Appendix H

Hydrology Report

Appendix H1

Hydrology Technical Memorandum

Watearth™
Water Resources + Green Infrastructure

HYDROLOGY TECHNICAL MEMORANDUM

Project: **Los Angeles County Olive View - UCLA Medical Center EIR**
Client: ICF International/Los Angeles County
Prepared By: Jennifer J. Walker, P.E., D.WRE, CFM, QSD
Date: 5-6-2019
Purpose: Memorandum of Hydrology and Water Quality Results

Note: Draft memorandum released under the authority of Jennifer J. Walker, P.E. (C77079), D.WRE, CFM on 5/06/2019 and should not be used for design or construction.

INTRODUCTION

This memorandum documents hydrologic and Low Impact Development (LID) modeling results for the build-out of Tier 1 of the Olive View - UCLA Medical Center project as described in the August 2015 *Olive View-UCLA Medical Center Master Plan.* The project is anticipated to include post-construction stormwater Best Management Practices (BMPs) and Low Impact Development (LID) features. Hydrologic and LID analyses are based on the Tier 1 development concept and layout described in the *Master Plan. Tier 2 development is addressed at a conceptual, less detailed level without calculations as development plans are less solidified and will occur over a longer time-frame.*

Development in Tier 1 of the project focuses on a new Ambulatory Care Center, expanded Inpatient Services in the existing hospital, a new Community Center, construction of new UCLA offices and research facilities, Central Utility Expansion, and a new Materials Management Building. Additionally, Tier 1 development contains plans for a new Administration building along with Community Open Space and Landscaping throughout the campus. This new development will include additional parking lots/structures and pedestrian walkways. Finally, Tier 1 development will require upgraded utility infrastructure, including sewer, water, storm drains, and telecommunication.

As shown on Exhibit 1, the project site is located within Los Angeles County's San Fernando Valley Cluster/Valley Care region. The site located near Sylmar, California and is bounded by the Angeles National Forest on the North, Olive View Drive on the South, Wilson Canyon Channel on the East, and Bucher Avenue to the West. The project site is mostly developed and land cover consists largely of buildings and pavement with an existing impervious cover of approximately 65% in Tier 1. There are currently large tracts of open space in and around the campus consisting of various types of vegetation (trees, shrubs, turf grass, bare soil, etc.) in Tier 2.

In accordance with the County of Los Angeles *Low Impact Development Standards Manual*, published February 2014 (*LID Manual*), stormwater Best Management Practices (BMPs) are proposed and analyzed as a post-construction water quality and hydrologic treatment measure for development of the campus. The Low Impact Development Plan from the *Master Plan* illustrates the location of the following LID features at the site:

- Bioretention
- Permeable Pavement

- Dry Wells (planned as a potential parking lot LID feature per County staff).

The goals established for this project include:

- ✓ Meet Los Angeles County Low Impact Development (LID) and stormwater treatment criteria;
- ✓ Use LID to reduce proposed conditions peak flows and runoff volumes to below existing conditions;
- ✓ Simulate undeveloped conditions through use of infiltration and groundwater recharge across the project site.

EXISTING CONDITIONS

Existing conditions for the project are described based on evaluation of prior reports, available data, and results of the site reconnaissance. As shown in Exhibit 1, the proposed Olive View site is located on the existing University of California Los Angeles (UCLA) Olive View Medical Center. The Center is located in Sylmar, is bounded by the Angeles National Forest to the north and Olive View Drive to the south and is located west of single-family housing, north of residential and commercial-industrial land use, and east of the Santa Susana Mountains. The location of site is considered part of the San Fernando Valley, within the City of Los Angeles.

The Olive View project site is an institutional space with elevations ranging from 1,415 feet (ft) at the southern edge of the campus up to 1,540 ft. This range is due to the mountain landscape within the Angeles National Forest just north of and adjacent to the campus. The impervious cover is approximately 65% in Tier 1 (Exhibits 2, 7A and 7B). Land use of the area surrounding the campus is largely open space with a few single-family homes in the vicinity.

Existing conditions are discussed in the sections below for the following categories:

- Surface Water Quality
- Groundwater
- Hydrology
- Hydraulics
- Flooding and Hazards

Surface Water Quality

The project site is currently developed and land cover consists of medical and administrative buildings, paved roadways and parking lots, and tracts of vegetated open space throughout, with an existing impervious cover of 65-percent (Exhibit 2). Photos from the site reconnaissance are included in Appendix I. Land use around the site is varied (Exhibits 7A and 7B). To the north of the site is mostly vacant/undifferentiated open space containing flood waterways and electrical power facilities-powerlines. Directly to the east and west of the site is also vacant/undifferentiated open space. South of the campus is made up of low-rise apartments, low-

density single-family homes, and freeways/major roads and is considered retail/commercial land use for the water quality analysis.

The existing site does not include water quality or stormwater controls, such as stormwater BMPs, LID features, or hydromodification management facilities. Additionally, stormwater detention and other flood control features are not present on-site. Instead, the existing site manages rainfall and stormwater runoff by overland sheet flow towards Wilson Canyon and primarily toward a series of on-site catch basins and discharges to the City of Los Angeles storm drain line at Olive View Drive.

Typical Pollutants from Project Site

Stormwater runoff from the existing site is typical of developed areas, which include moderate amounts of pollutants. TSS and Trash are common in single-family residential areas and commercial areas. Additionally, nutrients from fertilizers as well as herbicides and pesticides associated with landscape maintenance are also likely to be present in stormwater runoff from the vicinity into Wilson Canyon, as a photo shows from the site reconnaissance on Appendix I. Also, as shown in the photos included in Appendix I, many of the drainage inlets in roadways adjacent to the site include grates or screens to prevent or limit trash from entering the storm drain system and discharging to the receiving water (Wilson Canyon). The site drains to Wilson Canyon Drain, Schoolhouse Drain, and most of it to the Olive View Drive storm drain system. Urban runoff and human activities may generate bacteria and other pollutants around Wilson Canyon and Schoolhouse Canyon.

Table 1 summarizes typical pollutants of concern based on land use. The majority of the pollutants are from the City of Los Angeles Department of Public Works *Low Impact Development Standards Manual.* Also included in this table are other pollutants that the U.S. EPA recognizes to be typically associated with land use present on the project site.

TABLE 1: POLLUTANTS OF CONCERN BY LAND USE

Land Use	Pollutants of Concern													
	Suspended Solids[2]	Total Phosphorus[2]	Total Nitrogen[2]	Total Kjedahl Nitrogen[2]	Cadmium, Total[2]	Chromium, Total[2]	Copper Total[2]	Lead Total[2]	Zinc, Total[2]	Biological Oxygen Demand	Chemical Oxygen Demand	Fecal Coliform[5]	Hydrocarbons[5]	Trash[5]
Commercial	x	x	x	x	[4]	[4]	x	x	x					
Industrial		x	x	x	[4]	[4]	x	x	x					
Transportation (streets, roads)	x	x	x	x	[4]	[4]	x	x	x					
Institutional (educational facilities)	x				[4]	[4]	x		x					
Vacant/Undeveloped[5]	x	x	x	x				x	x					
Project Site	x	x	x	x	x	x	x	x	x	x	x	x	x	x

[1] Adapted from Table A-3 of the *Technical Manual for Stormwater Best Management Practices in the County of Los Angeles* (February 2004) and the Southern California Coastal Water Research Project Land Use Specific Storm Water Monitoring Data. X= exceedance of "standard" by observed median/average concentration; blank = no exceedance of "standard" by observed median/average concentration.
[2] Derived from Table 11 of the 2012 Los Angeles County MS4 Permit (page 104).
[3] Critical facilities include automobile dismantling (SIC 50xx), automobile repair (SIC 75xx), metal fabrication (SIC 34xx), motor freight (SIC 42xx), automobile dealerships (SIC 55xx), chemical manufacturing (SIC 28xx), and machinery manufacturing (SIC 35xx).
[4] No available date to determine if these pollutants of concern originate from this land use. Pollutant is assumed to be produced by this land use unless otherwise proven by the project applicant.
[5] Based on 2006 U.S. EPA *Guide to Stormwater Pollutant Concentrations*.

Pollutants of Concern Based on Receiving Water Impairment

The Clean Water Act (CWA) requires that states adopt water quality standards for receiving waters. Water quality standards designate beneficial uses for the receiving water and include criteria required to support those beneficial uses. Water quality criteria are either narrative statements related to the quality of water to support a particular use or maximum concentrations of levels of pollutants (i.e., bacteria, etc.). As part of the CWA, when monitoring data indicates that a pollutant is exceeded, the receiving water is classified as impaired and placed on the *CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs* (303(d) List). A Total Maximum Daily Load (TMDL) is then developed for the pollutant(s) causing the impairment. The purpose of the TMDL is to limit the amount of pollutant(s) discharged to the receiving water from all sources (i.e., stormwater runoff, wastewater, agriculture).

There are several pollutants of concern related to the receiving body of water and include those pollutants with a developed TMDL requirement, other pollutants listed on the 303(d) List, and pollutants of concern for the Sylmar watershed management area based on the *Water Quality Compliance Master Plan for Urban Runoff, 2009.* The project is located adjacent to Wilson Canyon just upstream of the confluence with Schoolhouse Canyon. Table 2 incudes data from the State Water Resources Control Board (SWRCB), based on the combined California 2010 303(d) List and includes pollutants that have a completed TMDL, pollutants that require development of a TMDL, and pollutants that are being addressed by actions other than a TMDL. The project area is located within the Lower Pacoima watershed (Exhibit 5), which was not listed in the 303(d) List. It is, however, within the Tujunga Wash Watershed shown in Figure 2-6 of the Water Quality Compliance Master Plan for Urban Runoff (Appendix F). The table specifically addresses the Tujunga Watershed and Reach 4 of the Los Angeles River into which runoff from the Lower Pacoima Watershed eventually discharges.

TABLE 2: LOS ANGELES RIVER IMPAIRED WATERS 303(d) List[1]

WATER BODY NAME	POLLUTANT	POLLUTANT CATEGORY	TMDL STATUS	USEPA TMDL APPROVED DATE
Los Angeles River Reach 4 (Sepulveda Dr. to Sepulveda Dam)	Copper	Metals/Metalloids	TMDL completed	29-Oct-08
Los Angeles River Reach 4 (Sepulveda Dr. to Sepulveda Dam)	Lead	Metals/Metalloids	TMDL completed	29-Oct-08

WATER BODY NAME	POLLUTANT	POLLUTANT CATEGORY	TMDL STATUS	USEPA TMDL APPROVED DATE
Los Angeles River Reach 4 (Sepulveda Dr. to Sepulveda Dam)	Ammonia	Nutrients	TMDL completed	18-Mar-04
Los Angeles River Reach 4 (Sepulveda Dr. to Sepulveda Dam)	Nutrients (Algae)	Nutrients	TMDL completed	18-Mar-04
Los Angeles River Reach 4 (Sepulveda Dr. to Sepulveda Dam)	Coliform Bacteria	Pathogens	TMDL completed	23-Mar-12
Los Angeles River Reach 4 (Sepulveda Dr. to Sepulveda Dam)	Trash	Trash	TMDL completed	24-Jul-08
Tujunga Wash (LA River to Hansen Dam)	Copper	Metals/Metalloids	TMDL completed	29-Oct-08
Tujunga Wash (LA River to Hansen Dam)	Ammonia	Nutrients	TMDL completed	18-Mar-04
Tujunga Wash (LA River to Hansen Dam)	Coliform Bacteria	Pathogens	TMDL completed	23-Mar-12
Tujunga Wash (LA River to Hansen Dam)	Trash	Trash	TMDL completed	24-Jul-08

[1] 2010 EPA approved 303(d) Final List

Table 3a shows pollutant and other constituent concentrations as measured at the Los Angeles mass emissions site. Pollutants and concentrations are courtesy of Section 5 of the Los Angeles River Watershed Report, 2005 (Appendix E). The project site is located within the Tujunga

Water Management Area, according to Figure 2-6 of the County of LA LID Handbook (Appendix F). Multiple TMDLs are in effect for the Tujunga Watershed Management Area for the following pollutants:

- Metals (Copper and Lead)
- Nutrients (Algae and Ammonia)
- Trash
- Coliform Bacteria

TABLE 3A: ANNUAL MEAN CONCENTRATION FOR CONSTITUENTS MEASURED AT THE LOS ANGELES RIVER MASS EMISSION SITE, 2004-2005.

Constituent	Units	Annual Mean Concentration	Pollutant Category
Alkalinity	ug/l	78.4	Metals/Metalloids
Bicarbonate	ug/l	93.3	Other Organics
BOD	ug/l	29.6	Other Organics
Calcium	ug/l	25.2	Other Organics
Chloride	ug/l	31	Other Organics
COD	ug/l	50.39	Other Organics
Cyanide	ug/l	0.26	Other Inorganics
Dissolved Oxygen	ug/l	7.8	Other Organics
Fluoride	ug/l	0.24	Other Organics
Hardness	ug/l	85	Hardness
Magnesium	ug/l	5.43	Metals/Metalloids
MBAS	ug/l	0.18	Other Organics
Oil and Grease	ug/l	2.1	Other Inorganics
pH	ug/l	7.16	pH
Potassium	ug/l	5.69	Metals/Metalloids
Sodium	ug/l	30.34	Other Organics
Specific Conductivity	ug/l	300	Conductivity
Sulfate	ug/l	39.38	Other Organics
Total Dissolved Solids	ug/l	199	Other Organics
Total Organic Carbon	ug/l	14.49	Other Organics
Total Phenols	ug/l	1.96	Other Inorganics
Total Suspended Solids	ug/l	376	Other Organics
Turbidity	ug/l	52	Turbidity
Ammonia	ug/l	1.26	Other Organics

Constituent	Units	Annual Mean Concentration	Pollutant Category
Dissolved Phosphorus	ug/l	0.23	Other Organics
NH3-N	ug/l	1.03	Other Organics
Nitrate	ug/l	5.83	Other Organics
Total Phosphorus	ug/l	0.42	Other Organics
Fecal Coliform	ug/l	190,034	Bacteria
Enterococcus	ug/l	248,100	Bacteria
Total Coliform	ug/l	1,600,260	Bacteria
Total Aluminum	ug/l	2,378	Metals/Metalloids
Total Arsenic	ug/l	2.27	Metals/Metalloids
Total Cadmium	ug/l	0.64	Metals/Metalloids
Total Copper	ug/l	36.8	Metals/Metalloids
Total Lead	ug/l	29.9	Metals/Metalloids
Total Selenium	ug/l	2.57	Metals/Metalloids
Total Zinc	ug/l	127	Metals/Metalloids

Table 3b and Appendix K of the County of LA LID Handbook list the pollutants of concern for the Los Angeles River Watershed Management Area in which the project site occurs.

TABLE 3B: TIER 3 POLLUTANTS OF CONCERN FOR THE LOS ANGELES RIVER WATERSHED MANAGEMENT AREA

Parameter	Parameter
pH	Total Dissolved Solids
E. *coli* Bacteria	Turbidity
Total Coliform Bacteria [1]	Aluminum, Total Recoverable
Fecal Coliform Bacteria[1]	Cyanide, Total Recoverable
Enterococcus Bacteria [1]	Copper, Total Recoverable
Chloride	Mercury, Total Recoverable
Nitrite Nitrogen, Total (as N)	Selenium, Total Recoverable
Sulfate	

[1] Apply only to discharges to the estuary and the ocean

Total Maximum Daily Loads

A TMDL is a regulatory term in the U.S. CWA, describing the value of the maximum amount of a pollutant that may enter a water body while still meeting water quality standards. There are several listed TMDLs for the Los Angeles River area in Table 4 below from the Los Angeles Region's *Basin Plan* (Appendix M) and from the 2010 US EPA approved 303d list. Among those listed are: trash, cadmium, copper, lead, selenium, zinc, chlordane, dichlorodiphenyltrichloroethane (DDTs), Total PCBs, E. coli bacteria, fecal coliform, Enterococcus, and total coliform. The loading capacities for each pollutant are:

TABLE 4: TMDLS FOR LOS ANGELES RIVER

Pollutant	Loading Capacity (ug/L)
Trash	0
Total Recoverable Metals	
Copper	18
Lead	55
Selenium	5
Zinc	119
Toxic Pollutants (Sediment)	
Cadmium	1.2
Copper	34
Lead	46.7
Silver	1
Chlordane	0.5
DDT	1.58
Total PCBs	22.7
Total PAH	4,022
E. Coli (MPN)	126
Fecal Coliform (MPN)	200

Summary

Table 5 summarizes potential pollutants from the site based on land use along with pollutants of concern from the various sources described above and Table 6 summarizes pollutants of concern specific to the Los Angeles River (Appendix E). Tables 7A and 7B summarizes pollutant influent based on the land use areas in Tier 1 of the Olive View - UCLA Medical Center project.

TABLE 5: SUMMARY OF POTENTIAL POLLUTANTS AND POLLUTANTS[1] OF CONCERN

Nutrients	Metals	Organics	Other	Pathogens	Sediment/Solids
Kjedahl Nitrogen	Cadmium	BOD	Chlordane	Coliform Bacteria	Suspended Solids
Total Nitrogen	Chromium	COD	pH	Viruses	Total Dissolved Solids
Total Phosphorous	Copper	DDT	Sulfate	E. coli Bacteria	Turbidity
Ammonium	Lead	DO	Trash		
Magnesium	Selenium	Hydrocarbons	Chlordane		
Nitrate	Silver	TOC	Calcium Bicarbonate		
Nitrite	Zinc	PAH	Chloride		
Algae	Aluminum	PCB	Cyanide		
Potassium	Arsenic	Phenols	Fluoride		
	Mercury		Hardness		
			MBAS		
			Sodium		

[1] Pollutants from the 2010 U.S. EPA approved 303(d) list.

TABLE 6: POLLUTANTS OF CONCERN FOR LOS ANGELES RIVER

Constituent	Constituent of Concern	Comparison to 303(d) List
Cyanide	•	
Enterococcus	•	•
Fecal Coliform	•	•
Total Coliform	•	•
Algae		•
Ammonia		•
Oil and Grease		•
Total Aluminum	•	•
Total Copper	•	
Total Lead	•	•
Total Zinc	•	
Dissolved Cadmium		•
Dissolved Copper	•	•
Dissolved Lead	•	•
Dissolved Zinc	•	•
Chlordane		•
Dichloroethylene		•
Tetrachloroethylene		•
Trichloroethylene		•
Alkalinity		•
Bicarbonate		•

TMDL Information courtesy of Section 5 of the *Los Angeles River Watershed Final Report*, August 2005 (Appendix E).

TABLE 7A: TIER 1 VACANT/OPEN AREA POLLUTANT LOADS

Pollutant	Concentration (lbs/acre-yr)	Annual Load (lbs/yr)
TSS	3.0	199
TP	0.0	2
TKN	1.5	100
NH_3-N	NA	-
NO_2+NO_3-N	0.3	20

Pollutant	Concentration (lbs/acre-yr)	Annual Load (lbs/yr)
BOD	NA	-
COD	2.0	133
Pb	0.0	0
Zn	NA	-
Cu	NA	-

[1]Annual loads are courtesy of EPA *Guide to Urban Stormwater Pollutant Concentrations*, 2006.
[2] While Selenium is listed as a pollutant of concern in the 303(d) list, the rate is expected to have similar performance rates during modeling as the other heavy metals and was therefore omitted from the pollutant levels.

TABLE 7B: TIER 1 RETAIL/COMMERCIAL POLLUTANT LOADS

Pollutant	Concentration (lbs/acre-yr)	Annual Load (lbs/yr)
TSS	1000	66,400
TP	1.5	100
TKN	6.7	445
NH_3-N	1.9	126
NO_2+NO_3-N	3.1	206
BOD	62	4,117
COD	420	27,888
Pb	2.7	179
Zn	2.1	139
Cu	0.4	27

[1]Annual loads are courtesy of EPA Guide to Urban Stormwater Pollutant Concentrations, 2006.
[2] While Selenium is listed as a pollutant of concern in the 303(d) list, the rate is expected to have similar performance rates during modeling as the other heavy metals and was therefore omitted from the pollutant levels.

Groundwater

As indicated on the groundwater basin exhibit (Exhibit 6), the project is located along the northeastern edge of the Sylmar water basin, which is a sub-basin of the Upper Los Angeles River Area basins. It is located a significant distance from existing stormwater spreading grounds shown in Exhibit 9. As such, stormwater runoff from the site will not provide recharge into existing stormwater spreading grounds or introduce pollutants into these spreading grounds.

The Olive View -UCLA Medical Center is within the geographic boundaries of the Sylmar Groundwater Basin (Sylmar Basin) of the Upper Los Angeles River Area (ULARA) basins. According to the ULARA Watermaster website the Sylmar Basin, located in the northern portion of ULARA, consists of 5,600 acres of land with a storage capacity of 310,000 acre-feet, making up 4.6 percent of the ULARA valley fill. The basin contains flows generally towards to the southeast, with levels ranging from 15 to100 ft below ground surface. Water levels in this basin have been fairly stable over about the past 20 years, since adjudication of the basin. There are no significant contaminant plumes in the local Sylmar basin (City of Los Angeles *Granada Hills-Knollwood & Sylmar Community Plans Draft EIR*, Oct 2012).

According to the *Groundwater Assessment Study* by The Metropolitan Water District of Southern California, the Sylmar Groundwater Basin is recharged through the Lopez, Pacoima, and Branford spreading grounds along Pacoima Wash and Hansen and Tujunga spreading grounds along Tujunga Wash. The spreading grounds are all located South of the site. Exhibit 10 notes their locations.

Water Supply

Based on preliminary utility research presented in the *Master Plan*, water service for Olive View - UCLA Medical Center is provided by the City of Los Angeles Department of Water and Power (LADWP). Existing water use is approximately 99,706 units/year based on the Los Angeles County Utility System Billing summary from March 2015 through February 2016, where each unit equals 100 cubic feet (748 gallons). Total use is approximate 74.58 million gallons (MG).

According to the Water Quality section of the LADWP's website, approximately 15% of the water is obtained from local groundwater wells. Remaining water supply sources includes approximately 60% from the Eastern Sierra via the Los Angeles Aqueduct system and from the Metropolitan Water District's Colorado and Feather River supplies. Approximately 80% of the groundwater utilized is from the San Fernando basin, which is partially shown on Exhibit 9.

The LADWP is allotted 3,570 ac-ft of water per year for safe yield from the Sylmar Groundwater Basin (ULARA Watermaster). Water pumped from the Sylmar Groundwater Basin accounted for approximately four-percent of the groundwater utilized for drinking, and approximately 0.5-percent of all drinking water sources in 2001 (City of Los Angeles *Granada Hills-Knollwood & Sylmar Community Plans Draft EIR*, Oct 2012).

Depth to Groundwater

According to the *Preliminary Geotechnical Evaluation* prepared by Ninyo & Moore the groundwater at the site has an historic high of 120 ft below ground surface, with levels ranging on average from 120 to 200 ft below ground surface. The evaluation also stated "Groundwater levels may be influenced by seasonal variations, precipitation, irrigation, soil/rock types, groundwater pumping, and other factors and are subject to fluctuations. On- site infiltration of storm water related to LID guidelines may have an impact on existing and planned site improvements and should be evaluated during the detailed design phase of the project."

Due to its depth, groundwater is not expected to have a significant impact on excavation or other construction activities. However, the *Preliminary Geotechnical Evaluation* suggested that portions of the site located in the northeast region of the project area near the mouth of Wilson Canyon are potentially susceptible to liquefaction due to sections of shallow groundwater. Potentially liquefiable areas are noted in Exhibit 12.

Recharge

Soils within the project site are Ramona Loam, Hanford Gravelly Sandy Loam, and Hanford Fine Sandy Loam (Exhibit 8). On the northern portion of the site there exists Los Angeles River soil which consist mainly of recent alluvial deposits. The *Preliminary Geotechnical Evaluation* categorized the northern and western portions of the site as being "underlain by Pacoima Formation and older alluvium comprised of weakly consolidated sand and gravel." The evaluation also notes that the southern region of the site, the location of existing improvements, and the area at the base of Wilson Canyon in the east as being "underlain by young (Holocene) alluvial deposits generally comprised of gravel, sand and clay sediments." These soil types have a relatively high conductivity and based on the continuous simulation modeling results discussed in the Hydrologic Analysis section, approximately 3.8 inches or 33-percent of the annual rainfall on the Tier 1 area infiltrates in existing conditions. As such, recharge is expected to occur into the Sylmar basin.

Due to soils with poor cohesion, pre-existing undeveloped areas and steep slopes present at the site, the *Preliminary Geotechnical Evaluation* (Ninyo and Moore 2106) concluded there is a potential for erosion, especially along the northern edge of the campus where steeper slopes are found. The evaluation also suggested the creation of a Storm Water Pollution Prevention Program (SWPPP) incorporating BMPs to mitigate soil erosion.

Contamination

Based on the *Phase 1 Hazardous Materials Assessment* prepared by Ninyo & Moore (March 11, 2016) there were no reports of Groundwater Contamination in the Sylmar Basin.

HYDROLOGY

Elevations within the Olive View - UCLA Medical Center campus range from a low of approximately 1,415 feet (ft) in the southwestern portion of the campus to a high of approximately 1,540 ft in the northwestern portion (Exhibit 4). Overland flow within the site is generally from north to south. The Santa Monica Mountains run along the northern extent of the campus, surrounding the site in trees and understory vegetation.

The Wilson Canyon Drainage Channel runs parallel to the western site boundary and overland flow in this vicinity is generally South-Southwest towards Olive View Drive and ultimately into the Wilson Canyon Channel. Wilson Canyon Channel joins the underground storm drain system at the intersection of Astoria Street and Dronfield Avenue. Wilson Canyon Channel is a concrete structure that serves as a major flood control facility for the site and surrounding areas.

There are currently two watersheds north of project site, the Wilson Canyon Channel watershed and the Mansfield Channel watershed, with an average 50-year storm event of 4,690 cubic feet per second (cfs) (*Master Plan*). The runoff from these areas is conveyed through the Schoolhouse Canyon Diversion to the Pacoima Wash located at the southeast corner of the Pacoima Canyon and May Canyon. The Wilson Canyon Channel watershed is 1,959 acres and has a 3,758 cfs 50-yr storm event discharge (*Master Plan*). The Mansfield Channel watershed is 455 acres and has a 932 cfs 50-yr storm event discharge (*Master Plan*).

As discussed, the existing site does not appear to include water quality or stormwater controls, such as stormwater BMPs, LID features, or hydromodification management facilities. Additionally, stormwater detention and other flood control features were not observed on-site. Instead, the existing site manages rainfall and stormwater runoff with vertical roof drains, catch basins and drain inlets, underground storm drain systems, curbs, gutters, overland sheet flow, driveways, and other means of conveyance into the on-site and off-site storm drain system.

Impervious cover at the site is 65% in Tier 1, thus LID techniques will employ tactics that utilize the availability of undeveloped land. Additionally, stormwater management and runoff is typical of urbanized runoff from other sites with a similar period of construction. According to the preliminary geotechnical survey “Storm water catch basins and drains were observed throughout the site during the site reconnaissance. Storm water channels trending north-south were observed at the western and eastern ends of the site.”

Stormwater runoff for proposed undeveloped conditions from Wilson Canyon drainage area and the Olive View Drive storm drainage area in Tier 1 is estimated at 37.2 inches (in), or 1.0 in/year, based on continuous simulation analysis of the period of record from 1970 – 2006 (37 years). For existing conditions, stormwater runoff is 184.5 in (5.0 in/yr) for the same time-frame due to the high percentage of impervious area (65%) in Tier 1. Details on the hydrologic modeling performed for this project are included in the Hydrologic Analysis section below.

Due to the high percentage of undeveloped land at the Olive View site there is a high probability of erosion and sedimentation coming from the northern portion of the site where the campus meets the Angeles Forest. Visual observation at the site noted prior attempts to mitigate erosion and direct flows through the use of dirt mounds and k-rails.

HYDRAULICS

From the *Master Plan* and visual observations during site reconnaissance, the existing storm drain system for the Olive View - UCLA Medical Center campus utilizes vertical roof drains, underground storm drain pipes, overland sheet flow, curbs, gutters, catch basins, and driveways to convey stormwater runoff to the existing public system owned and operated by Los Angeles County Flood Control District (LACFCD).

As observed by the *Master Plan,* the City of Los Angeles owns and maintains the Olive View Drive storm drain that ranges in size from 30-inches to 60-inches and discharges to a Los Angeles County Flood Control District's Foothill Freeway 5.0' x 5.0' Reinforced Concrete Box. There are currently two (2) storm drain laterals to the site. One ties into the catch basin downstream of Mansfield Channel and the other ties into an existing 36-inch reinforced concrete pipe from the hospital site. The Olive View Drive storm drain system is estimated to have a minimum existing capacity of 26 cfs. The Olive View Drive storm drain system is assumed to have adequate capacity for existing peak discharges from the site. The Schoolhouse Debris Basin, tied into the Mansfield Channel is designed to store 19 acre-feet of debris and drain an area of 0.28 square miles. The Wilson Debris Basin is designed to store 84 acre-feet (ac-ft) of debris and drain an area of 2.6 square miles.

Since hydrology and hydraulics models for the open channel systems were not provided by the County, the existing capacity of these systems is not known from available data. However, the 100-year, 24-hour design storm event is mapped in an approximate Zone A as being contained within the Wilson Canyon drain. The Schoolhouse Canyon drain is not a FEMA-studied stream and information on capacity is not available. The open channel systems are assumed to have adequate capacity for existing peak discharges from the site.

