		1774	3174	390	1774	2641	842	1774
Grp Volume(v), veh/h		429	448	440		89	326	331	92	131	132	72
Grp Sat Flow(s),veh/h/ln		1774	1770	1737		1774	1770	1794	1774	1770	1714	1774
Q Serve(g_s), s		29.3	28.5	28.5		5.5	21.6	21.7	6.3	6.9	7.2	5.0
Cycle Q Clear(g_c), s		29.3	28.5	28.5		5.5	21.6	21.7	6.3	6.9	7.2	5.0
Prop In Lane		1.00		0.41		1.00		0.22	1.00		0.49	1.00
Lane Grp Cap(c), veh/h		454	567	557		278	399	405	109	533	516	92
V/C Ratio(X)		0.95	0.79	0.79		0.32	0.82	0.82	0.84	0.25	0.26	0.78
Avail Cap(c_a), veh/h		497	746	732		278	448	454	109	533	516	166
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		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		45.2	38.2	38.2		46.3	45.4	45.4	57.4	32.6	32.7	57.9
Incr Delay (d2), s/veh		25.4	5.7	5.9		0.2	14.5	14.6	40.3	0.4	0.4	5.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		17.6	14.8	14.6		2.7	12.2	12.4	4.3	3.4	3.5	2.6
LnGrp Delay(d),s/veh		70.6	43.9	44.1		46.5	59.9	60.1	97.7	33.0	33.1	63.4
LnGrp LOS		E	D	D		D	E	E	F	C	C	E
Approach Vol, veh/h			1317				746			355		
Approach Delay, s/veh			52.7				58.4			49.8		
Approach LOS			D				E			D		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.7	44.5	12.0	42.4	36.0	33.2	10.8	43.6
Change Period (Y+Rc), s	5.3	* 4.9	4.4	6.4	4.4	5.3	4.4	* 6.4
Max Green Setting (Gmax), s	14.2	* 52	7.6	36.0	34.6	31.3	11.6	* 32
Max Q Clear Time (g_c+I1), s	7.5	30.5	8.3	38.0	31.3	23.7	7.0	9.2
Green Ext Time (p_c), s	0.0	9.1	0.0	0.0	0.3	4.2	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	86.5
HCM 2010 LOS	F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	406	619
Future Volume (veh/h)	406	619
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	423	645
Adj No. of Lanes	1	1
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	543	461
Arrive On Green	0.29	0.29
Sat Flow, veh/h	1863	1583
Grp Volume(v), veh/h	423	645
Grp Sat Flow(s),veh/h/ln	1863	1583
Q Serve(g_s), s	25.7	36.0
Cycle Q Clear(g_c), s	25.7	36.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	543	461
V/C Ratio(X)	0.78	1.40
Avail Cap(c_a), veh/h	543	461
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	40.2	43.8
Incr Delay (d2), s/veh	7.7	192.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	40.3
LnGrp Delay(d),s/veh	47.9	236.0
LnGrp LOS	D	F
Approach Vol, veh/h	1140	
Approach Delay, s/veh	155.3	
Approach LOS	F	
Timer		

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1266	2	0	1309	0	72
Future Vol, veh/h	1266	2	0	1309	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1279	2	0	1322	0	73

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	641
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	417
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	417
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	417	-	-	-
HCM Lane V/C Ratio	0.174	-	-	-
HCM Control Delay (s)	15.4	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

Intersection						
Int Delay, s/veh	0.2					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1234	102	0	1309	0	34
Future Vol, veh/h	1234	102	0	1309	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1246	103	0	1322	0	34

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	675
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	396
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	396
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	396	-	-	-
HCM Lane V/C Ratio	0.087	-	-	-
HCM Control Delay (s)	15	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	727	138	67	213	1029	160	542
Future Volume (veh/h)	727	138	67	213	1029	160	542
Number	2	12		1	6	7	14
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	734	139		215	1039	342	354
Adj No. of Lanes	2	0		1	2	1	1
Peak Hour Factor	0.99	0.99		0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1483	281		243	2380	438	391
Arrive On Green	0.50	0.50		0.14	0.67	0.25	0.25
Sat Flow, veh/h	3064	562		1774	3632	1774	1583
Grp Volume(v), veh/h	437	436		215	1039	342	354
Grp Sat Flow(s),veh/h/ln	1770	1764		1774	1770	1774	1583
Q Serve(g_s), s	21.4	21.4		15.5	17.7	23.4	28.2
Cycle Q Clear(g_c), s	21.4	21.4		15.5	17.7	23.4	28.2
Prop In Lane		0.32		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	883	880		243	2380	438	391
V/C Ratio(X)	0.49	0.50		0.88	0.44	0.78	0.91
Avail Cap(c_a), veh/h	883	880		345	2380	558	498
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	21.7		55.1	9.9	45.7	47.5
Incr Delay (d2), s/veh	0.2	0.2		17.3	0.6	5.5	17.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	10.5		8.8	8.7	12.2	14.2
LnGrp Delay(d),s/veh	21.8	21.8		72.4	10.5	51.1	64.7
LnGrp LOS	C	C		E	B	D	E
Approach Vol, veh/h	873				1254	696	
Approach Delay, s/veh	21.8				21.1	58.0	
Approach LOS	C				C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.5	70.3		37.2		92.8		
Change Period (Y+Rc), s	* 4.7	5.4		5.1		5.4		
Max Green Setting (Gmax), s	* 25	48.6		40.9		78.6		
Max Q Clear Time (g_c+I1), s	17.5	23.4		30.2		19.7		
Green Ext Time (p_c), s	0.4	6.2		1.9		10.1		

Intersection Summary	
HCM 2010 Ctrl Delay	30.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	0	628	197	1	673	534	0	0	0	0	202	0	168
Future Volume (veh/h)	0	628	197	1	673	534	0	0	0	0	202	0	168
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	1900		1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	647	203		694	551	0				208	0	173
Adj No. of Lanes	0	2	0		1	2	0				1	0	1
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2		2	2	0				2	0	2
Cap, veh/h	0	912	286		712	2764	0				245	0	219
Arrive On Green	0.00	0.34	0.34		0.67	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	2747	832		1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	431	419		694	551	0				208	0	173
Grp Sat Flow(s),veh/h/ln	0	1770	1716		1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	27.5	27.5		48.4	0.0	0.0				14.9	0.0	13.7
Cycle Q Clear(g_c), s	0.0	27.5	27.5		48.4	0.0	0.0				14.9	0.0	13.7
Prop In Lane	0.00		0.48		1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	608	590		712	2764	0				245	0	219
V/C Ratio(X)	0.00	0.71	0.71		0.98	0.20	0.00				0.85	0.00	0.79
Avail Cap(c_a), veh/h	0	608	590		796	2764	0				450	0	402
HCM Platoon Ratio	1.00	1.00	1.00		1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00		0.83	0.83	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	37.0	37.0		20.8	0.0	0.0				54.7	0.0	54.2
Incr Delay (d2), s/veh	0.0	6.8	7.1		22.1	0.1	0.0				8.0	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
%ile BackOfQ(50%),veh/ln	0.0	14.6	14.2		27.5	0.1	0.0				7.8	0.0	6.4
LnGrp Delay(d),s/veh	0.0	43.8	44.1		43.0	0.1	0.0				62.7	0.0	60.5
LnGrp LOS		D	D		D	A					E		E
Approach Vol, veh/h		850				1245						381	
Approach Delay, s/veh		44.0				24.0						61.7	
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	56.8	50.1				106.9		23.1
Change Period (Y+Rc), s	* 4.7	5.4				5.4		5.1
Max Green Setting (Gmax), s	*53	23.5				86.5		33.0
Max Q Clear Time (g_c+I1), s	50.4	29.5				2.0		16.9
Green Ext Time (p_c), s	1.7	0.0				4.3		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	36.7
HCM 2010 LOS	D

Notes

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	50	242	340	88	46	600	77	255	507	105	81	160
Future Volume (veh/h)	50	242	340	88	46	600	77	255	507	105	81	160
Number		5	2	12	1	6	16	3	8	18	7	4
Initial Q (Qb), veh		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	
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
Adj Sat Flow, veh/h/ln		1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h		252	354	92	48	625	80	266	528	109	84	167
Adj No. of Lanes		1	2	0	1	2	0	1	2	0	1	1
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		281	1002	257	62	744	95	233	1094	225	106	564
Arrive On Green		0.16	0.36	0.36	0.03	0.24	0.24	0.13	0.37	0.37	0.06	0.30
Sat Flow, veh/h		1774	2790	716	1774	3158	404	1774	2925	601	1774	1863
Grp Volume(v), veh/h		252	223	223	48	350	355	266	319	318	84	167
Grp Sat Flow(s),veh/h/ln		1774	1770	1736	1774	1770	1792	1774	1770	1757	1774	1863
Q Serve(g_s), s		16.6	11.0	11.2	3.2	22.4	22.5	15.6	16.4	16.5	5.6	8.2
Cycle Q Clear(g_c), s		16.6	11.0	11.2	3.2	22.4	22.5	15.6	16.4	16.5	5.6	8.2
Prop In Lane		1.00		0.41	1.00		0.23	1.00		0.34	1.00	
Lane Grp Cap(c), veh/h		281	635	624	62	417	422	233	662	657	106	564
V/C Ratio(X)		0.90	0.35	0.36	0.78	0.84	0.84	1.14	0.48	0.48	0.79	0.30
Avail Cap(c_a), veh/h		412	724	711	143	451	456	233	662	657	188	564
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
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
Uniform Delay (d), s/veh		49.1	28.0	28.0	57.0	43.3	43.3	51.7	28.4	28.5	55.2	31.8
Incr Delay (d2), s/veh		12.7	0.6	0.6	7.6	16.2	16.3	103.1	0.8	0.8	4.9	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		9.1	5.5	5.5	1.7	12.9	13.1	14.3	8.1	8.1	2.9	4.3
LnGrp Delay(d),s/veh		61.8	28.5	28.7	64.6	59.5	59.6	154.8	29.2	29.3	60.1	32.2
LnGrp LOS		E	C	C	E	E	E	F	C	C	E	C
Approach Vol, veh/h			698			753			903			766
Approach Delay, s/veh			40.6			59.9			66.2			83.6
Approach LOS			D			E			E			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	48.0	20.0	42.4	23.2	33.3	11.5	50.9
Change Period (Y+Rc), s	4.4	* 5.3	4.4	6.4	4.4	5.3	4.4	* 6.4
Max Green Setting (Gmax), s	9.6	* 49	15.6	36.0	27.6	30.3	12.6	* 39
Max Q Clear Time (g_c+I1), s	5.2	13.2	17.6	38.0	18.6	24.5	7.6	18.5
Green Ext Time (p_c), s	0.0	4.8	0.0	0.0	0.2	3.6	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	63.2
HCM 2010 LOS	E

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	494
Future Volume (veh/h)	494
Number	14
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	515
Adj No. of Lanes	1
Peak Hour Factor	0.96
Percent Heavy Veh, %	2
Cap, veh/h	479
Arrive On Green	0.30
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	515
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	36.0
Cycle Q Clear(g_c), s	36.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	479
V/C Ratio(X)	1.07
Avail Cap(c_a), veh/h	479
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	41.5
Incr Delay (d2), s/veh	62.7
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	24.0
LnGrp Delay(d),s/veh	104.1
LnGrp LOS	F
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer	

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	682	8	0	1393	0	44
Future Vol, veh/h	682	8	0	1393	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	703	8	0	1436	0	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	356
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	640
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	640
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	640	-	-	-
HCM Lane V/C Ratio	0.071	-	-	-
HCM Control Delay (s)	11.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	661	65	0	1393	0	29
Future Vol, veh/h	661	65	0	1393	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	681	67	0	1436	0	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	374
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	623
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	623
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	623	-	-	-
HCM Lane V/C Ratio	0.048	-	-	-
HCM Control Delay (s)	11.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	498	184	53	447	893	41	175
Future Volume (veh/h)	498	184	53	447	893	41	175
Number	2	12		1	6	7	14
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	513	190		461	921	106	111
Adj No. of Lanes	2	0		1	2	1	1
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1307	482		494	2940	157	140
Arrive On Green	0.17	0.17		0.28	0.83	0.09	0.09
Sat Flow, veh/h	2627	934		1774	3632	1774	1583
Grp Volume(v), veh/h	358	345		461	921	106	111
Grp Sat Flow(s),veh/h/ln	1770	1698		1774	1770	1774	1583
Q Serve(g_s), s	23.4	23.5		32.9	7.7	7.5	8.9
Cycle Q Clear(g_c), s	23.4	23.5		32.9	7.7	7.5	8.9
Prop In Lane		0.55		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	913	876		494	2940	157	140
V/C Ratio(X)	0.39	0.39		0.93	0.31	0.67	0.79
Avail Cap(c_a), veh/h	913	876		673	2940	423	378
HCM Platoon Ratio	0.33	0.33		1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	35.9		45.7	2.5	57.4	58.1
Incr Delay (d2), s/veh	1.0	1.0		16.5	0.3	4.9	9.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	11.3		18.4	3.8	3.9	4.3
LnGrp Delay(d),s/veh	36.8	36.9		62.2	2.8	62.4	67.6
LnGrp LOS	D	D		E	A	E	E
Approach Vol, veh/h	703				1382	217	
Approach Delay, s/veh	36.8				22.6	65.0	
Approach LOS	D				C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	40.9	72.4		16.6		113.4		
Change Period (Y+Rc), s	* 4.7	5.4		5.1		5.4		
Max Green Setting (Gmax), s	* 49	34.5		31.0		88.5		
Max Q Clear Time (g_c+I1), s	34.9	25.5		10.9		9.7		
Green Ext Time (p_c), s	1.3	3.0		0.6		8.5		

Intersection Summary	
HCM 2010 Ctrl Delay	31.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	479	187	550	389	0	0	0	0	205	0	108
Future Volume (veh/h)	0	479	187	550	389	0	0	0	0	205	0	108
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	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	499	195	573	405	0				214	0	112
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1017	395	594	2757	0				249	0	222
Arrive On Green	0.00	0.41	0.41	0.56	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	2586	969	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	353	341	573	405	0				214	0	112
Grp Sat Flow(s),veh/h/ln	0	1770	1692	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	19.2	19.4	40.2	0.0	0.0				15.3	0.0	8.5
Cycle Q Clear(g_c), s	0.0	19.2	19.4	40.2	0.0	0.0				15.3	0.0	8.5
Prop In Lane	0.00		0.57	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	722	690	594	2757	0				249	0	222
V/C Ratio(X)	0.00	0.49	0.49	0.96	0.15	0.00				0.86	0.00	0.50
Avail Cap(c_a), veh/h	0	722	690	686	2757	0				452	0	403
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.95	0.95	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	28.5	28.5	27.9	0.0	0.0				54.7	0.0	51.7
Incr Delay (d2), s/veh	0.0	2.4	2.5	23.5	0.1	0.0				8.5	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.8	9.6	23.2	0.0	0.0				8.1	0.0	3.8
LnGrp Delay(d),s/veh	0.0	30.8	31.0	51.4	0.1	0.0				63.2	0.0	53.5
LnGrp LOS		C	C	D	A					E		D
Approach Vol, veh/h		694			978						326	
Approach Delay, s/veh		30.9			30.1						59.8	
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	48.2	58.5				106.7		23.3
Change Period (Y+Rc), s	* 4.7	5.4				5.4		5.1
Max Green Setting (Gmax), s	* 50	31.4				86.4		33.1
Max Q Clear Time (g_c+I1), s	42.2	21.4				2.0		17.3
Green Ext Time (p_c), s	1.4	3.2				3.0		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	69	414	686	177	11	85	569	69	91	190	62	69
Future Volume (veh/h)	69	414	686	177	11	85	569	69	91	190	62	69
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		431	715	184		89	593	72	95	198	65	72
Adj No. of Lanes		1	2	0		1	2	0	1	2	0	1
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		456	901	232		273	712	86	109	796	254	92
Arrive On Green		0.26	0.32	0.32		0.15	0.22	0.22	0.06	0.30	0.30	0.05
Sat Flow, veh/h		1774	2788	717		1774	3179	385	1774	2641	842	1774
Grp Volume(v), veh/h		431	454	445		89	330	335	95	131	132	72
Grp Sat Flow(s),veh/h/ln		1774	1770	1736		1774	1770	1795	1774	1770	1714	1774
Q Serve(g_s), s		29.4	28.8	28.8		5.5	21.9	22.0	6.6	6.9	7.2	5.0
Cycle Q Clear(g_c), s		29.4	28.8	28.8		5.5	21.9	22.0	6.6	6.9	7.2	5.0
Prop In Lane		1.00		0.41		1.00		0.21	1.00		0.49	1.00
Lane Grp Cap(c), veh/h		456	572	561		273	396	402	109	533	516	92
V/C Ratio(X)		0.94	0.79	0.79		0.33	0.83	0.83	0.87	0.25	0.26	0.78
Avail Cap(c_a), veh/h		511	741	727		273	434	440	109	533	516	167
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		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		45.0	38.0	38.0		46.6	45.7	45.7	57.5	32.6	32.7	57.9
Incr Delay (d2), s/veh		24.3	5.9	6.1		0.3	16.2	16.3	46.8	0.3	0.4	5.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		17.4	15.1	14.8		2.7	12.5	12.7	4.6	3.4	3.5	2.6
LnGrp Delay(d),s/veh		69.3	44.0	44.1		46.8	61.9	62.0	104.2	32.9	33.1	63.3
LnGrp LOS		E	D	D		D	E	E	F	C	C	E
Approach Vol, veh/h			1330				754			358		
Approach Delay, s/veh			52.2				60.2			51.9		
Approach LOS			D				E			D		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.3	44.8	12.0	42.4	36.2	33.0	10.8	43.6
Change Period (Y+Rc), s	5.3	* 4.9	4.4	6.4	4.4	5.3	4.4	* 6.4
Max Green Setting (Gmax), s	14.6	* 52	7.6	36.0	35.6	30.3	11.6	* 32
Max Q Clear Time (g_c+I1), s	7.5	30.8	8.6	38.0	31.4	24.0	7.0	9.2
Green Ext Time (p_c), s	0.0	9.1	0.0	0.0	0.3	3.6	0.0	2.2

Intersection Summary		
HCM 2010 Ctrl Delay		87.0
HCM 2010 LOS		F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	406	621
Future Volume (veh/h)	406	621
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	423	647
Adj No. of Lanes	1	1
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	543	461
Arrive On Green	0.29	0.29
Sat Flow, veh/h	1863	1583
Grp Volume(v), veh/h	423	647
Grp Sat Flow(s),veh/h/ln	1863	1583
Q Serve(g_s), s	25.7	36.0
Cycle Q Clear(g_c), s	25.7	36.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	543	461
V/C Ratio(X)	0.78	1.40
Avail Cap(c_a), veh/h	543	461
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	40.1	43.8
Incr Delay (d2), s/veh	7.7	193.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	40.5
LnGrp Delay(d),s/veh	47.8	237.3
LnGrp LOS	D	F
Approach Vol, veh/h	1142	
Approach Delay, s/veh	156.2	
Approach LOS	F	

Timer

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1223	14	0	1277	0	84
Future Vol, veh/h	1223	14	0	1277	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1235	14	0	1290	0	85

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	625
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	428
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	428
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	428	-	-	-
HCM Lane V/C Ratio	0.198	-	-	-
HCM Control Delay (s)	15.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

Intersection						
Int Delay, s/veh	0.3					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1189	114	0	1277	0	46
Future Vol, veh/h	1189	114	0	1277	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1201	115	0	1290	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	658
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	407
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	407
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	407	-	-	-
HCM Lane V/C Ratio	0.114	-	-	-
HCM Control Delay (s)	15	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	737	138	79	215	1039	160	544
Future Volume (veh/h)	737	138	79	215	1039	160	544
Number	2	12		1	6	7	14
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	744	139		217	1049	343	356
Adj No. of Lanes	2	0		1	2	1	1
Peak Hour Factor	0.99	0.99		0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1479	276		245	2375	440	393
Arrive On Green	0.50	0.50		0.14	0.67	0.25	0.25
Sat Flow, veh/h	3071	556		1774	3632	1774	1583
Grp Volume(v), veh/h	442	441		217	1049	343	356
Grp Sat Flow(s),veh/h/ln	1770	1765		1774	1770	1774	1583
Q Serve(g_s), s	21.8	21.8		15.6	18.0	23.4	28.4
Cycle Q Clear(g_c), s	21.8	21.8		15.6	18.0	23.4	28.4
Prop In Lane		0.32		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	879	877		245	2375	440	393
V/C Ratio(X)	0.50	0.50		0.88	0.44	0.78	0.91
Avail Cap(c_a), veh/h	879	877		345	2375	558	498
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	0.45	0.45		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	21.9		55.0	10.0	45.6	47.4
Incr Delay (d2), s/veh	0.9	0.9		17.6	0.6	5.4	17.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	10.8		8.9	8.9	12.2	14.3
LnGrp Delay(d),s/veh	22.9	22.9		72.6	10.6	51.0	64.8
LnGrp LOS	C	C		E	B	D	E
Approach Vol, veh/h	883				1266	699	
Approach Delay, s/veh	22.9				21.2	58.0	
Approach LOS	C				C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.7	70.0		37.3		92.7		
Change Period (Y+Rc), s	* 4.7	5.4		5.1		5.4		
Max Green Setting (Gmax), s	* 25	48.6		40.9		78.6		
Max Q Clear Time (g_c+I1), s	17.6	23.8		30.4		20.0		
Green Ext Time (p_c), s	0.4	6.2		1.9		10.2		