In the event that sheet flow leaves the project site, inlets are regularly spaced within the public roadways bordering the campus. As shown in the photos included in Appendix I, some of these inlets include the benefits provided by grates that help prevent trash from entering the storm drain system and the Los Angeles River watershed.

Flooding and Hazards

Flood Plain

The project site is located within Zone X on the FEMA Flood Insurance Rate Map. The site is located on Panel 1075F, updated September 28, 2008. The area is located between the Wilson Canyon and Schoolhouse drainage channels which have a 1% annual chance of flood discharge.

However, the area due north of the site is labeled as Zone D, meaning there are possible but undetermined flood hazards due to lack of analysis of the area.

There is no flood plain or flood fill proposed as part of this project and no houses, buildings, or structures will be placed within the 100-year flood plain as a result of this project. The 100-year flood plain is shown in Exhibit 13. A hydraulic model was not developed for this project.

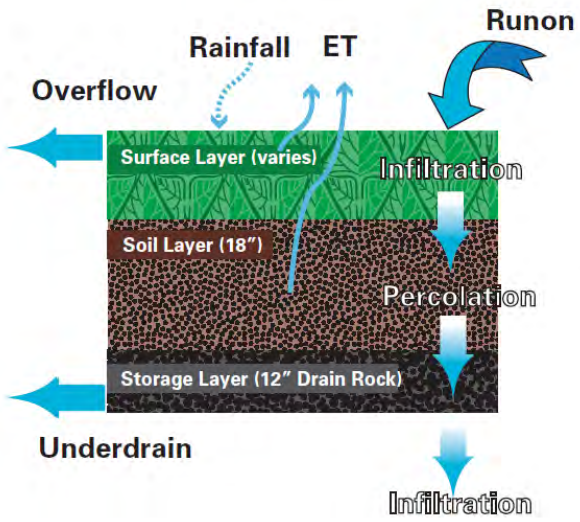
Dam Failure and Other Hazards

As shown in the Dam Hazard Inundation map included in Appendix J from the City of Los Angeles *Hazard Mitigation Plan*, dated January, 2011 and adopted July, 2011, the project site is not located within a potential inundation area for dam failure. The nearest dam is the Pacoima Dam, and possible inundation area is located east of the Olive View site, as noted in Figure M-1 of Appendix I. Similarly, the project site is not located within a potential tsunami inundation area or seiche (Figure O-1). However, due to its foothill location, the site is potentially subject to liquefaction/landslides (Exhibit 12).

HYDROLOGIC ANALYSIS

The U.S. Environmental Protection Agency's (EPA)'s Storm Water Management Model (SWMM) 5.1 was utilized for the LID design storm and continuous simulation modeling in this project. The current version of SWMM includes LID controls and detailed analysis options not previously included in SWMM5. The SWMM model is also a publicly-available model. The SWMM model accounts for infiltration through various LID layers, evapotranspiration, infiltration into the native soil, and overflows and discharge from the LID facilities as illustrated in Figure 1.

Figure 1: LID Components and Processes Modeled in SWMM



Recent studies by the EPA cited in the report entitled *SUSTAIN – A Framework for Placement of Best Management Practices in Urban Watersheds to Protect Water Quality* found similar results for analysis of aggregated (lumped) LID controls in drainage sub-areas of 100 ac or more as compared to micro-drainage sub-areas for each lot and LID control (distributed approach). For a 128-acre drainage sub-area, the difference in peak flows between the aggregated and distributed approaches computed in the EPA study is four-percent. Similar positive findings with regards to the aggregated approach were also reported by the City of Portland's Bureau of Environmental Services in a paper entitled *Modeling Non-Directly Connected Impervious Areas in Dense Neighborhoods.*

Recent studies by the EPA cited in the report entitled *SUSTAIN – A Framework for Placement of Best Management Practices in Urban Watersheds to Protect Water Quality* found similar results for analysis of aggregated (lumped) LID controls in drainage sub-areas of 100 ac or more as compared to micro-drainage sub-areas for each lot and LID control (distributed approach). For a 128-acre drainage sub-area, the difference in peak flows between the aggregated and distributed approaches computed in the EPA study is four-percent. Similar positive findings with regards to the aggregated approach were also reported by the City of Portland's Bureau of Environmental Services in a paper entitled *Modeling Non-Directly Connected Impervious Areas in Dense Neighborhoods*.

Since the area of the Olive View - UCLA Medical Center EIR Tier 1 boundary is approximately 72.6 ac with DA1 encompassing 31.1 ac and DA2 encompassing 41.5 ac and well under the threshold for using the aggregated method, the aggregated modeling approach was used for this project to increase modeling efficiencies. Peak flow rates are expected to be within three-percent of those computed using the distributed approach and volumes are expected to be within approximately four-percent (EPA *Sustain* Report Table 3-18). As indicated previously, only Tier 1 is modeled for this study due to the longer time-frame and uncertainty around the extent of future Tier 2 development.

Table 1 in Appendix B lists hydrologic parameters associated with the site. Proposed conditions parameters are based on the LID layout included in the *Master Plan* (Appendix G). Existing and conditions parameters area estimated and may not precisely reflect conditions as soils, topographic, and other detailed data is not available.

According to Ninyo and Moore's *Preliminary Geotechnical Report* dated March 18, 2016, the medical center has varying geology. The upper, elevated northwestern portion of the site is underlain by Tertiary-age Towsley Formation generally comprised of cobble conglomerate and coarse-grained sandstone, and Cretaceous-age metamorphic rocks. Other elevated hillside areas in the western, northern and eastern portions of the site are mapped as being underlain by Pacoima Formation and older alluvium comprised of weakly consolidated sand and gravel. The lower southern portion of the site, where the existing improvements are located, and the eastern portions of the site at the base of Wilson Canyon are mapped as being underlain by young (Holocene) alluvial deposits generally comprised of gravel, sand and clay sediments. A regional geologic map including soil types of the site vicinity is shown on Exhibit 8.

The Green & Ampt method, which is based on physically-measurable soil parameters and has been used successfully on other LID projects in the region, is used to estimate losses due to infiltration. Based on Exhibit 8, native underlying soils at the sites are assumed to be sandy loam with saturated hydraulic conductivity rates of approximately 0.43 inches/hour. The suction head and initial deficit parameters shown in Table 2 are estimated for sandy loam type soil from standard soils texture tables. Since details on the area treated by each LID feature are not included in the *Master Plan* (Appendix G), it was assumed that permeable pavement treats permeable pavement only with no off-site contributing area and that bioretention treats the remainder of each drainage area.

The Olive View - UCLA Medical Center project site is located in the Lower Pacoima wash (Exhibit 5) and within the Sylmar groundwater Basin (Exhibit 9). Exhibit 6A illustrates the existing and proposed drainage areas within the site for the 2 outfall locations. The land use of the area to the North, East and West of the site is vacant/undifferentiated. Land use South of the site consists of freeways/major roads, low-rise apartments, and low-density single family residential (Exhibit 7). The land use of the site itself is classified as Major Medical Health Care Facilities with a roughly 65% impervious cover.

Rainfall hyetographs are developed using the rainfall data downloaded from the Los Angeles County Department of Public Works Hydrology website as shown in Exhibits 12 through 14, and adjusted using the Design Storm Unit Hyetograph table from Appendix A in the Los Angeles County Department of Public Works Hydrology Manual (*Hydrology Manual*), dated January 2006 (Appendix B). Table 1 in Appendix C lists hydrologic parameters associated with the site. Proposed conditions parameters are based on the *Olive View – UCLA Medical Center Campus Master Plan* by SmithGroup (Appendix G) and the assumed LID size and configuration complies with the County of Los Angeles *LID Manual*. Existing conditions parameters are estimated from available data.

The suction head and initial deficit parameters shown in Table 2 of Appendix C are estimated for a sandy loam from standard soils texture tables and further details on data sources are included in this table. Soil types for the project area and watershed drainage areas were determined by using the soil types found in Exhibit 8 (Soil Map) and classifying the predominant soil type as sandy loam. The three types of soil used from the map were Hanford Fine Sandy Loam as sandy loam, Hanford gravelly sandy loam as sandy loam, and Upper Los Angeles River as sandy loam. Green & Ampt parameters for these soils types were also estimated from standard *Sustain* tables in the EPA *Sustain User's Manual*.

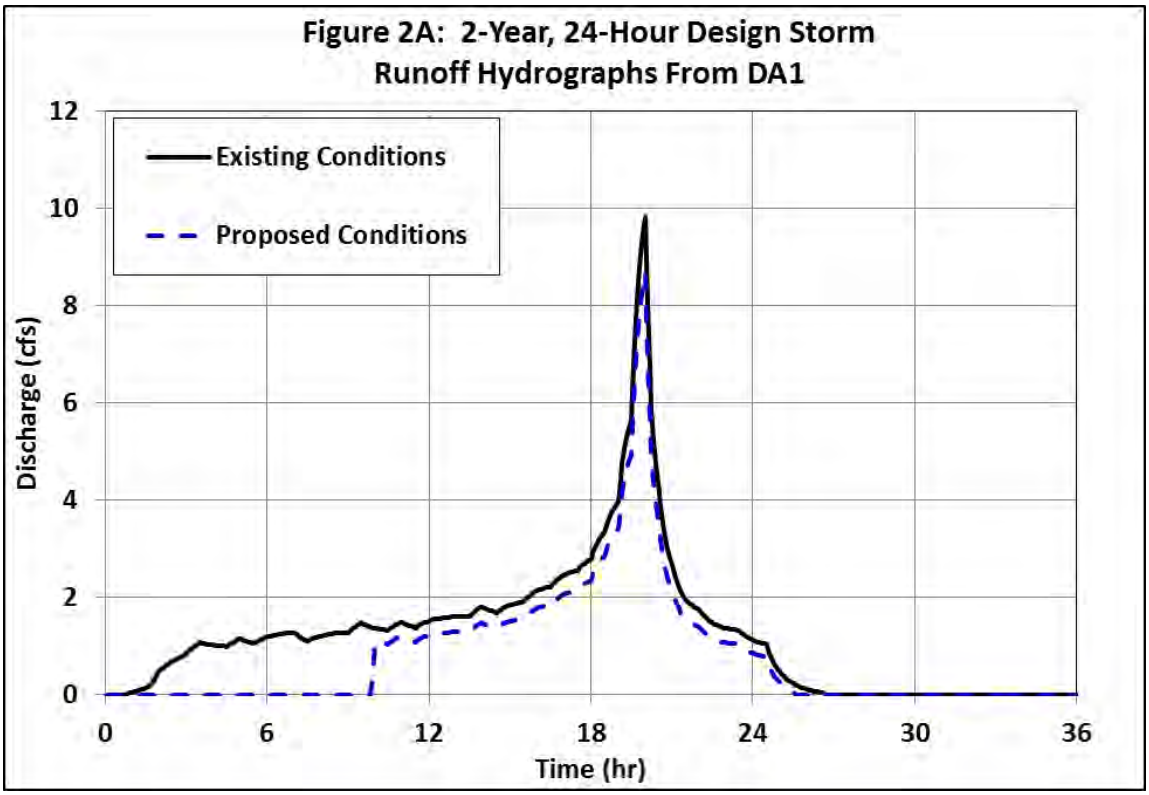
Design Storm Results

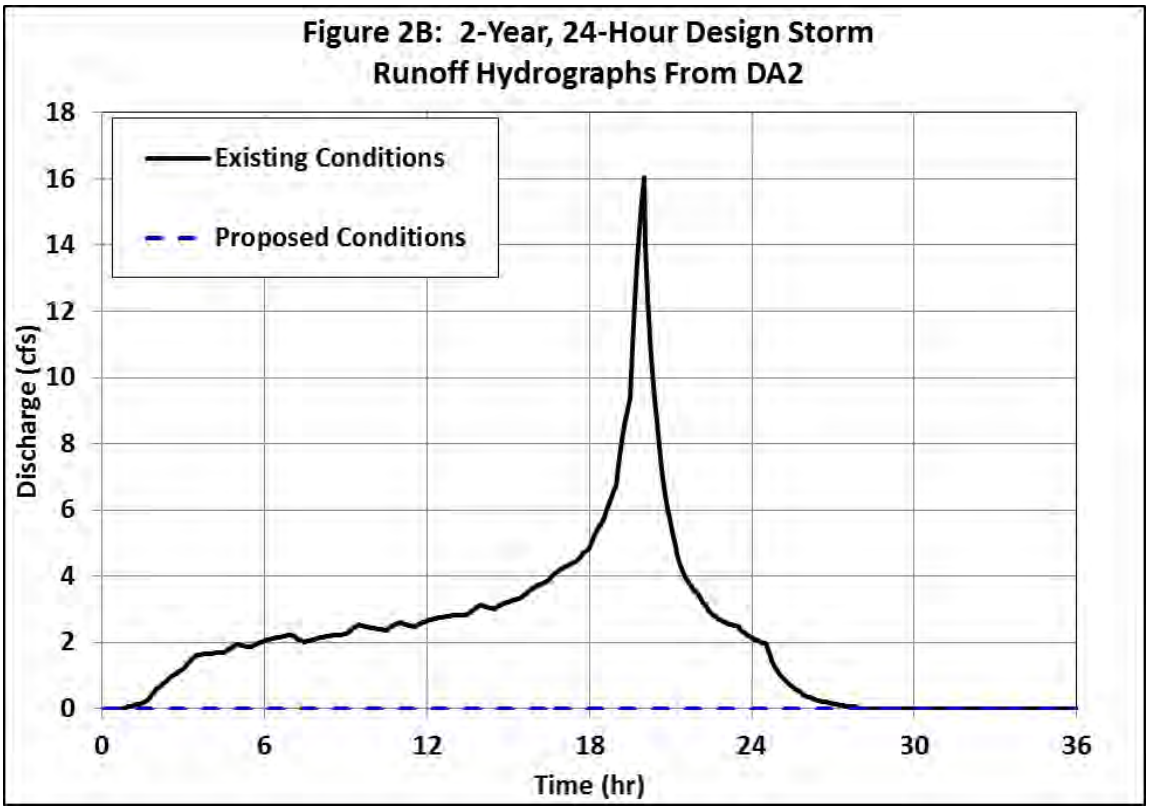
The two-year, ten-year, and 100-year, 24-hour design storm events are modeled to assess runoff during an event similar to the water quality event, an event representative of storm drain sizing, and an extreme flood control event, respectively. As shown in Table 1 of Appendix C, the two-year, 24-hour, ten-year, 24-hour and 100-year, 24-hour rainfall depths at the site are 2.83, 5.23 and 8.21 in, respectively. Exhibits 12, 13, and 14 each detail the rainfall depths for the respective events. As indicated above, the design storm rainfall data is derived from the Los Angeles County *Hydrology Manual* dated January 2006 (Appendix B). The rainfall hyetographs are used by SWMM to compute the design storm runoff hydrographs from the site.

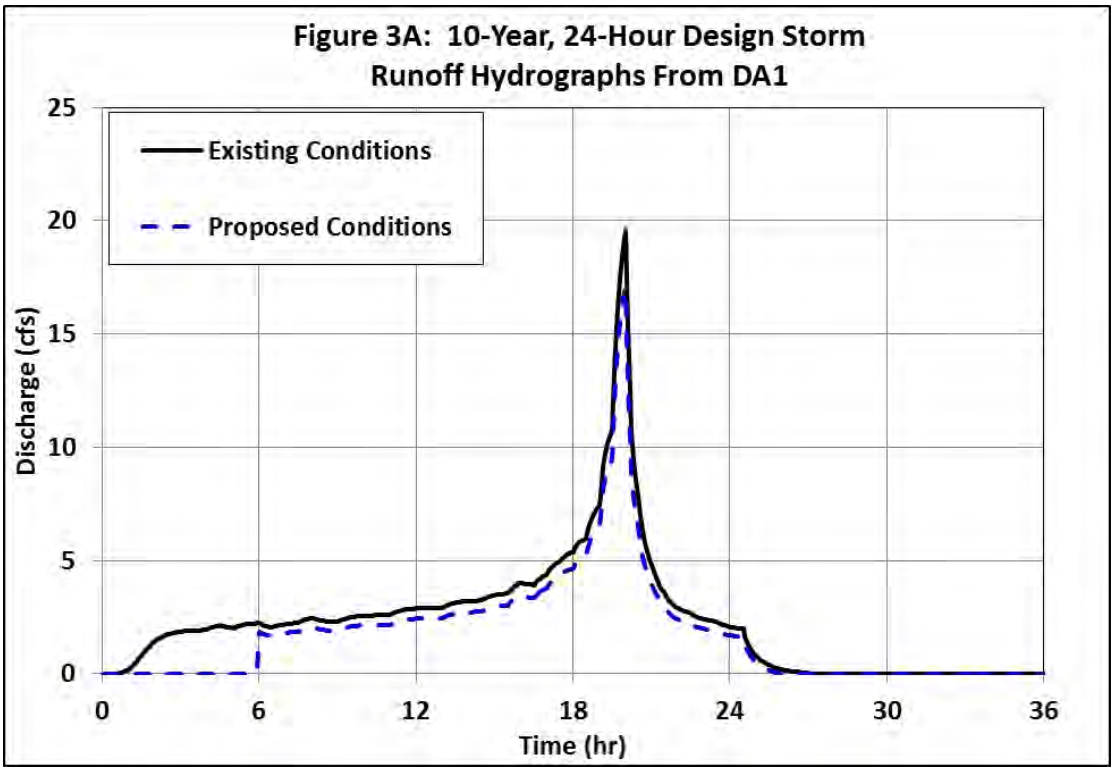
As shown in Tables 5A and 5B of Appendix C, proposed conditions peak flows in drainage area 1 (DA1) with the bioretention features are 12-percent less than existing flows from the site for the two-year, 24-hour event and 13-percent and 16-percent less than existing for the ten-year, 24-hour and 100-year, 24-hour events, respectively. Specifically, the existing two-year peak flow is 10 cubic feet per second (cfs) and the proposed two-year peak flow is 9 cfs, the ten-year existing peak flow is 20 cfs and the proposed peak flow is 17 cfs, and the 100-year existing peak flow is 36 cfs and the proposed peak flow is 30 cfs.

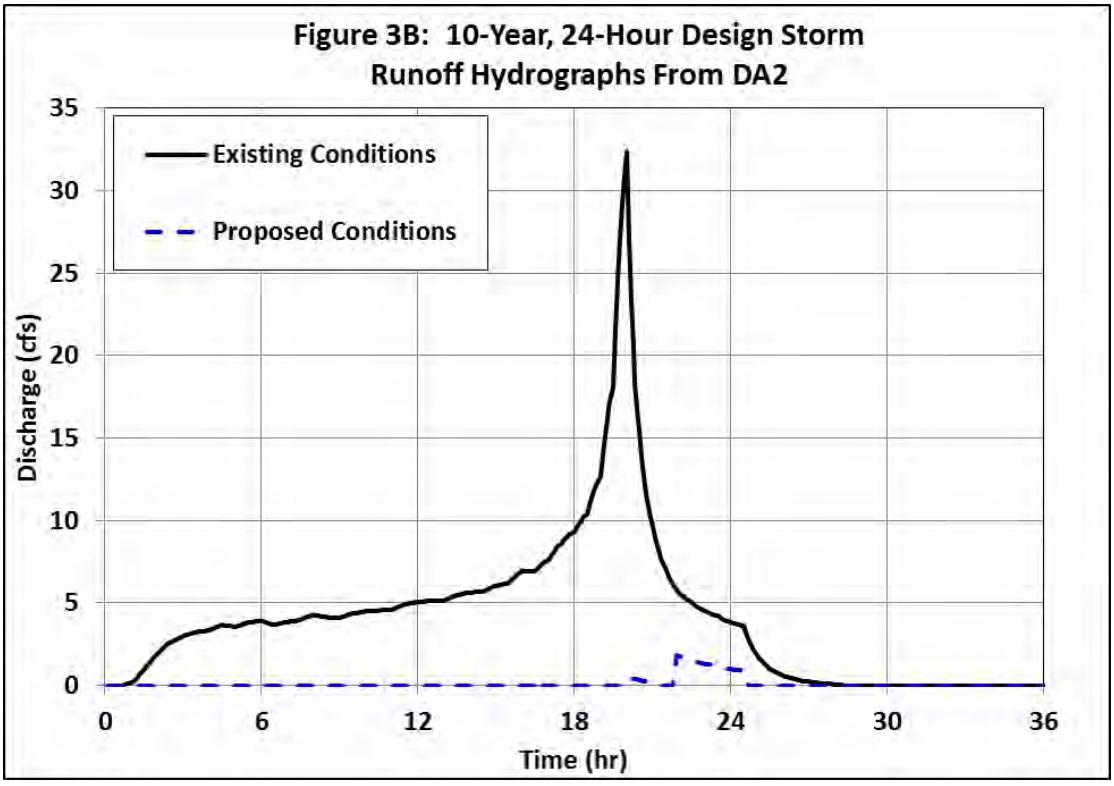
Proposed conditions peak flows in drainage area 2 (DA2) with the bioretention features are 100-percent less than existing flows from the site for the two-year, 24-hour event and 94-percent and 41-percent less than existing for the ten-year, 24-hour and 100-year, 24-hour events, respectively. Specifically, the existing two-year peak flow is 16 cubic feet per second (cfs) and the proposed two-year peak flow is zero cfs, the ten-year existing peak flow is 32 cfs and the proposed peak flow is 2 cfs, and the 100-year existing peak flow is 57 cfs and the proposed peak flow is 34 cfs.

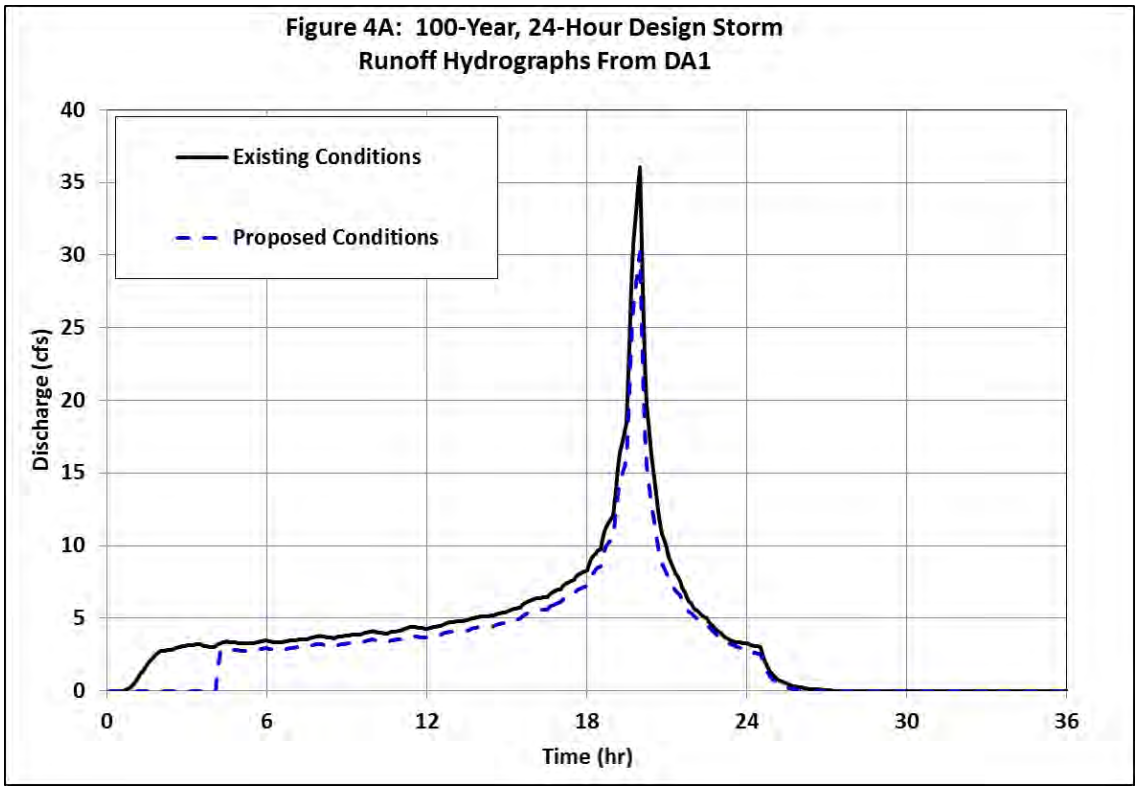
Figures 2A through 4B depict runoff hydrographs from the site for the 2-year, 24-hour, 10-year, 24-hour and 100-year, 24-hour design storm events, respectively, for DA1 and DA2. As described, the proposed LID conditions peak flows and runoff volumes are illustrated by the maximum value of the runoff hydrographs and the area under the hydrograph curves, respectively. Additionally, the shapes of the proposed LID conditions runoff hydrographs generally match the shapes of the existing conditions runoff hydrographs or fall within the existing conditions runoff hydrographs. As such, the proposed Tier 1 project contributes less excess urban runoff volume that can lead to stream hydromodification than does the existing Tier 1 project area. Note that final modeling and sizing may result in additional hydrograph lagging.

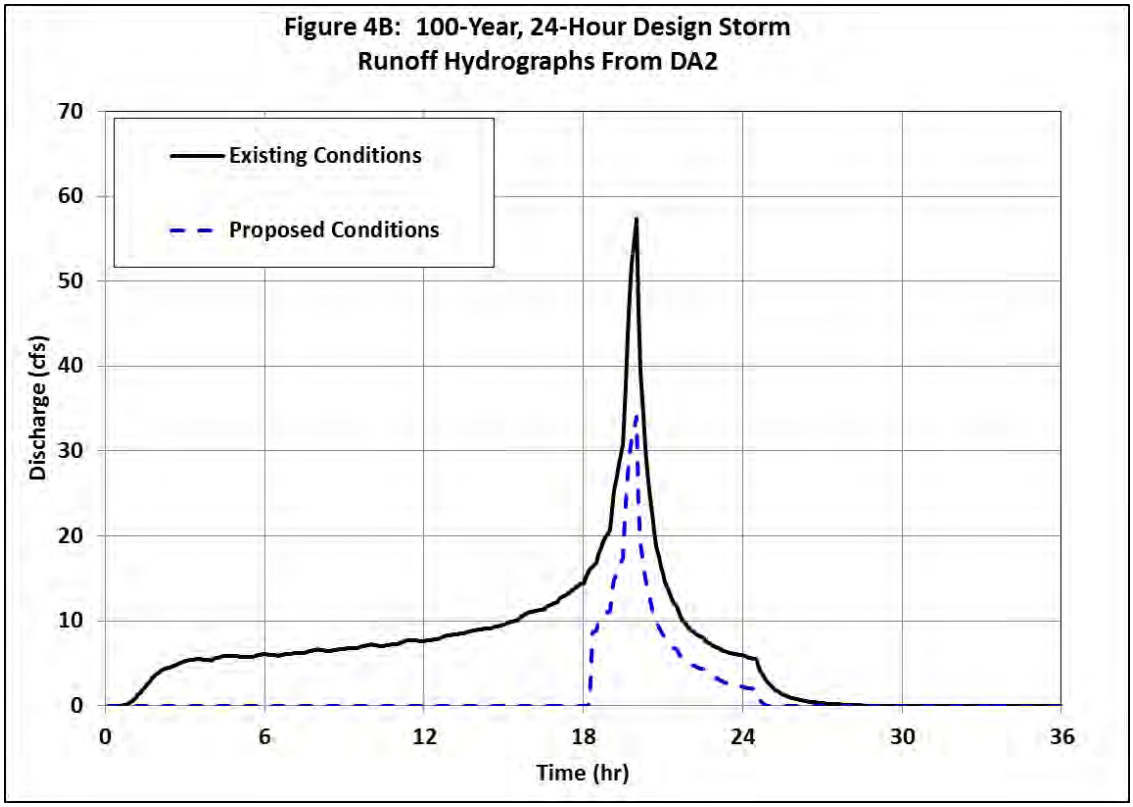

Figure 2A: 2-Year, 24-Hour Design Storm
Runoff Hydrographs From DA1
Existing Conditions
Proposed Conditions
Discharge (cfs)
Time (hr)
0
2
4
6
8
10
12
0
6
12
18
24
30
36


Figure 2B: 2-Year, 24-Hour Design Storm
Runoff Hydrographs From DA2
Existing Conditions
Proposed Conditions
Discharge (cfs)
Time (hr)
0
2
4
6
8
10
12
14
16
18
0
6
12
18
24
30
36


Figure 3A: 10-Year, 24-Hour Design Storm
Runoff Hydrographs From DA1
Existing Conditions
Proposed Conditions
Discharge (cfs)
Time (hr)
0
5
10
15
20
25
0
6
12
18
24
30
36


Figure 3B: 10-Year, 24-Hour Design Storm
Runoff Hydrographs From DA2
Existing Conditions
Proposed Conditions
Discharge (cfs)
Time (hr)
0
5
10
15
20
25
30
35
0
6
12
18
24
30
36


Figure 4A: 100-Year, 24-Hour Design Storm
Runoff Hydrographs From DA1
Existing Conditions
Proposed Conditions
Discharge (cfs)
Time (hr)
0
5
10
15
20
25
30
35
40
0
6
12
18
24
30
36


Figure 4B: 100-Year, 24-Hour Design Storm
Runoff Hydrographs From DA2
Existing Conditions
Proposed Conditions
Discharge (cfs)
Time (hr)
0
10
20
30
40
50
60
70
0
6
12
18
24
30
36

Figures 5 through 8 illustrate storage depths within the following layers of the LID feature alternatives at the site:

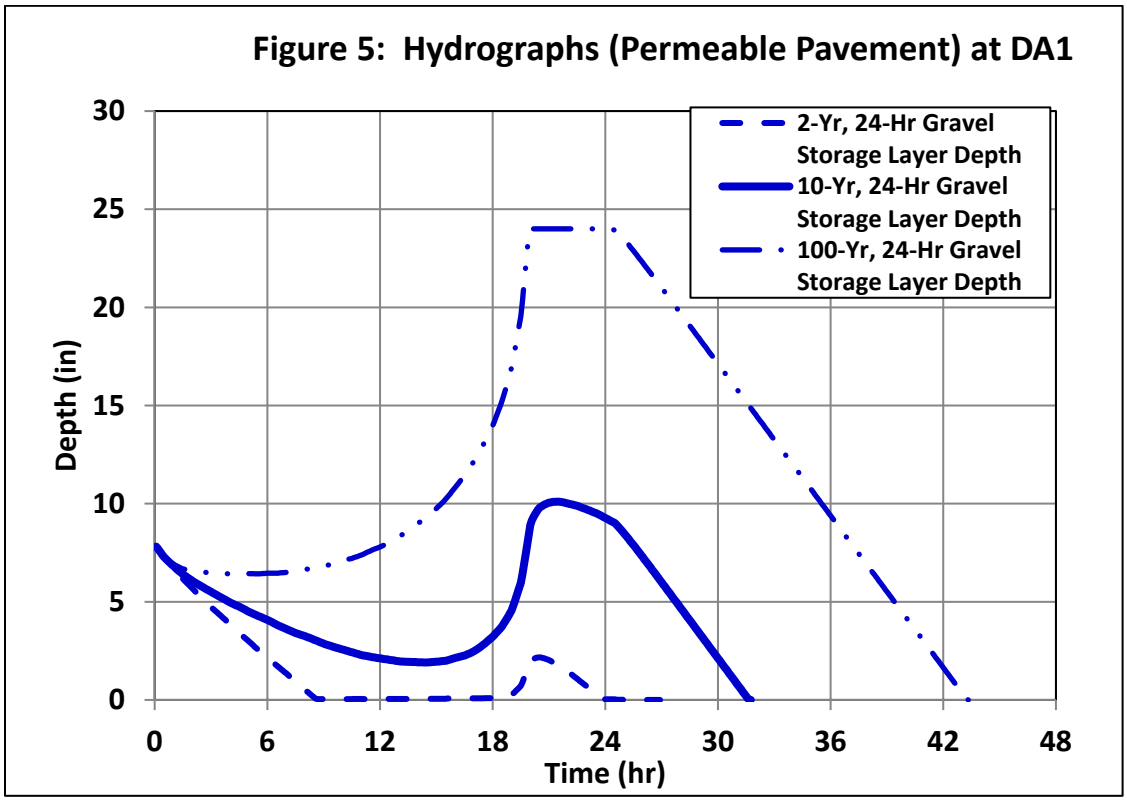
- 18-inch surface storage layer of bioretention
- 24-inch growing media layer of bioretention (not included in graphs)
- 24-inch gravel (storage reservoir) layer of permeable pavement

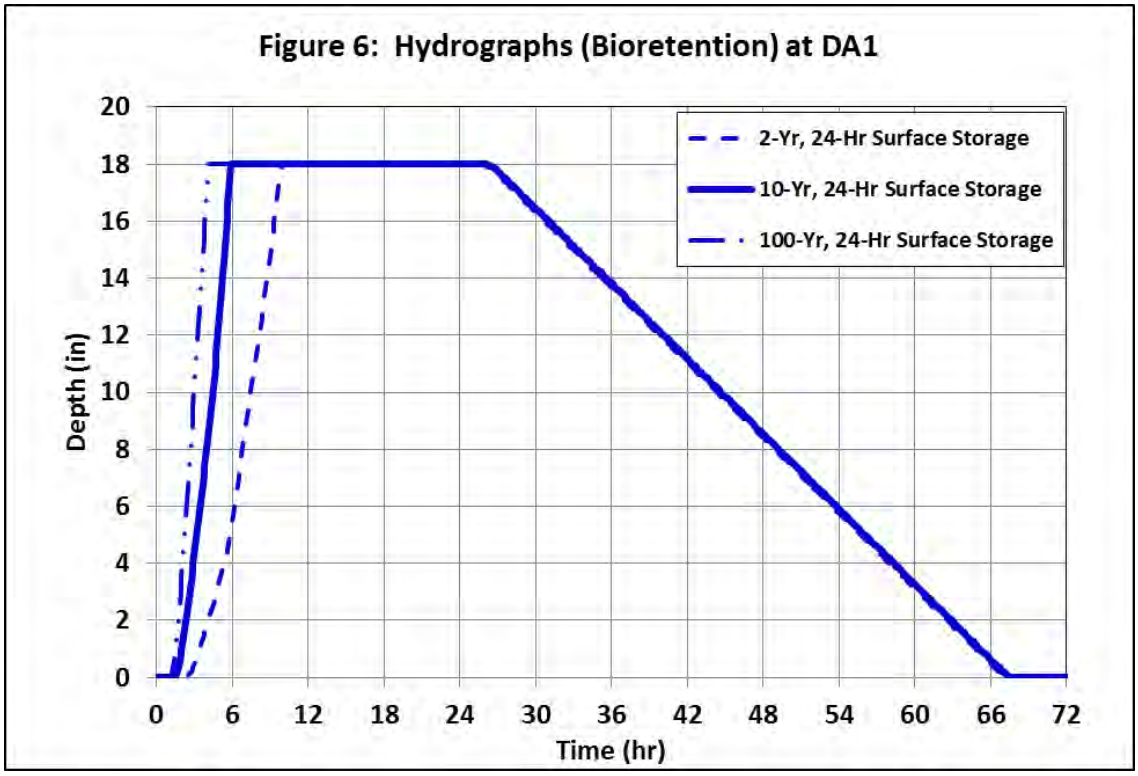
While not modeled, dry wells may be substituted for permeable pavement or bioretention in parking lots and is assumed to provide similar performance to meet minimum LID and water quality requirements.

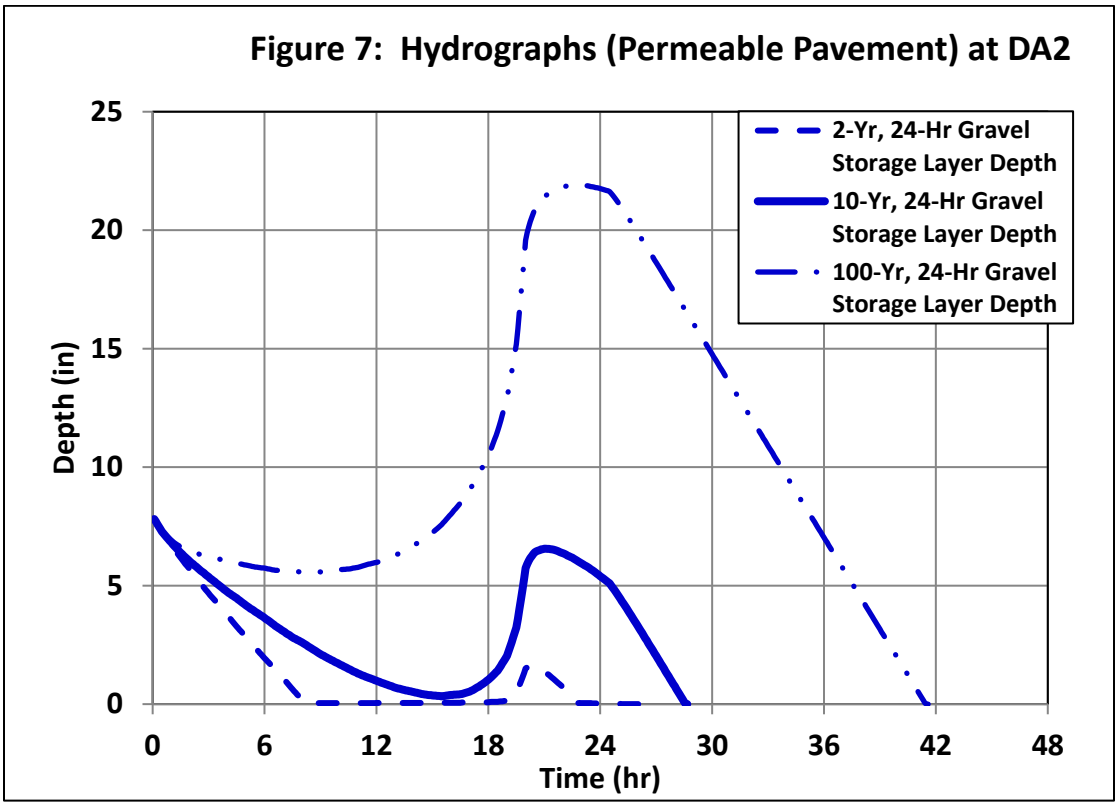
Note that typical assumptions were made regarding the geometric configuration of the LID features (Table 4 of Appendix C). Additionally, assumptions on impervious area treated by the LID feature are listed in Table 3 of Appendix C. During the final design and modeling, it is possible that the hydrologic performance can be improved through changes in geometric configuration of the bioretention and permeable pavement or incorporation of additional LID features. Additionally, the LID features within Tier 1 cover only 2.3-percent of the Tier 1 surface area. Increases in the extent of coverage within Tier 1 will improve the hydrologic and water quality performance of the LID features.

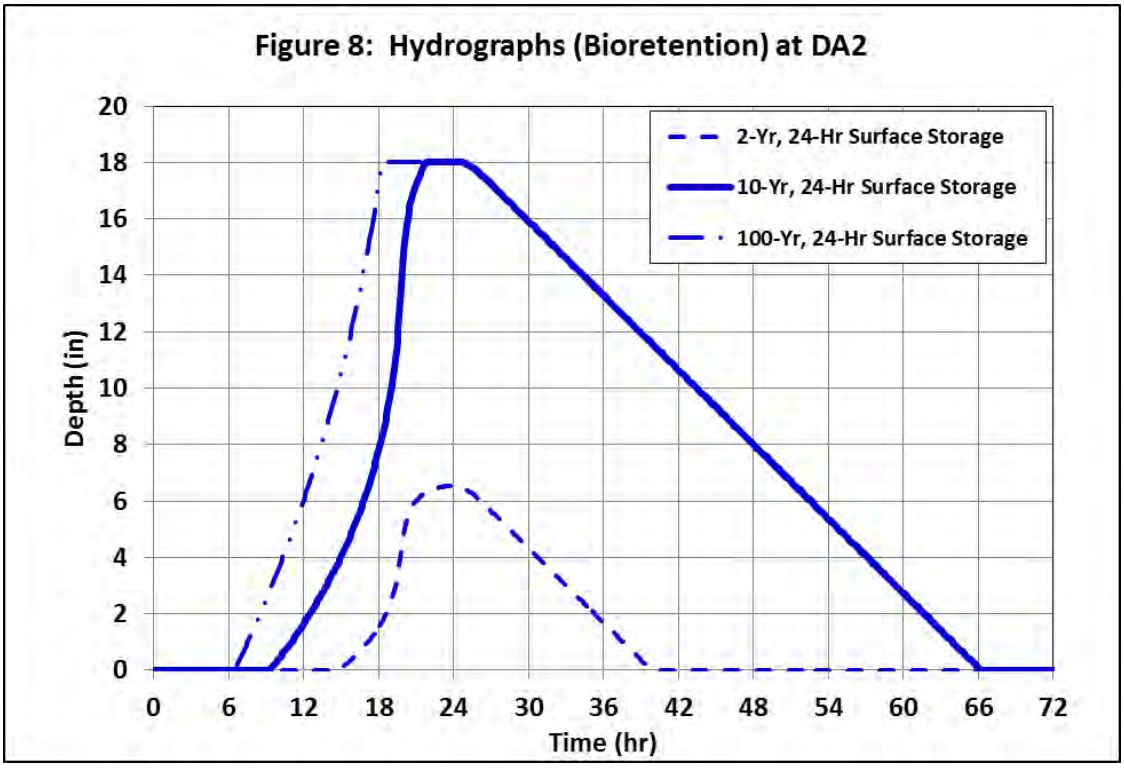
For DA1, the permeable pavement water surface in the drain rock layer reaches a maximum of approximately 8 in in the 2-year event, 10 in in the 10-year event, and about 24 in in the 100-year design storm events. The bioretention surface depth for DA1 is at 18 in with a drain down time of about 41 hours for the 2-year, 10-year event, and 100-year events. Initial storage depths in the permeable pavement gravel storage layer is due to the assumed saturation of 30-percent for the design storm events.

For DA2, the permeable pavement water surface in the drain rock layer also reaches a maximum of approximately 8 in in the 2-year event, 8 in in the 10-year event, and also about 24 in in the 100-year design storm events. The bioretention surface depth for DA2 is about 7 in with a drain down time of about 15 hours for the 2-year, and at 18 in with a drain down time of about 42 hours for the 10-year and 100-year events.


Figure 5: Hydrographs (Permeable Pavement) at DA1
Depth (in)
Time (hr)
2-Yr, 24-Hr Gravel Storage Layer Depth
10-Yr, 24-Hr Gravel Storage Layer Depth
100-Yr, 24-Hr Gravel Storage Layer Depth
0
5
10
15
20
25
30
0
6
12
18
24
30
36
42
48

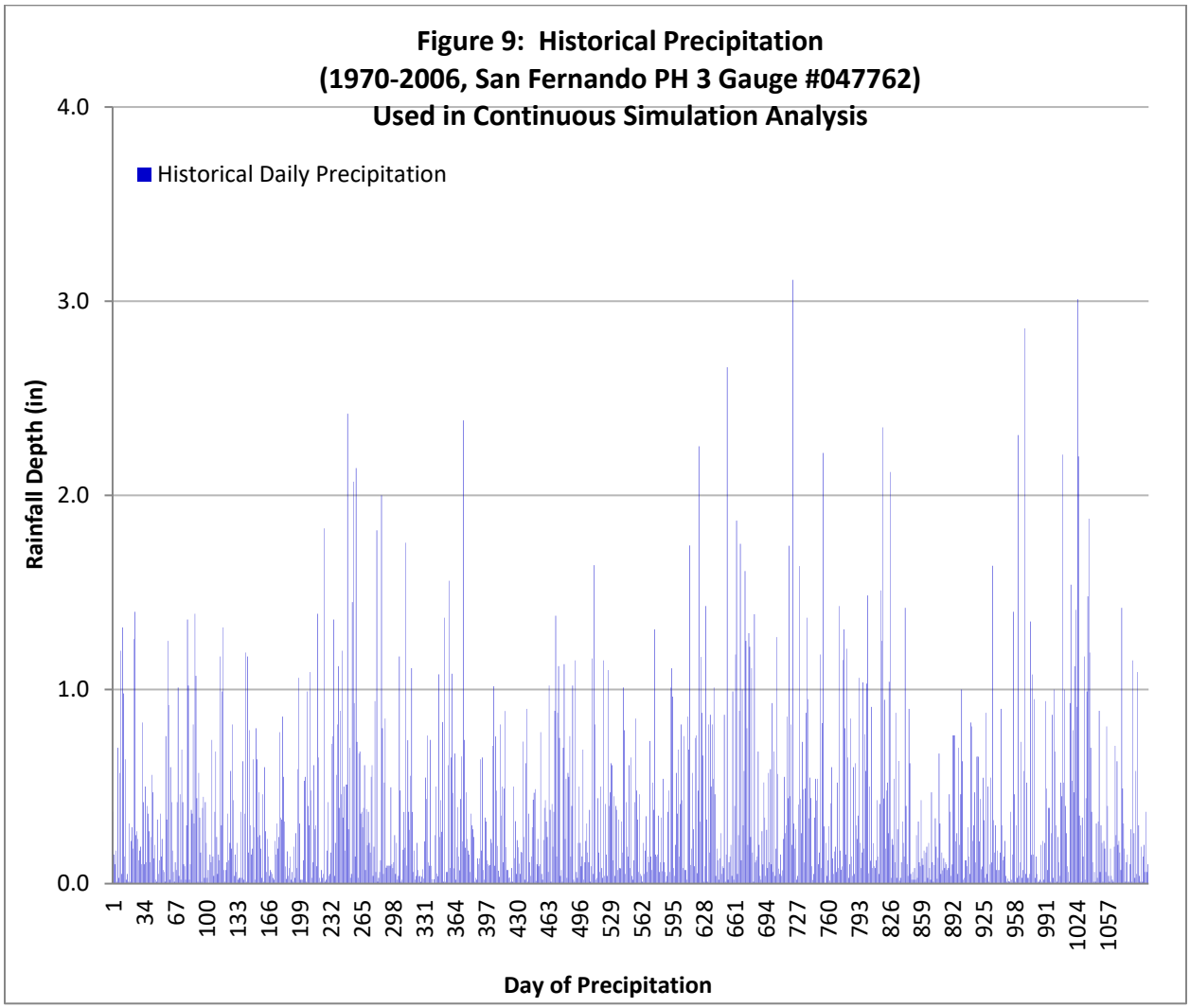

Figure 6: Hydrographs (Bioretention) at DA1
Depth (in)
Time (hr)
2-Yr, 24-Hr Surface Storage
10-Yr, 24-Hr Surface Storage
100-Yr, 24-Hr Surface Storage
0
2
4
6
8
10
12
14
16
18
20
0
6
12
18
24
30
36
42
48
54
60
66
72


Figure 7: Hydrographs (Permeable Pavement) at DA2
Depth (in)
Time (hr)
2-Yr, 24-Hr Gravel Storage Layer Depth
10-Yr, 24-Hr Gravel Storage Layer Depth
100-Yr, 24-Hr Gravel Storage Layer Depth
0
5
10
15
20
25
0
6
12
18
24
30
36
42
48


Figure 8: Hydrographs (Bioretention) at DA2
Depth (in)
Time (hr)
2-Yr, 24-Hr Surface Storage
10-Yr, 24-Hr Surface Storage
100-Yr, 24-Hr Surface Storage
0
2
4
6
8
10
12
14
16
18
20
0
6
12
18
24
30
36
42
48
54
60
66
72

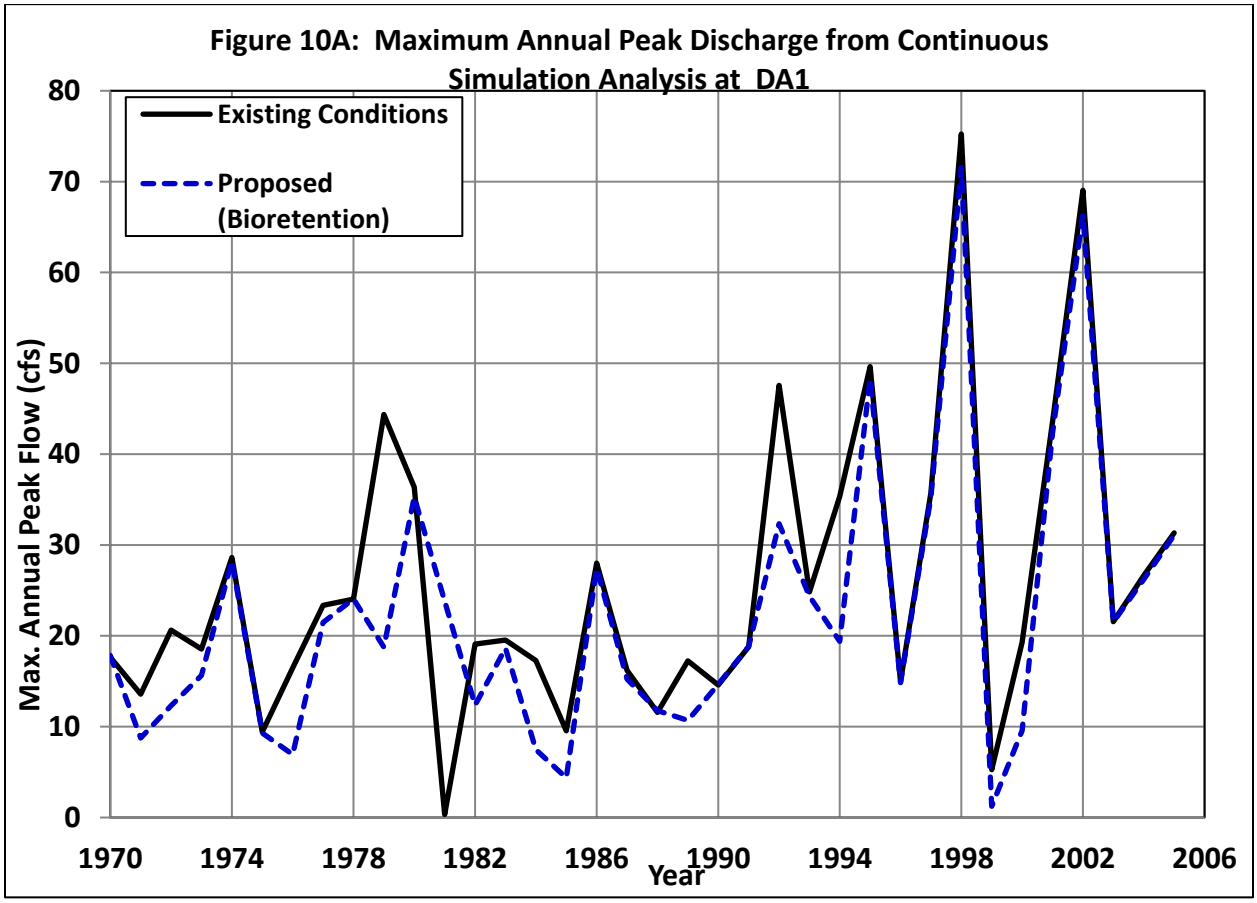
Continuous Simulation Results

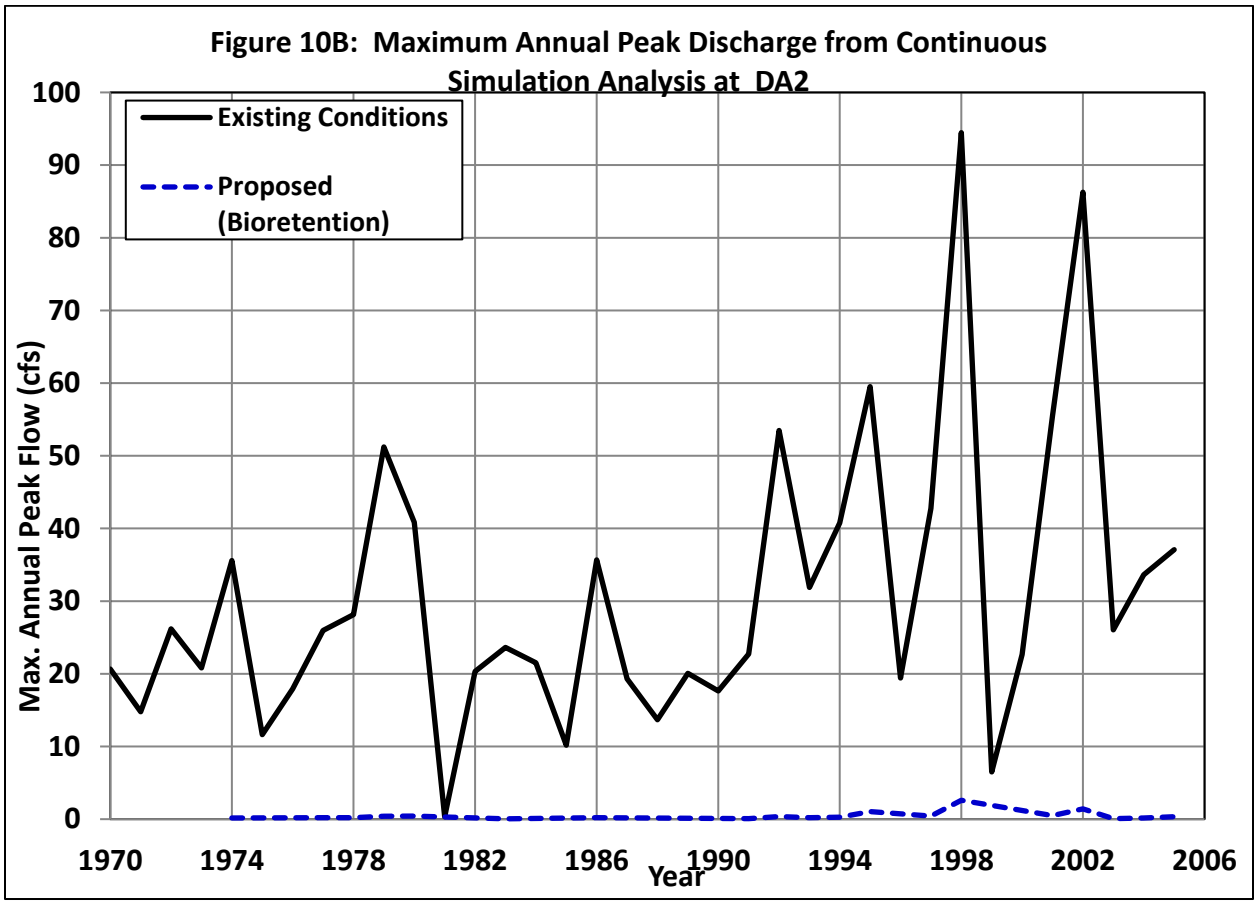
A continuous simulation modeling analysis was performed based on 1970 – 2006 rainfall data obtained from the U.S. EPA's National Stormwater Calculator for the San Fernando Ph 3 gauge, which is located in closest proximity to the site. Average monthly evaporation data is used from Northridge California State gauge. Figure 9 illustrates historical daily rainfall depths during the period of record from 1970 – 2006 recorded at the San Fernando Ph 3 gauge. Days without rain are not shown on this graph and an anomaly of 9.148 on 2/28/1983 23:00 was deleted, as the value is assumed to be an error. Based on a comparison with other regional gauges, it was assumed that rainfall did not occur at this time. While hourly data is used in the continuous simulation modeling analysis, daily events are summarized in this figure.



Tables 6A and 6B in Appendix C includes water balance results for the continuous simulation analysis and summarizes infiltration, runoff, evapotranspiration, and precipitation for DA1 and DA2. During the simulated time-period, 422.25 in of rain occurred. Proposed LID conditions runoff at the site is reduced by 5% as compared to existing conditions for DA1 and reduced 97% for DA2.

Annual maximum peak discharges from the Olive View – UCLA Tier 1 site are depicted in Figure 10A and 10B for the DA1 and DA2 drainage areas. For the entire period of analysis, maximum annual discharges from the site are less than or equal to existing discharges from the site during the period of record between 1970 and 2006. Note that the actual results may change somewhat during final design and modeling depending on the final extent and configuration of LID features and impervious cover within the site.





Figures 11A and 11B graphically illustrates runoff in existing and proposed conditions for Tier 1 within the in DA1 and DA2 drainage areas. Note that the day of runoff (x-axis) is for each event and that the days do not correlate for each event. While, there are additional days of runoff from the proposed alternatives, this is due to the delayed discharge from the various layers of the LID features. The general pattern is that proposed LID peak discharges are less than existing peak discharges.