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	0	635	197	1	675	541	0	0	0	0	204	0	168
Future Volume (veh/h)	0	635	197	1	675	541	0	0	0	0	204	0	168
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	1900		1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	655	203		696	558	0				210	0	173
Adj No. of Lanes	0	2	0		1	2	0				1	0	1
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2		2	2	0				2	0	2
Cap, veh/h	0	910	282		713	2760	0				247	0	221
Arrive On Green	0.00	0.34	0.34		0.67	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	2755	825		1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	435	423		696	558	0				210	0	173
Grp Sat Flow(s),veh/h/ln	0	1770	1717		1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	27.9	28.0		48.6	0.0	0.0				15.0	0.0	13.7
Cycle Q Clear(g_c), s	0.0	27.9	28.0		48.6	0.0	0.0				15.0	0.0	13.7
Prop In Lane	0.00		0.48		1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	605	587		713	2760	0				247	0	221
V/C Ratio(X)	0.00	0.72	0.72		0.98	0.20	0.00				0.85	0.00	0.78
Avail Cap(c_a), veh/h	0	605	587		796	2760	0				450	0	402
HCM Platoon Ratio	1.00	1.00	1.00		1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00		0.83	0.83	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	37.4	37.4		20.7	0.0	0.0				54.6	0.0	54.1
Incr Delay (d2), s/veh	0.0	7.2	7.5		22.2	0.1	0.0				8.0	0.0	6.0
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	14.9	14.5		27.6	0.1	0.0				7.9	0.0	6.4
LnGrp Delay(d),s/veh	0.0	44.6	44.8		42.9	0.1	0.0				62.6	0.0	60.1
LnGrp LOS		D	D		D	A					E		E
Approach Vol, veh/h		858				1254						383	
Approach Delay, s/veh		44.7				23.9						61.5	
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	57.0	49.8				106.8		23.2
Change Period (Y+Rc), s	* 4.7	5.4				5.4		5.1
Max Green Setting (Gmax), s	* 58	23.5				86.5		33.0
Max Q Clear Time (g_c+I1), s	50.6	30.0				2.0		17.0
Green Ext Time (p_c), s	1.7	0.0				4.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	43	243	343	88	10	46	605	78	257	512	106	82
Future Volume (veh/h)	43	243	343	88	10	46	605	78	257	512	106	82
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		253	357	92		48	630	81	268	533	110	85
Adj No. of Lanes		1	2	0		1	2	0	1	2	0	1
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		282	1007	256		62	746	96	232	1089	224	107
Arrive On Green		0.16	0.36	0.36		0.03	0.24	0.24	0.13	0.37	0.37	0.06
Sat Flow, veh/h		1774	2795	711		1774	3156	405	1774	2925	601	1774
Grp Volume(v), veh/h		253	224	225		48	353	358	268	322	321	85
Grp Sat Flow(s),veh/h/ln		1774	1770	1737		1774	1770	1791	1774	1770	1757	1774
Q Serve(g_s), s		16.7	11.1	11.3		3.2	22.7	22.7	15.6	16.6	16.8	5.6
Cycle Q Clear(g_c), s		16.7	11.1	11.3		3.2	22.7	22.7	15.6	16.6	16.8	5.6
Prop In Lane		1.00		0.41		1.00		0.23	1.00		0.34	1.00
Lane Grp Cap(c), veh/h		282	638	626		62	418	424	232	659	654	107
V/C Ratio(X)		0.90	0.35	0.36		0.78	0.84	0.85	1.15	0.49	0.49	0.79
Avail Cap(c_a), veh/h		411	723	710		143	450	455	232	659	654	188
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		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		49.2	27.9	28.0		57.1	43.4	43.4	51.8	28.7	28.7	55.3
Incr Delay (d2), s/veh		13.0	0.6	0.6		7.6	16.6	16.7	107.1	0.8	0.8	4.9
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
%ile BackOfQ(50%),veh/ln		9.2	5.5	5.5		1.7	13.0	13.2	14.5	8.3	8.3	2.9
LnGrp Delay(d),s/veh		62.2	28.5	28.6		64.7	60.0	60.1	158.9	29.5	29.6	60.1
LnGrp LOS		E	C	C		E	E	E	F	C	C	E
Approach Vol, veh/h			702				759			911		
Approach Delay, s/veh			40.7				60.4			67.6		
Approach LOS			D				E			E		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	48.3	20.0	42.4	23.3	33.5	11.6	50.8
Change Period (Y+Rc), s	4.4	* 5.3	4.4	6.4	4.4	5.3	4.4	* 6.4
Max Green Setting (Gmax), s	9.6	* 49	15.6	36.0	27.6	30.3	12.6	* 39
Max Q Clear Time (g_c+I1), s	5.2	13.3	17.6	38.0	18.7	24.7	7.6	18.8
Green Ext Time (p_c), s	0.0	4.8	0.0	0.0	0.2	3.4	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	64.4
HCM 2010 LOS	E

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	162	498
Future Volume (veh/h)	162	498
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	169	519
Adj No. of Lanes	1	1
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	563	478
Arrive On Green	0.30	0.30
Sat Flow, veh/h	1863	1583
Grp Volume(v), veh/h	169	519
Grp Sat Flow(s),veh/h/ln	1863	1583
Q Serve(g_s), s	8.3	36.0
Cycle Q Clear(g_c), s	8.3	36.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	563	478
V/C Ratio(X)	0.30	1.09
Avail Cap(c_a), veh/h	563	478
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	31.9	41.6
Incr Delay (d2), s/veh	0.5	66.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	24.5
LnGrp Delay(d),s/veh	32.4	107.8
LnGrp LOS	C	F
Approach Vol, veh/h	773	
Approach Delay, s/veh	86.1	
Approach LOS	F	
Timer		

Intersection						
Int Delay, s/veh	0.2					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	687	1	0	1397	0	37
Future Vol, veh/h	687	1	0	1397	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	708	1	0	1440	0	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	355
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	641
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	641
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	641	-	-	-
HCM Lane V/C Ratio	0.06	-	-	-
HCM Control Delay (s)	11	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	665	59	0	1397	0	23
Future Vol, veh/h	665	59	0	1397	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	686	61	0	1440	0	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	374
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	623
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	623
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	623	-	-	-
HCM Lane V/C Ratio	0.038	-	-	-
HCM Control Delay (s)	11	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	501	189	46	450	900	44	176
Future Volume (veh/h)	501	189	46	450	900	44	176
Number	2	12		1	6	7	14
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	516	195		464	928	108	113
Adj No. of Lanes	2	0		1	2	1	1
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1291	486		497	2935	160	143
Arrive On Green	0.17	0.17		0.28	0.83	0.09	0.09
Sat Flow, veh/h	2611	947		1774	3632	1774	1583
Grp Volume(v), veh/h	362	349		464	928	108	113
Grp Sat Flow(s),veh/h/ln	1770	1696		1774	1770	1774	1583
Q Serve(g_s), s	23.7	23.9		33.1	7.9	7.7	9.1
Cycle Q Clear(g_c), s	23.7	23.9		33.1	7.9	7.7	9.1
Prop In Lane		0.56		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	907	869		497	2935	160	143
V/C Ratio(X)	0.40	0.40		0.93	0.32	0.68	0.79
Avail Cap(c_a), veh/h	907	869		673	2935	423	378
HCM Platoon Ratio	0.33	0.33		1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	36.2		45.6	2.6	57.3	58.0
Incr Delay (d2), s/veh	1.0	1.0		16.6	0.3	4.9	9.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	11.5		18.5	3.9	4.0	4.4
LnGrp Delay(d),s/veh	37.1	37.3		62.2	2.9	62.2	67.4
LnGrp LOS	D	D		E	A	E	E
Approach Vol, veh/h	711				1392	221	
Approach Delay, s/veh	37.2				22.6	64.9	
Approach LOS	D				C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	41.2	72.0		16.8		113.2		
Change Period (Y+Rc), s	* 4.7	5.4		5.1		5.4		
Max Green Setting (Gmax), s	* 49	34.5		31.0		88.5		
Max Q Clear Time (g_c+I1), s	35.1	25.9		11.1		9.9		
Green Ext Time (p_c), s	1.3	2.9		0.6		8.6		

Intersection Summary	
HCM 2010 Ctrl Delay	31.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	487	192	554	396	0	0	0	0	206	0	112
Future Volume (veh/h)	0	487	192	554	396	0	0	0	0	206	0	112
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	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	507	200	577	412	0				215	0	117
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1007	395	598	2755	0				250	0	223
Arrive On Green	0.00	0.41	0.41	0.56	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	2578	975	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	360	347	577	412	0				215	0	117
Grp Sat Flow(s),veh/h/ln	0	1770	1691	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	19.8	19.9	40.5	0.0	0.0				15.4	0.0	8.9
Cycle Q Clear(g_c), s	0.0	19.8	19.9	40.5	0.0	0.0				15.4	0.0	8.9
Prop In Lane	0.00		0.58	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	717	685	598	2755	0				250	0	223
V/C Ratio(X)	0.00	0.50	0.51	0.97	0.15	0.00				0.86	0.00	0.52
Avail Cap(c_a), veh/h	0	717	685	686	2755	0				452	0	403
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.95	0.95	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	28.9	28.9	27.7	0.0	0.0				54.6	0.0	51.8
Incr Delay (d2), s/veh	0.0	2.5	2.7	23.6	0.1	0.0				8.5	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.1	9.8	23.4	0.0	0.0				8.1	0.0	4.0
LnGrp Delay(d),s/veh	0.0	31.4	31.6	51.3	0.1	0.0				63.1	0.0	53.7
LnGrp LOS		C	C	D	A					E		D
Approach Vol, veh/h		707			989						332	
Approach Delay, s/veh		31.5			30.0						59.8	
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	48.5	58.1				106.6		23.4
Change Period (Y+Rc), s	* 4.7	5.4				5.4		5.1
Max Green Setting (Gmax), s	* 50	31.4				86.4		33.1
Max Q Clear Time (g_c+I1), s	42.5	21.9				2.0		17.4
Green Ext Time (p_c), s	1.3	3.1				3.1		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		35.4
HCM 2010 LOS		D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	58	416	695	176	11	86	577	70	89	192	63	70
Future Volume (veh/h)	58	416	695	176	11	86	577	70	89	192	63	70
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		433	724	183		90	601	73	93	200	66	73
Adj No. of Lanes		1	2	0		1	2	0	1	2	0	1
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		457	915	231		283	738	90	95	770	247	93
Arrive On Green		0.26	0.33	0.33		0.16	0.23	0.23	0.05	0.29	0.29	0.05
Sat Flow, veh/h		1774	2800	708		1774	3179	385	1774	2637	846	1774
Grp Volume(v), veh/h		433	458	449		90	334	340	93	132	134	73
Grp Sat Flow(s),veh/h/ln		1774	1770	1738		1774	1770	1795	1774	1770	1714	1774
Q Serve(g_s), s		29.7	29.1	29.1		5.6	22.1	22.2	6.5	7.1	7.4	5.0
Cycle Q Clear(g_c), s		29.7	29.1	29.1		5.6	22.1	22.2	6.5	7.1	7.4	5.0
Prop In Lane		1.00		0.41		1.00		0.21	1.00		0.49	1.00
Lane Grp Cap(c), veh/h		457	578	568		283	411	417	95	517	500	93
V/C Ratio(X)		0.95	0.79	0.79		0.32	0.81	0.82	0.98	0.26	0.27	0.79
Avail Cap(c_a), veh/h		496	754	740		283	462	469	95	517	500	109
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		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		45.1	37.8	37.8		46.1	45.0	45.0	58.5	33.5	33.6	58.0
Incr Delay (d2), s/veh		25.8	5.8	5.9		0.2	14.0	14.0	86.5	0.4	0.4	22.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		17.8	15.2	14.9		2.7	12.4	12.6	5.4	3.5	3.5	3.1
LnGrp Delay(d),s/veh		70.9	43.6	43.7		46.3	58.9	59.0	145.0	33.9	34.1	80.8
LnGrp LOS		E	D	D		D	E	E	F	C	C	F
Approach Vol, veh/h			1340				764			359		
Approach Delay, s/veh			52.5				57.5			62.7		
Approach LOS			D				E			E		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	45.3	11.0	42.4	36.3	34.0	10.9	42.5
Change Period (Y+Rc), s	5.3	* 4.9	4.4	6.4	4.4	5.3	4.4	* 6.4
Max Green Setting (Gmax), s	14.6	* 53	6.6	36.0	34.6	32.3	7.6	* 35
Max Q Clear Time (g_c+I1), s	7.6	31.1	8.5	38.0	31.7	24.2	7.0	9.4
Green Ext Time (p_c), s	0.0	9.4	0.0	0.0	0.2	4.5	0.0	2.3

Intersection Summary		
HCM 2010 Ctrl Delay		88.9
HCM 2010 LOS		F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	410	625
Future Volume (veh/h)	410	625
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	427	651
Adj No. of Lanes	1	1
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	542	461
Arrive On Green	0.29	0.29
Sat Flow, veh/h	1863	1583
Grp Volume(v), veh/h	427	651
Grp Sat Flow(s),veh/h/ln	1863	1583
Q Serve(g_s), s	26.1	36.0
Cycle Q Clear(g_c), s	26.1	36.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	542	461
V/C Ratio(X)	0.79	1.41
Avail Cap(c_a), veh/h	542	461
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	40.4	43.9
Incr Delay (d2), s/veh	8.2	198.4
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.6	41.1
LnGrp Delay(d),s/veh	48.5	242.3
LnGrp LOS	D	F
Approach Vol, veh/h	1151	
Approach Delay, s/veh	160.2	
Approach LOS	F	
Timer		

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1288	2	0	1331	0	73
Future Vol, veh/h	1288	2	0	1331	0	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1301	2	0	1344	0	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	652
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	411
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	411
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	411	-	-	-
HCM Lane V/C Ratio	0.179	-	-	-
HCM Control Delay (s)	15.7	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

Intersection						
Int Delay, s/veh	0.2					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1255	103	0	1331	0	34
Future Vol, veh/h	1255	103	0	1331	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1268	104	0	1344	0	34

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	686
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	390
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	390
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	390	-	-	-
HCM Lane V/C Ratio	0.088	-	-	-
HCM Control Delay (s)	15.1	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	743	144	68	215	1048	167	547
Future Volume (veh/h)	743	144	68	215	1048	167	547
Number	2	12		1	6	7	14
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	751	145		217	1059	348	361
Adj No. of Lanes	2	0		1	2	1	1
Peak Hour Factor	0.99	0.99		0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1461	282		245	2365	446	398
Arrive On Green	0.49	0.49		0.14	0.67	0.25	0.25
Sat Flow, veh/h	3053	571		1774	3632	1774	1583
Grp Volume(v), veh/h	449	447		217	1059	348	361
Grp Sat Flow(s),veh/h/ln	1770	1762		1774	1770	1774	1583
Q Serve(g_s), s	22.4	22.4		15.6	18.4	23.8	28.8
Cycle Q Clear(g_c), s	22.4	22.4		15.6	18.4	23.8	28.8
Prop In Lane		0.32		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	874	870		245	2365	446	398
V/C Ratio(X)	0.51	0.51		0.88	0.45	0.78	0.91
Avail Cap(c_a), veh/h	874	870		345	2365	558	498
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	22.3		55.0	10.2	45.3	47.2
Incr Delay (d2), s/veh	0.2	0.2		17.6	0.6	5.6	17.8
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	10.9		8.9	9.2	12.3	14.5
LnGrp Delay(d),s/veh	22.5	22.5		72.6	10.8	50.9	65.0
LnGrp LOS	C	C		E	B	D	E
Approach Vol, veh/h	896				1276	709	
Approach Delay, s/veh	22.5				21.3	58.1	
Approach LOS	C				C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.7	69.6		37.7		92.3		
Change Period (Y+Rc), s	* 4.7	5.4		5.1		5.4		
Max Green Setting (Gmax), s	* 25	48.6		40.9		78.6		
Max Q Clear Time (g_c+I1), s	17.6	24.4		30.8		20.4		
Green Ext Time (p_c), s	0.4	6.3		1.9		10.4		

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	0	648	204	1	680	553	0	0	0	0	204	0	175
Future Volume (veh/h)	0	648	204	1	680	553	0	0	0	0	204	0	175
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	1900		1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	668	210		701	570	0				210	0	180
Adj No. of Lanes	0	2	0		1	2	0				1	0	1
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2		2	2	0				2	0	2
Cap, veh/h	0	899	282		718	2760	0				247	0	221
Arrive On Green	0.00	0.34	0.34		0.68	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	2745	833		1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	446	432		701	570	0				210	0	180
Grp Sat Flow(s),veh/h/ln	0	1770	1716		1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	28.9	29.0		48.9	0.0	0.0				15.0	0.0	14.3
Cycle Q Clear(g_c), s	0.0	28.9	29.0		48.9	0.0	0.0				15.0	0.0	14.3
Prop In Lane	0.00		0.49		1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	600	581		718	2760	0				247	0	221
V/C Ratio(X)	0.00	0.74	0.74		0.98	0.21	0.00				0.85	0.00	0.82
Avail Cap(c_a), veh/h	0	600	581		796	2760	0				450	0	402
HCM Platoon Ratio	1.00	1.00	1.00		1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00		0.82	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	38.0	38.0		20.5	0.0	0.0				54.6	0.0	54.3
Incr Delay (d2), s/veh	0.0	8.1	8.4		22.3	0.1	0.0				7.9	0.0	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.5	15.0		27.8	0.1	0.0				7.9	0.0	6.7
LnGrp Delay(d),s/veh	0.0	46.1	46.4		42.8	0.1	0.0				62.5	0.0	61.5
LnGrp LOS		D	D		D	A					E		E
Approach Vol, veh/h		878				1271						390	
Approach Delay, s/veh		46.2				23.7						62.0	
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	57.3	49.5				106.8		23.2
Change Period (Y+Rc), s	* 4.7	5.4				5.4		5.1
Max Green Setting (Gmax), s	* 58	23.5				86.5		33.0
Max Q Clear Time (g_c+I1), s	50.9	31.0				2.0		17.0
Green Ext Time (p_c), s	1.7	0.0				4.5		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	50	244	347	89	10	46	610	78	258	512	106	82
Future Volume (veh/h)	50	244	347	89	10	46	610	78	258	512	106	82
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		254	361	93		48	635	81	269	533	110	85
Adj No. of Lanes		1	2	0		1	2	0	1	2	0	1
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		282	1010	257		62	749	95	232	1087	223	107
Arrive On Green		0.16	0.36	0.36		0.03	0.24	0.24	0.13	0.37	0.37	0.06
Sat Flow, veh/h		1774	2795	711		1774	3159	402	1774	2925	601	1774
Grp Volume(v), veh/h		254	227	227		48	355	361	269	322	321	85
Grp Sat Flow(s),veh/h/ln		1774	1770	1737		1774	1770	1792	1774	1770	1757	1774
Q Serve(g_s), s		16.8	11.2	11.5		3.2	22.9	23.0	15.6	16.7	16.8	5.6
Cycle Q Clear(g_c), s		16.8	11.2	11.5		3.2	22.9	23.0	15.6	16.7	16.8	5.6
Prop In Lane		1.00		0.41		1.00		0.22	1.00		0.34	1.00
Lane Grp Cap(c), veh/h		282	640	628		62	419	425	232	658	653	107
V/C Ratio(X)		0.90	0.35	0.36		0.78	0.85	0.85	1.16	0.49	0.49	0.79
Avail Cap(c_a), veh/h		410	722	708		143	449	455	232	658	653	187
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		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		49.3	27.9	28.0		57.2	43.5	43.5	51.9	28.8	28.9	55.4
Incr Delay (d2), s/veh		13.2	0.6	0.6		7.6	17.0	17.1	109.4	0.8	0.8	4.9
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
%ile BackOfQ(50%),veh/ln		9.3	5.6	5.6		1.7	13.1	13.3	14.6	8.3	8.3	2.9
LnGrp Delay(d),s/veh		62.5	28.5	28.6		64.8	60.5	60.6	161.3	29.6	29.7	60.2
LnGrp LOS		E	C	C		E	E	E	F	C	C	E
Approach Vol, veh/h			708				764			912		
Approach Delay, s/veh			40.7				60.8			68.5		
Approach LOS			D				E			E		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	48.5	20.0	42.4	23.4	33.6	11.6	50.8
Change Period (Y+Rc), s	4.4	* 5.3	4.4	6.4	4.4	5.3	4.4	* 6.4
Max Green Setting (Gmax), s	9.6	* 49	15.6	36.0	27.6	30.3	12.6	* 39
Max Q Clear Time (g_c+I1), s	5.2	13.5	17.6	38.0	18.8	25.0	7.6	18.8
Green Ext Time (p_c), s	0.0	4.9	0.0	0.0	0.2	3.3	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	65.0
HCM 2010 LOS	E

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	162	499
Future Volume (veh/h)	162	499
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	169	520
Adj No. of Lanes	1	1
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	562	477
Arrive On Green	0.30	0.30
Sat Flow, veh/h	1863	1583
Grp Volume(v), veh/h	169	520
Grp Sat Flow(s),veh/h/ln	1863	1583
Q Serve(g_s), s	8.3	36.0
Cycle Q Clear(g_c), s	8.3	36.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	562	477
V/C Ratio(X)	0.30	1.09
Avail Cap(c_a), veh/h	562	477
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	32.0	41.7
Incr Delay (d2), s/veh	0.5	67.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	24.7
LnGrp Delay(d),s/veh	32.5	109.3
LnGrp LOS	C	F
Approach Vol, veh/h	774	
Approach Delay, s/veh	87.1	
Approach LOS	F	

Timer		

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	693	8	0	1411	0	44
Future Vol, veh/h	693	8	0	1411	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	714	8	0	1455	0	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	361
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	636
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	636
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	636	-	-	-
HCM Lane V/C Ratio	0.071	-	-	-
HCM Control Delay (s)	11.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	672	66	0	1411	0	29
Future Vol, veh/h	672	66	0	1411	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	693	68	0	1455	0	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	381
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	617
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	617
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	617	-	-	-
HCM Lane V/C Ratio	0.048	-	-	-
HCM Control Delay (s)	11.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	507	189	53	451	906	44	177
Future Volume (veh/h)	507	189	53	451	906	44	177
Number	2	12		1	6	7	14
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	523	195		465	934	109	114
Adj No. of Lanes	2	0		1	2	1	1
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1293	480		498	2932	161	144
Arrive On Green	0.17	0.17		0.28	0.83	0.09	0.09
Sat Flow, veh/h	2621	939		1774	3632	1774	1583
Grp Volume(v), veh/h	365	353		465	934	109	114
Grp Sat Flow(s),veh/h/ln	1770	1697		1774	1770	1774	1583
Q Serve(g_s), s	23.9	24.1		33.2	8.0	7.7	9.2
Cycle Q Clear(g_c), s	23.9	24.1		33.2	8.0	7.7	9.2
Prop In Lane		0.55		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	905	868		498	2932	161	144
V/C Ratio(X)	0.40	0.41		0.93	0.32	0.68	0.79
Avail Cap(c_a), veh/h	905	868		673	2932	423	378
HCM Platoon Ratio	0.33	0.33		1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	36.4		45.5	2.6	57.3	57.9
Incr Delay (d2), s/veh	1.0	1.1		16.7	0.3	4.9	9.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	11.6		18.6	3.9	4.0	4.4
LnGrp Delay(d),s/veh	37.4	37.5		62.2	2.9	62.2	67.4
LnGrp LOS	D	D		E	A	E	E
Approach Vol, veh/h	718				1399	223	
Approach Delay, s/veh	37.4				22.6	64.8	
Approach LOS	D				C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	41.2	71.9		16.9		113.1		
Change Period (Y+Rc), s	* 4.7	5.4		5.1		5.4		
Max Green Setting (Gmax), s	* 49	34.5		31.0		88.5		
Max Q Clear Time (g_c+I1), s	35.2	26.1		11.2		10.0		
Green Ext Time (p_c), s	1.3	2.9		0.6		8.7		

Intersection Summary			
HCM 2010 Ctrl Delay			31.2
HCM 2010 LOS			C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	491	192	555	400	0	0	0	0	207	0	112
Future Volume (veh/h)	0	491	192	555	400	0	0	0	0	207	0	112
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	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	511	200	578	417	0				216	0	117
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1007	392	599	2753	0				251	0	224
Arrive On Green	0.00	0.40	0.40	0.56	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	2584	970	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	362	349	578	417	0				216	0	117
Grp Sat Flow(s),veh/h/ln	0	1770	1692	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	19.9	20.1	40.5	0.0	0.0				15.5	0.0	8.9
Cycle Q Clear(g_c), s	0.0	19.9	20.1	40.5	0.0	0.0				15.5	0.0	8.9
Prop In Lane	0.00		0.57	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	715	684	599	2753	0				251	0	224
V/C Ratio(X)	0.00	0.51	0.51	0.97	0.15	0.00				0.86	0.00	0.52
Avail Cap(c_a), veh/h	0	715	684	686	2753	0				452	0	403
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.95	0.95	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.0	29.1	27.6	0.0	0.0				54.6	0.0	51.7
Incr Delay (d2), s/veh	0.0	2.6	2.7	23.7	0.1	0.0				8.5	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.3	9.9	23.5	0.0	0.0				8.2	0.0	4.0
LnGrp Delay(d),s/veh	0.0	31.6	31.8	51.3	0.1	0.0				63.0	0.0	53.6
LnGrp LOS		C	C	D	A					E		D
Approach Vol, veh/h		711			995						333	
Approach Delay, s/veh		31.7			29.9						59.7	
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	48.6	57.9				106.5		23.5
Change Period (Y+Rc), s	* 4.7	5.4				5.4		5.1
Max Green Setting (Gmax), s	* 50	31.4				86.4		33.1
Max Q Clear Time (g_c+I1), s	42.5	22.1				2.0		17.5
Green Ext Time (p_c), s	1.3	3.1				3.1		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	35.4
HCM 2010 LOS	D

Notes

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	70	418	702	179	11	86	584	70	92	192	63	70
Future Volume (veh/h)	70	418	702	179	11	86	584	70	92	192	63	70
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900		1863	1863	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		435	731	186		90	608	73	96	200	66	73
Adj No. of Lanes		1	2	0		1	2	0	1	2	0	1
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		460	922	234		276	733	88	95	771	247	93
Arrive On Green		0.26	0.33	0.33		0.16	0.23	0.23	0.05	0.29	0.29	0.05
Sat Flow, veh/h		1774	2796	711		1774	3183	382	1774	2637	846	1774
Grp Volume(v), veh/h		435	463	454		90	337	344	96	132	134	73
Grp Sat Flow(s),veh/h/ln		1774	1770	1737		1774	1770	1795	1774	1770	1714	1774
Q Serve(g_s), s		29.7	29.3	29.3		5.6	22.4	22.5	6.6	7.1	7.4	5.0
Cycle Q Clear(g_c), s		29.7	29.3	29.3		5.6	22.4	22.5	6.6	7.1	7.4	5.0
Prop In Lane		1.00		0.41		1.00		0.21	1.00		0.49	1.00
Lane Grp Cap(c), veh/h		460	583	573		276	407	413	95	517	501	93
V/C Ratio(X)		0.95	0.79	0.79		0.33	0.83	0.83	1.01	0.26	0.27	0.79
Avail Cap(c_a), veh/h		511	754	741		276	448	455	95	517	501	109
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		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		44.9	37.6	37.6		46.4	45.2	45.3	58.5	33.4	33.6	57.9
Incr Delay (d2), s/veh		24.7	5.8	6.0		0.3	15.5	15.5	96.2	0.4	0.4	22.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		17.8	15.2	15.0		2.7	12.7	12.9	5.7	3.5	3.5	3.1
LnGrp Delay(d),s/veh		69.6	43.4	43.6		46.7	60.7	60.8	154.8	33.8	34.0	80.7
LnGrp LOS		E	D	D		D	E	E	F	C	C	F
Approach Vol, veh/h			1352				771			362		
Approach Delay, s/veh			51.9				59.1			66.0		
Approach LOS			D				E			E		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.6	45.7	11.0	42.4	36.4	33.8	10.9	42.5
Change Period (Y+Rc), s	5.3	* 4.9	4.4	6.4	4.4	5.3	4.4	* 6.4
Max Green Setting (Gmax), s	14.6	* 53	6.6	36.0	35.6	31.3	7.6	* 35
Max Q Clear Time (g_c+I1), s	7.6	31.3	8.6	38.0	31.7	24.5	7.0	9.4
Green Ext Time (p_c), s	0.0	9.4	0.0	0.0	0.3	4.0	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	89.4
HCM 2010 LOS	F

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	410	627
Future Volume (veh/h)	410	627
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	427	653
Adj No. of Lanes	1	1
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	543	461
Arrive On Green	0.29	0.29
Sat Flow, veh/h	1863	1583
Grp Volume(v), veh/h	427	653
Grp Sat Flow(s),veh/h/ln	1863	1583
Q Serve(g_s), s	26.1	36.0
Cycle Q Clear(g_c), s	26.1	36.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	543	461
V/C Ratio(X)	0.79	1.42
Avail Cap(c_a), veh/h	543	461
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	40.3	43.8
Incr Delay (d2), s/veh	8.1	199.7
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.6	41.3
LnGrp Delay(d),s/veh	48.4	243.5
LnGrp LOS	D	F
Approach Vol, veh/h	1153	
Approach Delay, s/veh	160.9	
Approach LOS	F	
Timer		

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1244	14	0	1299	0	85
Future Vol, veh/h	1244	14	0	1299	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1257	14	0	1312	0	86

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	636
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	421
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	421
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	421	-	-	-
HCM Lane V/C Ratio	0.204	-	-	-
HCM Control Delay (s)	15.7	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1210	115	0	1299	0	46
Future Vol, veh/h	1210	115	0	1299	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1222	116	0	1312	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	669
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	400
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	400
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	400	-	-	-
HCM Lane V/C Ratio	0.116	-	-	-
HCM Control Delay (s)	15.2	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	753	144	80	217	1058	167	549
Future Volume (veh/h)	753	144	80	217	1058	167	549
Number	2	12		1	6	7	14
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900		1863	1863	1863	1863
Adj Flow Rate, veh/h	761	145		219	1069	349	362
Adj No. of Lanes	2	0		1	2	1	1
Peak Hour Factor	0.99	0.99		0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1460	278		247	2362	447	399
Arrive On Green	0.49	0.49		0.14	0.67	0.25	0.25
Sat Flow, veh/h	3060	565		1774	3632	1774	1583
Grp Volume(v), veh/h	454	452		219	1069	349	362
Grp Sat Flow(s),veh/h/ln	1770	1763		1774	1770	1774	1583
Q Serve(g_s), s	22.8	22.8		15.8	18.7	23.8	28.8
Cycle Q Clear(g_c), s	22.8	22.8		15.8	18.7	23.8	28.8
Prop In Lane		0.32		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	871	867		247	2362	447	399
V/C Ratio(X)	0.52	0.52		0.89	0.45	0.78	0.91
Avail Cap(c_a), veh/h	871	867		345	2362	558	498
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	22.6		54.9	10.3	45.3	47.2
Incr Delay (d2), s/veh	0.2	0.2		17.9	0.6	5.6	17.8
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	11.1		9.0	9.3	12.3	14.5
LnGrp Delay(d),s/veh	22.8	22.8		72.8	10.9	50.9	65.0
LnGrp LOS	C	C		E	B	D	E
Approach Vol, veh/h	906				1288	711	
Approach Delay, s/veh	22.8				21.5	58.1	
Approach LOS	C				C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.8	69.4		37.8		92.2		
Change Period (Y+Rc), s	* 4.7	5.4		5.1		5.4		
Max Green Setting (Gmax), s	* 25	48.6		40.9		78.6		
Max Q Clear Time (g_c+I1), s	17.8	24.8		30.8		20.7		
Green Ext Time (p_c), s	0.4	6.4		1.9		10.5		

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	0	655	204	1	682	560	0	0	0	0	206	0	175
Future Volume (veh/h)	0	655	204	1	682	560	0	0	0	0	206	0	175
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	1900		1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	675	210		703	577	0				212	0	180
Adj No. of Lanes	0	2	0		1	2	0				1	0	1
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2		2	2	0				2	0	2
Cap, veh/h	0	896	278		720	2756	0				249	0	223
Arrive On Green	0.00	0.34	0.34		0.68	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	2753	827		1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	449	436		703	577	0				212	0	180
Grp Sat Flow(s),veh/h/ln	0	1770	1717		1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	29.3	29.3		49.1	0.0	0.0				15.2	0.0	14.3
Cycle Q Clear(g_c), s	0.0	29.3	29.3		49.1	0.0	0.0				15.2	0.0	14.3
Prop In Lane	0.00		0.48		1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	596	578		720	2756	0				249	0	223
V/C Ratio(X)	0.00	0.75	0.75		0.98	0.21	0.00				0.85	0.00	0.81
Avail Cap(c_a), veh/h	0	596	578		796	2756	0				450	0	402
HCM Platoon Ratio	1.00	1.00	1.00		1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00		0.82	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	38.3	38.3		20.4	0.0	0.0				54.5	0.0	54.2
Incr Delay (d2), s/veh	0.0	8.6	8.8		22.4	0.1	0.0				7.9	0.0	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.8	15.3		27.9	0.1	0.0				8.0	0.0	6.7
LnGrp Delay(d),s/veh	0.0	46.9	47.2		42.7	0.1	0.0				62.4	0.0	61.0
LnGrp LOS		D	D		D	A					E		E
Approach Vol, veh/h		885				1280						392	
Approach Delay, s/veh		47.0				23.5						61.8	
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	57.5	49.2				106.6		23.4
Change Period (Y+Rc), s	* 4.7	5.4				5.4		5.1
Max Green Setting (Gmax), s	* 58	23.5				86.5		33.0
Max Q Clear Time (g_c+I1), s	51.1	31.3				2.0		17.2
Green Ext Time (p_c), s	1.7	0.0				4.6		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		37.5
HCM 2010 LOS		D

Notes

Appendix E

Historical Traffic Counts

id	street_name	limits	all_count	northbound_count	southbound_count	eastbound_count	westbound_count	total_count	file_no	count_date
HILLTOPDR013315	HILLTOP DR	51 ST - EUCLID AV				1485	764	2249	0133-15	4/2/2015 0:00
HILLTOPDR001105	HILLTOP DR	TOYNE ST - 44 ST				1880	1520	3400	0011-05	1/26/2005 0:00
HILLTOPDR002108	HILLTOP DR	TOYNE ST - 44 ST				1350	1290	2640	0021-08	2/20/2008 0:00
HILLTOPDR020711	HILLTOP DR	TOYNE ST - 44 ST				1525	1360	2885	0207-11	3/29/2011 0:00
HILLTOPDR056914	HILLTOP DR	TOYNE ST - 44 ST				1565	1490	3055	0569-14	6/25/2014 0:00
HILLTOPDR038617	HILLTOP DR	TOYNE ST - 44 ST				1709	1680	3389	0386-17	1/18/2018 0:00
HOLIDAYCT087710	HOLIDAY CT	VILLA LA JOLLA DR - END				705	870	1575	0877-10	9/8/2010 0:00
HOLIDAYCT052904	HOLIDAY CT	VILLA LA JOLLA DR - SAN DIEGO				2190	1800	3990	0529-04	7/27/2004 0:00
HOLLISTERST122902	HOLLISTER ST	ATHERTON AV - SUNSET AV	0					0	1229-02	12/4/2002 0:00
HOLLISTERST065208	HOLLISTER ST	ATHERTON AV - SUNSET AV		825	855			1680	0652-08	12/10/2008 0:00
HOLLISTERST112111	HOLLISTER ST	ATHERTON AV - SUNSET AV		905	870			1775	1121-11	12/1/2011 0:00
HOLLISTERST057514	HOLLISTER ST	ATHERTON AV - SUNSET AV		1078	1107			2185	0575-14	6/26/2014 0:00
HOLLISTERST062707	HOLLISTER ST	FLOWER AV - STARBURST LN		5250	5840			11090	0627-07	1/23/2008 0:00
HOLLISTERST085303	HOLLISTER ST	IRIS AV - LEON AV		2810	3750			6560	0853-03	12/12/2003 0:00
HOLLISTERST056806	HOLLISTER ST	IRIS AV - LEON AV		3040	3430			6470	0568-06	12/12/2006 0:00
HOLLISTERST082509	HOLLISTER ST	IRIS AV - LEON AV		2895	3490			6385	0825-09	12/3/2009 0:00
HOLLISTERST084012	HOLLISTER ST	IRIS AV - LEON AV		1803	2130			3933	0840-12	10/2/2012 0:00
HOLLISTERST061216	HOLLISTER ST	IRIS AV - LEON AV		3987	4054			8041	0612-16	12/14/2016 0:00
HOLLISTERST083303	HOLLISTER ST	LEON AV - TOCAYO AV		5310	5530			10840	0833-03	12/10/2003 0:00
HOLLISTERST056706	HOLLISTER ST	LEON AV - TOCAYO AV		5750	6360			12110	0567-06	12/12/2006 0:00
HOLLISTERST082409	HOLLISTER ST	LEON AV - TOCAYO AV		5870	5770			11640	0824-09	12/3/2009 0:00
HOLLISTERST083912	HOLLISTER ST	LEON AV - TOCAYO AV		3985	4117			8102	0839-12	10/2/2012 0:00
HOLLISTERST061116	HOLLISTER ST	LEON AV - TOCAYO AV		3367	3464			6831	0611-16	12/13/2016 0:00
HOLLISTERST063607	HOLLISTER ST	MAIN SB ST - MANYA ST		3110	3010			6120	0636-07	1/23/2008 0:00
HOLLISTERST013311	HOLLISTER ST	MAIN SB ST - MANYA ST		2905	2920			5825	0133-11	3/3/2011 0:00
HOLLISTERST057614	HOLLISTER ST	MAIN SB ST - MANYA ST		2930	2974			5904	0576-14	6/26/2014 0:00
HOLLISTERST062807	HOLLISTER ST	PALM AV - DONAX AV		2450	2480			4930	0628-07	1/23/2008 0:00
HOLLISTERST087810	HOLLISTER ST	SUNSET AV - MONUMENT RD		510	450			960	0878-10	9/8/2010 0:00
HOLLISTERST089113	HOLLISTER ST	SUNSET AV - MONUMENT RD		680	599			1279	0891-13	11/19/2013 0:00
HOLLYDR102910	HOLLY DR	EUCLID AV - WILLIE JAMES JONES AV				740	1000	1740	1029-10	10/28/2010 0:00
HOLLYDR106413	HOLLY DR	EUCLID AV - WILLIE JAMES JONES AV				582	768	1350	1064-13	1/28/2014 0:00
HOMEAV101015	HOME AV	46 ST - FAIRMOUNT AV		8507	9190			17697	1010-15	11/5/2015 0:00
HOMEAV031804	HOME AV	BEECH ST - GATEWAY DR		8030	8300			16330	0318-04	4/7/2004 0:00
HOMEAV023107	HOME AV	BEECH ST - GATEWAY DR		7596	7697			15293	0231-07	4/4/2007 0:00
HOMEAV024610	HOME AV	BEECH ST - GATEWAY DR		8415	8625			17040	0246-10	4/22/2010 0:00
HOMEAV033913	HOME AV	BEECH ST - GATEWAY DR		7949	7972			15921	0339-13	4/17/2013 0:00
HOMEAV014018	HOME AV	BEECH ST - GATEWAY DR		9503	8760			18263	0140-18	4/3/2018 0:00
HOMEAV032004	HOME AV	FAIRMOUNT AV - 45 ST		9160	8980			18140	0320-04	4/7/2004 0:00
HOMEAV023207	HOME AV	FAIRMOUNT AV - 45 ST		8930	9850			18780	0232-07	4/4/2007 0:00
HOMEAV024710	HOME AV	FAIRMOUNT AV - 45 ST		8605	8700			17305	0247-10	4/20/2010 0:00
HOMEAV025213	HOME AV	FAIRMOUNT AV - 45 ST		8581	8788			17369	0252-13	3/14/2013 0:00
HOMEAV014118	HOME AV	FAIRMOUNT AV - 45 ST		9297	8295			17592	0141-18	4/3/2018 0:00
HOMEAV031516	HOME AV	GATEWAY DR - SPILLMAN DR				8232	9110	17342	0315-16	8/10/2016 0:00
HOMEAV059011	HOME AV	SD 094 - FEDERAL AV		11365	305			11670	0590-11	6/28/2011 0:00
HOMEAV057714	HOME AV	SD 094 - FEDERAL AV		5110	170			5280	0577-14	6/24/2014 0:00
HOMEAV035002	HOME AV	SD 805 - FAIRMOUNT AV		17030	16780			33810	0350-02	3/19/2002 0:00
HOMEAV015703	HOME AV	SD 805 - FAIRMOUNT AV		18710	16850			35560	0157-03	1/23/2003 0:00
HOMEAV318306	HOME AV	SD 805 - FAIRMOUNT AV				16589	16753	33342	3183-06	5/4/2006 0:00
HOMEAV021506	HOME AV	SD 805 - FAIRMOUNT AV		16750	16590			33340	0215-06	5/4/2006 0:00
HOMEAV032409	HOME AV	SD 805 - FAIRMOUNT AV		20695	16600			37295	0324-09	5/27/2009 0:00
HOMEAV040012	HOME AV	SD 805 - FAIRMOUNT AV		17063	20185			37248	0400-12	5/10/2012 0:00
HOMEAV042715	HOME AV	SD 805 - FAIRMOUNT AV				15983	16611	32594	0427-15	6/9/2015 0:00
HOMEAV010616	HOME AV	SD 805 - FAIRMOUNT AV				16423	17584	34007	0106-16	5/12/2016 0:00
HOMEAV034802	HOME AV	SPILLMAN DR - HIXSON AV		9580	11420			21000	0348-02	3/21/2002 0:00
HOMEAV022005	HOME AV	SPILLMAN DR - HIXSON AV		9410	9330			18740	0220-05	4/27/2005 0:00
HOMEAV020708	HOME AV	SPILLMAN DR - HIXSON AV		8860	8800			17660	0207-08	5/20/2008 0:00
HOMEAV040011	HOME AV	SPILLMAN DR - HIXSON AV		8675	8750			17425	0400-11	6/16/2011 0:00
HOMEAV057814	HOME AV	SPILLMAN DR - HIXSON AV		8351	8285			16636	0578-14	6/24/2014 0:00
HOMEAV027818	HOME AV	SPILLMAN DR - HIXSON AV				8854	8949	17803	0278-18	4/26/2018 0:00
HONEYDR047902	HONEY DR	DOCK CT - KNOTT ST		460	360			820	0479-02	4/24/2002 0:00
HOTELCIRCLEN076304	HOTEL CIRCLE N	CAMINO REINA - FASHION VY RD				8370	9030	17400	0763-04	10/19/2004 0:00
HOTELCIRCLEN050507	HOTEL CIRCLE N	CAMINO REINA - FASHION VY RD				6990	6300	13290	0505-07	1/9/2008 0:00
HOTELCIRCLEN004411	HOTEL CIRCLE N	CAMINO REINA - FASHION VY RD				5105	4260	9365	0044-11	1/25/2011 0:00

37248/33810 = 1.10
1.10 - 1 = 10% growth over
10 years (1% annual growth
rate)

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

GEOTECHNICAL INVESTIGATION

4333 HOME AVENUE
SAN DIEGO, CALIFORNIA

PREPARED FOR

AVAD INVESTMENTS, INC.
SAN DIEGO, CALIFORNIA

AUGUST 30, 2018
PROJECT NO. G2306-42-01

GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. G2306-42-01
August 30, 2018

AVAD Investments, Inc.
4333 Home Avenue
San Diego, California 92105

Attention: Mr. Arkan Somo

Subject: GEOTECHNICAL INVESTIGATION
4333 HOME AVENUE
SAN DIEGO, CALIFORNIA

Dear Mr. Somo:

In accordance with your authorization and our proposal (LG-18245, dated July 16, 2018), we herein submit our geotechnical investigation for the subject project. The accompanying report presents the findings, conclusions, and recommendations pertinent to the project. Based on the results of our study, it is our opinion that the subject site can be developed as proposed, provided the recommendations of this report are followed.

If you have any questions regarding this investigation, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

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CERTIFIED ENGINEERING GEOLOGIST
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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a geotechnical investigation for the property located at 4333 and 4337 Home Avenue, San Diego, California (see *Vicinity Map,* Figure 1). The purpose of this investigation was to evaluate site geology, observe and sample the prevailing soil conditions at the site, and to provide recommendations pertinent to the geotechnical aspects of constructing the proposed improvements.

The scope of our investigation included a review of relevant published reports, a site reconnaissance, a field investigation, laboratory testing, engineering analyses, and preparation of this report. The field investigation was performed on July 30, 2018 and consisted of drilling one, small-diameter boring at the location shown on the *Site Plan,* Figure 2. The base map used to plot the boring location was taken from the plan prepared by Gary Engineering, Inc., titled *Concept Grading & Drainage Plan For: Home Avenue & 805,* dated February 26, 2018. A log of the exploratory boring and other details of the field investigation are presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained from the borings to evaluate their pertinent physical and chemical properties for engineering analyses. A discussion pertaining to the laboratory testing and results is presented in Appendix B.