Figure 11A: Peak Discharge from Continuous Simulation Analysis at DA1

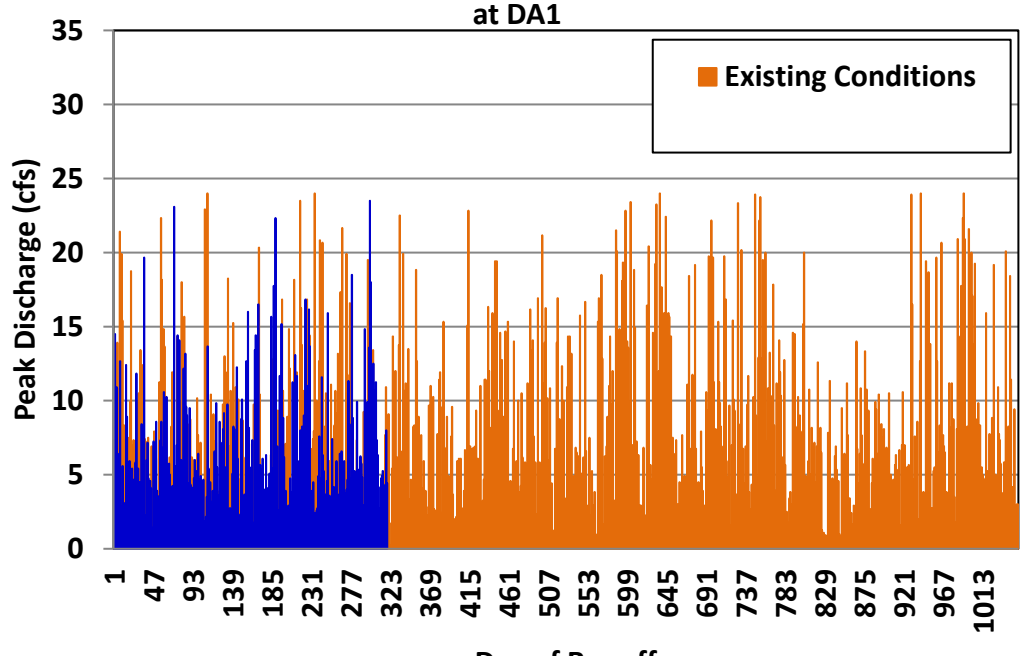
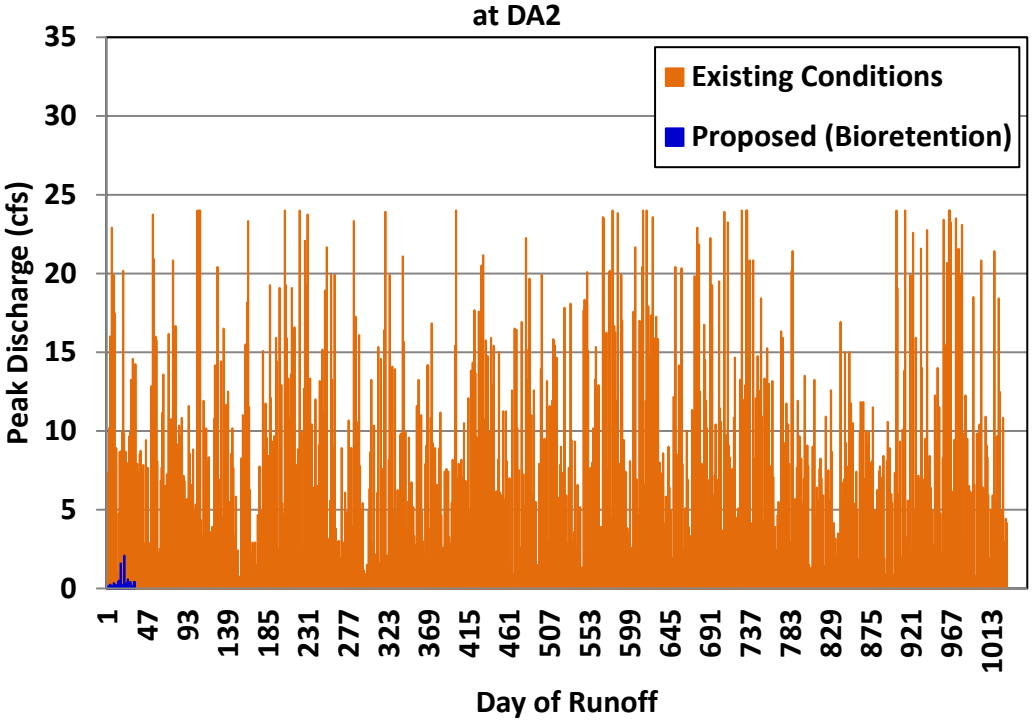
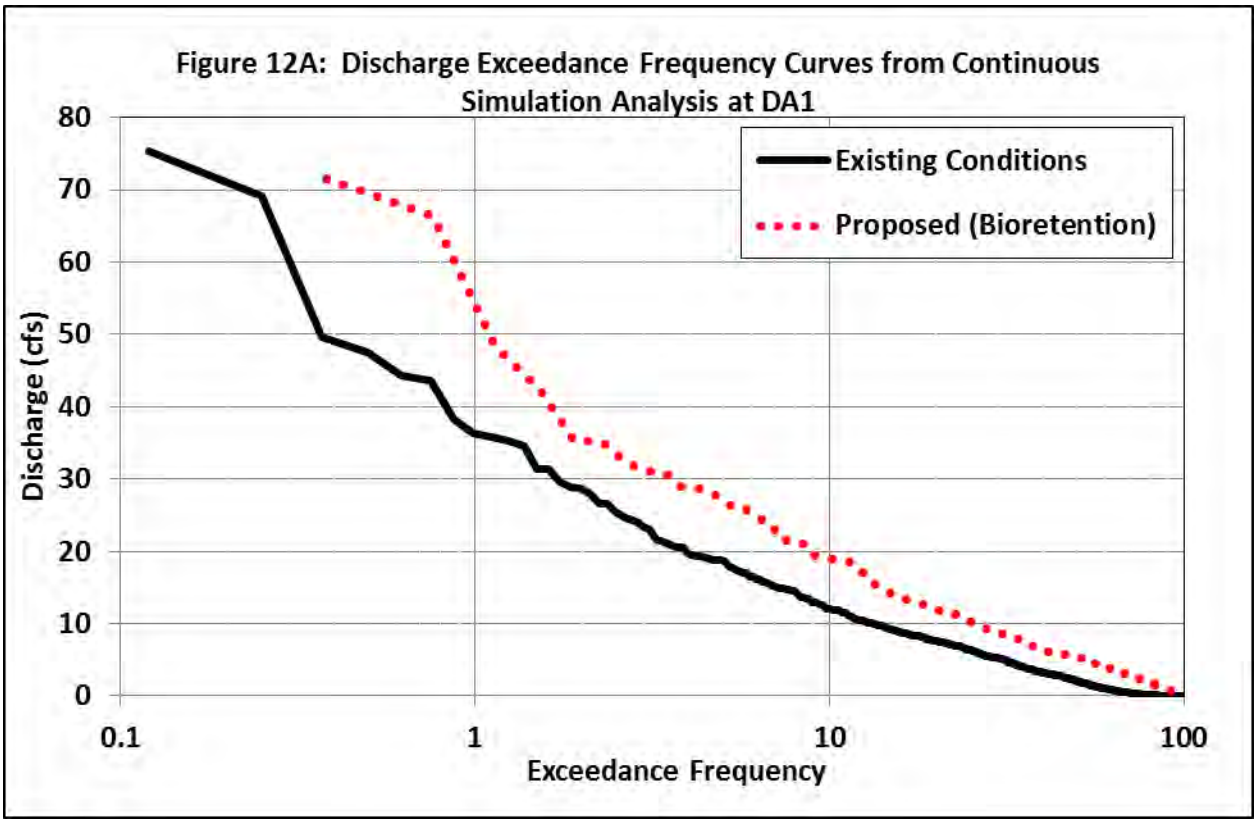


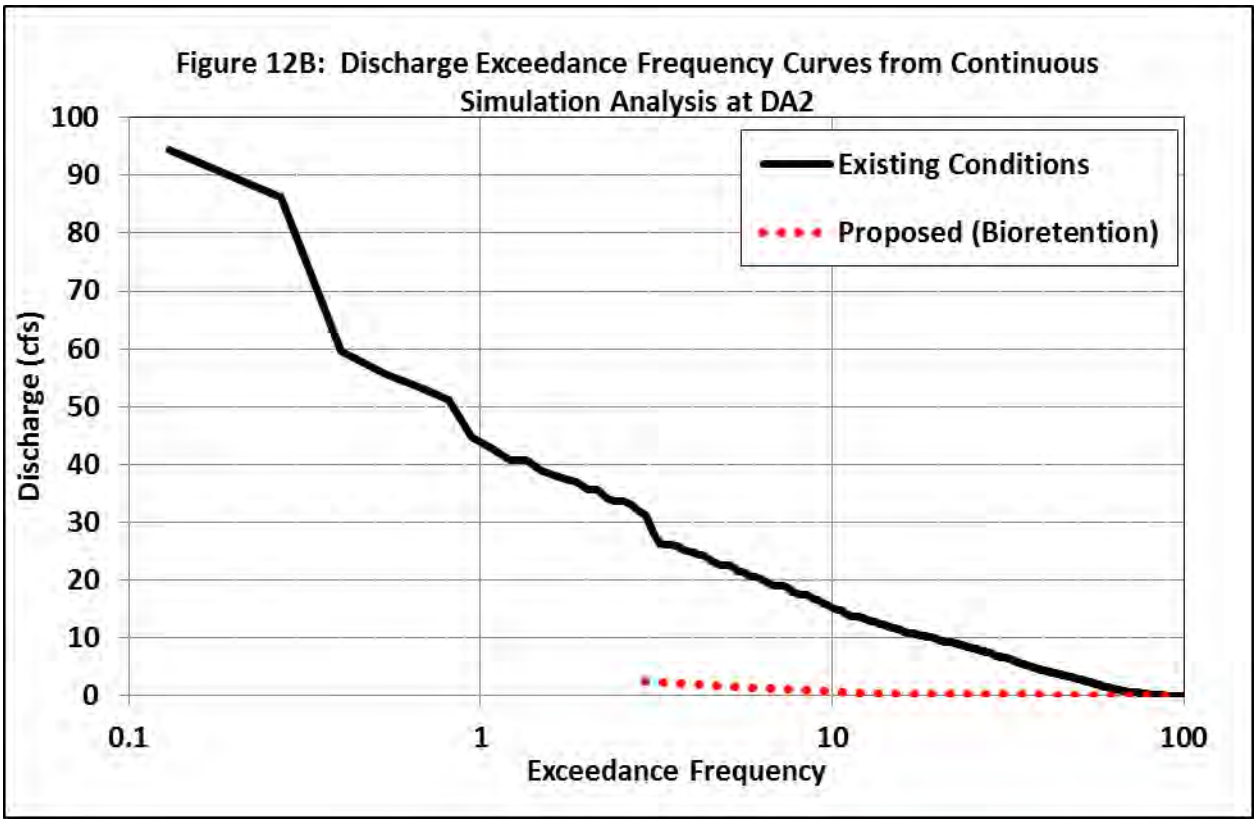
Figure 11B: Peak Discharge from Continuous Simulation Analysis at DA2

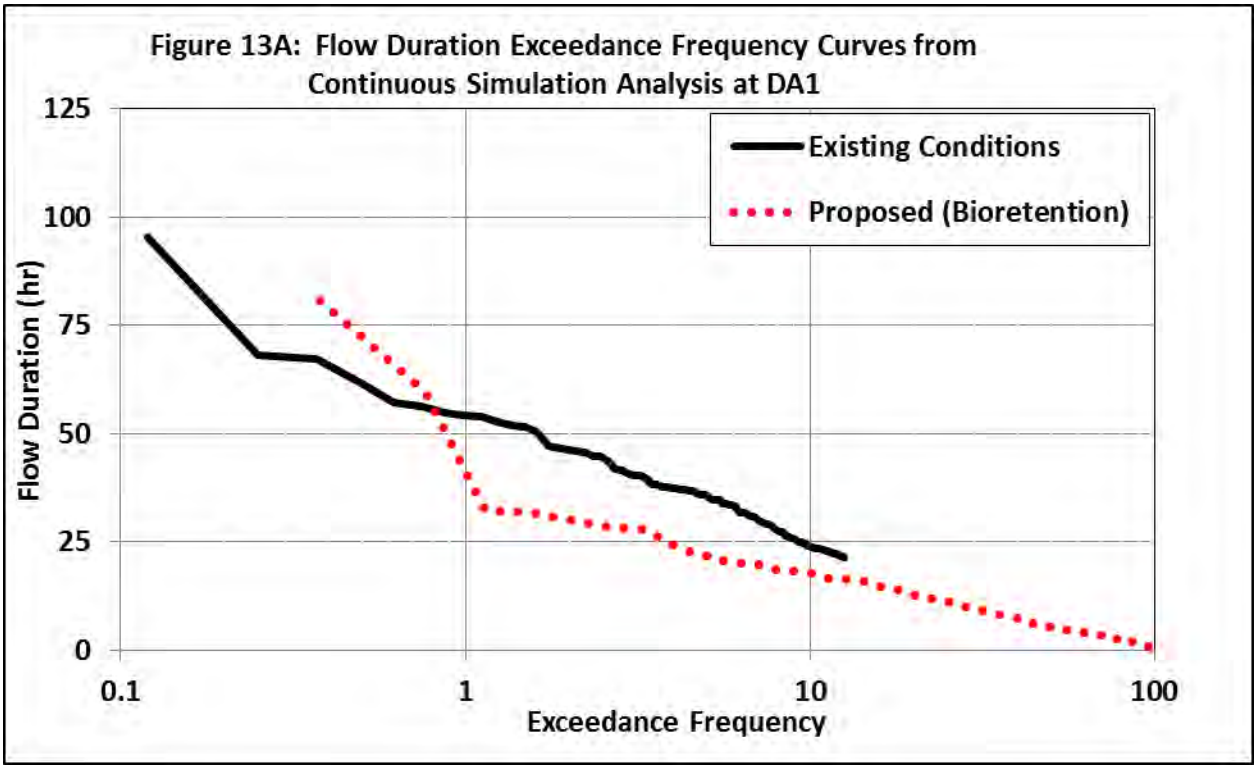


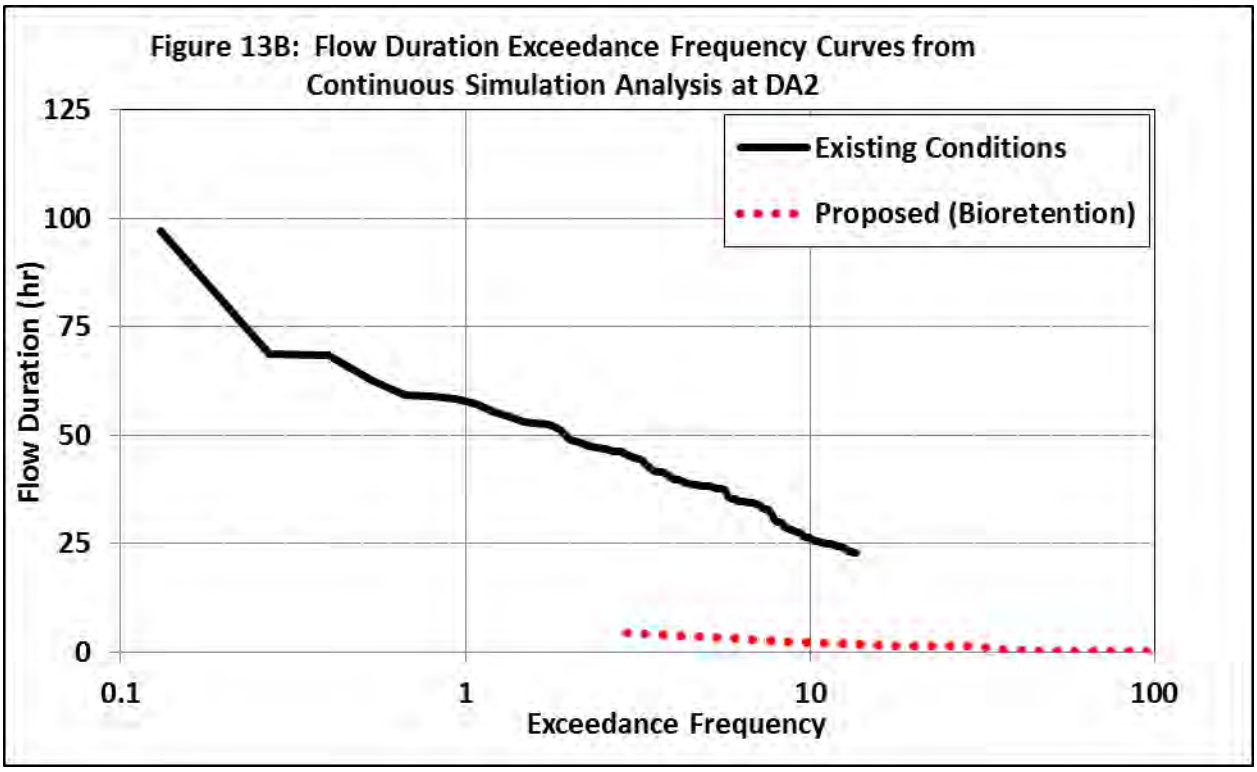
While a full hydromodification hydrology and hydraulics (HEC-RAS) frequency analysis is beyond the scope of this study, peak discharge impacts in the two-, ten-, and 100-year events are evaluated in the design storm section and continuous simulation modeling results are evaluated for maximum annual peak discharges and exceedance frequency curves. Additionally, the final design is required to comply with hydromodification hydrology and hydraulics (HEC-RAS) analyses for multiple design storm events (two-, five-, ten-, 25-, and 50-year) as specified in the City's *LID Handbook*.

Discharge exceedance frequency curves and flow duration graphs are provided in Figures 12A and 13A for DA1, and 12B and 13B for DA2. As illustrated in the discharge exceedance frequency curves, proposed LID conditions flows from the site are equal or less than existing conditions for the range of events contained within the historical 1970 – 2006 rainfall data from the San Fernando Ph 3 gauge for DA2. For DA1, the range of flows exceed the existing conditions discharge rates. However, the receiving system (Wilson Canyon Drain) is concrete-lined and hydromodification is not anticipated within that system. For the flow duration curves, the proposed LID conditions flow durations are generally less than existing conditions except for extreme events in excess of the 100-year event for DA1 due to the increased infiltration provided in the Tier 1 development in proposed conditions.




Figure 12B: Discharge Exceedance Frequency Curves from Continuous Simulation Analysis at DA2
Existing Conditions
Proposed (Bioretention)
Discharge (cfs)
100
90
80
70
60
50
40
30
20
10
0
0.1
1
10
100
Exceedance Frequency


Figure 13A: Flow Duration Exceedance Frequency Curves from Continuous Simulation Analysis at DA1
Existing Conditions
Proposed (Bioretention)
Flow Duration (hr)
125
100
75
50
25
0
0.1
1
10
100
Exceedance Frequency



WATER QUALITY ANALYSIS

Development of the Olive View – UCLA site is anticipated to change the pollutant loading from the site into the receiving waters and mitigation is needed to maintain pollutant loads from the site at or below existing conditions and to meet County of Los Angeles water quality requirements. As described above, LID features are planned to mitigate hydrologic and water quality impacts from the site. This section includes discussions on pollutant removal performance of LID, water quality methodology, and water quality modeling results.

Pollutant Removal Performance of LID

The most significant water quality benefit of LID is removal of stormwater runoff from the storm drain system or receiving waters. The first flush of stormwater runoff during a rainfall event typically contains higher concentrations of pollutants than later rainfall. By directing this runoff through LID features and providing retention, infiltration into the various layers of the LID feature and/or the native soils below the LID, and evapotranspiration, the pollutants do not reach the receiving body of water.

Other pollutant removal processes achieved through LID include physical, chemical, and biological processes. Physical processes include filtering of sediment and pollutants, such as metals absorbed to the sediment. Degradation of fecal coliform bacteria also occurs by drying out and exposure to ultraviolet (UV) light from sun exposure. Biological processes include bioremediation and biodegradation. For example, hydrocarbons may be broken down by soil microorganisms through the process of bioremediation.

Phytoremediation, or pollutant removal by plants, includes pollutant uptake into and bioaccumulation within the plants, release of some pollutants from plants into the atmosphere, and breakdown of pollutants at the soil-plant root interface. For the latter process, mycorrhizal fungi play an important role by attaching to the roots and extending microfilaments into the soil, which significantly increases the functional surface area of plant roots. Because native, or indigenous, plants have evolved to the unique microclimate of an area and typically have deeper roots and greater levels of mycorrhizal fungi, incorporating these elements into LID may represent an increased opportunity for carbon sequestration in mitigating climate change.

The water quality benefits of LID are well documented with regards to TSS, fecal coliform bacteria, metals, hydrocarbons, and other pollutants. LID is also effective at removing nutrients (N and P) provided that background levels in the native soil and growing media are not excessive. Nitrate (NO_3) removal through LID requires specific design modifications to create anaerobic conditions and an energy source (Carbon) required for denitrification.

While the actual pollutant removal performance of LID features varies with pollutant loading, contributing drainage area, magnitude of rainfall event, antecedent moisture conditions, and specific design, typical pollutant removal rates are listed in Table 8 below. Table 7 in Appendix C includes event mean concentration (EMC) values for modeled pollutants for pre-project and post-project land use at the Olive View – UCLA site. The specific pollutant removal rates for the various proposed LID features used in the SWMM modeling are in Table 8 in Appendix C. Additionally, nutrient removal rates may vary substantially due to potential for leaching from growing media and/or underlying soil as well as specific anaerobic conditions required for denitrification required to remove nitrate (NO_3). See Appendix C for all tables of hydrology and water quality modeling data and results.

TABLE 8: TYPICAL POLLUTANT REMOVAL RATES[1] FOR LID FEATURES

LID Features	Pollutant Percent Removal				
	TSS	Nitrogen	Phosphorus	Bacteria	Heavy Metals
Detention Basin (dry)[4]	30-65	13-45	15-45	<30	15-45
Retention Basin[4]	50-80	30-65	30-65	<30	50-80
Constructed Wetlands[4]	50-80	<30	15-45	<30	50-80

LID Features	Pollutant Percent Removal				
	TSS	Nitrogen	Phosphorus	Bacteria	Heavy Metals
Infiltration Basin[4]	50-80	50-80	50-80	65-100	50-80
Infiltration Trench/Dry Wells[4]	50-80	50-80	15-45	65-100	50-80
Permeable Pavement[4]	65-100	65-100	30-65	65-100	65-100
Swales[4]	30-65	15-45	15-45	<30	15-45
Vegetated Filter Strips[4]	50-80	50-80	50-80	<30	30-65
Bioretention[3,5]	85[5]	32-99[3]	72[5]	70-92[3]	54-99[3]

[1]Ranges varying with particle size, pollutant loading and site conditions.
[2]Bioretention rates anticipated to be applicable for Rain Gardens as well.
[3]From selected field and laboratory studies summarized in *Bioretention Technology: Overview of Current Practice and Future Needs* by Davis, Hunt, Traver, and Clar in March, 2009 Journal of Environmental Engineering.
[4]LID percent removal numbers were obtained from the U.S. EPA *Handbook Urban Runoff and Pollution Prevention Planning.*
[5]National Pollutant Removal Database/Other Sources Summarized by *Cost and Pollutant Removal of Storm-water Treatment Practices by* Weiss, Gulliver, and Erickson in May/June, 2007 *ASCE Journal of Water Resources Planning and Management*,

Los Angeles County Water Quality Requirements

The proposed LID features are also planned to meet requirements in the County of Los Angeles Department of Public Works, *Low Impact Development Standards Manual.* The goal of the LID features is to provide stormwater quality benefits and more closely mimic undeveloped site hydrology. LID features are required to retain 100-percent of the stormwater quality design volume (SWQDv) on-site through a combination of infiltration, evapotranspiration, and stormwater harvest and use unless it is demonstrated that it is technically infeasible to do so.

The proposed LID features are infiltration systems. If possible, the Tier 1 LID features should be located outside of the area of liquefaction or mitigation measures should be included within the structural design of the LID features. Additionally, infiltration testing is needed prior to the final design to determine the saturated hydraulic conductivity rate at the site in the areas LID features are proposed as the values used in this study are estimated from standard soils tables.

For this project, the SWQDv is approximately 0.75 in which is the 85th percentile, 24-hour event obtained from the County of Los Angeles Department of Public Works *LID Handbook* for the project site location. Based on the LID features illustrated in the *Master Plan* (Appendix G) and

assumed configurations documented in Table 4 in Appendix C, the proposed Tier 1 LID features seem adequate to meet SWQDv (Table 4A, Appendix C). The total storage provided within bioretention is estimated at 4.3 acre-feet (ac-ft), while the required SWQDv is calculated at 2.1 ac-ft. With the addition of the permeable pavement gravel storage layer, there is an additional 2.8 ac-ft of storage, or 7.1 ac-ft total.

Additional LID features are not needed to meet requirements. Additionally, note that retention, harvest and use on-site, or infiltration must be provided for the total SWQDv and the size and configuration of the LID features may need to be modified to meet this requirement. Regardless, the proposed site will be required to meet SWQDv requirements and the LID extent may be revised as needed during the Tier 1 and Tier 2 phases of development.

Water Quality Modeling Methodology

Pollutants selected and modeled for this report were based on the EPA's 303(d) list of pollutants of concern, those pollutants requiring a TMDL and pollutants of concern that were measured in previous Los Angeles River watershed studies. The most common of the pollutants with available data for pollutant loads from commercial/retail and open space/vacant land use as well as available LID pollutant removal rates were selected for modeling. The following pollutants were modeled in the EPA SWMM model of the UCLA-Olive site:

- total suspended solids (TSS);
- total nitrogen;
- total copper;
- total lead;
- total zinc;
- fecal coliform.

While selenium was listed as a pollutant of concern for the Los Angeles River, it was assumed that it would be similar to other metals modeled in this report as data was not readily available on removal rates. While trash is also a pollutant of concern with a TMDL for the Los Angeles River, changes in trash generation are not expected between pre- and post-construction. Additionally, data is not readily available on trash removal rates and generation rates.

Table 9 below lists the Event Mean Concentration (EMC) and Table 10 lists the pollutant percent removal values for each pollutant modeled included in the water quality analysis. Both the two-year design storm event and the 37-year continuous simulation modeling runs were used for the water quality analysis. While representative, the two-year event is larger than the "water quality" event, and may overestimate pollutant loading that would occur in the "water quality" event. The two-year rainfall event is 2.83 in in the project area at the Olive View – UCLA site, which is significantly larger than the 0.75-inch depth water quality event indicated in the June, 2011 County of Los Angeles *LID Manual.*

TABLE 9: PRE-PROJECT AND POST-PROJECTEVENT MEAN CONCENTRATION VALUES

Pollutant	Retail/ Commercial	Open/Non-Urban
Total Suspended Solids (TSS) (mg/L)	67.4 [1]	70 [2]
Total Nitrogen (µg/l)	3.4 [1]	0.97 [2]
Total Copper (µg/l)	34.8 [1]	9.1 [1]
Total Lead (µg/l)	11.5 [2]	30 [2]
Total Zinc (µg/l)	238.5 [1]	195 [2]
Fecal Coliform (MPN/L)	10,716,565 [1]	21,748 [1]

[1]Event Mean Concentration (EMC) values are from Table 7, *The Green Visions Plan* for 21st Century Southern California, 2006.
[2]EMC values are from Table 4-1, the EPA Guide to Urban Stormwater Pollutant Concentrations, 2006.
[3]Modeled washoff exponent = 1.0 for all pollutants

TABLE 10: POLLUTANT REMOVAL BY TIER 1 LID FEATURES

Pollutant	% Removal	
	Bioretention[1]	Permeable Pavement[1,2]
Total Suspended Solids (TSS)	85	91
Total Nitrogen	40	27
Total Copper	66	42
Total Lead	63	74
Total Zinc	68	81
Fecal Coliform	81	82.5

[1]Removal rates for bioretention and permeable pavement, except for fecal coliform for permeable pavement, are based on The Green Visions Plan for 21st Century Southern California prepared by the University of Southern California, dated April, 2006.
[2]Fecal coliform removal rates for permeable pavement were obtained from the average value included the U.S. EPA Handbook Urban Runoff and Pollution Prevention Planning.

Water Quality Modeling Results

Tables 9A and 9B in Appendix C shows the pollutant effluent concentrations from the site with proposed conditions compared to the concentrations associated with existing conditions for the two modeled drainage areas. For DA1, TSS decreases are 92-percent lower in the two-year event and 96-percent less in the continuous simulation. Nitrogen is 57-percent less in the two-year event and 76-percent less annually. Copper is 69-percent less in the two-year event and 82-percent less annually. Lead is 78-percent less in the two-year event and 87-percent less annually. Zinc is 85-percent less in the two-year event and 91-percent less annually. Fecal Coliform has a 7-percent decrease in proposed conditions for the two-year event, and decreases 8-percent annually

For DA2, TSS, Nitrogen, Copper, Lead, and Zinc decreases 100-percent in both the two-year and annual events. Fecal Coliform has a 130-percent decrease in proposed conditions for the two-year event, and decreases 28-percent annually

IMPACTS ANALYSIS

Methods

The following analysis evaluates potential hydrology and water quality impacts that could result from implementation of the proposed project. It assesses impacts as compared to existing conditions and determines whether they would exceed any of the thresholds listed below. The potential for Tier 1 impacts is evaluated in detail and the potential for Tier 2 impacts is evaluated on a conceptual level due to the longer time-frame for Tier 2 improvements.

Thresholds of Significance

For the purposes of the analysis in this EIR, and in accordance with Appendix G of the State California Environmental Quality Act (CEQA) Guidelines, the proposed project would have a significant environmental impact if it would:

HYD-1 Violate any water quality standards or waste discharge requirements.

HYD-2 Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).

HYD-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site.

HYD-4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

HYD-5 Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
HYD-6 Otherwise substantially degrade water quality.
HYD-7 Contribute to inundation by seiche, tsunami, or mudflow.
HYD-8 Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
HYD-9 Place housing within a 100-year flood hazard area, as mapped on a Federal Flood Hazard Boundary Map or Flood Insurance Rate Map or other flood hazard delineation map.
HYD-10 Place within a 100-year flood hazard area structures that would impede or redirect flood flows.

IMPACTS AND MITIGATION MEASURES

Impact HYD-1: Would the Proposed Project Violate Any Water Quality Standards or Waste Discharge Requirements?

Construction

The Tier 1 proposed project site soil is predominantly Hanford fine sandy loam with a zone of Hanford gravelly sandy loam in the eastern corner (Exhibit 8). The soil is underlain by poorly consolidated alluvium (Ninyo and Moore Prelim Geotech). Both the soils and the underlying geology are susceptible to erosion. Slopes along the northern edge of the proposed Tier 1 project site range from approximately 5 to 13%, further increasing the site susceptibility to erosion (Exhibit 4). The Tier 2 proposed project site has similar slopes and soils as Tier 1.

During construction, site grading activities and exposed surfaces could cause erosion, temporarily increasing the amount of suspended solids in sheet flow or runoff, which would enter the storm drain system. However, the proposed project would be required to obtain and comply with the Construction General Permit from the SWRCB. This permit and associated NPDES requirements include development and implementation of a SWPPP, with associated monitoring and reporting. Stormwater BMPs are required to limit erosion, minimize sedimentation, and control stormwater runoff water quality during construction activities. Additional source-control BMPs would also be required to prevent runoff contamination by potentially hazardous materials and eliminate non-stormwater discharges.