The recommendations presented herein are based on our analysis of the data obtained from the exploratory boring, laboratory tests and our experience with similar soil and geologic conditions.

2. SITE AND PROJECT DESCRIPTION

The project is situated on a rectangular, 1.1-acre, site currently occupied by a convenience store; fueling islands; paved parking lot; and landscape areas. A concrete-lined drainage channel is located along the southeastern boundary of the property. Grades on the property currently slope from northeast to southwest with elevations varying from approximately 145 feet Mean Sea Level (MSL) to 137 feet MSL.

Based on review of the concept grading plan, we understand the project will consist of grading a portion of the property in order to construct a new, two-story, wood-framed commercial building. The structure will be approximately 80 feet long by 15 feet wide and will be constructed along the eastern boundary of the property. Earthwork necessary to attain finish elevation is expected to consist minor cuts and fills of less than 2 feet.

3. PREVIOUS GRADING

It appears grading occurred on the property to construct the convenience store and fueling islands in 1999 based on a reference in the report titled *Grading Observations and Soil Compaction Test Results, Proposed ARCO AM/PM Facility, On-Site Pavement Areas, 4333 Home Avenue, I-805 and Home Avenue, San Diego, California*, prepared by SECOR International Incorporated, dated July 10, 2000. This report was specific to the pavement areas, but referenced an interim grading report dated November 2, 1999. The November 1999 grading report for the property was not available for our review. Based on our review of the July 2000 report, grading within parking lots and driveways consisted of overexcavating the upper 2 feet below existing grade or proposed subgrade and replacing with compacted fill. At the northeast corner of site, it appears excavations extended to depths of 4 to 9 feet.

4. SOIL AND GEOLOGIC CONDITIONS

The field investigation data indicates that site is underlain by previously placed fill and alluvial deposits overlying San Diego Formation (Kennedy and Tan, 2008). The geologic units are described below.

4.1 Previously Placed Fill (Qpf)

Previously placed fill was encountered in the exploratory boring extending to a depth of approximately 4 feet below ground surface. Where observed, the undocumented fill generally consisted of dense; moist; brown; clayey sand with gravel and cobble. The upper portion of the previously placed fill will require remedial grading for support of the proposed improvements.

4.2 Alluvial Deposits (Qal)

Alluvial deposits were encountered in the exploratory boring beneath the fill. Where observed, the alluvial deposits generally consisted of: dense; moist; light olive; silty sand with abundant gravel and cobble.

4.3 San Diego Formation (Tsd)

Tertiary age San Diego Formation was encountered beneath the alluvium at a depth of 12 feet below ground surface. Where observed the San Diego formation consisted of dense; moist; light olive; silty fine sand. The San Diego formation soils are suitable for the support of settlement-sensitive improvements.

5. GROUNDWATER

No groundwater was encountered during our investigation. Groundwater is not expected to significantly affect project development as presently proposed; however, it is not uncommon for groundwater or seepage conditions to develop where none previously existed. Proper surface drainage of irrigation and rainwater will be critical to future performance of the project.

6. GEOLOGIC HAZARDS

6.1 Geologic Hazard Category

The City of San Diego (2008) designates the site as Geologic Hazard Category 32: *Liquefaction – Low Potential – fluctuating groundwater, minor drainages*.

6.2 Ground Rupture

No evidence of faulting was observed during our investigation. The USGS (2016) and City of San Diego (2008) shows that there are no mapped Quaternary faults crossing or trending toward the property. The site is not located within a currently established Alquist-Priolo Earthquake Fault Zone. No active faults are known to exist at the site. The nearest active fault, the Newport Inglewood/Rose Canyon Fault Zone, lies approximately 3.7 miles west of the site. The risk associated with ground rupture hazard is low.

6.3 Seismicity

We performed a deterministic seismic hazard analysis using Risk Engineering (2015). Six known active faults were located within a search radius of 50 miles from the property. We used the 2008 USGS fault database, which provides several models and combinations of fault data, to evaluate the fault information. Based on this database, the Newport-Inglewood/Rose Canyon and Rose Canyon Fault Zones, located approximately 5 miles west of the site, are the nearest known active faults and are the dominant source of potential ground motion. Earthquakes that might occur on the Newport-Inglewood/Rose Canyon and Rose Canyon Fault Zones or other faults within the southern California and northern Baja California area are potential generators of significant ground motion at the site. The estimated maximum earthquake magnitude and peak ground acceleration for the Newport-Inglewood/Rose Canyon Fault are 7.5 and 0.43g, respectively. The table below lists the estimated maximum earthquake magnitude and peak ground acceleration for the most dominant faults in relation to the site. We calculated peak ground acceleration (PGA) using Boore and Atkinson (2008), Campbell and Bozorgnia (2008), and Chiou and Youngs (2008) acceleration-attenuation relationships.

TABLE 5.3.1
DETERMINISTIC SPECTRA SITE PARAMETERS

Fault Name	Distance from Site (miles)	Maximum Earthquake Magnitude (Mw)	Peak Ground Acceleration		
			Boore-Atkinson 2008 (g)	Campbell-Bozorgnia 2008 (g)	Chiou-Youngs 2008 (g)
Newport-Inglewood/Rose Canyon	3.7	7.5	0.36	0.34	0.43
Rose Canyon	3.7	6.9	0.32	0.33	0.38
Coronado Bank	15.4	7.4	0.21	0.16	0.19
Palos Verdes/Coronado Bank	15.4	7.7	0.23	0.17	0.22
Elsinore	37.8	7.85	0.15	0.09	0.12
Earthquake Valley	43.3	6.8	0.09	0.06	0.04

In the event of a major earthquake on the referenced faults or other significant faults in the southern California and northern Baja California area, the site could be subjected to moderate to severe ground shaking. With respect to this hazard, the site is considered comparable to others in the general vicinity.

We performed a probabilistic seismic hazard analysis for the site using Risk Engineering (2015). The computer program assumes that the occurrence rate of earthquakes on each mapped Quaternary fault is proportional to the fault slip rate. The program accounts for earthquake magnitude as a function of fault rupture length, and site acceleration estimates are made using the earthquake magnitude and distance from the site to the rupture zone. The program also accounts for uncertainty in each of following: (1) earthquake magnitude, (2) rupture length for a given magnitude, (3) location of the rupture zone, (4) maximum possible magnitude of a given earthquake, and (5) acceleration at the site from a given earthquake along each fault. By calculating the expected accelerations from considered earthquake sources, the program calculates the total average annual expected number of occurrences of site acceleration greater than a specified value. We used acceleration-attenuation relationships suggested by Boore-Atkinson (2008), Campbell-Bozorgnia (2008), and Chiou-Youngs (2008) in the analysis. Table 5.3.2 presents the site-specific probabilistic seismic hazard parameters including acceleration-attenuation relationships and the probability of exceedence.

TABLE 5.3.2
PROBABILISTIC SEISMIC HAZARD PARAMETERS

Probability of Exceedence	Peak Ground Acceleration		
	Boore-Atkinson, 2008 (g)	Campbell-Bozorgnia, 2008 (g)	Chiou-Youngs, 2008 (g)
2% in a 50 Year Period	0.50	0.44	0.52
5% in a 50 Year Period	0.35	0.31	0.36
10% in a 50 Year Period	0.26	0.23	0.24

While listing peak accelerations is useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site. Seismic design of the structures should be evaluated in accordance with the California Building Code (CBC) guidelines.

6.4 Liquefaction and Seismically Induced Settlement

Due to the dense subsurface soils and formational bedrock, and the lack of a permanent groundwater table, it is our opinion that liquefaction should not occur. The risk associated with seismically induced soil liquefaction hazard is low.

6.5 Landslides

No evidence of landsliding was encountered at the site during the geotechnical investigation or in our review of historic, stereoscopic aerial photographs (USDA, 1953).

The risk associated with ground movement hazard due to landsliding is low.

6.6 Subsidence

Based on the subsurface soil conditions encountered during our field investigation, the risk associated with ground subsidence hazard is low.

6.7 Seiches and Tsunamis

The site is not located within a tsunami inundation zone as defined by California Geological. Elevation at the site is approximately 144 feet MSL. There are no lakes or reservoirs are located near the site. The risk associated with inundation hazard due to tsunamis or seiches is low.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 From a geotechnical standpoint, it is our opinion that the site is suitable for the proposed development, provided the recommendations presented herein are implemented in design and construction of the project.

7.1.2 Subsurface conditions, as observed in our borings, are expected to be relatively consistent across the site; however, variations in subsurface conditions are possible.

7.1.3 Our field investigation indicates that the site is underlain by previously placed fill, alluvium, and San Diego Formation. Remedial grading is recommended in the undocumented fill to support the proposed building.

7.1.4 Groundwater and/or seepage-related problems are not anticipated, provided that surface drainage is directed into properly designed drainage structures and away from pavement edges, buildings and other moisture-sensitive developments.

7.1.5 With the exception of the possibility of strong seismic shaking, no significant geologic hazards were observed or are known to exist at the site or other locations that could adversely affect the proposed project.

7.1.6 Based on our research no active, potentially active, or activity unknown faults are mapped crossing the site or are trending toward the site.

7.1.7 The proposed project does not include appreciable changes to final grade; therefore, the proposed structural loading will be similar in magnitude to current loading. It is our opinion that the proposed development will not destabilize or result in settlement of adjacent properties including the concrete-lined drainage channel along the southeastern boundary.

7.1.8 The risk associated with geologic hazards due to liquefaction, ground rupture, landslides, seiches and tsunamis is low.

7.1.9 The planned structures can be supported on a conventional, shallow-footing system founded on properly compacted fill.

7.2 Soil and Excavation Characteristics

7.2.1 Excavation of the previously placed fill and alluvial deposits should be possible with moderate to heavy effort using conventional heavy-duty equipment.

7.2.2 We expect on-site soil to be “expansive” (expansion index [EI] greater than 20) as defined by 2016 California Building Code (CBC) Section 1803.5.3. Table 6.2 presents soil classifications based on the expansion index. The on-site soils possess a “low” expansion potential.

TABLE 6.2
EXPANSION CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	Expansion Classification	2016 CBC Expansion Classification
0 – 20	Very Low	Non-Expansive
21 – 50	Low	Expansive
51 – 90	Medium	
91 – 130	High	
Greater Than 130	Very High	

7.2.3 We performed laboratory tests on samples of the site materials to evaluate the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate content tests are presented in Appendix B and indicate that the on-site materials at the locations tested possess “Not Applicable” and “S0” sulfate exposure to concrete structures as defined by 2016 CBC Section 1904 and ACI 318-08 Sections 4.2 and 4.3. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.

7.2.4 Potential of Hydrogen (pH) and resistivity tests were performed on a sample of the site materials to evaluate the corrosion potential to subsurface structures. The tests were performed in accordance with California Test Method No. 643, and indicate a “mildly to moderately corrosive” condition with respect to buried metal. The laboratory test results are presented in Appendix B.

7.2.5 Geocon Incorporated does not practice in the field of corrosion engineering. If improvements that could be susceptible to corrosion are planned, further evaluation by a corrosion engineer should be performed.

7.3 Grading

7.3.1 Grading should be performed in accordance with the *Recommended Grading Specifications* in Appendix C. Where the recommendations of this report conflict with Appendix C, the recommendations of this section take precedence.

7.3.2 A pre-construction conference with the owner, contractor, civil engineer, and soil engineer in attendance should be held at the site prior to the beginning of grading operations. Special soil handling requirements can be discussed at that time.

7.3.3 Earthwork should be observed and compacted fill tested by representatives of Geocon Incorporated. In addition, excavations should be observed during grading to verify the soil and geologic conditions do not differ significantly from those expected.

7.3.4 Site preparation should begin with the demolition of existing structures and the removal of deleterious debris and vegetation. The depth of removal should be such that materials to be used in fill are generally free of organic matter. Material generated during stripping operations and/or site demolition should be exported from the site.

7.3.5 Existing underground improvements that are or will be abandoned within the site should be removed and the resulting depressions properly backfilled in accordance with the procedures described herein.

7.3.6 Remedial grading within the building envelope should consist of removal and recompaction of existing soil to a depth of at least 3 feet below building pad grade, or 1 foot below the footing bottom, whichever is deeper. The base of the remedial removal should be observed by a representative of Geocon Incorporated to evaluate if loose or otherwise unsuitable soils is present. If loose or unsuitable soil is present, deeper removals will be necessary. Where practical the remedial grading should extend to horizontal distance of at least 5 feet beyond the building footprint.

7.3.7 Remedial grading within new surface improvement areas (concrete hardscape, pavement) should consist of removing the upper 12 inches of soil below finish grade and replacing the excavated soil with properly compacted fill. Where practical, remedial grading should extend to a horizontal distance of at least 2 feet beyond the edge of the surface improvement. Additional remedial grading may be required if loose or otherwise unsuitable material is encountered at the base of the removals.

7.3.8 The base of remedial-grading excavations and other areas to receive structural fill soils should be scarified to a depth of at least 12 inches, moisture conditioned and compacted. Fill soils should then be placed and compacted in layers to design finish-grade elevations. The layers should be no thicker than will allow for adequate bonding and compaction. Fill should be compacted to at least 90 percent of maximum dry density (as determined by ASTM D 1557) at or slightly above optimum moisture content. Fill within the upper 12 inches of pavement subgrade should be compacted to at least 95 percent relative compaction at or slightly above optimum moisture content.

7.3.9 Soil generated during on-site excavations is suitable for reuse, provided it is free of vegetation, debris, and other deleterious matter.

7.3.10 Imported fill soil should consist of granular materials with a *very low* to *low* expansion potential (EI of 50 or less), be free of deleterious material or stones larger than 3 inches, and should be compacted as recommended herein. Geocon Incorporated should be notified of the import soil source and should be authorized to perform laboratory testing of import soil prior to its arrival at the site to evaluate its suitability as fill material.

7.4 Seismic Design Criteria

7.4.1 We used the computer program *U.S. Seismic Design Maps*, provided by the USGS. Table 7.4.1 summarize site-specific design criteria obtained from the 2016 California Building Code (CBC; Based on the 2012 International Building Code [IBC] and ASCE 7-10), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The short spectral response uses a period of 0.2 second. The building structure and improvements should be designed using a Site Class D. We evaluated the Site Class based our experience for the site sub surface soils and exploratory boring information in accordance with Section 1613.3.2 of the 2016 CBC, and Table 20.3-1 of ASCE 7-10. The values presented in Table 7.4.1 are for the risk-targeted maximum considered earthquake (MCE_R).

TABLE 7.4.1
2016 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2016 CBC Reference
Site Class	D	Table 1613.3.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.015g	Figure 1613.3.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.386g	Figure 1613.3.1(2)
Site Coefficient, F_A	1.094	Table 1613.3.3(1)
Site Coefficient, F_V	1.628	Table 1613.3.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.111g	Section 1613.3.3 (Eqn 16-37)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.628g	Section 1613.3.3 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.740g	Section 1613.3.4 (Eqn 16-39)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.419g	Section 1613.3.4 (Eqn 16-40)

7.4.2 Table 7.4.2 presents additional seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-10 for the mapped maximum considered geometric mean (MCE_G).

TABLE 7.4.2
2016 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	ASCE 7-10 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.427g	Figure 22-7
Site Coefficient, F_{PGA}	1.073	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.458g	Section 11.8.3 (Eqn 11.8-1)

7.4.3 Conformance to the criteria in Table 7.4.1 and 7.4.2 does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

7.5 Slopes

7.5.1 No new slopes are planned for the project. The proposed structure will be located approximately 15 feet from the edge and 30 feet from the bottom of a trapezoidal-shaped, concrete-lined drainage channel. The bottom of the channel is approximately 7 feet lower that the proposed finish grade. In our opinion the anticipated building load is sufficiently far from the channel and will not affect the performance of the drainage channel. Likewise, the channel will not affect the performance of the proposed structure.

7.6 Temporary Excavations

7.6.1 The on-site soils can be considered Type B soil based on OSHA guidelines. Temporary slopes should be excavated no steeper than 1:1 (horizontal:vertical) to a height of 15 feet without shoring. The top of the excavation should be a minimum of 15 feet from the edge of existing improvements. Excavations steeper than those recommended or closer than 15 feet from an existing improvement should be shored in accordance with applicable OSHA codes and regulations.

7.7 Foundation Recommendations

7.7.1 The project as presently proposed consists of constructing a two-story building. The building can be supported on shallow foundations bearing on properly compacted fill.

7.7.2 Foundations for the buildings should consist of continuous strip footings and/or isolated spread footings. Continuous footings should be at least 12 inches wide and extend at least 18 inches below lowest adjacent pad grade. Isolated spread footings should have a minimum width of 24 inches and should extend at least 18 inches below lowest adjacent pad grade.

7.7.3 Concrete reinforcement for continuous footings should consist of at least four, No. 5 steel, reinforcing bars placed horizontally in the footings, two near the top and two near the bottom. The project structural engineer should design the reinforcement for the spread footings. A footing dimension detail showing the depth to lowest adjacent grade is presented on Figure 3.

7.7.4 The minimum reinforcement recommended above is based on soil characteristics only (Expansion Index of 50 or less) and is not intended to replace reinforcement required for structural considerations.

7.7.5 The recommended allowable bearing capacity for foundations bearing in properly compacted fill is 2,000 pounds per square foot (psf). The values presented above are for dead plus live loads and may be increased by one-third when considering transient loads due to wind or seismic forces.

7.7.6 Total and differential static settlement due to foundation loads is estimated to be approximately 1 inch and 1/2 inch, respectively. We estimate that differential settlement would occur over a span of 40 feet.

7.7.7 Foundation excavations should be observed by the geotechnical engineer (a representative of Geocon Incorporated) prior to the placement of reinforcing steel and concrete to observe that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

7.8 Concrete Slabs-on-Grade

7.8.1 Concrete slabs-on-grade for the buildings should be at least 5 inches thick and reinforced with No. 3 steel reinforcing bars at 18 inches on center in both horizontal directions and positioned near the slab midpoint.

7.8.2 A vapor retarder should underlie slabs that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials. The vapor retarder design should be consistent with the guidelines presented in the American Concrete Institute's (ACI) *Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials* (ACI 302.2R-06). In addition, the membrane should be installed in a manner that prevents puncture in accordance with manufacturer's recommendations and ASTM requirements.

7.8.3 The project architect or developer should specify the vapor retarder based on the type of floor covering that will be installed and if the structure will possess a humidity controlled environment.

7.8.4 The project foundation engineer, architect, or developer should determine the thickness of the sand bedding sand thickness; however, we should be contacted to provide recommendations if the bedding sand is thicker than six inches.

7.8.5 The foundation design engineer should provide appropriate concrete mix design criteria and curing measures to assure proper curing of the slab by reducing the potential for rapid moisture loss and subsequent cracking and/or slab curl. The foundation design engineer should specify the concrete mix design and proper curing methods on the foundation plans. It is critical that the foundation contractor understands and follows the recommendations presented on the foundation plans.

7.8.6 The concrete slab-on-grade recommendations are based on soil support characteristics only. The project structural engineer should evaluate the structural requirements of the concrete slabs for supporting equipment and storage loads.

7.8.7 All exterior concrete flatwork not subject to vehicular traffic should be 4 inches thick and constructed in accordance with the following recommendations. Slab panels in excess of 8 feet square should be reinforced with 6 x 6 - W2.9/W2.9 (6 x 6 - 6/6) welded wire mesh to reduce the potential for cracking. In addition, all concrete flatwork should be provided with crack-control joints to reduce and/or control shrinkage cracking. Crack-control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack-control spacing. Subgrade soils for exterior slabs not subjected to vehicle loads should be compacted in accordance with criteria presented in the grading section prior to concrete placement. Subgrade soils should be properly compacted and the moisture content of surficial soils should be verified prior to placing concrete.

7.8.8 The recommendations presented herein are intended to reduce the potential for cracking of slabs and foundations as a result of differential movement. However, even with the incorporation of the recommendations presented herein, foundations and slabs-on-grade will still exhibit some cracking. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by: limiting the slump of the concrete; the use of crack control joints; and proper concrete placement and curing. Crack-control joints should be spaced at intervals no greater than 12 feet. Literature provided by the Portland Concrete Association (PCA) and the American Concrete Institute (ACI) present recommendations for proper concrete mix and construction and curing practices, and should be incorporated into project construction.

7.9 Retaining Walls

7.9.1 Retaining walls that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall) at the top of the wall and having a level backfill surface should be designed for an active soil pressure equivalent to the pressure exerted by a fluid density of 35 pcf. Where the backfill will be inclined at 2:1 (horizontal:vertical), an active soil pressure of 50 pcf is recommended. Expansive soil should not be used as backfill material behind retaining walls. Soil placed for retaining wall backfill should have an Expansion Index less than 50.

7.9.2 Where walls are restrained from movement at the top, an additional uniform pressure of 8H psf (where H equals the height of the retaining wall portion of the wall in feet) should be added to the active soil pressure where the wall possesses a height of 8 feet or less and 12H where the wall is greater than 8 feet. For retaining walls subject to vehicular loads within a horizontal distance equal to two-thirds the wall height, a surcharge equivalent to two feet of fill soil should be added.

7.9.3 Soil to be used as backfill should be stockpiled and samples obtained for laboratory testing to evaluate its suitability for use as wall backfill. Modified lateral earth pressures will be required if backfill soils do not meet the required expansion index. City standard wall designs, if used, are based on a specific active lateral earth pressure and/or soil friction angle. On-site soils might not meet the design values used for City standard wall design. Geocon Incorporated should be consulted if City standard wall designs will be used to assess the suitability of on-site soil for use as wall backfill.

7.9.4 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The wall designer should provide appropriate lateral deflection quantities for planned retaining walls structures, if applicable. These lateral values should be considered when planning types of improvements above retaining wall structures.

7.9.5 The structural engineer should determine the seismic design category for the project in accordance with Section 1613 of the CBC. If the project possesses a seismic design category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section 18.3.5.12 of the 2016 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall. A seismic load of 21H should be used for design. We used the peak ground acceleration adjusted for Site Class effects, PGA_M, of 0.458g calculated from ASCE 7-10 Section 11.8.3 and applied a pseudo-static coefficient of 0.33.

7.9.6 Retaining walls should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and should be waterproofed as required by the project architect. The use of drainage openings through the base of the wall (weep holes) is not recommended where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The above recommendations assume a properly compacted granular (EI less than 50) free-draining backfill material with no hydrostatic forces or imposed surcharge load. Figure 4 presents a typical retaining wall drainage detail. If conditions different than those described are anticipated, or if specific drainage details are desired, Geocon Incorporated should be contacted for additional recommendations.

7.10 Lateral Loading

7.10.1 To resist lateral loads, a passive pressure exerted by an equivalent fluid weight of 300 pcf should be used for design of footings or shear keys poured neat against properly compacted granular fill soils or native terrace deposits. The upper 12 inches of material in areas not protected by floor slabs or pavement should not be included in design for passive resistance.

7.10.2 If friction is to be used to resist lateral loads, an allowable coefficient of friction between soil and concrete of 0.4 should be used for design.

7.11 Storm Water Management

7.11.1 If storm water management devices are not properly designed and constructed, there is a risk for distress to improvements and property located hydrologically down gradient or adjacent to these devices. Factors such as the amount of water being detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeological study at the site. If infiltration of storm water runoff into the subsurface occurs, downstream improvements may be subjected to seeps, springs, slope instability, raised groundwater, movement of foundations and slabs, or other undesirable impacts as a result of water infiltration.

7.12 Drainage and Maintenance

7.12.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2016 CBC 1803.3 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into storm drains and conduits that carry runoff away from the proposed structure.

7.12.2 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks, and detected leaks should be repaired promptly. Detrimental soil movement could occur if water is allowed to infiltrate the soil for prolonged periods of time.

7.12.3 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. We recommend that area drains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes be used. In addition, where landscaping is planned adjacent to the pavement, we recommend construction of a cutoff wall along the edge of the pavement that extends at least 6 inches below the bottom of the base material.

7.13 Grading and Foundation Plan Review

7.13.1 Geocon Incorporated should review the final grading and foundation plans for the project prior to final design submittal to evaluate if additional analysis and/or recommendations are required.

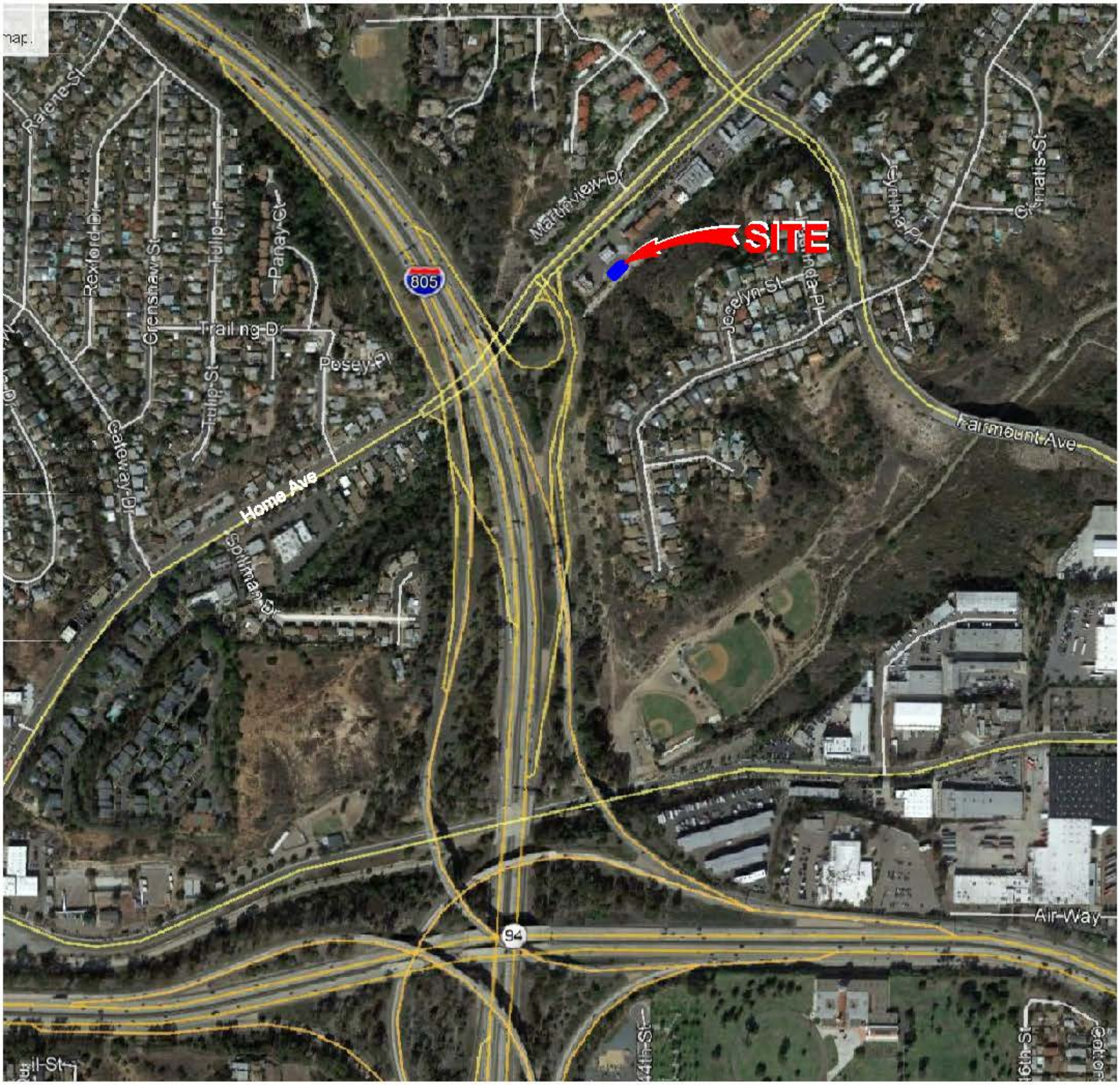
LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

3. This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.



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N

NO SCALE

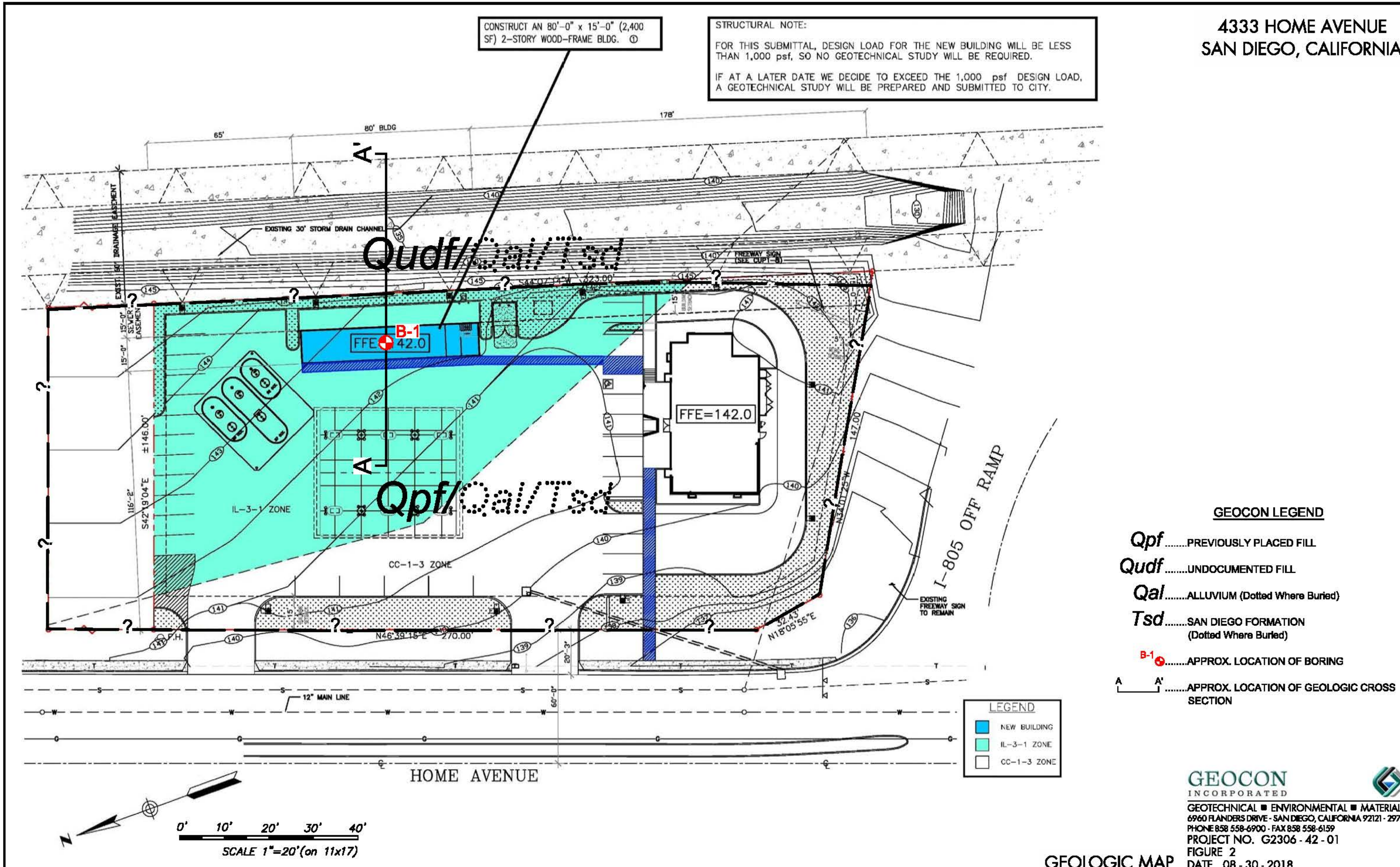
VICINITY MAP

GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

4333 HOME AVENUE
SAN DIEGO, CALIFORNIA

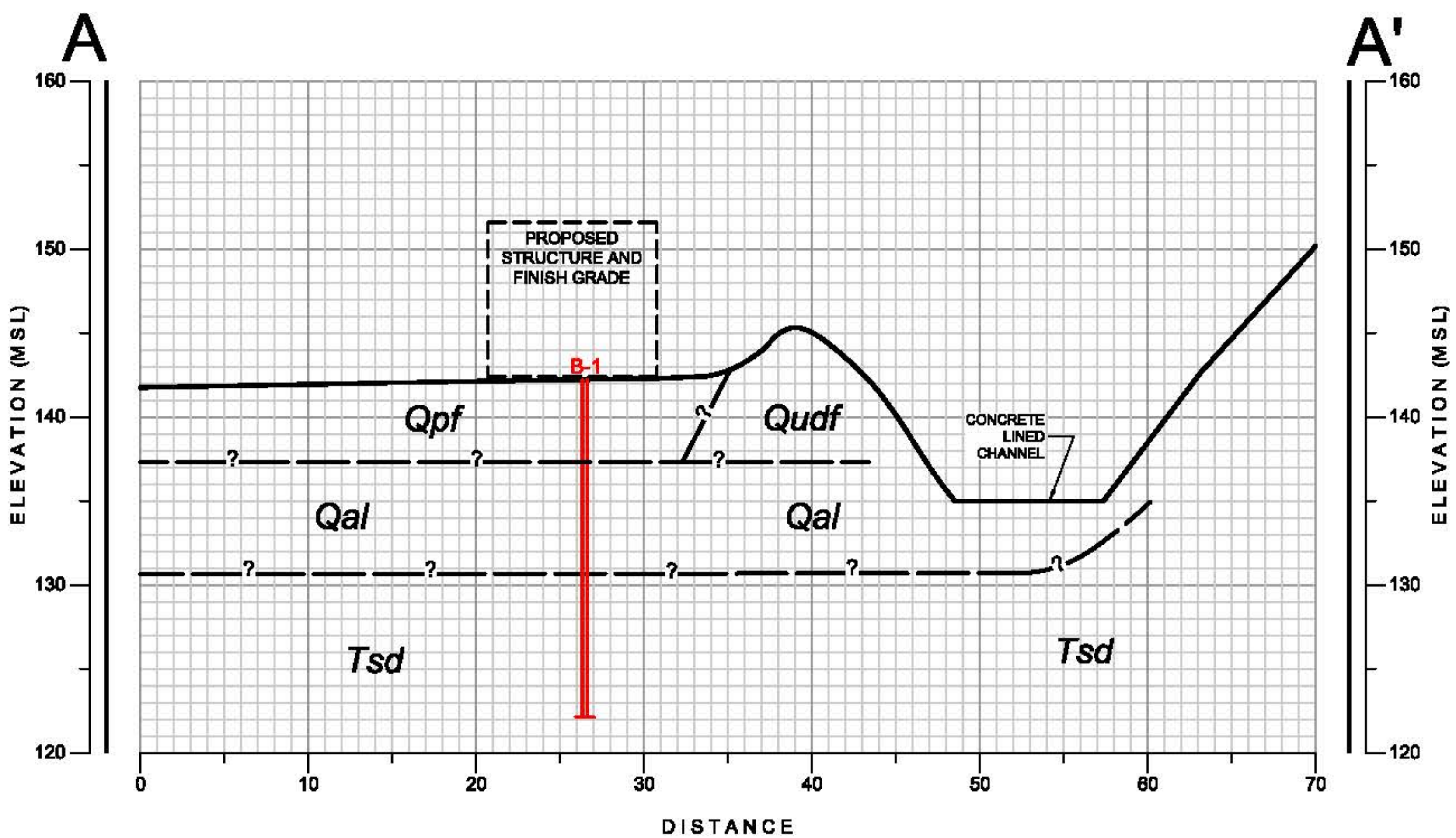
RM / AML		DSK/GTYPD	DATE 08 - 30 - 2018	PROJECT NO. G2306 - 42 - 01	FIG. 1

Plotted:08/29/2018 10:10AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2306-42-01 (4333 Home Ave)\DETAILS\G2306-42-01 Vic Map.dwg



Plotted:08/30/2018 2:38PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2306-42-01 (4333 Home Ave)\SHEETS\G2306-42-01 Geo Map.dwg

4333 HOME AVENUE
SAN DIEGO, CALIFORNIA



GEOLOGIC CROSS-SECTION A-A'

SCALE: 1" = 10' (Vert. = Horiz.)

GEOCON LEGEND

Qpf ....PREVIOUSLY PLACED FILL

Qudf ........UNDOCUMENTED FILL

Qal ....ALLUVIUM

Tsd ....SAN DIEGO FORMATION

........APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)

B-1 ....APPROX. LOCATION OF BORING

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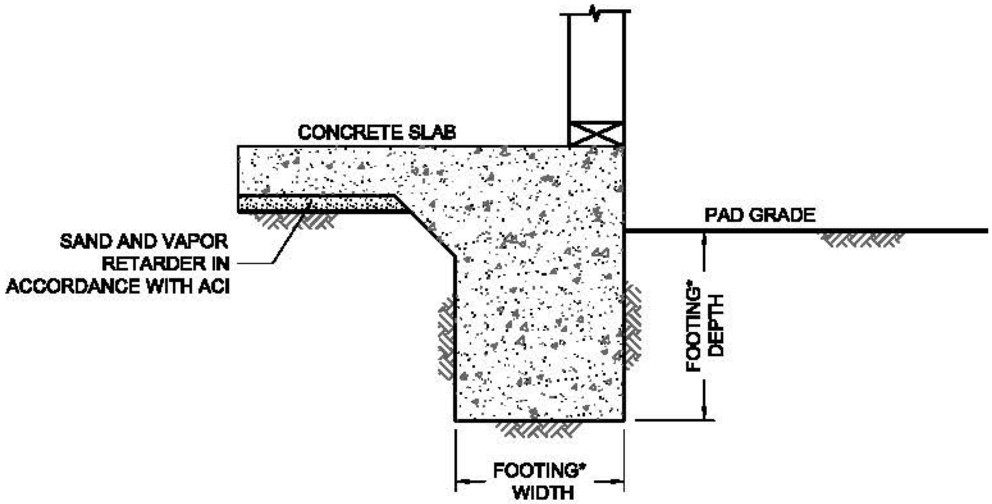
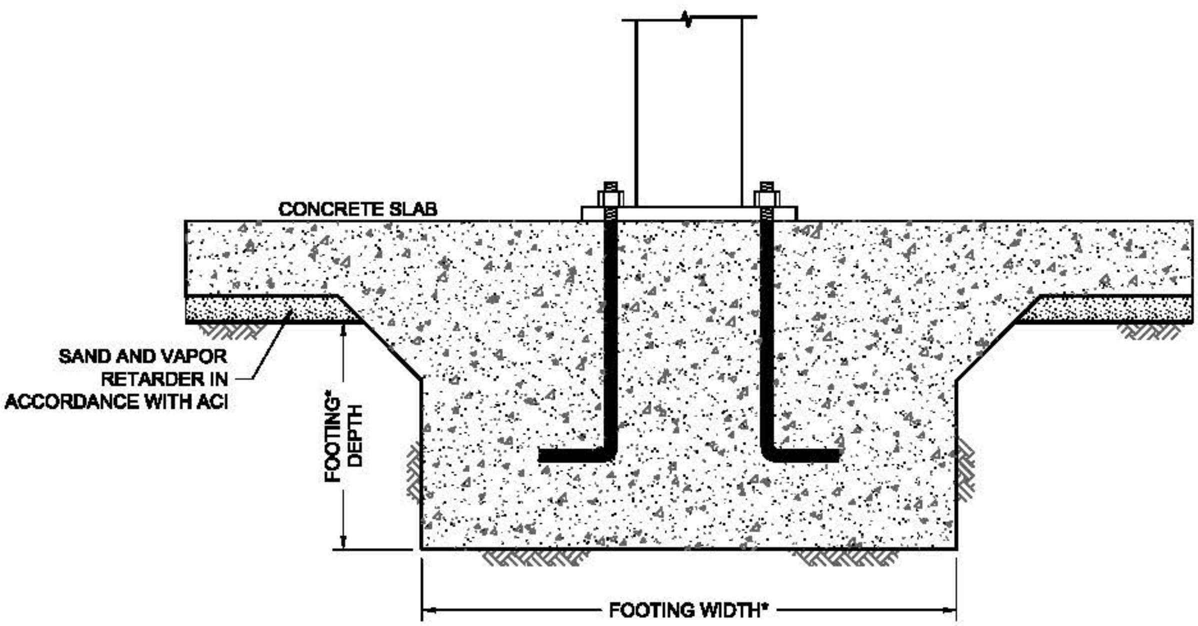
PROJECT NO. G2306 - 42 - 01
FIGURE 3
DATE 08 - 30 - 2018





*....SEE REPORT FOR FOUNDATION WIDTH AND DEPTH RECOMMENDATION

NO SCALE

WALL / COLUMN FOOTING DIMENSION DETAIL

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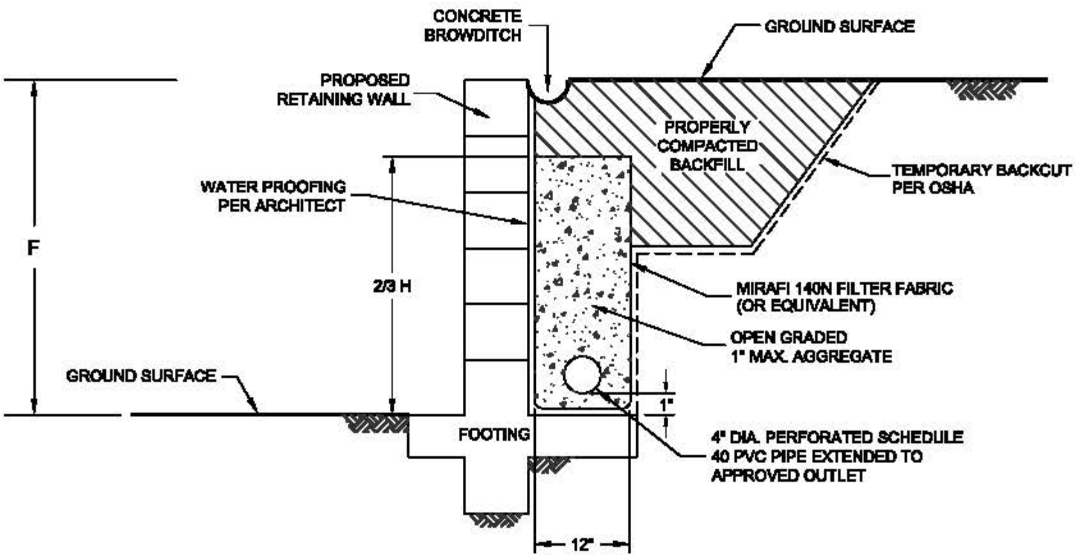
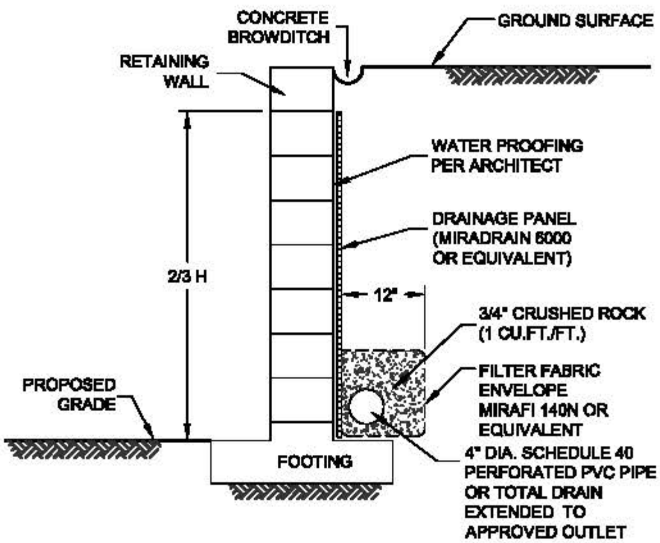
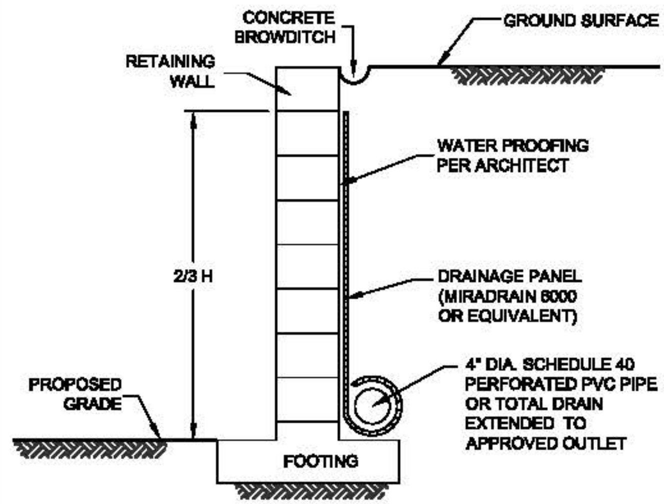
RM / AML		DSK/GTYPD	DATE 08 - 30 - 2018	PROJECT NO. G2306 - 42 - 01	FIG. 4







NOTE :

DRAIN SHOULD BE UNIFORMLY SLOPED TO GRAVITY OUTLET
OR TO A SUMP WHERE WATER CAN BE REMOVED BY PUMPING

NO SCALE

TYPICAL RETAINING WALL DRAIN DETAIL

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RM / AML		DSK/GTYPD	DATE 08 - 30 - 2018	PROJECT NO. G2306 - 42 - 01	FIG. 5

Plotted:08/29/2018 3:14PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2306-42-01 (4333 Home Ave)\DETAILS\Typical Retaining Wall Drainage Detail (RWDD7A).dwg

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The field investigation was performed on July 30, 2018, and consisted of drilling of one, small-diameter borings at the approximate location shown on Figure 2. The boring was drilled to a maximum depth of approximately 20 feet below the existing grade using a truck-mounted drill rig. Relatively undisturbed samples were obtained by driving a 3-inch O. D., split-tube sampler 12 inches into the undisturbed soil mass with blows from a 140-pound hammer falling 30 inches. The split-tube sampler was equipped with 1-inch-high by $2^3/_8$-inch-diameter brass sampler rings to facilitate sample removal and testing. The number of blows to drive the sampler 12 inches is reported. Bulk samples were obtained from drill cuttings. The soil conditions encountered in the boring were visually examined, classified and logged in general conformance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488). The log of the exploratory boring is presented on Figure A-1. The log depicts the various soil types encountered and indicate the depths at which samples were taken.