Compliance with the Construction General Permit, SWPPP, NPDES requirements, and local regulations that require construction-phase BMPs would ensure that construction activities would not degrade the surface water quality of receiving waters to levels below standards considered acceptable by the Los Angeles RWQCB or other regulatory agencies or impair the beneficial uses of the receiving waters.

Construction-related activities could include the use of materials such as fuels, lubricating fluids, solvents, and other materials that could result in polluted runoff. However, the potential consequences of any spill or release of these types of materials would generally be small because of the localized, short-term nature of the releases. Furthermore, the NPDES Construction General Permit and SWPPP require measures regarding the handling of these types of materials and protocols for actions taken if a spill or release does occur (see mitigation measure MM-HYD-1). Therefore, impacts associated with these types of pollutants would be less than significant with mitigation incorporated for both Tier 1 and Tier 2.

Operation

Similar to existing conditions, stormwater runoff from the site after project implementation would be typical of urbanized areas and would include pollutants such as sediment, hydrocarbons, oil, grease, heavy metals, nutrients, herbicides, pesticides, fecal coliform bacteria, and trash. The *Master Plan* incorporates the use of bioretention and permeable pavement LID features. The features would meet the requirements found in the County of Los Angeles *LID Manual*.

Tier 1 of the proposed project contains two drainage areas (Exhibit 6). The eastern half of Tier 1 drains to Wilson Canyon open channel. The western half drains into Olive View Drive storm drain system, which Tier 2 also drains into, and ends in the Mansfield channel. Tier 1 pollutant effluent concentrations were modeled for both drainage areas. Total suspended solids (TSS), total nitrogen, copper, lead, zinc and fecal coliform were modeled for 2-yr, 24-hour design storm event and a 37-year continuous simulation model to represent average annual conditions. The results for Wilson Canyon drainage (DA1) and Olive View Drive storm drainage (DA2) are in Tables 9a and 9b in Appendix C. All pollutants concentrations decreased under both model scenarios and in certain cases, such as nitrogen and lead in DA2, were completely removed. According to the County of Los Angeles *LID Manual, t*he minimum storage required for bioretention is 2.1 acre-ft. Tier 1 had 4.3 acre-ft of bioretention storage. Thus, it is less than significant that the proposed Tier 1 project post-construction will impact water quality.

Drainage area discharge model results for 2-year, 10-year and 100-year, 24-hour storm events are in Tables 5a and 5b in Appendix C. Discharge model results for continuous simulation runs are in Tables 6a and 6b. The Wilson Canyon drainage peak discharge flow rates decrease between 12% and 20% with the greatest decrease occurring in the 100-year, 24-hour design storm event. The Olive View Drive storm drain system Tier 1 drainage peak discharge flow decreases between 40% and 100% with the greatest decrease from the 2-year, 24-hour design storm event. No models resulted in an increase in discharge. Impacts on discharge from Tier 1 post-construction are less than significant.

Tier 2 also plans for bioretention and permeable pavement. Based on the performance of Tier 1 water quality and discharge results, it is likely Tier 2 will also have less than significant impacts on water quality and discharge. However, Tier 2 will also drain into the Olive View Drive storm drain system. Further analyses are needed prior to Tier 2 development to ensure effluent and discharge from Tier 2 is not compounded by drainage from the western half of Tier 1.

Once the project is operational, materials such as fuels or solvents may be stored on-site, similar to existing conditions. This is not anticipated to be a source of polluted stormwater runoff or dry-weather runoff. As under existing conditions, the medical center would continue to adhere to all applicable regulations. Consequently, impacts would be less than significant.

Mitigation Measures

The following measures are proposed to mitigate Impact HYD-1, above.

MM-HYD-1: Construction activity (clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement) resulting in a land disturbance of one or more acre, or less than one-acre but part of the larger Master Plan for the campus must obtain the Construction Activities Storm Water General Permit. Prior to beginning any construction activity, the County shall require the contractor(s) to develop the SWPPP, Construction Activities Storm Water General Permit, erosion/sediment control plan, and submit these plans for approval by the governing regulatory agency. The contractor(s) shall then perform all construction activity in accordance with the recommendations in the SWPPP, the Construction Activities Storm Water General Permit, and erosion/sediment control plan. The contractor's erosion control plan must comply with the California Stormwater Best Management Practices Handbook and meet the requirements of the statewide Construction General Permit.

Level of Significance after Mitigation

Less than significant.

Impact HYD-2: Would the Proposed Project Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge?

Construction

The groundwater table 1.5 miles south of the project site ranged from 125 to 200 ft over a 20-year period (Ninyo and Moore Preliminary Geotechnical Report, 2016). The Olive View - UCLA Medical Center is located at the base of the San Gabriel foothills where the valley alluvium meets the mountains. It is possible the groundwater is shallower than 125 ft within the Tier 1 project boundary. The northeastern section of Tier 1 is identified in the *Preliminary Geotechnical Report* by Ninyo and Moore (2016) as a zone that may have groundwater within 50 ft. This area of the project is mapped as potentially liquefiable (Exhibit 11), and coincides with the Sylmar groundwater basin (Exhibit 9). This suggests the groundwater may be significantly shallower at this location.

The Sylmar groundwater basin is restricted to the southern edge in the proposed Tier 2 project boundary. It is located in an area that will be primarily landscaping. Impacts on groundwater supplies or groundwater recharge are not expected to occur during the construction phase of Tier 2.

Any discharges into groundwater during construction would be in compliance with applicable NPDES permit requirements. The project would also comply with all applicable federal, state, and local requirements concerning the handling, storage, and disposal of hazardous materials to reduce the potential for a release of contaminants into the groundwater as a result of project construction. Thus, construction activities would not degrade groundwater quality or interfere with recharge. Water use may temporarily increase to a limited extent during the construction phase. Therefore, construction-phase impacts would be less than significant.

Operation

Although greater than 50% of the Tier 1 proposed project area is within the Sylmar groundwater basin (Exhibit 9), much of the north/northwestern portions of the Tier 2 project area do not fall within a groundwater basin. Water supply from groundwater ranges from 15% to as high as 30% in drought years (LADWP 2013); however, the Sylmar Groundwater Basin accounts for less than five-percent of the LADWP's potable water supply. After Tier 1 completion, impermeable surfaces will decrease from 65% to 50%. Landscaped areas (including LID bioretention) in Tier 1 will increase by 50%. Infiltration from Tier 1 will increase by 3.7 in across the 72.6-acre Tier 1 area or by 23 ac-ft.

According to the *Master Plan*, drought-tolerant and California native plants would be used at the site. The use of plant species with high to moderate water needs would be limited. Furthermore, low-maintenance vegetation would be used. In the *Master Plan* use of drip irrigation is specified to further reduce irrigation needs. Even with water conservation efforts, due to the large increase in irrigated landscape in Tier 1, water demands for irrigation in Tier 1 are expected to increase by approximately 34 ac-ft per year. The increase in Tier 1 irrigation demands will exceed the increase in infiltration by approximately 11 ac-ft per year.

The updated and new buildings will increase the number of people on-site, increasing water demand. The *Master Plan* calls for low-flow indoor plumbing features, water metering, graywater use, and cooling tower optimization are also in the master plan. Additionally, indoor fixtures would comply with Los Angeles Municipal Code requirements related to reducing indoor water consumption. The City of Los Angeles Plumbing Code (Chapter IX, Article 4, of the Los Angeles Municipal Code) references the California Plumbing Code, which establishes maximum flow rates for indoor water fixtures. City Ordinance No. 180,822 further establishes water efficiency requirements for renovation, redevelopment, and new development and mandates the installation of high-efficiency plumbing fixtures in residential and commercial buildings (Los Angeles Municipal Code, April 2012). These requirements would limit potential increases in indoor water usage at the project site.

Further, the County of Los Angeles requires achievement of Leadership in Energy and Environmental Design (LEED) Silver on all new construction. To meet LEED standards, new construction and renovations will reduce water at minimum 35% from baseline (*Master Plan*). Due to the increase in development, indoor water demand after Tier 1 completion is expected to increase by approximately 51 ac-ft/year. The indoor water demand after Tier 2 completed (including Tier 1) is expected to increase by approximately 70 ac-ft/year. Completion of Tier 1

would increase the water demand from the Sylmar Groundwater Basin by approximately less than 0.1% and increase the demand from the LAWDP water supply by approximately less than 0.01%. Completion through Tier 2 would increase the water demand from the Sylmar Groundwater Basin by approximately less than 0.1% and increase the demand from the LAWDP water supply by approximately less than 0.01%. Thus, the project would not lead to significant increase in the demand for potable water for indoor use in the region.

The decrease in impermeable surfaces will mitigate interference with groundwater discharge. However, the increase in water demand for irrigation in Tier 1 coupled with the increase in indoor water use for Tier 1 and 2 may impact groundwater depletion. By incorporating reclaimed water, gray water, and harvested rainwater for irrigation, the increased demand for groundwater for irrigation could be reduced. For these reasons, water demand associated with the proposed project would not deplete groundwater supplies substantially. The project would increase groundwater recharge and would not interfere substantially with recharge. Therefore, the impacts on groundwater supplies or recharge during operation would be less than significant. Additionally, to further reduce potential impacts, irrigation water demand above existing irrigation demands would be met by alternative supply sources to the maximum extent possible as included in MM HYD-3.

Mitigation Measures

The following measures are proposed to minimize potential groundwater impacts identified in Impact HYD-2, above.

MM-HYD-2: Where groundwater seepage could occur, permanent monitoring wells shall be installed during construction within and around the perimeter of each building to monitor the groundwater level and evaluate the performance of the dewatering system. Before starting dewatering operations, a baseline conditions survey shall be made of all adjacent foundations and structures to assess the impact of deep excavation dewatering on adjacent structures. All signs of existing distress shall be recorded.

MM-HYD-3: Irrigation water demands above existing irrigation demands shall be met by alternative supply sources to the maximum extent technically feasible. The use of alternative water supply sources for irrigation shall be maximized to reduce the use of potable water for irrigation and approximate existing irrigation demands. Alternative water supply sources include, but are not limited to, gray water and harvested rainwater (stormwater).

Level of Significance after Mitigation

Less than significant.

HYD-3: Would the Proposed Project Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, in a Manner that Would Result in Substantial Erosion or Siltation On- or Off-Site?

Construction

The Olive View site sits between the Schoolhouse and Wilson Canyon Debris Dams and Basins. Minor alterations of the existing drainage patterns on the project site may occur related to the implementation of the campus-wide stormwater management system and due to construction of new facilities and improvements, but no change to the course of a stream or river would occur. Grading and excavation would be required for building foundations, which could affect drainage on the project site. However, careful design would prevent substantial alterations to drainage patterns and/or erosion within the project site.

The project would not substantially alter the existing drainage pattern of the site or result in substantial erosion or siltation on- or off-site. Standard construction-phase BMPs would decrease the potential for any significant erosion or sedimentation from soil disturbance associated with construction of the project. In addition, standard construction practices related to erosion and sediment control would be required as part of the permitting process.

Potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary (i.e., during construction). The project applicant would implement measures to minimize and contain erosion and sedimentation and be required to submit a grading plan to the County for approval prior to the commencement of any construction activities. In addition, because the project would disturb more than one-acre, the project proponent would be required to obtain and comply with the NPDES Construction General Permit. As required by this permit, the project proponent would develop a SWPPP and comply with regional requirements to meet state water quality objectives. Pending revisions, the NPDES permitting process may require development of a rain-event action plan prior to permit approval. Construction-related erosion and sedimentation impacts resulting from soil disturbance would be less than significant after implementation of the SWPPP (see mitigation measure MM-HYD-1) and the BMPs required to control erosion and sedimentation.

Operation

The proposed project would increase and improve storm drainage pipes and install LID features (bioretention and permeable pavement) across Tier 1 and Tier 2 to accommodate the new development. In Tier 1, TSS loads (lbs/year) into the Wilson Canyon drainage are expected to decrease by 92% based on a 2-yr 24-hr storm event and 96% based on 37-yr continuous simulation run. TSS loads (lbs/year) into the Olive View Drive storm drain system are expected to decrease by 100% based on a 2-yr 24-hr storm event and a 37-yr continuous simulation run. Tier 2 will also have a similar proportion of LID features and is expected to also decrease TSS loads.

As discussed in HYD-1, discharge rates would also decrease in Tier 1 and are likely to decrease in Tier 2. Thus, long-term impacts on drainage patterns from increased erosion or increased sedimentation on or off-site are less than significant.

Mitigation Measures

Mitigation measure MM-HYD-1, above, is proposed to mitigate Impact HYD-3.

Level of Significance after Mitigation

Less than significant.

HYD-4: Would the Proposed Project Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner that Would Result in Flooding On- or Off-Site?

Construction

Although grading would occur throughout the site, the resultant ground disturbance would be spread over the site and would not alter the overall topography. Water would be used during the temporary construction phase of the project (e.g., for dust suppression). However, this water would be mechanically and precisely applied and would, in general, infiltrate or evaporate. Therefore, the rate or amount of surface runoff resulting from project construction activities would be similar to the amount under existing conditions. During construction, the pervious nature of the project site would not be significantly altered. As such, the project would not result in a substantial increase in the rate or amount of surface runoff or flooding on- or off-site. Impacts would be less than significant.

Operation

In Tier 1, the proposed plan will decrease peak discharge to the Wilson Canyon drainage and the Olive View Drive storm drainage. Three storm events were modeled for the Tier 1 drainages: 2-year, 10-year and 100-year, 24-hour design storms. The peak discharge to the Wilson Canyon drainage would decrease from 9.8 to 8.7 cfs, 19.6 to 17.1 cfs, and 36.1 to 30.2 cfs, for the 2-year, 10-year and 100-year, 24-hour design storm events, respectively. The peak discharge to the Olive View Drive storm drainage would decrease from 16.0 to 0 cfs, 32.4 to 1.8 cfs, and 57.3 to 34.0 cfs for the 2-year, 10-year and 100-year, 24-hour storm events, respectively. Tier 2 was not modeled. However, due to the planned decrease in impervious surfaces and the planned LID features, Tier 2 will also likely have reduced peak discharge. Thus, the proposed project would not result in flooding on or off-site due to increased surface run-off.

The storm drainage system on-site will undergo improved storm drainage modifications. The modifications will be primarily adding new storm drain pipes in order to accommodate the increased infrastructure. Some of the existing storm drain pipes will be demolished. However,

the outfall locations discharging the storm water into the public systems will not be changed according to the *Master Plan*. In Tier 1 impervious cover will decrease from 67% to 50%. The improved storm drainage system, LID features, and decreased impervious cover in Tier 1 will not cause substantial alterations to the existing drainage pattern of Tier 1. Tier 2 will also receive storm drainage improvements, LIDs and will likely decrease in impervious cover.

The proposed project would improve stormwater drainage on the site and reduce peak discharges from the site due to the decrease in impervious cover and use of LID features. Water quality of discharges from the site is improved over existing conditions. Additionally, the proposed discharge locations will remain unchanged from the existing discharge locations. As such, the proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Mitigation Measures

Impacts would be less than significant. No mitigation measures are required.

HYD-5: Would the Proposed Project Create or Contribute Runoff Water that Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff?

Construction

During construction, erosion of surface materials could increase TSS and other pollutants, as mentioned in HYD-1. Sedimentation and siltation of runoff during the construction period would be addressed through the implementation of standard construction-phase BMPs. The amount of impervious cover would not increase during construction, and at various stages of construction, it would even be less than the existing amount. This would be considered a less-than-significant impact.

Operation

Impervious surfaces are proposed to decrease in the Wilson Canyon drainage from 50.7% to 52.3% during Tier 1. Impervious surfaces in the Olive View Drive storm drainage in Tier 1 are proposed to decrease from 74.9% to 46.2%. Peak flow rates to the Wilson Canyon drainage would be reduced from existing conditions by 12%, 16%, and 20%, for the 2-year, 10-year and 100-year, 24-hour storm events, respectively. Peak flow rates to the Olive View Drive storm drainage from Tier 1 would be reduced from existing conditions by 100%, 94%, and 40% for the 2-year, 10-year and 100-year, 24-hour storm events, respectively. Tier 2 peak flows were not modeled. However, Tier 2 proposed peak flows are expected to be equivalent or reduced from existing conditions.

Pollutant loads into Wilson Canyon drainage and Olive View Drive storm drainage from proposed conditions in Tier 1 would not increase, as discussed in HYD-1 and seen in Tables 9a

and 9b in Exhibit C. Modeled pollutant loads for a 2-yr 24-hr storm event into the Wilson Canyon drainage would decrease for TSS, nitrogen, copper, lead and zinc would decrease by 92%, 57%, 69% and 78%, respectively. Modeled pollutant loads for a 2-yr 24-hr storm event into the Olive View Drive storm drainage from Tier 1 would decrease by 100% during a 2-year, 24-hour modeled storm event for TSS, nitrogen, copper, lead and zinc. Fecal coliform would decrease by 7.4% and 130% for a 2-year, 24-hour modeled storm event into Wilson Canyon drainage and Olive View Drive storm drainage, respectively. Annual pollutant loads were based on a 37-yr continuous simulation model. Annual pollutant loads into the Wilson Canyon drainage would decrease by 96%, 76%, 82%, 87%, 91% and 8% for TSS, nitrogen, copper, lead, zinc and fecal coliform, respectively. Annual pollutant loads into the Olive View Drive storm drainage would decrease by 100% for TSS, nitrogen, copper, lead, and zinc. Fecal coliform would decrease by 28%. Tier 2 pollutant loadings were not modeled, but are expected to remain at existing levels or to decrease below existing levels.

In addition to the decreased peak discharge and pollutant loadings, drainage from proposed site improvements would be conveyed through a new storm drain system that would be sized for proposed stormwater runoff from the site. The proposed project would not significantly affect the capacity or hydraulic integrity of the proposed on-site storm drain system, the existing Olive View Drive storm drain system, or the Wilson Canyon or Schoolhouse Canyon Drain open channel systems or provide substantial additional sources of pollution to these receiving systems.

Mitigation Measures

Impacts would be less than significant. No mitigation measures are required.

HYD-6: Would the Proposed Project Otherwise Substantially Degrade Water Quality?

Construction

As discussed above, the proposed project would include improvements to stormwater quality through the implementation of a campus-wide stormwater management system. Furthermore, construction-phase BMPs would be implemented in accordance with the County of Los Angeles Department of Public Works *Construction Site BMPs Manual* (2007) and the SWPPP that would be prepared in accordance with the requirements of the NPDES Stormwater General Permit. Construction-phase BMPs for the proposed project may involve scheduling, silt fencing, street sweeping and vacuuming, storm drain protection, stabilized construction entrances/exits, water conservation practices, paving and grinding operations, as well as procedures and practices pertaining to vehicle equipment cleaning, vehicle equipment fueling, and vehicle equipment maintenance.

Operation

Impacts HYD-1 to HYD-5 discusses potential impacts associated with the degradation of water quality during operation. Prior to the commencement of construction activities, the project proponent would be required to prepare and submit drainage plans to the city or County, which

would include post-construction structural and nonstructural BMPs. Routine structural BMPs are intended to address water quality impacts related to drainage, which are inherent in development.

As discussed previously, the LID features will mitigate pollutant loadings into the storm drainage system. However, maintenance will be required to sustain the effectiveness and extend the life-cycle of the LID features. For most LID features, sediment removal is one of the most important and significant maintenance activities. Once LID features clog or reach the end of their life-cycle, major rehabilitation or reconstruction may be needed. Regular inspection of LID features is also a key component of a successful Operations and Maintenance (O&M) Plan.

Bioretention maintenance requirements include removing sediment, trash, and debris to maintain the infiltration capacity. Additionally, shredded hardwood mulch should be removed and replaced annually to remove sediment and any accumulated metals captured by the mulch. Vegetation may require pruning as well as replanting of dead vegetation. Additionally, irrigation is typically required during the summer months. Because bioretention provides stormwater quality benefits, weeding should be done by hand and fertilizers, pesticides, and herbicides should not be used. Additionally, mulch and compost should not contain any manure or other animal products that may contribute nutrients to the stormwater runoff.

The maintenance activities associated with permeable pavement are geared towards removal of sediment and debris that may clog the pavement. Sweeping of leaf litter, debris, and sediment is needed to prevent organic materials from decomposing and clogging the pavement. For minor clogging, pressure washing may be used, while vacuum sweeping is recommended twice annually or more for areas with high sediment loads. Any weeds within the permeable pavement should be removed manually and herbicides should not be used.

While it is preferable to avoid constructing LID features in areas of potential liquefaction, some Tier 1 LID features could fall within a liquefaction risk area. Any LID features within or adjacent to liquefaction zones should include structural design modifications to ensure continued hydrologic and water quality performance after a liquefaction event. In the event, the LID features are damaged by a liquefaction event, repair, maintenance, and/or reconstruction may be needed based on the results of a field inspection of the LID features.

There are no other methods by which water quality could be degraded as a result of operations on the project site. Therefore, with implementation of mitigation measures MM-HYD-1 through MM-HYD-5, impacts associated with degrading water quality during operation would be less than significant.

Mitigation Measures

In addition to mitigation measures HYD-1 and HYD-2 as they pertain to water quality, the following measures are proposed to mitigate Impact HYD-6, above.

MM-HYD-4: An O&M Plan shall be developed for LID features at the site during the design of the initial development projects and expanded as development progresses and different LID features are added. The plan shall consider impacts on water quality and address issues related to

Integrated Pest Management (IPM) or organic maintenance practices, including those for hand weeding.

MM-HYD-5: For any proposed LID features located within an area of potential liquefaction, structural design modifications should be included to mitigate the potential impacts of liquefaction on the performance and operation of the LID features and to maintain the water quality performance as originally design. The O&M Plan should include provision for inspection, repair, maintenance, and/or reconstruction after liquefaction events for any LID features located within an area of potential liquefaction

Level of Significance after Mitigation

Less than significant.

HYD-7: Would the Proposed Project Contribute to Inundation by Seiche, Tsunami, or Mudflow?

Construction and Operation

The project site is located approximately 28 miles from the Pacific Ocean, so there is negligible risk to the site from tsunamis. The Pacoima Reservoir, located 4.5 miles east of campus, is unlikely to produce seiches that would affect the project site. The site is nestled against the San Gabriel Mountains. Several areas at the northern border of the project site are landslide hazard areas, as seen in Exhibit 11. The Wilson Canyon drainage, which transects the Tier 1 proposed project site, is mapped as containing liquefaction hazards within the project area and landslide hazards directly upstream of the Tier 1 project border. Areas susceptible to liquefaction in Tier 1 are primarily landscaped regions, tree-lined streets and parking lots. The eastern corner of the proposed administration building and portions of the Restorative Care Village facilities fall within the mapped liquefaction hazard area. This makes mudflows a potential hazard to the site. Mitigation of mudflows upstream of the project is already in place via the Wilson Canyon Debris Dam and Basin upstream of the project site.

The landslide hazard areas immediately to the north of the project site could potentially produce mudflows. New construction along the northern edge could result in further landslide, and thus mudflow, hazards. In the *Master Plan*, retaining walls (eight-foot maximum) and grade breaks are proposed along the northern project border, which would both protect the site from mudflow and make contributions to mudflow generation less than significant. Further, proposed landscaping and site stabilization within the site is likely to decrease erosion potential and may reduce contributions to mudflow as compared to existing conditions.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Less than significant.

HYD-8: Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

Construction and Operation

Given that the area in which the proposed project would be located is outside the 100-year flood plain, the proposed project would not result in increased exposure to loss, injury, or death involving flooding. The nearest large body of water is the Pacoima Reservoir, nestled in the San Gabriel Mountains approximately three miles to the east. The Olive View – UCLA project site is located outside of the Pacoima Dam inundation area (Appendix J).

There may be risk of exposing people and structures to flooding in the Tier 1 proposed project area if the Wilson Debris Dam and Basin failed. The dam outflow transects the eastern half of Tier 1. The primary proposed areas that would be affected are landscaping and parking, which are present in existing conditions as well.

The outflow from the Schoolhouse Debris Dam and Basin borders the western side of the Tier 2 proposed project site. The area within the project site that could be affected by dam failure of the Schoolhouse Debris Dam would be a woodland preserve and trailhead view deck landscape areas. The existing site on the western edge is landscaped and vacant.

The project region at greatest risk from debris dam failure is Tier 1. The proposed Tier 1 would not add significant structures to the areas that would be affected by debris dam failure. In addition, peak flows and impervious surfaces will be decreased, as previously discussed. Thus Tier 1 would not add to discharge in the Wilson Canyon, were flooding due to debris dam failure would occur. Due to the limited land use change in the regions that would be impacted by a debris flow, and the decreased peak flow and impervious areas within the proposed project site, there is less than a significant risk from flooding due to debris dam failure. Additionally, the risk of loss, injury, or death involving flooding is not increased as compared to existing conditions at the site.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Less than significant.

HYD-9: Place housing within a 100-year flood hazard area, as mapped on a Federal Flood Hazard Boundary Map or Flood Insurance Rate Map or other flood hazard delineation map.

Construction and Operation

In eastern side of Tier 1, the Wilson Canyon drainage runs north to south. The southern half of the drainage within Tier 1 is mapped as having a 100-year floodplain (Exhibit 3). Parking lots will be within 100 feet of the drainage. The 100-year floodplain it is contained within the channel. The entire Olive View – UCLA project site (Tier 1 and Tier 2) is delineated as an X (unshaded) flood zone by FEMA, which is defined as minimal risk of flood hazard. Housing is not proposed within a mapped flood hazard zone or the 100-year floodplain.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Less than significant.

HYD-10: Place within a 100-year flood hazard area structures that would impede or redirect flood flows.

Construction and Operation

As discussed in HYD-9, there are parking lots to the west and east of the Wilson Canyon drainage 100-year floodplain, located in Tier 1. The floodplain is contained within the channel. There are no mapped 100-year floodplains within Tier 2. No structures are proposed within the 100-year floodplain during Tier 1 or Tier 2 development and no impediment or redirection of flood flows is expected.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Less than significant.

Cumulative Impacts

The geographic scope for cumulative impacts related to water quality and hydrology encompasses the project site and the land uses within a one-mile radius of the project site. There

are no other known projects currently planned near the Olive View - UCLA Medical Center project site.

CONCLUSIONS

Compliance with the Construction General Permit, SWPPP, NPDES requirements, and local regulations that require construction-phase BMPs would ensure that construction activities would not degrade the surface water quality of receiving waters to levels below standards considered acceptable by the Los Angeles RWQCB or other regulatory agencies or impair the beneficial uses of the receiving waters. Construction would not result in a violation of any water quality standards or waste discharge requirements, would not provide substantial additional sources of polluted runoff, and would not substantially degrade water quality. In Tier 1, pollutant loadings from the proposed site into the Wilson Canyon drainage and the Olive View Drive storm drainage would decrease as modeled for a 2-year, 24-hour storm event and annual continuous simulation. Pollutant loadings from the proposed Tier 2 project site are also expected to decrease.

Groundwater recharge is likely to increase based on the decrease of impervious surfaces in both Tier 1 drainage areas. A significant portion of Tier 2 falls outside of the Sylmar groundwater basin. In addition, the Tier 2 proposed impervious cover will decrease as compared to existing conditions. Groundwater contamination would not be a factor during construction or during operation. The project would be required to comply with all applicable federal, state, and local requirements concerning the handling, storage, and disposal of hazardous materials to reduce the potential for the release contaminants into groundwater because of project construction. Thus, construction activities would not degrade groundwater quality or interfere with recharge. During operation, groundwater contamination is not expected to occur based on the LID features and decrease in impervious surfaces allowing for more infiltration into native soil and thus filtration.

Indoor water usage for the project site is proposed to increase by approximately 51 ac-ft/year after Tier 1 completion and by 70 ac-ft/year after Tier 2 completion, including the implementation of water conservation features. Outdoor water use in Tier 1 is expected to increase by 51 ac-ft/year. Outdoor water use in Tier 2 is expected to increase by 70 ac-ft/year, including Tier 1 outdoor water use.

During construction, surface run-off would not increase discharges. Water applications would be precise and the fill material and native soil exposed during construction are very permeable, allowing for infiltration during construction. Localized erosion and sedimentation may occur during construction activities. Standard construction-phase BMPs would decrease the potential for any significant erosion or sedimentation from soil disturbance associated with construction of the project. In addition, standard construction practices related to erosion and sediment control would be required as part of the permitting process. Discharge from both drainages would decrease in Tier 1 and would be expected to decrease in Tier 2. TSS would decrease in Tier 1 due to the decrease in impervious surfaces and the implementation of bioretention and permeable pavement LID features and is expected to decrease during Tier 2

The *Master Plan* proposes new and additional storm drain pipes within Tier 1 and Tier 2. The storm drainage outflow locations in Tier 1 and Tier 2 would not change. The updated storm drainage system would be appropriately sized to handle proposed stormwater discharge generated within Tier 1 and Tier 2. However, due to the decrease in peak discharge in Tier 1 and the expected decrease in peak discharge in Tier 2, impacts to storm drainage discharge from the project into the receiving systems are not expected.

The Wilson Canyon 100-year floodplain within Tier 1 is confined to the drainage channels and does not pose a flooding risk to existing or proposed structures. No drainage structural changes or increases in peak discharge will occur with the proposed project that would affect the Wilson Canyon 100-yr floodplain extent. There are no floodplains present in Tier 2. Flooding due to reservoir dam failure will also not occur at the project site as it is outside of the dam failure hazard zone for Pacoima Reservoir, the nearest dammed body of water. There are two debris basins, Wilson Canyon Debris Basin upslope from Tier 1 and Schoolhouse Drainage Debris Basin upslope from the western border of Tier 2. Failure of the debris basin dams could result in flooding and sediment loading, affecting primarily the Tier 1 Wilson Canyon drainage. The debris basin dams will not be structurally influenced by the proposed construction or operation.