PROJECT NO. G2306-42-01

BORING B 1

ELEV. (MSL.) 142' DATE COMPLETED 07-30-2018

EQUIPMENT CME BY: G. CANNON

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					4" **ASPHALT CONCRETE** Over 6" **BASE**			
	B1-1			SM	**PREVIOUSLY PLACED FILL** Dense, moist, light olive, Silty SAND with gravel			
2								
4				SM	**ALLUVIUM** Dense, moist, light brown, Silty SAND with gravel			
	B1-2					48		
6								
8	B1-3					35		
10	B1-4				-Very gravelly	50/4"		
12				SM	**SAN DIEGO FORMATION** Dense, moist, light olive, Silty, fine SAND			
14								
	B1-5					88/8"	106.3	16.1
16								
18								
	B1-6					84/10"	108.9	16.3
20					BORING TERMINATED AT 20 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-1,
Log of Boring B 1, Page 1 of 1

G2306-42-01.GPJ

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

APPENDIX B

APPENDIX B

LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. Selected soil samples were tested for in-place dry density and moisture content, shear-strength characteristics, consolidation characteristics, expansion potential, maximum dry density and optimum moisture content, pH, resistively, and sulfate content.

The results of our laboratory tests are presented on the following tables and figures. The in-place dry density and moisture content results are indicated on the exploratory boring logs.

TABLE B-I
SUMMARY OF LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT TEST RESULTS
ASTM D 1557

Sample No.	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (% dry wt.)
B1-1	Silty, fine to medium SAND	134.2	8.3

TABLE B-II
SUMMARY OF LABORATORY DIRECT SHEAR TEST RESULTS
ASTM D3080-98

Sample No.	Dry Density (pcf)	Moisture Content (%)	Unit Cohesion (psf)	Angle of Shear Resistance (degrees)
B1-2	114.7	14.3	500	33

TABLE B-III
SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS
ASTM D4829-95

Sample No.	Moisture Content		Dry Density (pcf)	Expansion Index
	Before Test (%)	After Test (%)		
B1-1	8.5	16.4	115.9	23

TABLE B-IV
SUMMARY OF LABORATORY WATER-SOLUBLE SULFATE CONTENT TEST RESULTS
CALIFORNIA TEST METHOD NO. 417

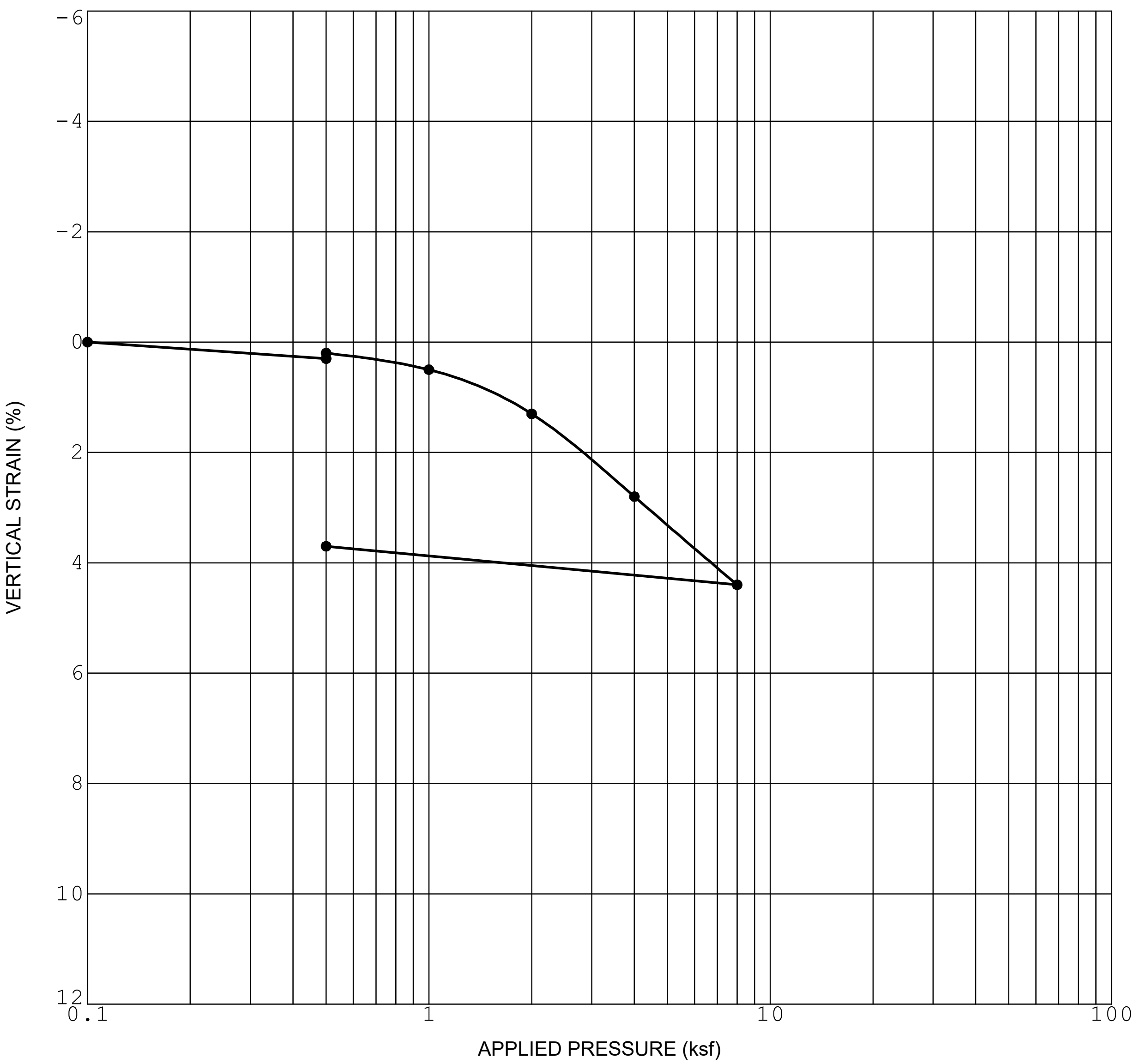
Sample No.	Water Soluble Sulfate %	Sulfate Exposure
B1-1	0.037	Not Applicable (S0)

TABLE B-V
SUMMARY OF LABORATORY POTENTIAL OF HYDROGEN (PH) AND RESISTIVITY TEST RESULTS
CALIFORNIA TEST METHOD NO. 643

Sample No.	pH	Minimum Resistivity (ohm-centimeters)
B1-1	8.3	570

PROJECT NO. G2306-42-01

SAMPLE NO. B1-2



ASTM D2435

Initial Dry Density (pcf)	115.3
Initial Water Content (%)	12.3

Initial Saturation (%)	84.5
Sample Saturated at (ksf)	2.0

CONSOLIDATION CURVE

4333 HOME AVENUE

SAN DIEGO, CALIFORNIA

APPENDIX C

APPENDIX C

RECOMMENDED GRADING SPECIFICATIONS

FOR

4333 HOME AVENUE
SAN DIEGO, CALIFORNIA

PROJECT NO. G2306-42-01

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9 and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition

4. CLEARING AND PREPARING AREAS TO BE FILLED

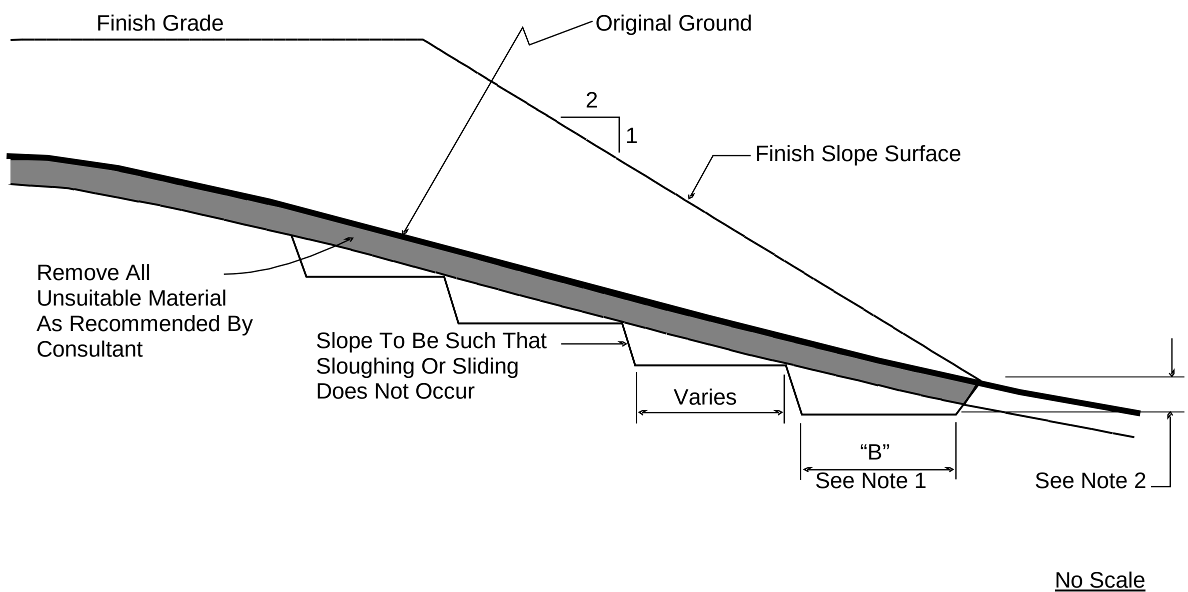
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

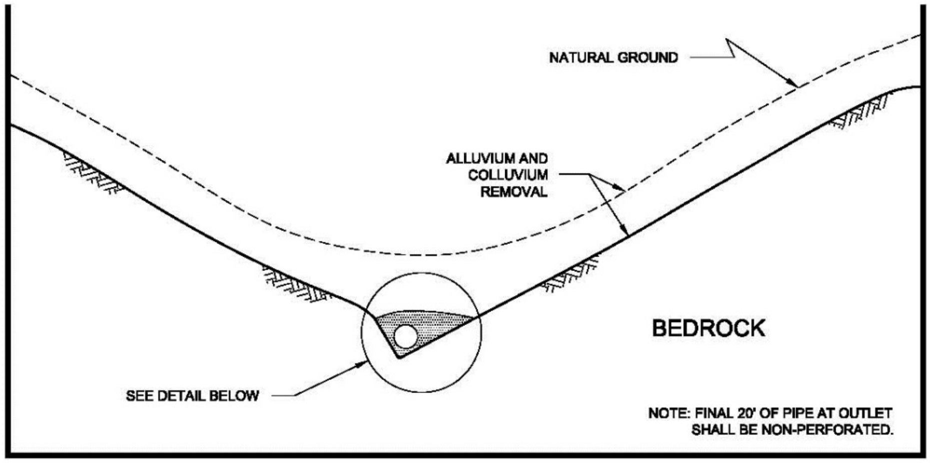
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

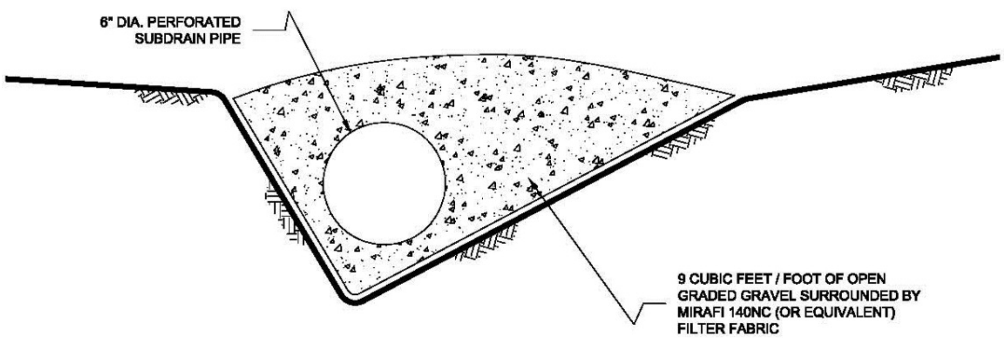
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

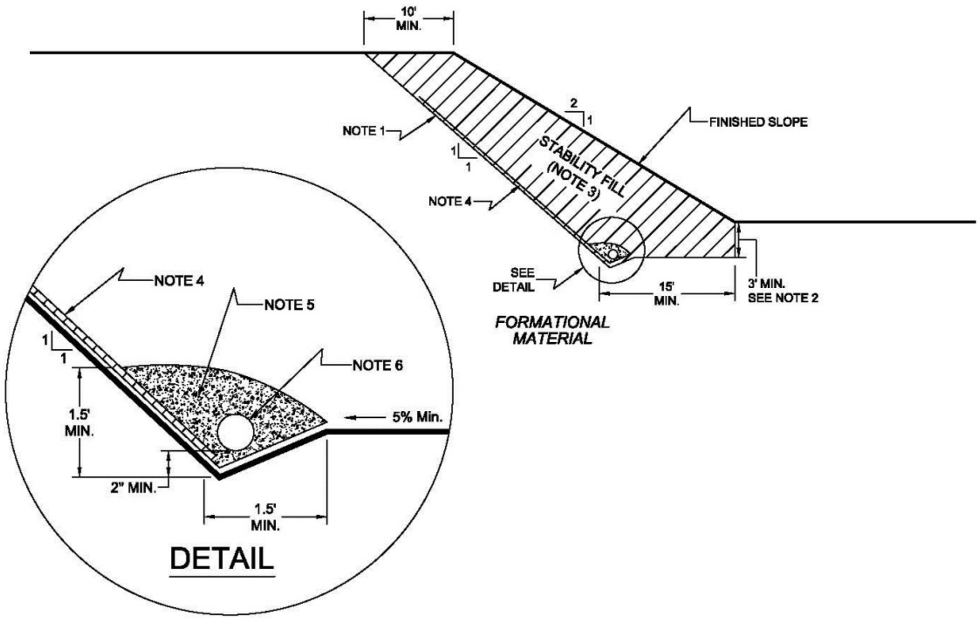
1......6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2......6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

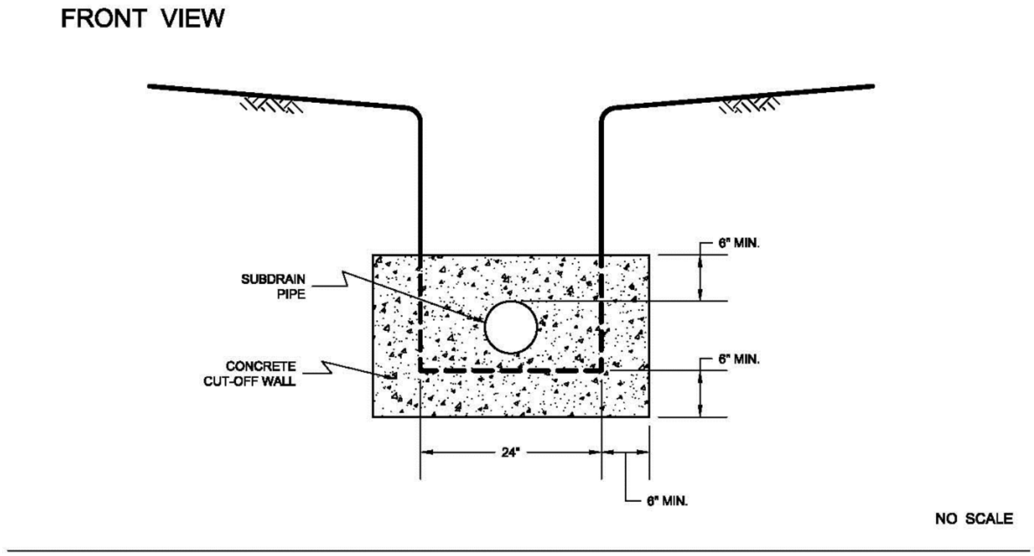
NO SCALE

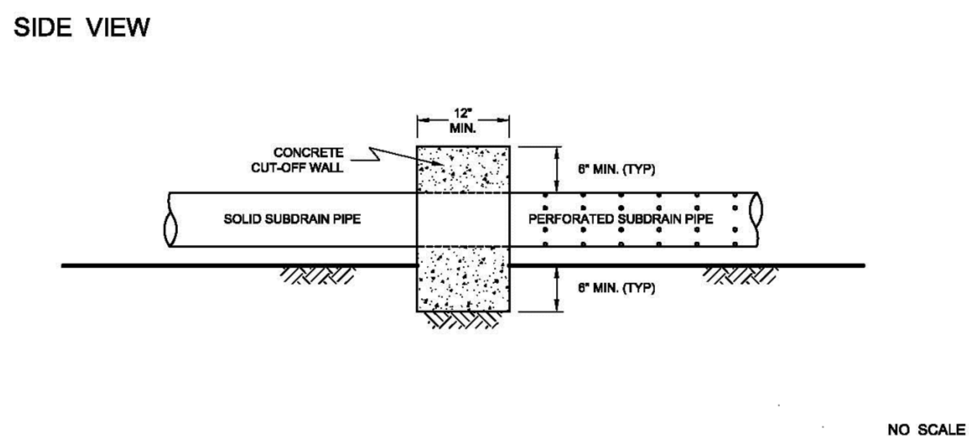
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

TYPICAL CUT OFF WALL DETAIL

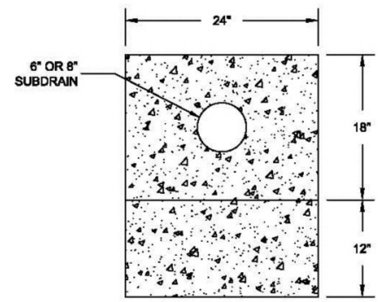




7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

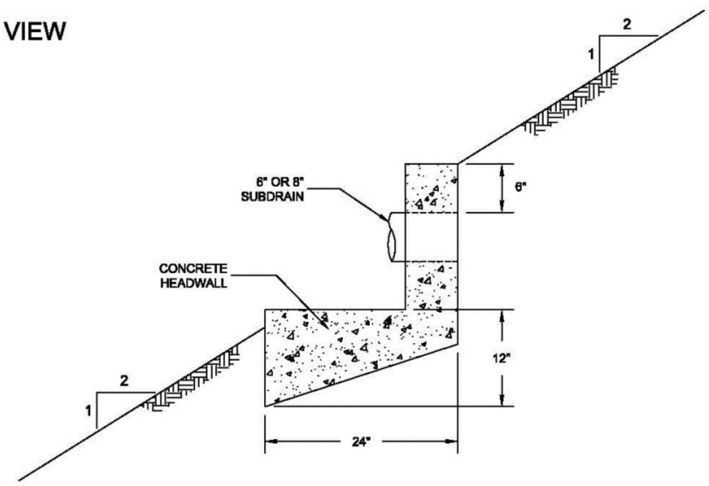
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an "as-built" map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

LIST OF REFERENCES

City of San Diego (2008), *Seismic Safety Study, Geologic Hazards and Faults, Grid Tile 18*;

Kennedy, M. P., and Tan, S. S., (2008), *Geologic Map of the San Diego 30' x 60' Quadrangle, California*, USGS Regional Geologic Map Series, 1:100,000 Scale, Map No. 3;

Risk Engineering (2011), *EZ-FRISK (version 7.62)*, software package used to perform site-specific earthquake hazard analyses. Accessed August 2, 2018;

USDA (1953), Aerial photographs AXN 3M 94 and 95;

USGS (2014), *U.S. Seismic Design Maps Web Application (version 3.1.0)*, http://earthquake.usgs.gov/designmaps/us/application.php. Accessed August 2, 2018;

USGS (2016), *Quaternary Fault and Fold Database of the United States:* U.S. Geological Survey website, http://earthquakes,usgs.gov/hazards/qfaults, accessed August 2, 2018.

4337 Home Avenue Marijuana Outlet

GHG Emissions CAP Analysis

April 3, 2019

Prepared for:

AVAD Investment, Inc.
4333 Home Avenue
San Diego, CA 92105

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

CLIMATE ACTION PLAN
CONSISTENCY CHECKLIST INTRODUCTION

In December 2015, the City adopted a Climate Action Plan (CAP) that outlines the actions that City will undertake to achieve its proportional share of State greenhouse gas (GHG) emission reductions. The purpose of the Climate Action Plan Consistency Checklist (Checklist) is to, in conjunction with the CAP, provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).[1]

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The CAP is a plan for the reduction of GHG emissions in accordance with CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP.

This Checklist is part of the CAP and contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP as determined through the use of this Checklist may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

The Checklist may be updated to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law.

[1] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

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CAP CONSISTENCY CHECKLIST SUBMITTAL APPLICATION

- The Checklist is required only for projects subject to CEQA review.[2]
- If required, the Checklist must be included in the project submittal package. Application submittal procedures can be found in Chapter 11: Land Development Procedures of the City's Municipal Code.
- The requirements in the Checklist will be included in the project's conditions of approval.
- The applicant must provide an explanation of how the proposed project will implement the requirements described herein to the satisfaction of the Planning Department.

Application Information

Contact Information

Project No./Name: 593686 / 4337 Home Avenue Marijuana Outlet

Property Address: 4337 Home Avenue

Applicant Name/Co.: AVAD Investment, Inc.

Contact Phone: 619-977-8485 Contact Email: arkansomo@gmail.com

Was a consultant retained to complete this checklist? ☒ Yes ☐ No If Yes, complete the following

Consultant Name: Victor Ortiz Contact Phone: 619-462-1515

Company Name: HELIX Environmental Planning Inc. Contact Email: VictorO@helixepi.com

Project Information

1. What is the size of the project (acres)? 1.08
2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family units):
   - ☐ Residential (indicate # of multi-family units):
   - ☒ Commercial (total square footage): 1,200
   - ☐ Industrial (total square footage):
   - ☐ Other (describe):
3. Is the project or a portion of the project located in a Transit Priority Area? ☐ Yes ☒ No
4. Provide a brief description of the project proposed:

The project involves the operation of a 1,200-square foot marijuana outlet on the first floor a new 2,400-square foot building that is to be constructed. The 1,200-square foot second floor of the building is to remain vacant.

[2] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

CAP CONSISTENCY CHECKLIST QUESTIONS

Step 1: Land Use Consistency

The first step in determining CAP consistency for discretionary development projects is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency		
Checklist Item (Check the appropriate box and provide explanation and supporting documentation for your answer)	Yes	No
A. Is the proposed project consistent with the existing General Plan and Community Plan land use and zoning designations?;[3] OR, B. If the proposed project is not consistent with the existing land use plan and zoning designations, and includes a land use plan and/or zoning designation amendment, would the proposed amendment result in an increased density within a Transit Priority Area (TPA)[4] and implement CAP Strategy 3 actions, as determined in Step 3 to the satisfaction of the Development Services Department?; OR, C. If the proposed project is not consistent with the existing land use plan and zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations?	☑	☐

If "***Yes***," proceed to Step 2 of the Checklist. For question B above, complete Step 3. For question C above, provide estimated project emissions under both existing and proposed designation(s) for comparison. Compare the maximum buildout of the existing designation and the maximum buildout of the proposed designation.

If "***No***," in accordance with the City's Significance Determination Thresholds, the project's GHG impact is significant. The project must nonetheless incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts unless the decision maker finds that a measure is infeasible in accordance with CEQA Guidelines Section 15091. Proceed and complete Step 2 of the Checklist.

The proposed project site has a General Plan land use designation of Industrial Employment, a Community Plan land use designation of Industrial, and a zoning designation of IL-3-1 (light industrial). A greenhouse gas (GHG) emissions analysis was conducted using CalEEMod Version 2016.3.2 to determine if the project would result in an equivalent or less GHG-intensive project when compared to a hypothetical land use that is currently allowed under the land use code.

As shown in Appendix A, the proposed project would result in emissions of 163 metric tons (MT) of carbon dioxide equivalents (CO_2e) per year, which would be 463 MT CO_2e less than the hypothetical land use. As such, it can be determined that the proposed project would be consistent with the existing General Plan land use, Community Plan land use, and zoning designation, and is therefore consistent with the land use assumptions used in the CAP. The project would be consistent with Checklist Item A.

[3] This question may also be answered in the affirmative if the project is consistent with SANDAG Series 12 growth projections, which were used to determine the CAP projections, as determined by the Planning Department.

[4] This category applies to all projects that answered in the affirmative to question 3 on the previous page: Is the project or a portion of the project located in a transit priority area.

Step 2: CAP Strategies Consistency

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Step 2 only applies to development projects that involve permits that would require a certificate of occupancy from the Building Official or projects comprised of one and two family dwellings or townhouses as defined in the California Residential Code and their accessory structures.[5] All other development projects that would not require a certificate of occupancy from the Building Official shall implement Best Management Practices for construction activities as set forth in the Greenbook (for public projects).

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 1: Energy & Water Efficient Buildings			
1. *Cool/Green Roofs*. • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? Check "N/A" only if the project does not include a roof component. The majority of the roof is flat. Where there are portions of sloped roof, the project proposes the use of Spanish style tile roofing with a slope just less than 12:12 pitch. Where the roof is flat, the roofing will meet or exceed the the solar reflectance and thermal emittance values for non-residential buildings with roof slopes less than or equal to 2:12 as specified in the California Green Building Standards Code. Where the roof has a pitch slightly less than 12:12, the roofing will meet or exceed the the solar reflectance and thermal emittance values for non-residential buildings with roof slopes greater than or equal to 2:12 as specified in the California Green Building Standards Code.	☑	☐	☐

[5] Actions that are not subject to Step 2 would include, for example: 1) discretionary map actions that do not propose specific development, 2) permits allowing wireless communication facilities, 3) special events permits, 4) use permits or other permits that do not result in the expansion or enlargement of a building (e.g., decks, garages, etc.), and 5) non-building infrastructure projects such as roads and pipelines. Because such actions would not result in new occupancy buildings from which GHG emissions reductions could be achieved, the items contained in Step 2 would not be applicable.

2. *Plumbing fixtures and fittings* With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following: Residential buildings: • Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi; • Standard dishwashers: 4.25 gallons per cycle; • Compact dishwashers: 3.5 gallons per cycle; and • Clothes washers: water factor of 6 gallons per cubic feet of drum capacity? Nonresidential buildings: • Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and • Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)? Check "N/A" only if the project does not include any plumbing fixtures or fittings. The project would be located in a nonresidential building and would be provided with plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 of CalGreen (Table 2 of Attachment A). The appliances and fixtures included in building construction for commercial applications would meet the provisions of Section A5.303.3 of CalGreen (Table 3 of Attachment A).	☑	☐	☐

Strategy 3: Bicycling, Walking, Transit & Land Use

3. *Electric Vehicle Charging*

- Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents?

- Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents?

- Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use?

Check "N/A" only if the project is a single-family project or would not require the provision of listed cabinets, boxes, or enclosures connected to a conduit linking the parking spaces with electrical service, e.g., projects requiring fewer than 10 parking spaces.

The project is subject to the requirements of the City's Parking Regulations found in San Diego Municipal Code Chapter 14, Article 2, Division 5. Based on the provision of 24 parking spaces at the project site, the City's Parking Regulations require the provision of one carpool/EV designated parking space. The project includes one carpool/EV designated parking space, which would have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging.

☑ ☐ ☐

Strategy 3: Bicycling, Walking, Transit & Land Use

(Complete this section if project includes non-residential or mixed uses)

4. *Bicycle Parking Spaces*

Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?[6]

Check "N/A" only if the project is a residential project.

The project is subject to the requirements of the City's Parking Regulations found in San Diego Municipal Code Chapter 14, Article 2, Division 5, which requires the provision of a minimum of one long-term bicycle parking space and two short-term bicycle parking spaces. The project would include one long-term bicycle parking space and one short-term bicycle rack that would include 5 short-term bicycle parking spaces, thus exceeding the requirements of the Municipal Code.

☑ ☐ ☐

[6] Non-portable bicycle corrals within 600 feet of project frontage can be counted towards the project's bicycle parking requirements.

5. *Shower facilities*

If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below?

Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12" X 15" X 72") Personal Effects Lockers Required
0-10	0	0
11-50	1 shower stall	2
51-100	1 shower stall	3
101-200	1 shower stall	4
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants

Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).

The project would not include more than 10 tenant occupants.

☐ ☐ ☑

6. *Designated Parking Spaces*

If the project includes a nonresidential use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table?

Number of Required Parking Spaces	Number of Designated Parking Spaces
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11
151-200	18
201 and over	At least 10% of total

This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.

Check "N/A" only if the project is a residential project, or if it does not include nonresidential use in a TPA.

☐ ☐ ☑

The project does not include a nonresidential use in a TPA.

7. *Transportation Demand Management Program* If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes: At least one of the following components: • Parking cash out program • Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools • Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development And at least three of the following components: • Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees • On-site carsharing vehicle(s) or bikesharing • Flexible or alternative work hours • Telework program • Transit, carpool, and vanpool subsidies • Pre-tax deduction for transit or vanpool fares and bicycle commute costs • Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use? Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees). The project would not accommodate over 50 tenant occupants.	☐	☐	☑

Step 3: Project CAP Conformance Evaluation (if applicable)

The third step of the CAP consistency review only applies if Step 1 is answered in the affirmative under option B. The purpose of this step is to determine whether a project that is located in a TPA but that includes a land use plan and/or zoning designation amendment is nevertheless consistent with the assumptions in the CAP because it would implement CAP Strategy 3 actions. In general, a project that would result in a reduction in density inside a TPA would not be consistent with Strategy 3.The following questions must each be answered in the affirmative and fully explained.

1. **Would the proposed project implement the General Plan's City of Villages strategy in an identified Transit Priority Area (TPA) that will result in an increase in the capacity for transit-supportive residential and/or employment densities?**

   Considerations for this question:
   - Does the proposed land use and zoning designation associated with the project provide capacity for transit-supportive residential densities within the TPA?
   - Is the project site suitable to accommodate mixed-use village development, as defined in the General Plan, within the TPA?
   - Does the land use and zoning associated with the project increase the capacity for transit-supportive employment intensities within the TPA?

2. **Would the proposed project implement the General Plan's Mobility Element in Transit Priority Areas to increase the use of transit?**

   Considerations for this question:
   - Does the proposed project support/incorporate identified transit routes and stops/stations?
   - Does the project include transit priority measures?

3. **Would the proposed project implement pedestrian improvements in Transit Priority Areas to increase walking opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system provide multiple and direct pedestrian connections and accessibility to local activity centers (such as transit stations, schools, shopping centers, and libraries)?
   - Does the proposed project urban design include features for walkability to promote a transit supportive environment?

4. **Would the proposed project implement the City of San Diego's Bicycle Master Plan to increase bicycling opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system include bicycle improvements consistent with the Bicycle Master Plan?
   - Does the overall project circulation system provide a balanced, multimodal, "complete streets" approach to accommodate mobility needs of all users?

5. **Would the proposed project incorporate implementation mechanisms that support Transit Oriented Development?**

   Considerations for this question:
   - Does the proposed project include new or expanded urban public spaces such as plazas, pocket parks, or urban greens in the TPA?
   - Does the land use and zoning associated with the proposed project increase the potential for jobs within the TPA?
   - Do the zoning/implementing regulations associated with the proposed project support the efficient use of parking through mechanisms such as: shared parking, parking districts, unbundled parking, reduced parking, paid or time-limited parking, etc.?

6. **Would the proposed project implement the Urban Forest Management Plan to increase urban tree canopy coverage?**

   Considerations for this question:
   - Does the proposed project provide at least three different species for the primary, secondary and accent trees in order to accommodate varying parkway widths?
   - Does the proposed project include policies or strategies for preserving existing trees?
   - Does the proposed project incorporate tree planting that will contribute to the City's 20% urban canopy tree coverage goal?

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST
ATTACHMENT A

This attachment provides performance standards for applicable Climate Action Pan (CAP) Consistency Checklist measures.

Table 1	**Roof Design Values for Question 1: Cool/Green Roofs supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan**			
Land Use Type	Roof Slope	Minimum 3-Year Aged Solar Reflectance	Thermal Emittance	Solar Reflective Index
Low-Rise Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
High-Rise Residential Buildings, Hotels and Motels	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
Non-Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 residential and non-residential voluntary measures shown in Tables A4.106.5.1 and A5.106.11.2.2, respectively. Roof installation and verification shall occur in accordance with the CALGreen Code.

CALGreen does not include recommended values for low-rise residential buildings with roof slopes of ≤ 2:12 for San Diego's climate zones (7 and 10). Therefore, the values for climate zone 15 that covers Imperial County are adapted here.

Solar Reflectance Index (SRI) equal to or greater than the values specified in this table may be used as an alternative to compliance with the aged solar reflectance values and thermal emittance.

Table 2	Fixture Flow Rates for Non-Residential Buildings related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan
Fixture Type	**Maximum Flow Rate**
Showerheads	1.8 gpm @ 80 psi
Lavatory Faucets	0.35 gpm @60 psi
Kitchen Faucets	1.6 gpm @ 60 psi
Wash Fountains	1.6 [rim space(in.)/20 gpm @ 60 psi]
Metering Faucets	0.18 gallons/cycle
Metering Faucets for Wash Fountains	0.18 [rim space(in.)/20 gpm @ 60 psi]
Gravity Tank-type Water Closets	1.12 gallons/flush
Flushometer Tank Water Closets	1.12 gallons/flush
Flushometer Valve Water Closets	1.12 gallons/flush
Electromechanical Hydraulic Water Closets	1.12 gallons/flush
Urinals	0.5 gallons/flush

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Tables A5.303.2.3.1 and A5.106.11.2.2, respectively. See the California Plumbing Code for definitions of each fixture type.

Where complying faucets are unavailable, aerators rated at 0.35 gpm or other means may be used to achieve reduction.

Acronyms:
gpm = gallons per minute
psi = pounds per square inch (unit of pressure)
in. = inch

Table 3 Standards for Appliances and Fixtures for Commercial Application related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan

Appliance/Fixture Type	Standard	
Clothes Washers	Maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations.*	
Conveyor-type Dishwashers	0.70 maximum gallons per rack (2.6 L) (High-Temperature)	0.62 maximum gallons per rack (4.4 L) (Chemical)
Door-type Dishwashers	0.95 maximum gallons per rack (3.6 L) (High-Temperature)	1.16 maximum gallons per rack (2.6 L) (Chemical)
Undercounter-type Dishwashers	0.90 maximum gallons per rack (3.4 L) (High-Temperature)	0.98 maximum gallons per rack (3.7 L) (Chemical)
Combination Ovens	Consume no more than 10 gallons per hour (38 L/h) in the full operational mode.	
Commercial Pre-rinse Spray Valves (manufactured on or after January 1, 2006)	Function at equal to or less than 1.6 gallons per minute (0.10 L/s) at 60 psi (414 kPa) and • Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate. • Be equipped with an integral automatic shutoff. • Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gallons per minute (0.08 L/s) or less.	

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Section A5.303.3. See the California Plumbing Code for definitions of each appliance/fixture type.

Acronyms:
L = liter
L/h = liters per hour
L/s = liters per second
psi = pounds per square inch (unit of pressure)
kPa = kilopascal (unit of pressure)

4337 Home Avenue Marijuana Outlet GHG Emissions CAP Analysis

This greenhouse gas (GHG) emissions analysis was conducted to determine if the project would result in an equivalent or less GHG-intensive project when compared to a hypothetical land use that would have been allowed under the land use code.

Calculation Methodology

GHG emissions were calculated using California Emissions Estimator Model (CalEEMod) version 2016.3.2 (California Air Pollution Control Officers Association [CAPCOA] 2017). The CalEEMod program is a tool used to estimate air emissions resulting from land development projects based on California-specific emission factors. CalEEMod can be used to calculate emissions from energy (electricity and natural gas), mobile (on-road vehicles), area (fireplaces, landscape maintenance equipment, etc.), water and wastewater, and solid waste sources. GHG emissions are estimated in terms of total metric tons of carbon dioxide equivalents (MT CO_2e).

Analysis Methodology

Scenario 1: Hypothetical Land Use

The hypothetical scenario assumes the “Fast Food Restaurant without a Drive Thru” land use in CalEEMod, with a floor surface area of 1,200 square feet. The “Fast Food Restaurant without a Drive Thru” land use was chosen because it represents a permitted use under the Municipal Code that would be consistent with the existing General Plan and community plan land use and zoning designations. Furthermore, existing land uses in the vicinity of the proposed project include fast food restaurants and the applicant was initially considering a fast food restaurant for the site. The floor surface area is the same as the floor surface area of the proposed project. All model defaults were assumed for the hypothetical land use. Total annual emissions associated with the hypothetical land use are estimated at approximately 626 MT CO_2e per year.

Scenario 2: Proposed Project

The proposed project is seeking approval of a conditional use permit to operate a 1,200-square foot marijuana outlet on the first floor of a new 2,400-square foot building that is to be constructed. The 1,200-square foot second floor of the building is to remain vacant. For modeling purposes, the “Strip Mall” land use was chosen as the most representative available in CalEEMod for the marijuana outlet as strip malls are generally comprised of small retail shops specializing in quality apparel, hard goods and services, and small restaurants: the marijuana outlet would be a small retail shop specializing in the sale of hard goods. Total annual emissions associated with the proposed project are estimated at 163 MT CO_2e.

Area Source Emissions

The project would emit GHGs from area sources, including fuel combustion from landscape maintenance equipment. The CalEEMod default for landscape equipment use based on project size was used.

Energy Use Emissions

Projects generally use energy in the forms of electricity and natural gas. Electricity consumption results in an indirect increase in GHG emissions, as electricity is generated through the combustion of fossil fuels at off-site power plants. Natural gas consumption results in a direct increase in GHG emissions as it is burned on-site. Both electricity generation and natural gas consumption typically yield carbon dioxide (CO_2), and to a much smaller extent, methane (CH_4), and nitrous oxide (N_2O).

The marijuana outlet would use electricity for lighting and electricity and natural gas for heating, ventilation, and air conditioning (HVAC) systems. Model defaults were used to estimate electricity and natural gas use associated with the project. The project is estimated to use a total of 15,072 kilowatt hours (kWh) of electricity and 2,676 thousand British thermal units (kBTU) of natural gas per year.

Mobile Source Emissions

Employee and customer vehicle trips associated with the project would result in GHG emissions through the combustion of fossil fuels. The marijuana outlet is estimated to generate 300 average daily trips (ADT), comprised of employee and customer trips, based on a trip generation rate of 250 trips per 1,000 square feet.

Water Use Emissions

The amount of water used by a project has indirect GHG emissions associated with the energy used to supply, distribute, and treat the water. The marijuana outlet would use water for indoor purposes (i.e. restrooms) and outdoor purposes (i.e. landscaping). Model defaults were used to estimate water usage for the project. Total water usage for the project is estimated at 143,366 gallons per year.

Solid Waste Emissions

Solid waste generated by the project would contribute GHG emissions in the form of CH_4 produced during treatment and disposal. The project would generate solid waste associated with general business operations. Model defaults were used to estimate solid waste generation for the project. Total solid waste generation for the project is estimated at 1.26 tons per year.

Results and Comparison

The operational GHG emissions from the proposed project and hypothetical land use are shown in Table 1, *Operational Greenhouse Gas Emissions*. The proposed project would result in emissions of 463 MT CO_2e per year less than the hypothetical land use with the same floor area and would, therefore, be consistent with the existing General Plan land use, Community Plan land use, and zoning designation, and is therefore consistent with the land use assumption used in the CAP.

Table 1
OPERATIONAL GREENHOUSE GAS EMISSIONS

Emission Sources	GHG Emissions (MT CO_2e per Year)	
	Scenario 1: Hypothetical Land Use	Scenario 2: Proposed Project
Area Sources	<0.01	<0.01
Energy Sources	26	5
Vehicular (Mobile) Sources	591	156
Solid Waste Sources	7	1
Water Sources	2	1
Total Operational Emissions	**626**	**163**
Difference from Hypothetical Land Use		**-463**

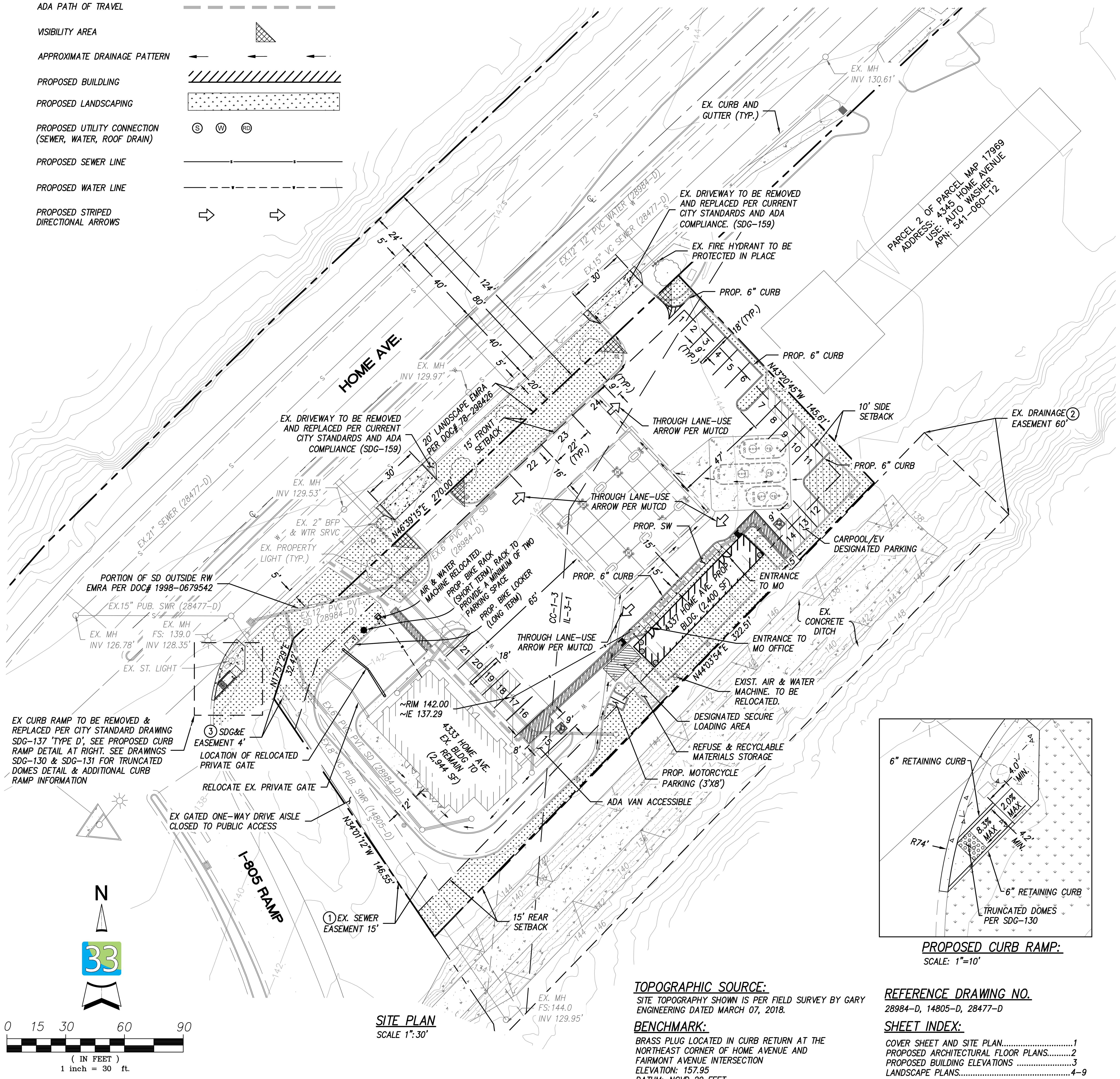
Source: CalEEMod output data
Note: Totals may not add up due to rounding.