The project site is well outside of the tsunami inundation areas for the Los Angeles region (Appendix J) and there is no risk of sieche in the existing or proposed site. In the Tier 1 Wilson Canyon drainage area, there are areas mapped as susceptible to liquefaction (Exhibit 11). There are also several areas immediately upslope of Tier 1 and Tier 2 mapped as susceptible to landslides (Exhibit 11). Development within the liquefaction zones and adjacent to the landslide zones may contribute to potential mudflows. Appropriate structural design and BMPs techniques would be utilized to reduce the potential impacts of mudflows.

The Olive View - UCLA Medical Center project meets established project goals:

- ✓ Meet County of Los Angeles LID and stormwater treatment criteria;
- ✓ Use LID to reduce proposed conditions peak flows and runoff volumes to below existing conditions;
- ✓ Simulate undeveloped conditions through use of infiltration and groundwater recharge across the project site.

Detailed water budget modeling results from EPA SWMM are included in Appendix C. To ensure the long-term functionality of the LID features and performance of the site, development of and compliance with an Operations & Maintenance (O&M) Plan is critical. Additionally, proper construction sequencing is critical to avoid premature sedimentation of the facilities.

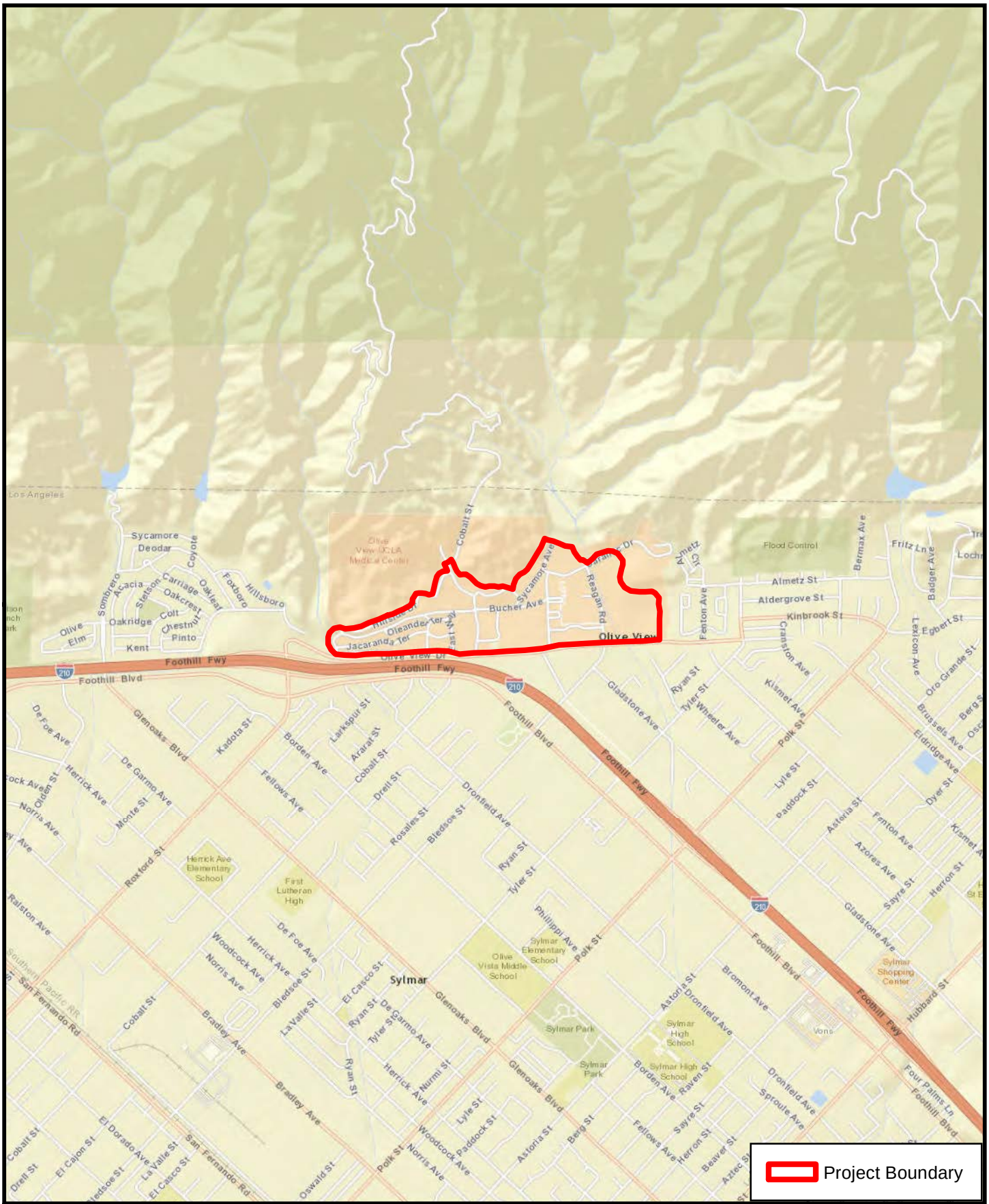
Redevelopment of the UCLA Medical Center-Olive View site represents a significant opportunity for sustainability and LID retrofits within a densely urbanized area and for implementation of Green Infrastructure and LID for Los Angeles County. Thank-you for the opportunity to collaborate on this visionary project.

EXHIBITS

Exhibit 1 – Vicinity Map
Exhibit 2 – Aerial Photograph
Exhibit 3 – FIRM
Exhibit 4 – Topographic Map
Exhibit 5 – Subwatershed Map
Exhibit 6 – Drainage Area Map
Exhibit 7A – Land Use
Exhibit 7B – Existing Landscape
Exhibit 7C – Proposed Landscape
Exhibit 8 – Soil Map
Exhibit 9 – Groundwater Basins Map
Exhibit 10 – Spreading Grounds
Exhibit 11 – Liquefaction Map
Exhibit 12 – 2-Year Rainfall
Exhibit 13 – 10-Year Rainfall
Exhibit 14 – 100-Year Rainfall

APPENDICES

Appendix A-References
Appendix B-Design Storm Unit Hyetograph
Appendix C-Tables of Hydrology Modeling Data and Results
Appendix D-EPA SWMM Water Budget Results
Appendix E-Section 5 of the Los Angeles County 1994-2005 Integrated Receiving Water Impacts Report [Cover]
Appendix F-Water Quality Compliance Master Plan for Urban Runoff
Appendix G-Olive View Campus Master Plan LID Layout/Water quality sheets
Appendix H – EPA Guide to Urban Stormwater Pollutant Concentrations (Tables 4-1 and 4-3)
Appendix I-Site Reconnaissance Photographs
Appendix J-City of Los Angeles Hazard Mitigation Plan (Dam Failure and Tsunami Inundation)
Appendix K – County of Los Angeles Low Impact Development Handbook TMDL Data
Appendix L – Preliminary Geotechnical Evaluation
Appendix M – Los Angeles RWQCB Basin Plan (Chapter 7) [Cover]
Appendix N – The Green Visions Plan for 21st Century Southern California (Table 7)



1 " = 2,000 Feet
0 2,000
Feet

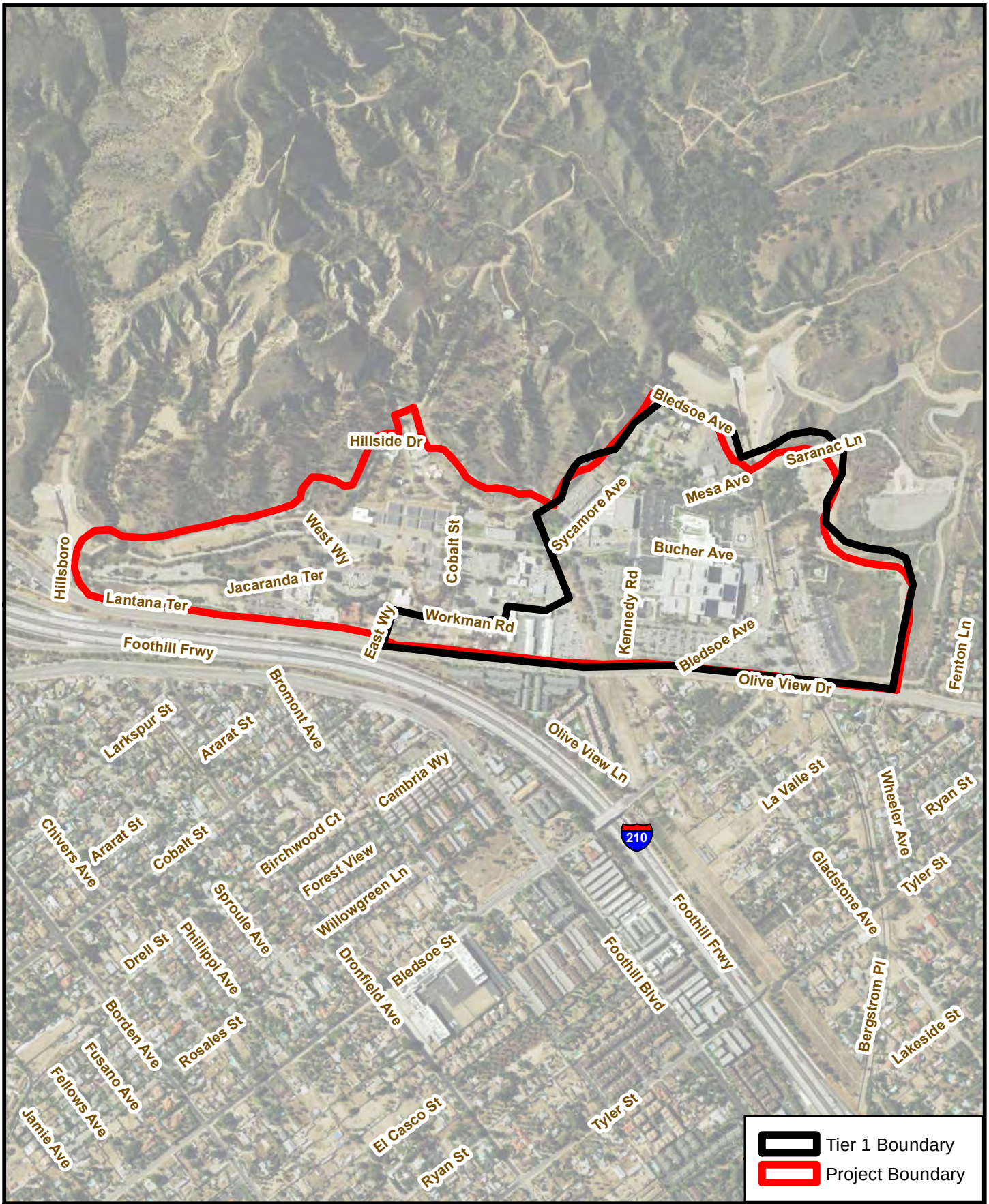
Datum: NAD83
Units: US Feet

OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
VICINITY MAP

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 1



1 " = 800 Feet

0 800

Feet

Datum: NAD83
Units: US Feet

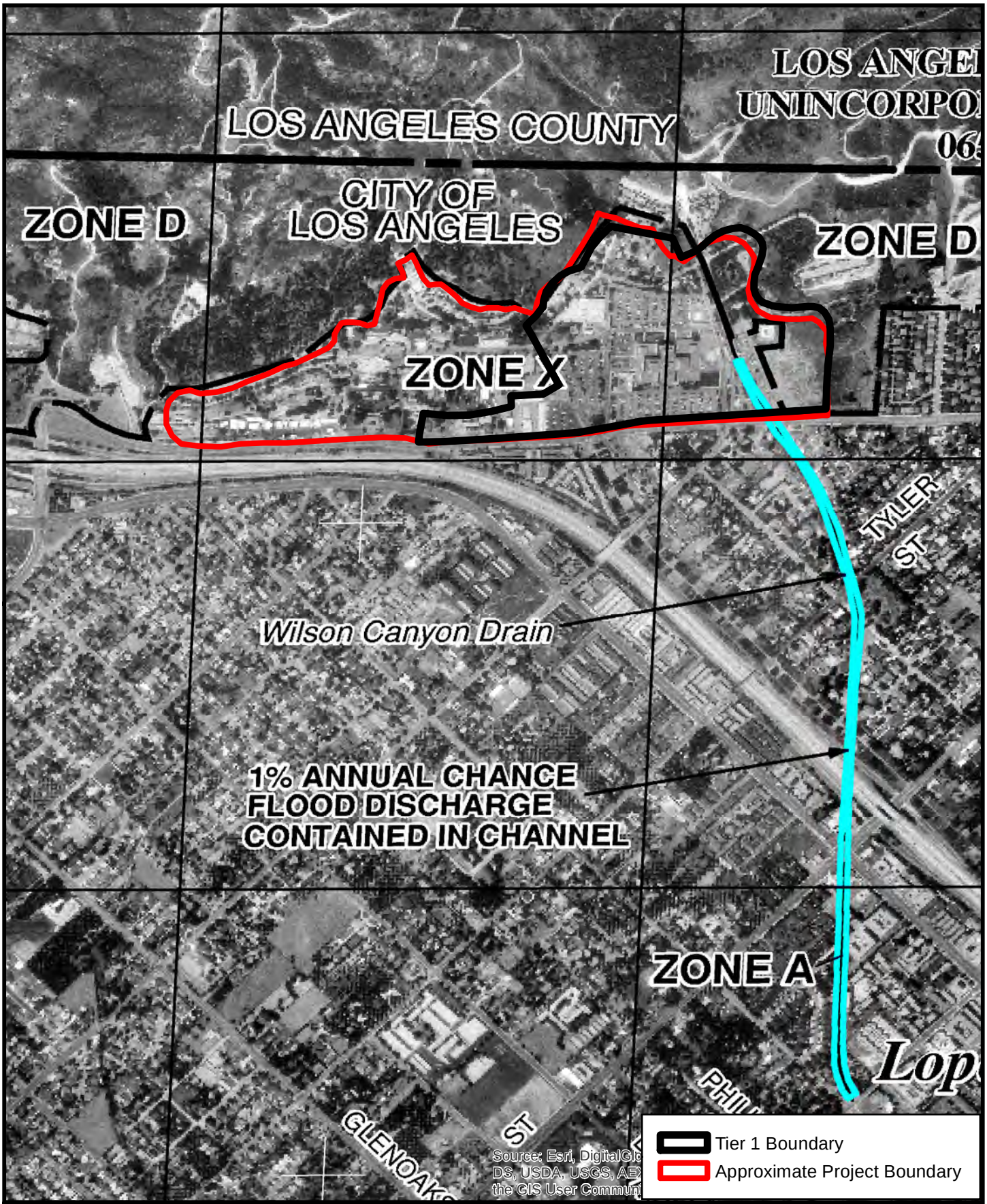
SITE

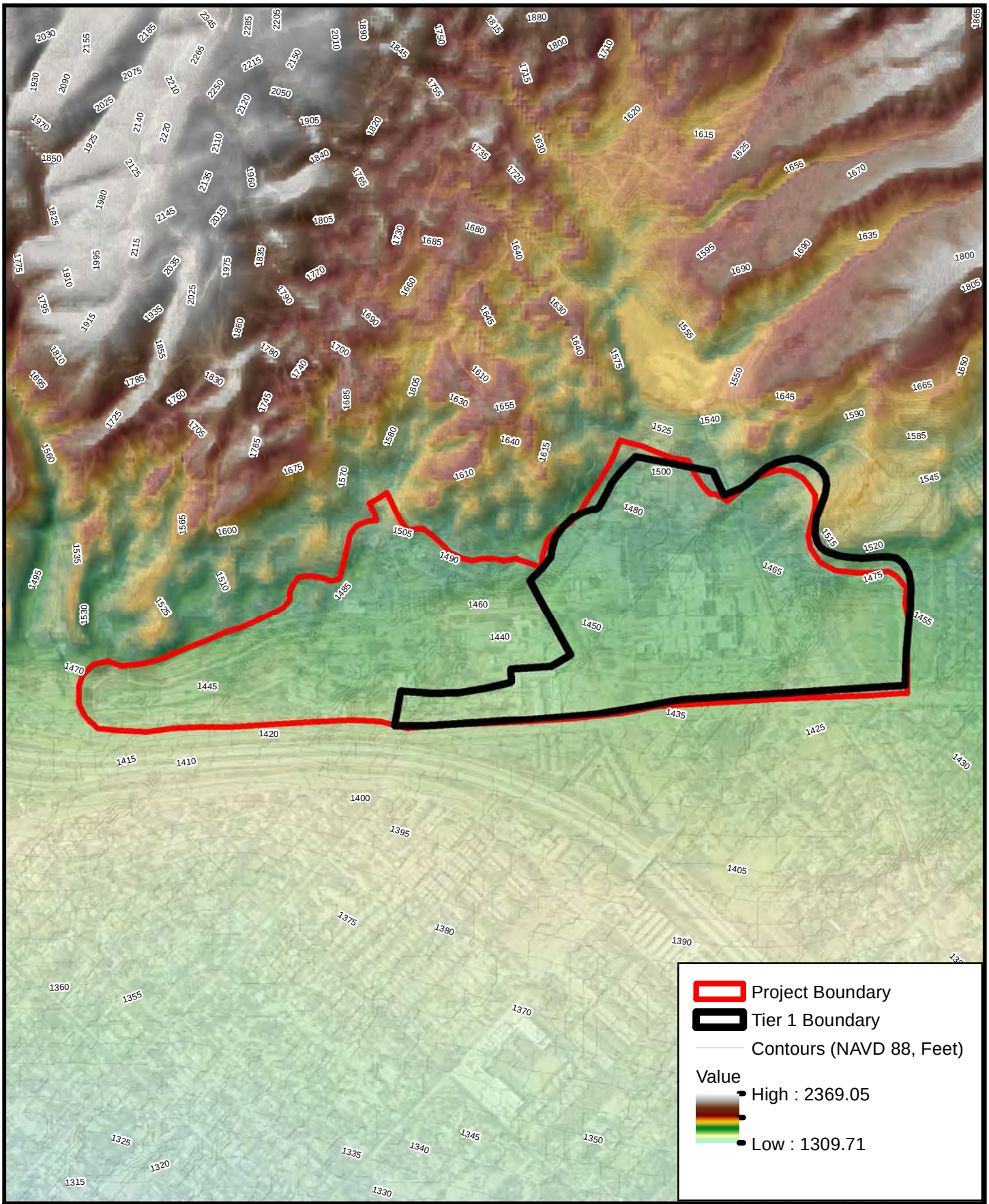
OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
AERIAL MAP

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 2


LOS ANGELES COUNTY
CITY OF LOS ANGELES
ZONE D
ZONE D
ZONE X
TYLER ST
Wilson Canyon Drain
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
ZONE A
GLENOAK
ST
Source: Esri, DigitalGlo
DS, USDA, USGS, AE
the GIS User Commun
Tier 1 Boundary
Approximate Project Boundary
1 " = 1,000 Feet
0
1,000
Feet
Datum: NAD83
Units: US Feet
SITE
OLIVE VIEW-UCLA MEDICAL CENTER CAMPUS MASTER PLAN EIR
FEMA FIRM MAP
PANEL NO. 06037C1075F
(EFFECTIVE SEPTEMBER 26, 2008)
Watearth
Water Resources + Green Infrastructure
Date: Jul 01, 2016
Exhibit 3



1 " = 800 Feet
0 800
Feet

Datum: NAD83/NAVD88
Units: US Feet

SITE

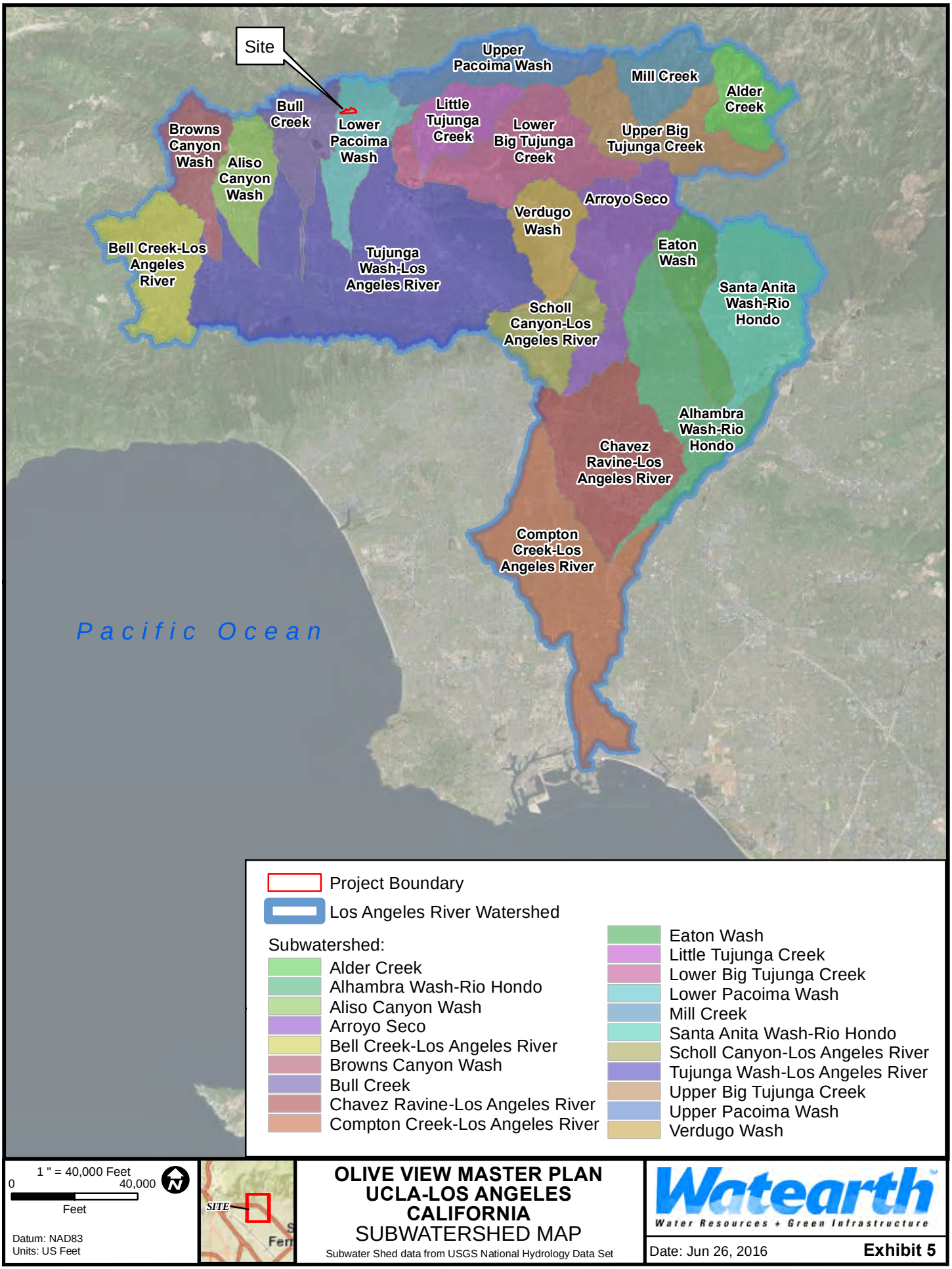
OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
TOPOGRAPHIC MAP

Elevation data from USGS National Elevation data set

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 4



1 " = 40,000 Feet
0 40,000
Feet

Datum: NAD83
Units: US Feet

SITE

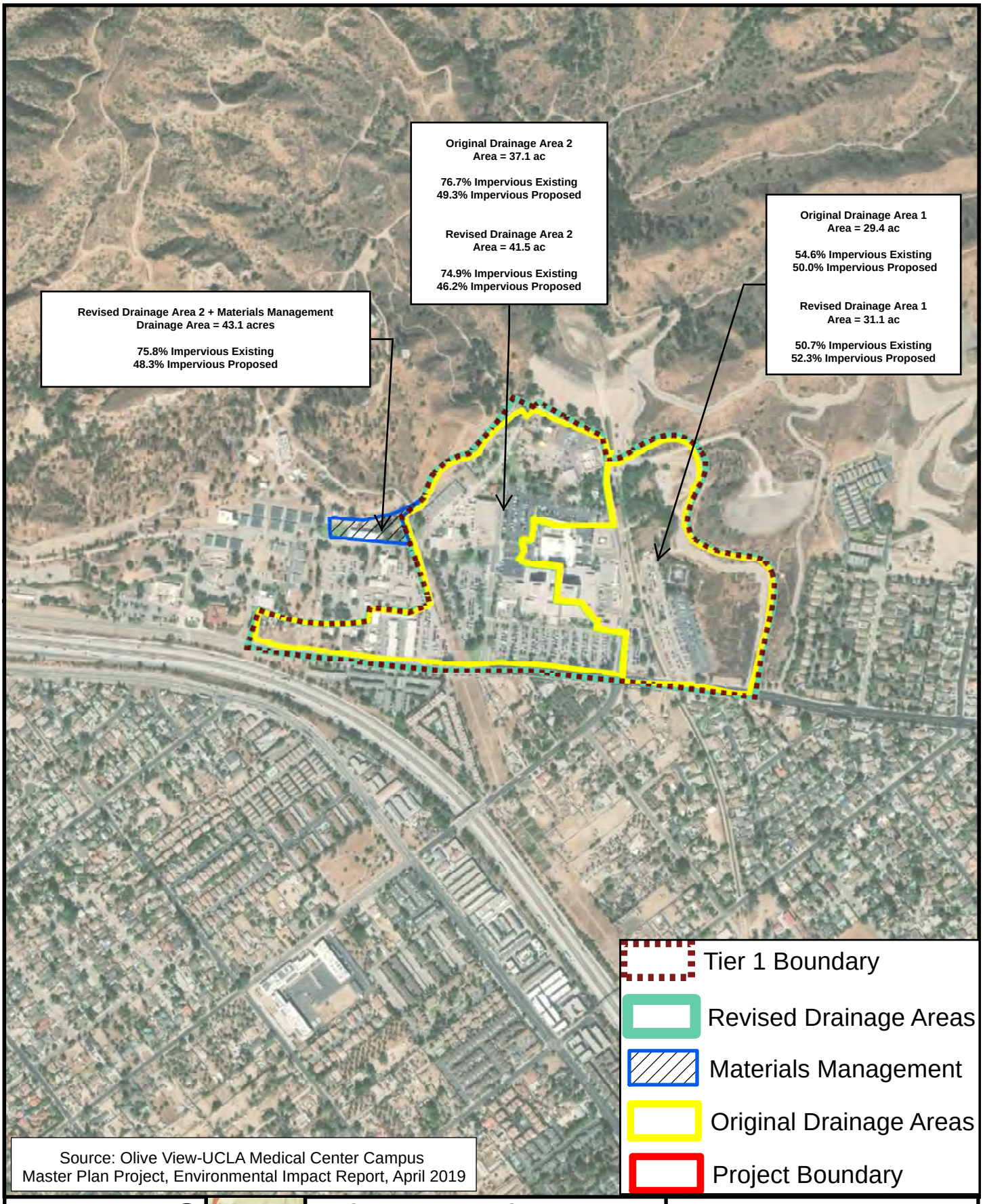
OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
SUBWATERSHED MAP

Subwater Shed data from USGS National Hydrology Data Set

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 5



0 1 " = 800 Feet 800
Feet
Datum: NAD83
Units: US Feet

SITE
San

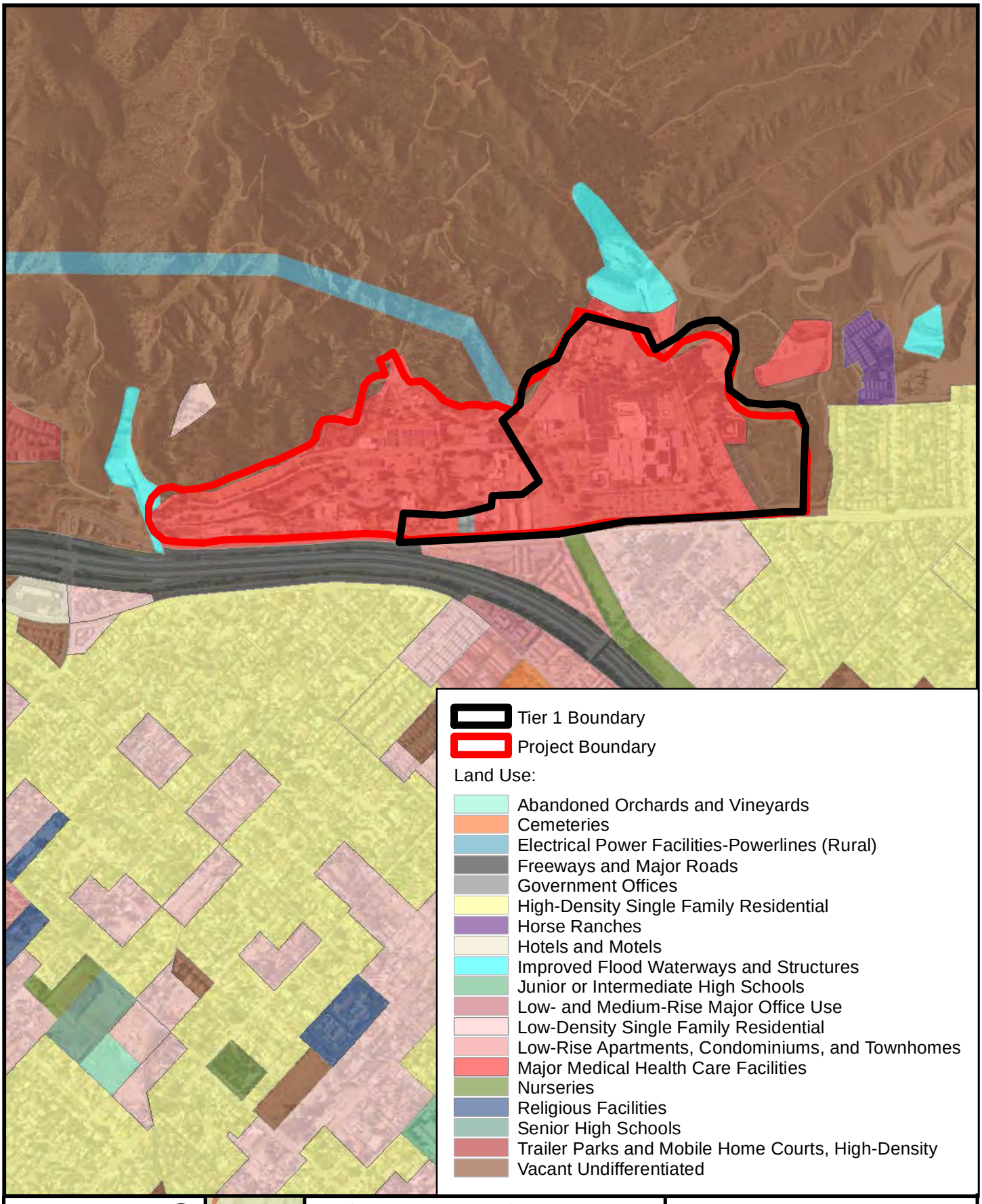
OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA

DRAINAGE AREA MAP

Watearth
Water Resources + Green Infrastructure

Date: Apr 26, 2019

Exhibit 6



1 " = 1,000 Feet

0 1,000

Feet

Datum: NAD83
Units: US Feet



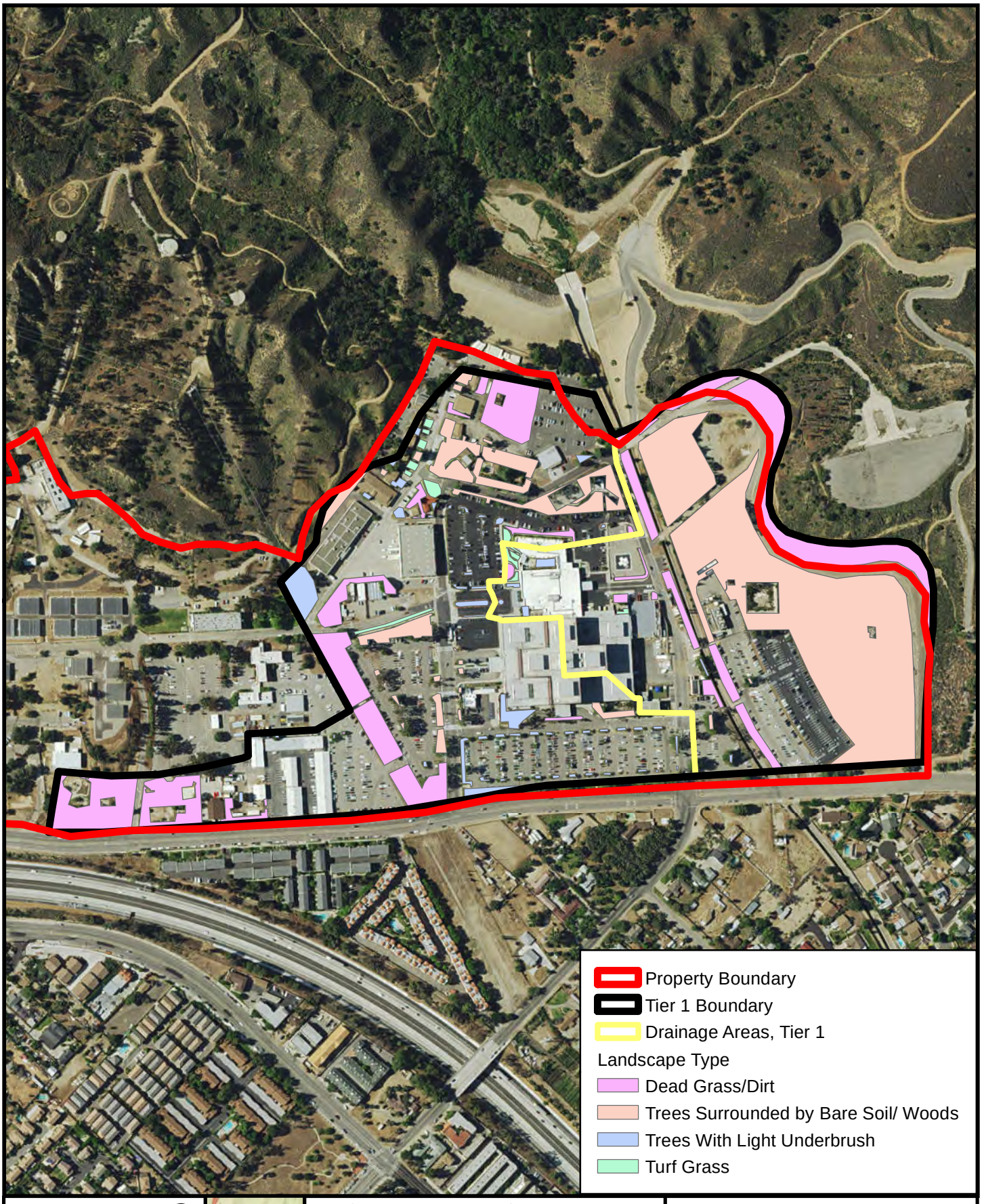
OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
LAND USE MAP

Land Use data from Los Angeles County Department of Public Works

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 7



1 " = 500 Feet

0 500

Feet

Datum: NAD83
Units: US Feet

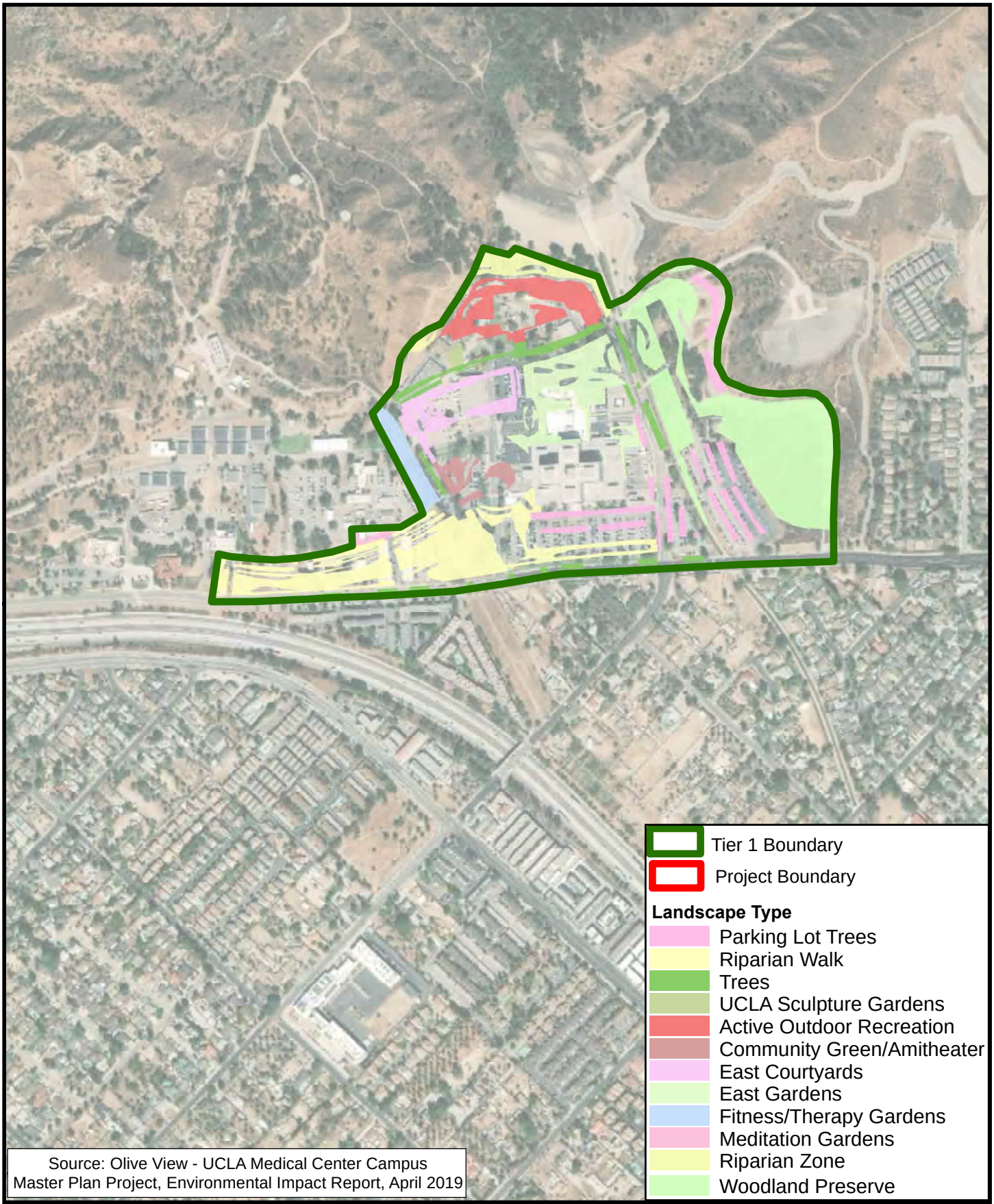


OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
EXISTING LANDSCAPE

Watearth
Water Resources + Green Infrastructure

Date: Jul 01, 2016

Exhibit 7B



Source: Olive View - UCLA Medical Center Campus Master Plan Project, Environmental Impact Report, April 2019

0 1 " = 700 Feet 1,000 Feet

Datum: NAD83
Units: US Feet

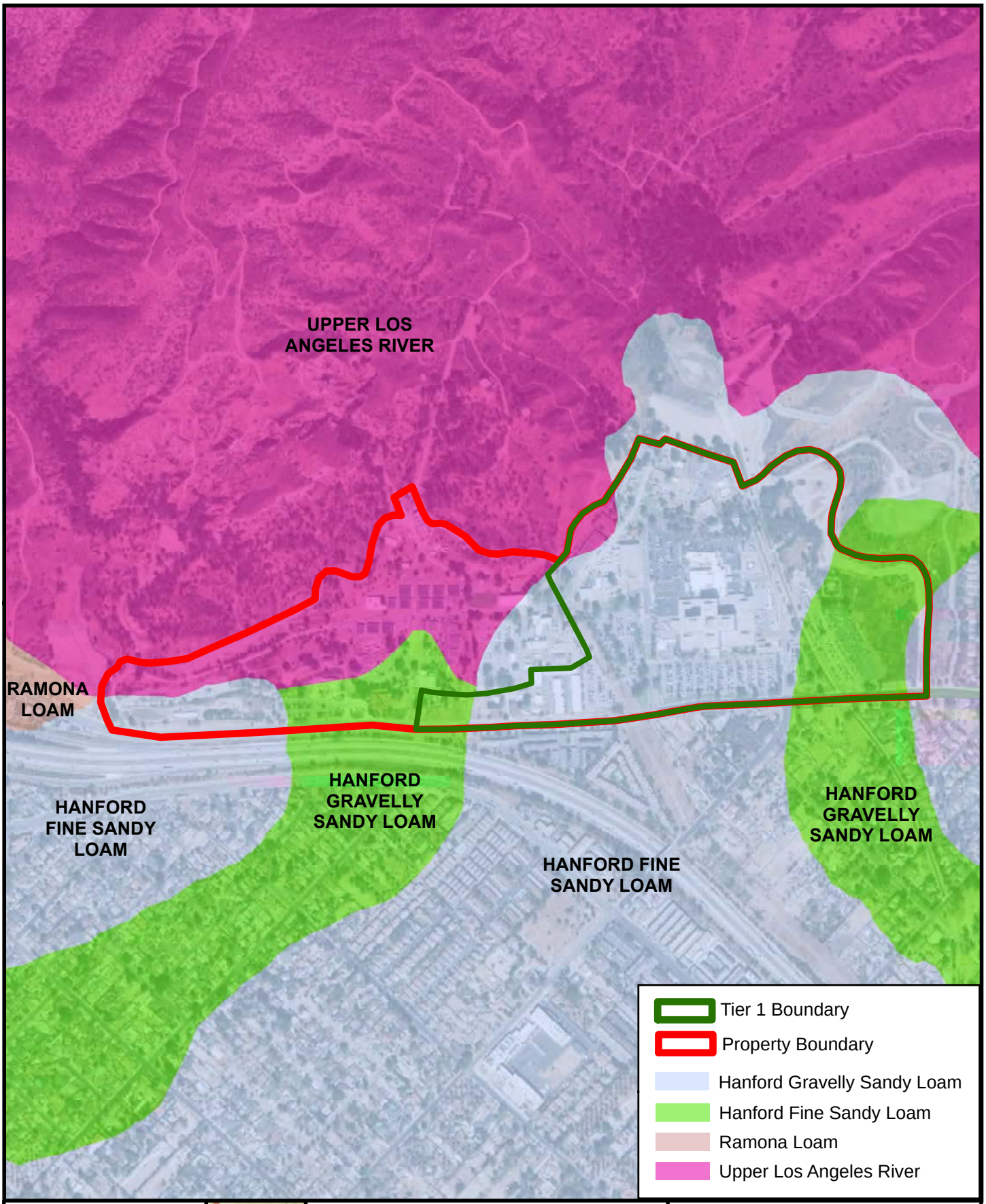


OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
PROPOSED LANDSCAPE

Watearth™
Water Resources + Green Infrastructure

Date: May 7, 2019

Exhibit 7C



1 " = 800 Feet
0 800
Feet

Datum: NAD83
Units: US Feet

SITE
San

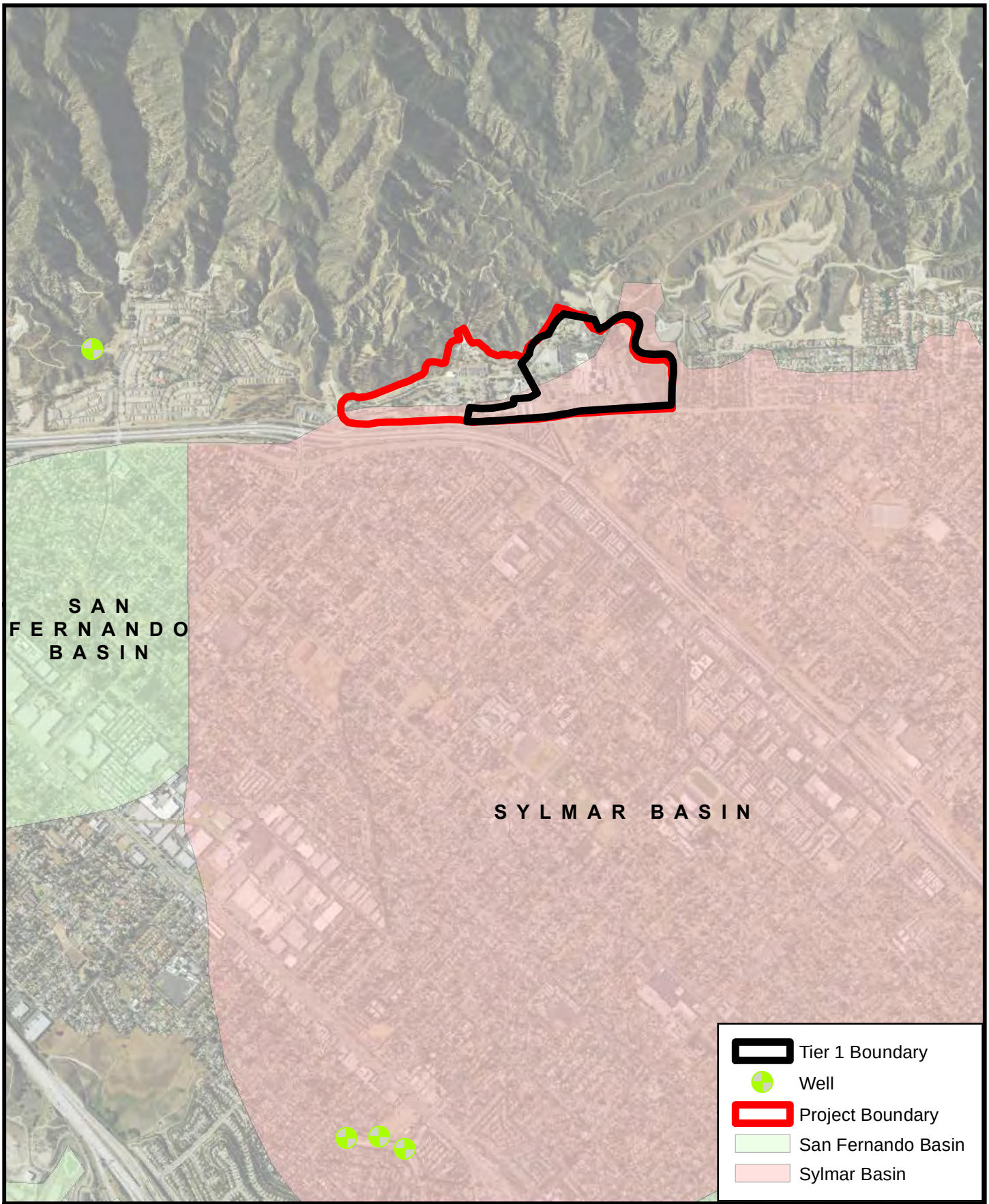
OLIVE VIEW
UCLA - LOS ANGELES
CALIFORNIA
SOIL MAP

Soil types data from Los Angeles County Department of Public Works

Watearth
Water Resources + Green Infrastructure

Date: Apr 26, 2019

Exhibit 8



1 " = 2,000 Feet
0 2,000
Feet

Datum: NAD83
Units: US Feet

SITE

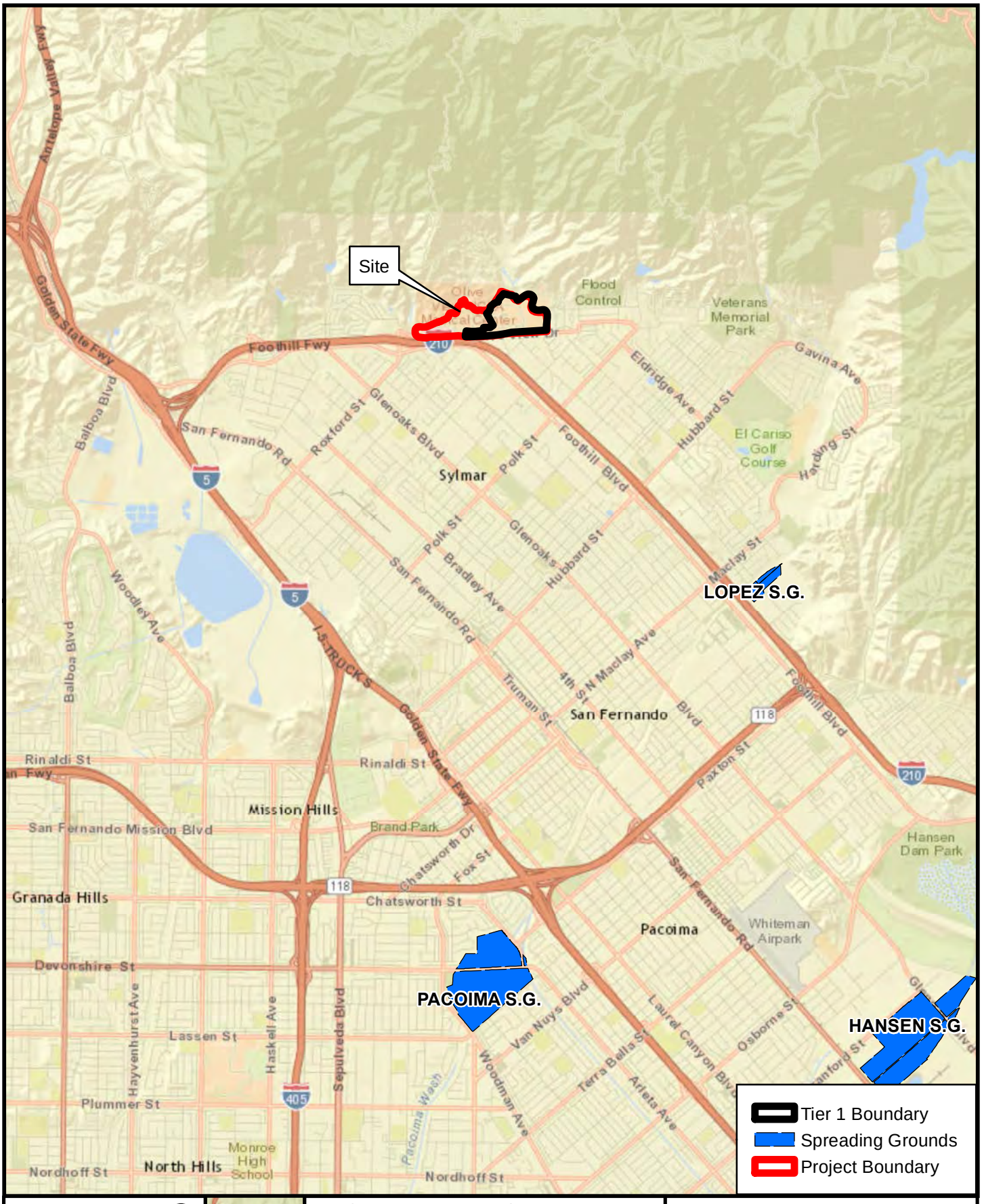
OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
GROUNDWATER MAP

Groundwater data from Los Angeles County Department of Public Works

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 9



1 " = 5,000 Feet

0 5,000

Feet

Datum: NAD83
Units: US Feet

SITE

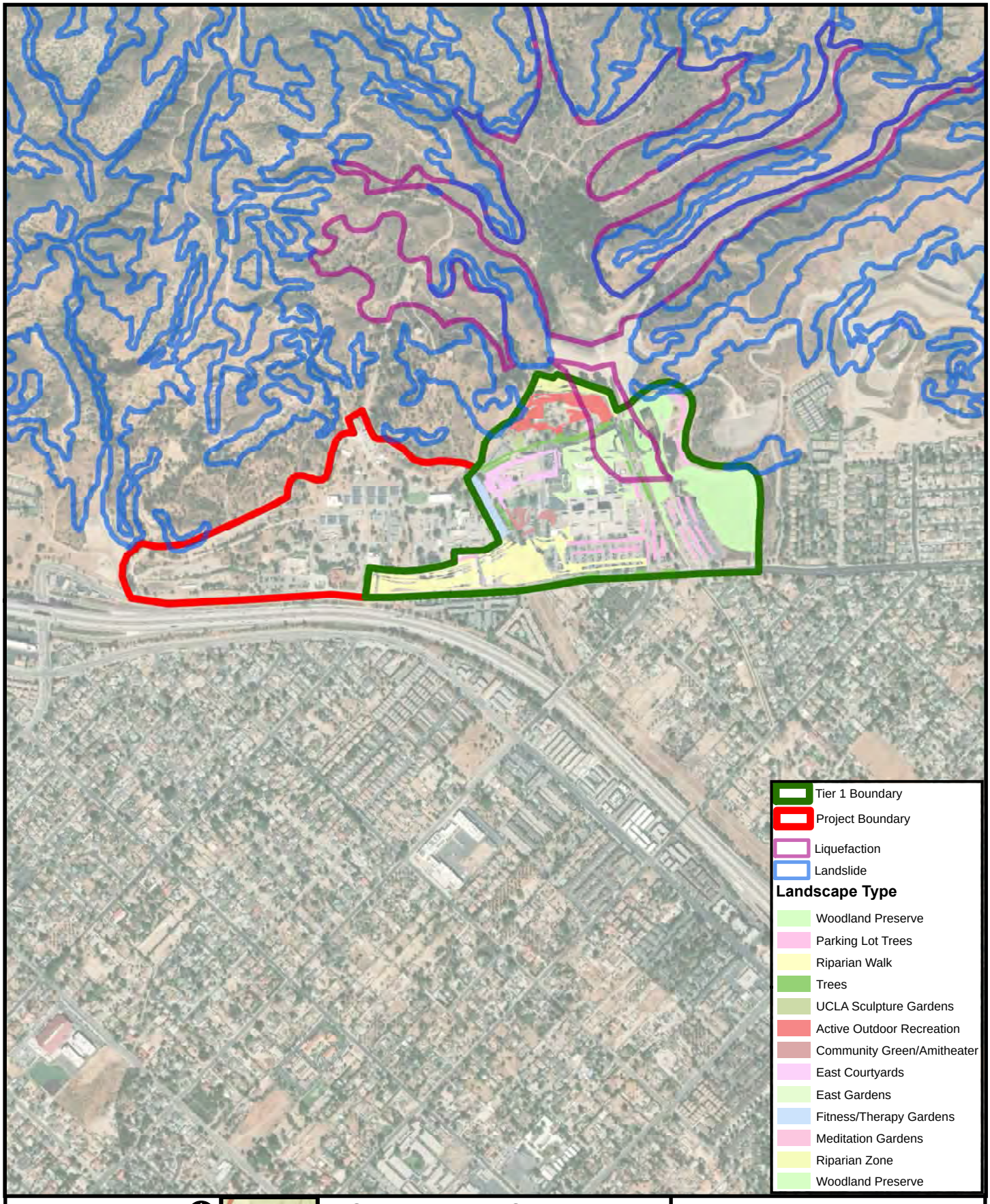
OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
STORMWATER SPREADING GROUNDS

Spreading Grounds data from Los Angeles Co. Department of Public Works

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 5



0 1 " = 1,000 Feet 1,000
Feet

Datum: NAD83
Units: US Feet



OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA

LIQUEFACTION MAP

Liquefaction data from California State Department of Conservation

Watearth
Water Resources + Green Infrastructure

Date: May 07, 2019

Exhibit 11



1 " = 5,000 Feet
0 5,000
Feet

Datum: NAD83
Units: US Feet

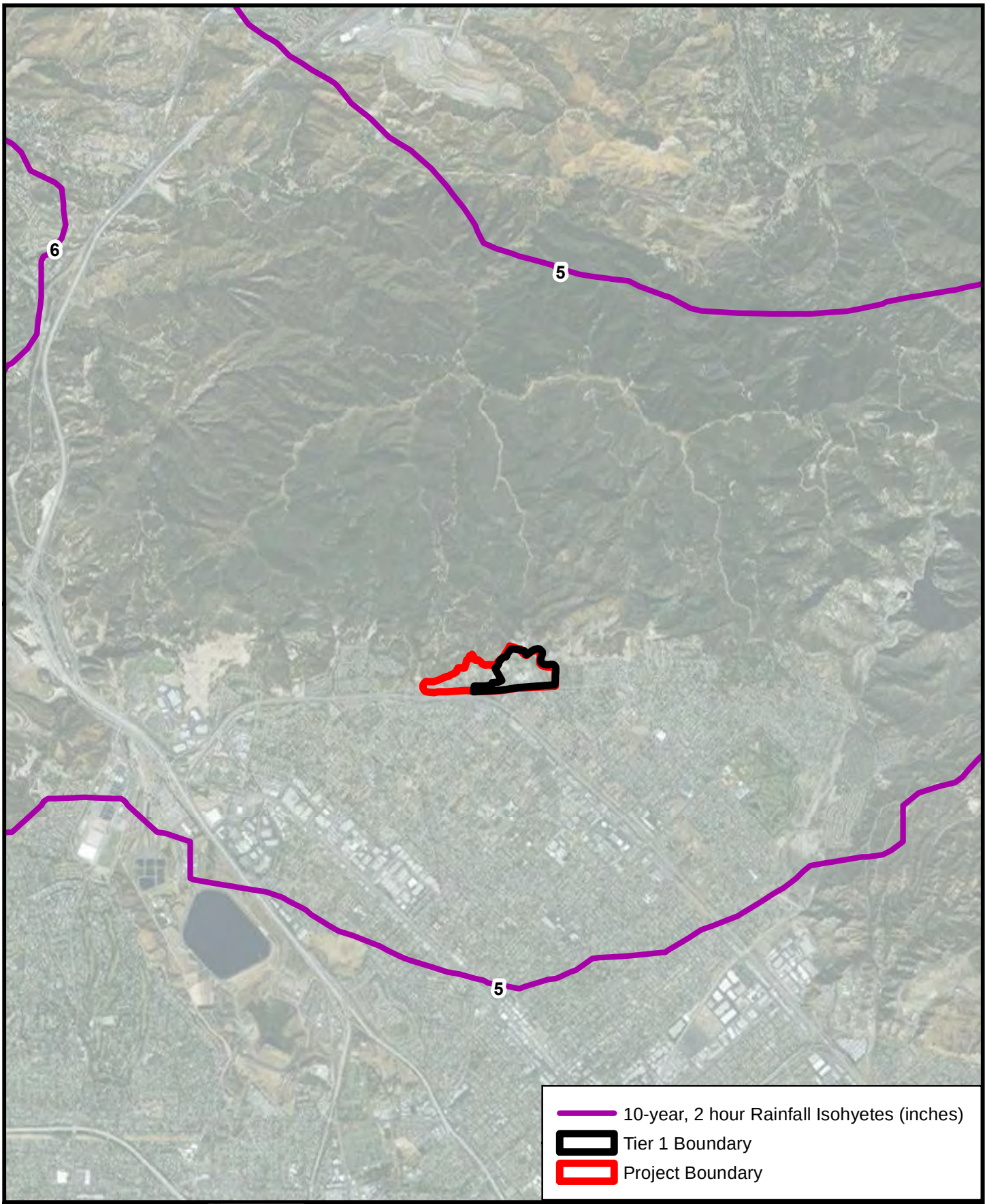


OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA
RAINFALL 2-YEAR
Rainfall data from Los Angeles County Department of Public Works

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 13



1 " = 5,000 Feet
0 5,000
Feet

Datum: NAD83
Units: US Feet



OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA

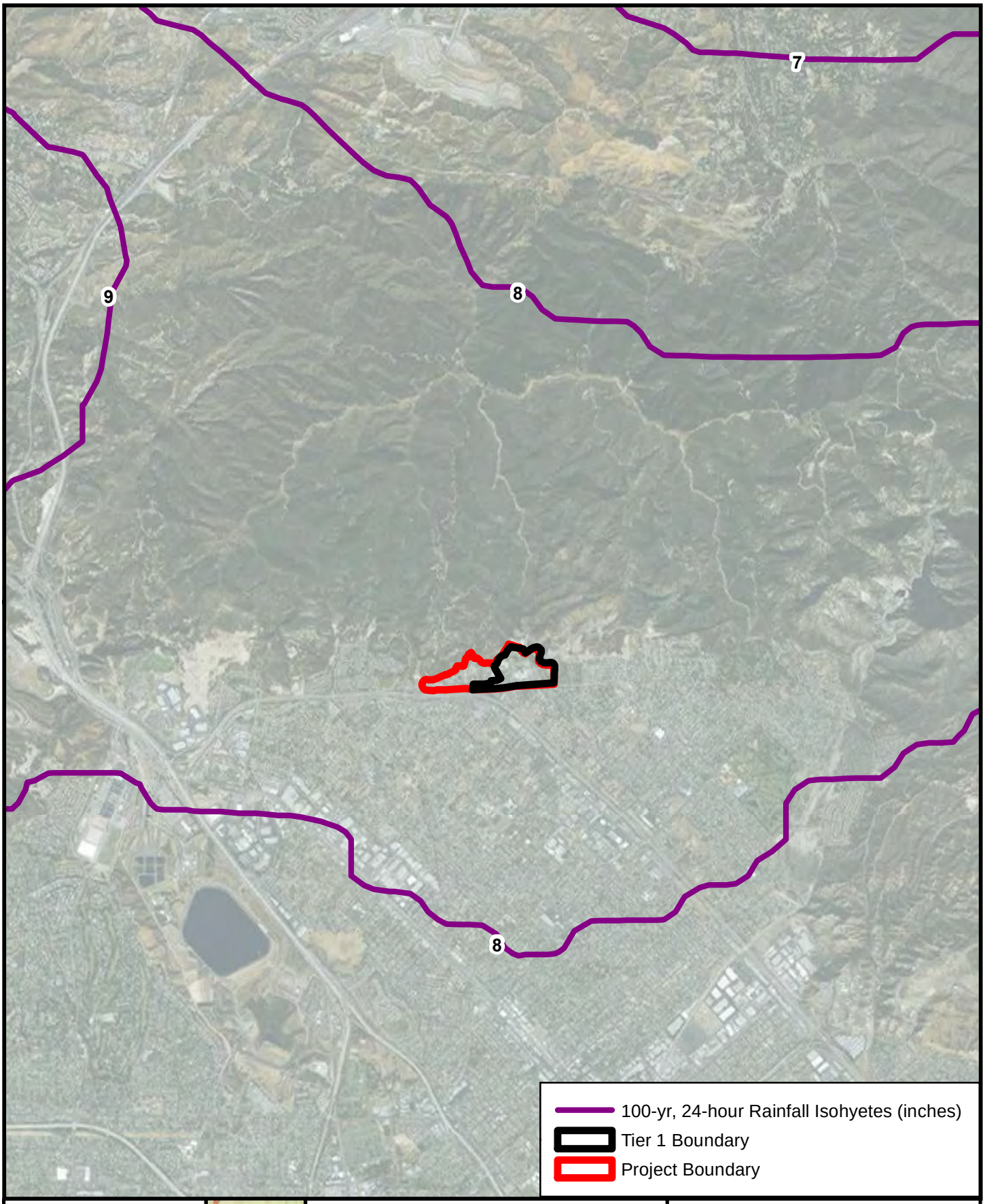
RAINFALL 10-YEAR

Rainfall data from Los Angeles County Department of Public Works

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 13



1 " = 5,000 Feet
0 5,000
Feet

Datum: NAD83
Units: US Feet

SITE

OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA

RAINFALL 100-YEAR

Rainfall data from Los Angeles County Department of Public Works

Watearth
Water Resources + Green Infrastructure

Date: Jun 26, 2016

Exhibit 13

APPENDIX A-REFERENCES

California Stormwater Quality Association, Stormwater Best Management Practices Handbook, Industrial/Commercial. 2003

City of Los Angeles Department of Public Works, Developed Best Management Practices Handbook, Low Impact Development Manual, Part B Planning Activities, 4th Edition. June 2011

City of Los Angeles Department of Public Works, Water Quality Compliance Master Plan for Urban Runoff, Clean Stormwater/Urban Runoff Master Plan. May 2009.

City of Los Angeles Emergency Management Department, Hazard Mitigation Plan. January, 2011, adopted July, 2011.

City of Los Angeles Granada Hills-Knollwood & Sylmar Community Plans Draft EIR, Oct 2012.

County of Los Angeles Department of Public Works Construction Site BMPs Manual. 2007.

County of Los Angeles Department of Public Works, Low Impact Development Standards Manual. February 2014.

Davis, Hunt, Traver and Clark, Bioretention Technology: Overview of Current Practice and Future Needs. March, 2009 Journal of Environmental Engineering.

Huber, W. and Cannon, L., Modeling Non-Directly Connected Impervious Areas in Dense Neighborhoods. Global Solutions for Urban Drainage: pp. 1-12. 2002

Los Angeles County Department of Public Works, Hydrology Manual. 2006

Ninyo and Moore, Phase 1 Hazardous Material Assessment, March 2016

Ninyo and Moore, Preliminary Geotechnical Report, March 2016

Sayre, J. M., J. S. Devinny, and J. P. Wilson, Green Visions Plan for 21st Century Southern California. University of Southern California GIS Research Laboratory and Center for Sustainable Cities, Los Angeles, California. 2006

SmithGroup JJR, Olive View-UCLA Medical Center Campus Master Plan, August 2015

SmithGroup JJR, Olive View-UCLA Medical Center EIR, May 2016

Southern California Coastal Water Research Project, Land Use Specific Storm Water Monitoring Data http://www.sccwrp.org/aboutsccwrp/ResearchPlan.aspx

Southern California Water Dialogue, Groundwater Assessment Study for the Metropolitan Water District of Southern California. May 2008

State of California Environmental Quality Act (CEQA), Statutes and Guidelines. 2016

State Water Resources Control Board, Technical Manual for Stormwater Best Management Practices in the County of Los Angeles. February 2004

State Water Resources Control Board, List of Adopted TMDLs.
http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/

State Water Resources Control Board, Los Angeles County MS4 Permit
http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/

U.S. Environmental Protection Agency (EPA) approved 303(d) Final List, 2010

U.S. Environmental Protection Agency (EPA), SUSTAIN - A Framework for Placement of Best Management Practices in Urban Watersheds to Protect Water Quality Report. September, 2009.

U.S. Environmental Protection Agency (EPA), Guide to Urban Stormwater Pollutant Concentrations. 2006.

U.S. Environmental Protection Agency (EPA), Handbook on Urban Runoff and Pollution Prevention Planning. 1993

U.S. Environmental Protection Agency (EPA), Storm Water Management Model (SWMM) 5.1. August 2015

U.S. Environmental Protection Agency (EPA). Guide to Stormwater Pollutant Concentrations. 2006

Upper Los Angeles River Area (ULARA) Watermaster.
http://ularawatermaster.com/index.html?page_id=915

Weiss, Gulliver, and Erickson, Cost and Pollutant Removal of Storm-water Treatment Practices. May/June, 2007 ASCE Journal of Water Resources Planning and Management,

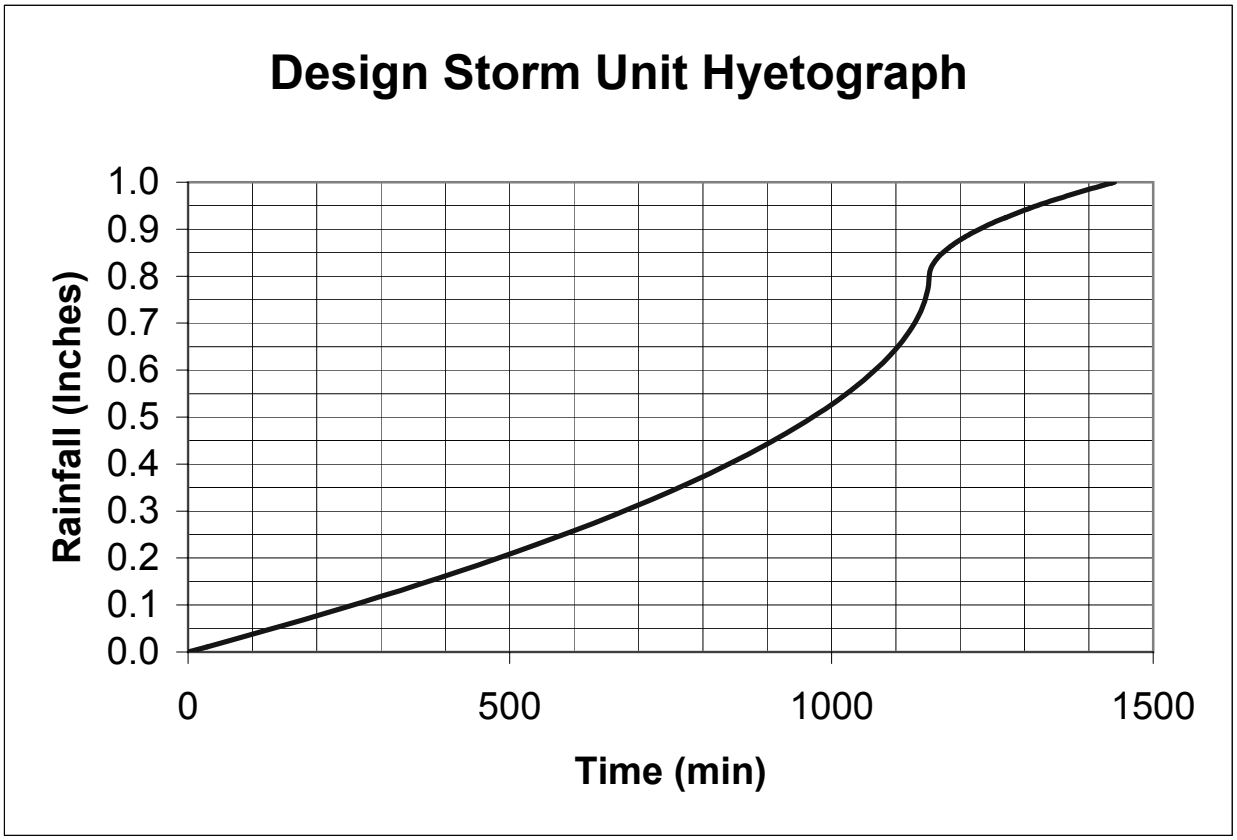
Weston Solutions, Inc. Los Angeles River Water Shed Final Report, Section 5. August 2005

APPENDIX B-DESIGN STORM UNIT HYETOGRAPH

Temporal Distribution of Unit Hyetograph

(Time in minutes, Depth in inches)

Time	Depth	Time	Depth	Time	Depth	Time	Depth
0	0.000000	1110	0.661694	1185	0.863440	1232	0.901435
30	0.011110	1115	0.670680	1186	0.864452	1233	0.902105
60	0.022361	1120	0.680257	1187	0.865450	1234	0.902772
90	0.033758	1125	0.690568	1188	0.866434	1235	0.903434
120	0.045307	1130	0.701824	1189	0.867406	1240	0.906691
150	0.057015	1135	0.714364	1190	0.868366	1245	0.909862
180	0.068889	1136	0.717072	1191	0.869313	1250	0.912954
210	0.080937	1137	0.719860	1192	0.870250	1255	0.915973
240	0.093166	1138	0.722738	1193	0.871175	1260	0.918923
270	0.105586	1139	0.725713	1194	0.872090	1265	0.921810
300	0.118206	1140	0.728799	1195	0.872995	1270	0.924638
330	0.131037	1145	0.746492	1196	0.873889	1275	0.927409
360	0.144090	1150	0.772454	1197	0.874775	1280	0.930129
390	0.157377	1151	0.780923	1198	0.875651	1285	0.932799
420	0.170913	1152	0.800000	1199	0.876518	1290	0.935422
450	0.184711	1153	0.809944	1200	0.877377	1295	0.938000
480	0.198790	1154	0.814358	1201	0.878227	1300	0.940537
510	0.213168	1155	0.817800	1202	0.879069	1305	0.943034
540	0.227865	1156	0.820732	1203	0.879903	1310	0.945492
570	0.242905	1157	0.823335	1204	0.880730	1315	0.947915
600	0.258314	1158	0.825702	1205	0.881549	1320	0.950302
630	0.274121	1159	0.827890	1206	0.882361	1325	0.952657
660	0.290362	1160	0.829936	1207	0.883166	1330	0.954980
690	0.307075	1161	0.831864	1208	0.883964	1335	0.957272
720	0.324307	1162	0.833694	1209	0.884755	1340	0.959535
750	0.342111	1163	0.835440	1210	0.885540	1345	0.961770
780	0.360552	1164	0.837112	1211	0.886318	1350	0.963978
810	0.379705	1165	0.838721	1212	0.887091	1355	0.966159
840	0.399666	1166	0.840272	1213	0.887857	1360	0.968316
870	0.420552	1167	0.841772	1214	0.888618	1365	0.970448
900	0.442511	1168	0.843225	1215	0.889372	1370	0.972558
930	0.465738	1169	0.844636	1216	0.890121	1375	0.974644
960	0.490493	1170	0.846009	1217	0.890865	1380	0.976709
970	0.499144	1171	0.847347	1218	0.891603	1385	0.978752
980	0.508022	1172	0.848652	1219	0.892336	1390	0.980775
990	0.517145	1173	0.849926	1220	0.893064	1395	0.982778
1000	0.526538	1174	0.851172	1221	0.893787	1400	0.984761
1010	0.536225	1175	0.852392	1222	0.894505	1405	0.986726
1020	0.546239	1176	0.853588	1223	0.895218	1410	0.988673
1030	0.556617	1177	0.854760	1224	0.895926	1415	0.990602
1040	0.567402	1178	0.855910	1225	0.896630	1420	0.992514
1050	0.578651	1179	0.857039	1226	0.897330	1425	0.994410
1060	0.590431	1180	0.858149	1227	0.898024	1430	0.996289
1070	0.602830	1181	0.859241	1228	0.898715	1435	0.998152
1080	0.615962	1182	0.860315	1229	0.899401	1440	1.000000
1090	0.629985	1183	0.861372	1230	0.900083		
1100	0.645118	1184	0.862414	1231	0.900761		


Design Storm Unit Hyetograph
Rainfall (Inches)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
500
1000
1500
Time (min)

APPENDIX C-TABLES OF HYDROLOGY MODELS AND RESULTS

TABLE 1: SUMMARY OF HYDROLOGIC PARAMETERS FOR SITE

Hydrologic Parameters																	
Drainage Area	Area (ac)	24-hr Rainfall Data (in.)			Impervious Cover (%)		Overland Flow Length (ft)		Width (A/L) (ft)		Slope		Depression Storage (in)		Manning's n-value Impervious	Manning's n-value Pervious	
		2-yr	10-yr	100-yr	Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop	Impervious	Pervious		Exist	Prop
DA1	31.1	2.83	5.23	8.21	50.7	52.3	1500	1500	200	200	5%	5%	0.06	0.25	0.012	0.186	0.361
DA2	41.5	2.83	5.23	8.21	74.9	46.2	1000	1000	200	200	5%	5%	0.06	0.25	0.012	0.163	0.310

Notes:

1. Hydrologic modeling performed in EPA SWMM 5.1.
2. Site assumed to route to outlet in existing and proposed conditions with 0% disconnected impervious cover.
3. Evaporation data based on the EPA National Storwater Calculator, Northridge Cal State Station Gauge.
4. Existing Site's Manning's n-value for pervious assumed based on ground cover from aerial. Proposed Site's Manning's n-value for pervious assumed based on Master Plan.
5. Continuous simulation model based on 1970 - 2006 data from Gauge San Fernando Ph 3 Station ID 047762 obtained from the EPA National Stormwater Calculator.
6. 24-hour rainfall data and hyetograph obtained from LA County.

TABLE 2: GREEN & AMPT SOILS PARAMETERS

Site	Native Soil Green & Ampt Parameters			Growing Media Green & Ampt Parameters							
	Suction Head (in)	Conductivity (in/hr)	Initial Deficit	Media Depth (in)	Suction Head (in)	Conductivity (in/hr)	Initial Deficit	Field Capacity	Effective Porosity	Wilting Point	Conductivity Slope
Site	4.330	0.430	0.358	18	2.4	1.18	0.312	0.105	0.437	0.047	8.0

Notes:

1. Native soil based on underlying soil type data from Los Angeles County Department of Public Works.
2. The soil is a combination of Handford Fine Sandy Loam, Hanford Gravelly Sandy Loam, and Upper Los Angeles River. Sandy loam soil type is used as the predominant soil group.
3. Saturated hydraulic conductivity and suction head for native soil based on sandy clay values from EPA *SUSTAIN User's Manual* .
4. Initial moisture deficit for Western U.S. assumed from www.water-research.net.
5. Suction head values assumed for growing media from EPA *SUSTAIN User's Manual* . The conductivity value was selected to simulate long-term saturated hydraulic conductivity in the event of loss of capacity over time.
6. Loamy sand classification assumed for growing media.
7. Conductivity slope assumed from standard tables in SWMM5.0.021 User's Manual based on sandy loam growing media.

TABLE 3: LID FEATURES AREAS AND CONTRIBUTING AREAS FOR SITE

Drainage Area	LID Feature	LID Area (sq. ft.[1])	LID % of Site	Drainage Area (sq. ft.)	Initially Saturated %[2]	% Impervious Area Treated[3]	Outflow to Pervious
DA1	Bioretention	13,282	1.0%	623,057	0/30	97%	No
DA1	Permeable Pavement	16,856	1.3%	16,856	0/33	3%	No
DA2	Bioretention	112,470	7.0%	691,368	0/30	87%	No
DA2	Permeable Pavement	104,576	6.5%	104,576	0/33	13%	No

Notes:

1. The total surface area of the LID features are used in SWMM modeling. The BMPs exceed the minimum surface area requirements of 6,000 sq. ft. for Drainage Area 1 and 125,715 sq. ft. for Drainage Area 2 (including Bioretention and Permeable Pavement), and based on the water quality requirements in the City of Los Angeles Development Best Management Practices Handbook, Low Impact Development Manual, June 2011.
2. The % initially saturated for the LID growing media is 0% for the continuous simulation and 30%/33% for the design storm
3. % impervious area treated for bioretention is percent of entire impervious area minus the permeable pavement in the project drainage areas The Permeable Pavement is treating its own area only.

TABLE 4: LID CONFIGURATIONS FOR SITE

Drainage Area	LID Feature	Avg. Surface Depth (in)	Surface Slope (%)	Average Top Width (ft)	Side Slope (H:V)	Surface Veg. Volume Fraction	Manning's n-value	Depth Soil Media (in)	Initial Media Saturation (%)	Storage/Drain Rock (in)	Void Ratio	Underdrain?	Drain Coefficent
DA1	Bioretention	18	0.00%	25	---	0	0.40	24	30	0.0001	0.5	No	---
DA1	Permeable Pavement	---	2.00%	100	---	---	0.011	---	33	24	0.5	No	---
DA2	Bioretention	18	0.00%	25	---	0	0.40	24	30	0.0001	0.5	No	---
DA2	Permeable Pavement	---	2.00%	100	---	---	0.011	---	33	24	0.5	No	---

Notes:

1. Green & Ampt hydraulic parameters for growing media (amended soil) based on sandy loam with a hydraulic conductivity of 1.18 in/hr (see Table 2 for details).
2. For the lined bioretention and planter box alte

Notes:

2. For the lined bioretention and planter box alternatives, the saturated hydraulic conductivity of 0.00 in/hr assumed for underlying (native) soil (see Table 2 for details).
3. Initial media saturation used for design storm
3. Initial media saturation used for design storm events only and not continuous simulation model.
4. Bioretention modeled with 0% slope due to SW
4. Bioretention modeled with 0% slope due to SWMM model requirements.
5. There is no storage/drain rock for bioretention; however, SWMM requires a value greater than zero to run, so a value of 0.0001 is used to mimic a near zero value

TABLE 5A: DESIGN STORM EVENTS RESULTS FOR DRAINAGE AREA 1 (DA1)

	2-yr, 24-hr Design Storm			10-yr, 24-hr Design Storm			100-yr, 24-hr Design Storm		
System Results	Exist.	Prop.	Prop. vs Exist.	Exist.	Prop.	Prop. vs Exist.	Exist.	Prop.	Prop. vs Exist.
Precipitation (in)	2.83	2.83	0%	5.23	5.23	0%	8.21	8.21	0%
Surface Runoff (in)	1.50	0.99	-34%	2.83	2.16	-24%	4.75	3.82	-20%
Infiltration (in)	1.28	1.77	38%	2.35	3.00	28%	3.41	4.29	26%
Evaporation (in)	0.04	0.04	0%	0.04	0.04	0%	0.04	0.05	25%
Peak Flows (cfs)	9.81	8.68	-12%	19.59	17.11	-13%	36.07	30.17	-16%

TABLE 5B: DESIGN STORM EVENTS RESULTS FOR DRAINAGE AREA 2 (DA2)

	2-yr, 24-hr Design Storm			10-yr, 24-hr Design Storm			100-yr, 24-hr Design Storm		
System Results	Exist.	Prop.	Prop. vs Exist.	Exist.	Prop.	Prop. vs Exist.	Exist.	Prop.	Prop. vs Exist.
Precipitation (in)	2.83	2.83	0%	5.23	5.23	0%	8.21	8.21	0%
Surface Runoff (in)	2.10	0.00	-100%	3.96	0.11	-97%	6.42	1.55	-76%
Infiltration (in)	0.66	2.51	280%	1.20	4.78	298%	1.72	6.32	267%
Evaporation (in)	0.07	0.07	0%	0.07	0.07	0%	0.07	0.07	0%
Peak Flows (cfs)	16.04	0.00	-100%	32.38	1.84	-94%	57.34	33.98	-41%

TABLE 6A: DRAINAGE AREA 1 (DA1)
CONTINUOUS SIMULATION WATER BALANCE OUTPUT

System Results	Analysis Period Results			
	Exist.	Prop.	Prop. vs Exist.	Prop. vs Exist. (%)
Precipitation (in)	422.25	422.25	0.00	0%
Surface Runoff (in)	182.20	69.04	-113.16	-62%
Infiltration (in)	191.29	296.63	105.34	55%
Evaporation (in)	51.85	59.61	7.76	15%
Maximum Peak Flow (cfs)	75.24	71.56	-3.68	-5%

Notes:

1. Water balance output is for full continuous simulation run.
2. Initial saturation of 0% (wilting point) used for growing media at start of continuous simulation run.
3. Rainfall data edited at hour 23:00 in yea r1983 to remove 9.148-inch depth as no rainfall was recorded at that time-step in nearby gauge.

TABLE 6B: DRAINAGE AREA 2 (DA2)
CONTINUOUS SIMULATION WATER BALANCE OUTPUT

System Results	Analysis Period Results			
	Exist.	Prop.	Prop. vs Exist.	Prop. vs Exist. (%)
Precipitation (in)	422.25	422.25	0.00	0%
Surface Runoff (in)	249.94	0.10	-249.84	-100%
Infiltration (in)	98.12	316.94	218.82	223%
Evaporation (in)	76.49	107.79	31.30	41%
Maximum Peak Flow (cfs)	94.46	2.60	-91.86	-97%

Notes:

1. Water balance output is for full continuous simulation run.
2. Initial saturation of 0% (wilting point) used for growing media at start of continuous simulation run.
3. Rainfall data edited at hour 23:00 in yea r1983 to remove 9.148-inch depth as no rainfall was recorded at that time-step in nearby gauge.

TABLE 7: PRE-PROJECT AND POST-PROJECT EVENT MEAN CONCENTRATION VALUES

Pollutant	Retail/ Commercial	Open/Non-Urban
Total Suspended Solids (TSS) (mg/L)	67.4 [1]	70 [2]
Total Nitrogen (µg/l)	3.4 [1]	0.97 [2]
Total Copper (µg/l)	34.8 [1]	9.1 [1]
Total Lead (µg/l)	11.5 [2]	30 [2]
Total Zinc (µg/l)	238.5 [1]	195 [2]
Fecal Coliform (MPN/L)	10,716,565 [1]	21,748 [1]

[1] Event Mean Concentration (EMC) values are from Table 7, The Green Visions Plan for 21st Century Southern California, 2006.

[2] EMC values are from Table 4-1, the EPA Guide to Urban Stormwater Pollutant Concentrations, 2006.

[3] Modeled washoff exponent = 1.0 for all pollutants

TABLE 8: POLLUTANT REMOVAL BY VARIOUS BIOFILTRATION PRACTICES

Pollutant	% Removal	
	Bioretention[1]	Permeable Pavement[1,2]
Total Suspended Solids (TSS)	85	91
Total Nitrogen	40	27
Total Copper	66	42
Total Lead	63	74
Total Zinc	68	81
Fecal Coliform	81	82.5

Notes

1. Removal rates for bioretention and permeable pavement, except for fecal coliform for permeable pavement, are based on The Green Visions Plan for 21st Century Southern California prepared by the University of Southern California, dated April, 2006.
2. Fecal coliform removal rates for permeable pavement were obtained from the U.S. EPA *Handbook Urban Runoff and Pollution Prevention Planning* .

TABLE 9A: WATER QUALITY RESULTS FOR DRAINAGE AREA 1 (DA1)

	Pollutant Effluent Concentration											
	TSS		Nitrogen		Copper		Lead		Zinc		Fecal Coliform	
	2-Year	Annual	2-Year	Annual	2-Year	Annual	2-Year	Annual	2-Year	Annual	2-Year	Annual
Model	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	LogN	LogN
Existing	686.9	2237.5	0.0	0.1	0.2	0.8	0.2	0.6	2.2	7.1	13.4	0.4
Proposed	52.1	98.8	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.6	12.4	0.4
Difference	-634.7	-2138.7	0.0	-0.1	-0.2	-0.6	-0.2	-0.6	-1.9	-6.5	-1.0	0.0
% Difference	-92.4	-95.6	-56.5	-75.7	-68.7	-81.7	-77.9	-87.0	-84.5	-91.0	-7.4	-8.0

Notes:

1. Water balance output is for 2-year, 24-hour design storm and annual continuous simulation run.
2. Continuous simulation model based on 1970 - 2006 data from San Fernando PH 3 Station ID 047762 obtained from the EPA National Stormwater Calculator
3. Proposed conditions includes bioretention and pervious pavement.

TABLE 9B: WATER QUALITY RESULTS FOR DRAINAGE AREA 2 (DA2)

	Pollutant Effluent Concentration											
	TSS		Nitrogen		Copper		Lead		Zinc		Fecal Coliform	
	2-Year	Annual	2-Year	Annual	2-Year	Annual	2-Year	Annual	2-Year	Annual	2-Year	Annual
Model	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	LogN	LogN
Existing	1202.0	3845.6	0.1	0.2	0.5	1.6	0.3	0.9	4.0	12.9	13.8	0.4
Proposed	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.1	0.3
Difference	-1202.0	-3845.4	-0.1	-0.2	-0.5	-1.6	-0.3	-0.9	-4.0	-12.9	-17.9	-0.1
% Difference	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-129.6	-27.8

Notes:

1. Water balance output is for 2-year, 24-hour design storm and annual continuous simulation run.
2. Continuous simulation model based on 1970 - 2006 data from San Fernando PH 3 Station ID 047762 obtained from the EPA National Stormwater Calculator
3. Proposed conditions includes bioretention and pervious pavement.

APPENDIX D-EPA SWMM WATER BUDGET RESULTS

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... YES
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

*************************	---------	-------
Total Precipitation	6.933	2.830
Evaporation Loss	0.099	0.040
Infiltration Loss	3.148	1.285
Surface Runoff	3.687	1.505
Final Storage	0.000	0.000
Continuity Error (%)	-0.007	

*************************	TSS	Nitrogen	Copper	Lead	Zinc
Runoff Quality Continuity	lbs	lbs	lbs	lbs	lbs
*************************	----------	----------	----------	----------	----------
Initial Buildup	0.000	0.000	0.000	0.000	0.000
Surface Buildup	686.851	0.023	0.233	0.199	2.193
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	0.000	0.000	0.000	0.000	0.000
Surface Runoff	686.851	0.023	0.233	0