CONDITIONAL USE PERMIT # 2117121 FOR MARIJUANA OUTLET (MO)
CONDITIONAL USE PERMIT # 2225844 FOR ABC TYPE 20 LICENSE
NEIGHBORHOOD USE PERMIT # 2140441 FOR AUTO SERVICE STATION

4333-4337 HOME AVENUE, SAN DIEGO, CA 92105

LEGEND:

- PROPERTY LINE
- EXISTING SETBACKS
- ZONE DELINEATION
- EXISTING BUILDING
- EXISTING CURB & GUTTER
- EXISTING TREES
- ADA PATH OF TRAVEL
- VISIBILITY AREA
- APPROXIMATE DRAINAGE PATTERN
- PROPOSED BUILDING
- PROPOSED LANDSCAPING
- PROPOSED UTILITY CONNECTION (SEWER, WATER, ROOF DRAIN) S W RD
- PROPOSED SEWER LINE
- PROPOSED WATER LINE
- PROPOSED STRIPED DIRECTIONAL ARROWS



SITE PLAN
SCALE 1"=30'

PROPOSED CURB RAMP:
SCALE: 1"=10'

TOPOGRAPHIC SOURCE:
SITE TOPOGRAPHY SHOWN IS PER FIELD SURVEY BY GARY ENGINEERING DATED MARCH 07, 2018.

BENCHMARK:
BRASS PLUG LOCATED IN CURB RETURN AT THE NORTHEAST CORNER OF HOME AVENUE AND FAIRMONT AVENUE INTERSECTION
ELEVATION: 157.95
DATUM: NGVD 29 FEET

REFERENCE DRAWING NO.
28984-D, 14805-D, 28477-D

SHEET INDEX:

DEVELOPMENT SUMMARY
THE PROPOSED PROJECT IS SEEKING:
-APPROVAL OF A NEIGHBORHOOD USE PERMIT (NUP) TO CONTINUE THE AUTO SERVICE STATION OPERATION W/ EXISTING MINI-MARKET.
-APPROVAL OF A CONDITIONAL USE PERMIT (CUP) TO CONTINUE ABC TYPE 20 BEER AND WINE LICENSE FOR OFF-SITE CONSUMPTION ALCOHOL BEVERAGE SALE, LOCATED AT 4333 HOME AVE IN THE CC-1-3-ZONE.
-APPROVAL OF A CONDITIONAL USE PERMIT (CUP) TO OPERATE A 1,200 SF MARIJUANA OUTLET (MO) ON THE FIRST FLOOR OF A 2,400 SF BUILDING THAT IS TO BE CONSTRUCTED.

PROJECT TEAM:
LATITUDE 33 PLANNING AND ENGINEERING
9968 HIBERT STREET 2ND FLOOR, SAN DIEGO, CA 92131
92121 (858) 751-0633 FAX (858) 751-0634

OWNER:
AVAD INVESTMENTS, INC.
4333 & 4337 HOME AVE.
SAN DIEGO, CA 92105

LEGAL DESCRIPTION:
PARCEL 1 OF PARCEL MAP NO. 17969 IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON DECEMBER 22, 1997 AS INSTRUMENT NO. 1997-0651626 OF OFFICIAL RECORDS.

ASSESSOR'S PARCEL NO.
541-060-19-00

ZONING DESIGNATION:
CC-1-3 & IL-3-1

OVERLAY ZONE DESIGNATION:
-HILLSIDE REVIEW OVERLAY ZONE

EXISTING/PROPOSED USE:
-EXISTING: COMMUNITY COMMERCIAL/GENERAL COMMERCIAL WITH LIGHT MANUFACTURING: GAS STATION AND MINI MART WITH BEER & WINE SALES
-PROPOSED: COMMUNITY COMMERCIAL/GENERAL COMMERCIAL, MARIJUANA OUTLET, & GAS STATION WITH MINI MART WITH BEER & WINE SALES

EASEMENTS:
1. SEWER EASEMENT RESERVED PER DEED REC. 10-31-1980 AS F/P. 80-364441, O.R. (CITY DWG. NO. 14805-2-D).
2. DRAINAGE EASEMENT RESERVED PER DEED REC. 10-31-1980 AS F/P 80-364441, O.R.
3. 4' WIDE SDG&E EASEMENT PER DEED REC. 2-01-1977, F/P 77-038930, O.R.

GEOLOGIC HAZARD CATEGORY:
32 - LOW POTENTIAL, FLUCTUATING GROUNDWATER MINOR DRAINAGES

ENVIRONMENTALLY SENSITIVE LAND:
NONE

LIMIT OF WORK:
ASSESSORS PARCEL NUMBER 541-060-19-00

TRANSIT STOPS:
TRANSIT STOPS DIRECTLY ADJACENT TO PROJECT: NONE
SEE VICINITY MAP ABOVE.

PARKING REQUIREMENTS:

PARKING REQUIREMENTS	PROPOSED USE/SQ.FT.	RATIO	MIN. REQUIRED	PROVIDED
ZONE IL-3-1				
GROUND FLOOR	MO/1200	5	6	6
SECOND FLOOR	VACANT/1200	N/A	0	3
ZONE CC-3-1				
SINGLE STORY	GAS SERVICE STATION/2944	5	15	15
TOTAL:			21	24

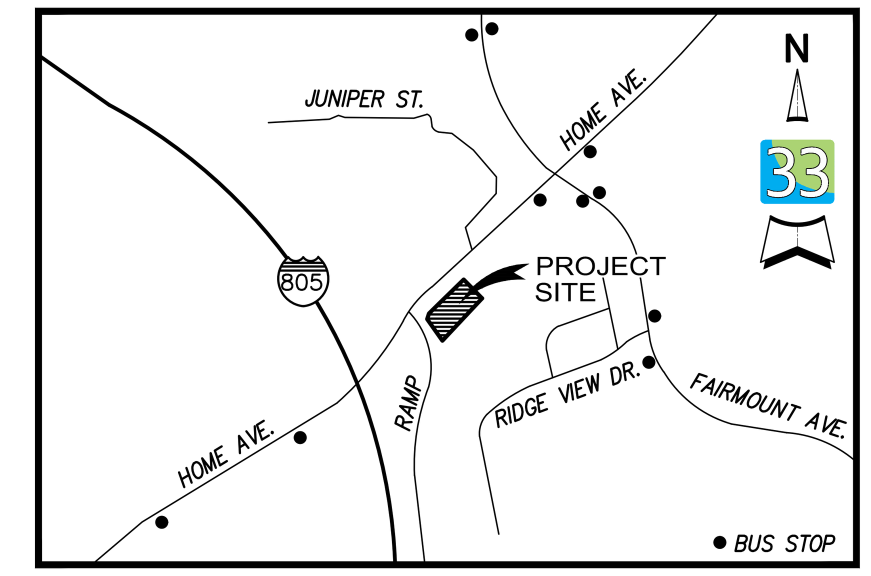
PROVIDED PARKING	MIN. REQUIRED	PROVIDED
ADA PARKING	1	1
VAN ACCESSIBLE ADA PARKING	1	1
STANDARD PARKING	21	22
TOTAL PROVIDED:		24

PROVIDED CARPOOL/ZERO EMISSION PARKING	MIN. REQUIRED	PROVIDED
CARPOOL/ZERO EMISSION PARKING	1	1
TOTAL PROVIDED:		1

	MIN. REQUIRED	PROVIDED
MOTORCYCLE PARKING	2	2
TOTAL PROVIDED:		2

PROVIDED BICYCLE PARKING	MIN. REQUIRED	PROVIDED
LONG TERM	1	1
SHORT TERM	2	5
TOTAL PROVIDED:		6

VICINITY MAP:



GROSS SITE AREA/FLOOR AREA:
-GROSS SITE AREA: 46,952 SF (1.08 ACRES)
-EXISTING FLOOR AREA: 2,944 SF (0.07 ACRES)
-EXISTING FLOOR AREA RATIO: 6.3%

-PROPOSED FLOOR AREA: 5,344 (0.12 ACRES)
-PROPOSED FLOOR AREA RATIO: 11.4%

LANDSCAPE AREA SQUARE FOOTAGE:
EXIST: 9,000 SF
PROPOSED: 15,174 SF

BUILDING HEIGHT:
(E) MINI MARKET: 24'-6" (1 STORY)
(E) CANOPY: 19'-1" (1 STORY)
(P) MO BUILDING: 34'-4" (2 STORIES)

YEAR CONSTRUCTED:
(E) MINI MARKET: 1998
(E) CANOPY: 1998
(P) MO BUILDING: PROPOSED

TYPE OF CONSTRUCTION:
(E) MINI MARKET: V-B
(E) CANOPY: II-N
(P) MO BUILDING: III

OCCUPANCY CLASSIFICATION:
(E) MINI MARKET: M
(E) CANOPY: S3
(P) MO BUILDING: V-B

NOTES:
1. OWNER SHALL PROVIDE BUILDING ADDRESS NUMBERS, VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY PER FHPS P-00-6 (UFC 901.4.4)
2. NO OBSTRUCTION INCLUDING LANDSCAPING OR WALLS IN THE VISIBILITY AREA SHALL EXCEED 3 FEET IN HEIGHT.
3. EXISTING WATER AND SEWER SERVICES TO REMAIN.
4. PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITTEE SHALL SUBMIT A WATER POLLUTION CONTROL PLAN (WPCP). THE WPCP SHALL BE PREPARED IN ACCORDANCE WITH THE GUIDELINES IN PART 2 CONSTRUCTION BMP STANDARDS CHAPTER 4 OF THE CITY'S STORM WATER STANDARDS.
5. PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITTEE SHALL INCORPORATE ANY CONSTRUCTION BEST MANAGEMENT PRACTICES NECESSARY TO COMPLY WITH CHAPTER 14, ARTICLE 2, DIVISION 1 (GRADING REGULATIONS) OF THE SAN DIEGO MUNICIPAL CODE, INTO THE CONSTRUCTION PLANS OR SPECIFICATIONS.

GRADING QUANTITIES
SITE DISTURBANCE: 15,530 SF
- 10,300 SF OF PERVIOUS AREA DISTURBED
- 5,230 SF OF IMPERVIOUS AREA DISTURBED
  - * IMPERVIOUS DISTURBED AREA REPLACED W/ PROPOSED IMPERVIOUS SURFACE: 3,180 SF
  - * IMPERVIOUS DISTURBED AREA REPLACED W/ PROPOSED PERVIOUS LANDSCAPE: 2,050 SF

TOTAL EXPORT: 210 CUBIC YARDS (CUT)
- 190 CY FOR LANDSCAPING
- 15 CY FOR BUILDING ADDITION FOUNDATION
- 5 CY FOR WATER AND SEWER LATERALS

MAXIMUM EXCAVATION DEPTH FOR SITE WORK:
- 1.5' FOR PROPOSED CONCRETE PAVEMENT
- 5.5' FOR PROPOSED SEWER LATERAL
- 3.5' FOR PROPOSED BUILDING ADDITION FOOTING

Prepared By:
Name: LATITUDE 33 PLANNING & ENGINEERING
Address: 9968 HIBERT ST 2ND FLOOR
SAN DIEGO, CA 92131
Phone #: (858) 751-0633
Fax #: (858) 751-0634

Project Address:
4333 HOME AVENUE
SAN DIEGO, CA 92105

Project Name:
4333-4337 HOME AVENUE CUP

Project Number:
593686

Sheet Title:
COVER SHEET & SITE PLAN

Revision 14:	
Revision 13:	
Revision 12:	
Revision 11:	
Revision 10:	
Revision 9:	
Revision 8:	
Revision 7:	
Revision 6:	3/26/2019
Revision 5:	3/7/2019
Revision 4:	12/10/2018
Revision 3:	10/29/2018
Revision 2:	9/20/2018
Revision 1:	7/26/2018
Original Date:	1/8/2018

Sheet 1 of 8

DEP#

PREPARED IN THE OFFICE OF:
latitude 33 PLANNING & ENGINEERING
9968 Hibert Street 2nd Floor, San Diego, CA 92131
Tel 858.751.0633

H:\1800\1822.00 - AVAD Home Ave - CUP\Engineering\Plans\CUP\1822.00 CUP_SHEET1.dwg 4/3/19

Appendix A

CalEEMod Model Outputs

4337 Home Ave Marijuana Retail Outlet

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	1.20	1000sqft	0.03	1,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2019
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Model for operational emissions only.

Vehicle Trips - Trip rates based on Access Study.

Fleet Mix - Customer and employee vehicle fleets assumed to be made up of light-duty autos and light-duty trucks.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	PhaseEndDate	12/16/2019	12/9/2019
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.58	0.71
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.6000e-003	0.00
tblFleetMix	MCY	6.2790e-003	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	1.3570e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.8880e-003	0.00
tblFleetMix	SBUS	7.4200e-004	0.00
tblFleetMix	UBUS	2.0880e-003	0.00
tblVehicleTrips	ST_TR	42.04	250.00
tblVehicleTrips	SU_TR	20.43	250.00
tblVehicleTrips	WD_TR	44.32	250.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum											**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum											**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy											0.0000	5.0685	5.0685	2.0000e-004	4.0000e-005	5.0865
Mobile											0.0000	156.0603	156.0603	5.1500e-003	0.0000	156.1891
Waste											0.2558	0.0000	0.2558	0.0151	0.0000	0.6337
Water											0.0282	0.5761	0.6043	2.9200e-003	7.0000e-005	0.6991
Total											**0.2840**	**161.7048**	**161.9888**	**0.0234**	**1.1000e-004**	**162.6083**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy											0.0000	5.0685	5.0685	2.0000e-004	4.0000e-005	5.0865
Mobile											0.0000	156.0603	156.0603	5.1500e-003	0.0000	156.1891
Waste											0.2558	0.0000	0.2558	0.0151	0.0000	0.6337
Water											0.0282	0.5761	0.6043	2.9200e-003	7.0000e-005	0.6991
Total											**0.2840**	**161.7048**	**161.9888**	**0.0234**	**1.1000e-004**	**162.6083**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	12/10/2019	12/9/2019	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,800; Non-Residential Outdoor: 600; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	156.0603	156.0603	5.1500e-003	0.0000	156.1891
Unmitigated											0.0000	156.0603	156.0603	5.1500e-003	0.0000	156.1891

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Strip Mall	300.00	300.00	300.00	462,010	462,010
Total	300.00	300.00	300.00	462,010	462,010

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Strip Mall	0.710000	0.060000	0.230000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000	4.9257	4.9257	2.0000e-004	4.0000e-005	4.9428
Electricity Unmitigated											0.0000	4.9257	4.9257	2.0000e-004	4.0000e-005	4.9428
NaturalGas Mitigated											0.0000	0.1428	0.1428	0.0000	0.0000	0.1437
NaturalGas Unmitigated											0.0000	0.1428	0.1428	0.0000	0.0000	0.1437

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Strip Mall	2676											0.0000	0.1428	0.1428	0.0000	0.0000	0.1437
Total												**0.0000**	**0.1428**	**0.1428**	**0.0000**	**0.0000**	**0.1437**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Strip Mall	2676											0.0000	0.1428	0.1428	0.0000	0.0000	0.1437
Total												**0.0000**	**0.1428**	**0.1428**	**0.0000**	**0.0000**	**0.1437**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Strip Mall	15072	4.9257	2.0000e-004	4.0000e-005	4.9428
Total		**4.9257**	**2.0000e-004**	**4.0000e-005**	**4.9428**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Strip Mall	15072	4.9257	2.0000e-004	4.0000e-005	4.9428
Total		**4.9257**	**2.0000e-004**	**4.0000e-005**	**4.9428**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total											**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total											**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6043	2.9200e-003	7.0000e-005	0.6991
Unmitigated	0.6043	2.9200e-003	7.0000e-005	0.6991

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Strip Mall	0.088887 / 0.0544791	0.6043	2.9200e-003	7.0000e-005	0.6991
Total		**0.6043**	**2.9200e-003**	**7.0000e-005**	**0.6991**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Strip Mall	0.088887 / 0.0544791	0.6043	2.9200e-003	7.0000e-005	0.6991
Total		**0.6043**	**2.9200e-003**	**7.0000e-005**	**0.6991**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2558	0.0151	0.0000	0.6337
Unmitigated	0.2558	0.0151	0.0000	0.6337

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Strip Mall	1.26	0.2558	0.0151	0.0000	0.6337
Total		**0.2558**	**0.0151**	**0.0000**	**0.6337**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Strip Mall	1.26	0.2558	0.0151	0.0000	0.6337
Total		**0.2558**	**0.0151**	**0.0000**	**0.6337**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

4337 Home Ave Hypothetical Land Use

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Fast Food Restaurant w/o Drive Thru	1.20	1000sqft	0.03	1,200.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.6 **Precipitation Freq (Days)** 40

Climate Zone 13 **Operational Year** 2019

Utility Company San Diego Gas & Electric

CO2 Intensity (lb/MWhr) 720.49 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Model for operational emissions only.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	PhaseEndDate	12/16/2019	12/9/2019

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum											**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum											**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy											0.0000	26.3437	26.3437	8.2000e-004	3.3000e-004	26.4630
Mobile											0.0000	589.9353	589.9353	0.0369	0.0000	590.8582
Waste											2.8053	0.0000	2.8053	0.1658	0.0000	6.9501
Water											0.1156	1.6344	1.7500	0.0119	2.9000e-004	2.1359
Total											**2.9209**	**617.9134**	**620.8343**	**0.2155**	**6.2000e-004**	**626.4072**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy											0.0000	26.3437	26.3437	8.2000e-004	3.3000e-004	26.4630
Mobile											0.0000	589.9353	589.9353	0.0369	0.0000	590.8582
Waste											2.8053	0.0000	2.8053	0.1658	0.0000	6.9501
Water											0.1156	1.6344	1.7500	0.0119	2.9000e-004	2.1359
Total											**2.9209**	**617.9134**	**620.8343**	**0.2155**	**6.2000e-004**	**626.4072**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	12/10/2019	12/9/2019	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,800; Non-Residential Outdoor: 600; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	589.9353	589.9353	0.0369	0.0000	590.8582
Unmitigated											0.0000	589.9353	589.9353	0.0369	0.0000	590.8582

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant w/o Drive Thru	859.20	835.20	600.00	1,320,279	1,320,279
Total	859.20	835.20	600.00	1,320,279	1,320,279

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant w/o Drive Thru	9.50	7.30	7.30	1.50	79.50	19.00	51	37	12

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant w/o Drive Thru	0.581689	0.044135	0.186694	0.113515	0.018244	0.005600	0.015197	0.022573	0.001888	0.002088	0.006279	0.000742	0.001357

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000	15.1770	15.1770	6.1000e-004	1.3000e-004	15.2299
Electricity Unmitigated											0.0000	15.1770	15.1770	6.1000e-004	1.3000e-004	15.2299
NaturalGas Mitigated											0.0000	11.1667	11.1667	2.1000e-004	2.0000e-004	11.2331
NaturalGas Unmitigated											0.0000	11.1667	11.1667	2.1000e-004	2.0000e-004	11.2331

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant w/o Drive Thru	209256											0.0000	11.1667	11.1667	2.1000e-004	2.0000e-004	11.2331
Total												**0.0000**	**11.1667**	**11.1667**	**2.1000e-004**	**2.0000e-004**	**11.2331**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant w/o Drive Thru	209256											0.0000	11.1667	11.1667	2.1000e-004	2.0000e-004	11.2331
Total												**0.0000**	**11.1667**	**11.1667**	**2.1000e-004**	**2.0000e-004**	**11.2331**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant w/o Drive Thru	46440	15.1770	6.1000e-004	1.3000e-004	15.2299
Total		**15.1770**	**6.1000e-004**	**1.3000e-004**	**15.2299**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant w/o Drive Thru	46440	15.1770	6.1000e-004	1.3000e-004	15.2299
Total		**15.1770**	**6.1000e-004**	**1.3000e-004**	**15.2299**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total											**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total											**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.7500	0.0119	2.9000e-004	2.1359
Unmitigated	1.7500	0.0119	2.9000e-004	2.1359

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant w/o Drive Thru	0.36424 / 0.0232494	1.7500	0.0119	2.9000e-004	2.1359
Total		**1.7500**	**0.0119**	**2.9000e-004**	**2.1359**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant w/o Drive Thru	0.36424 / 0.0232494	1.7500	0.0119	2.9000e-004	2.1359
Total		**1.7500**	**0.0119**	**2.9000e-004**	**2.1359**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.8053	0.1658	0.0000	6.9501
Unmitigated	2.8053	0.1658	0.0000	6.9501

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	13.82	2.8053	0.1658	0.0000	6.9501
Total		**2.8053**	**0.1658**	**0.0000**	**6.9501**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	13.82	2.8053	0.1658	0.0000	6.9501
Total		**2.8053**	**0.1658**	**0.0000**	**6.9501**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation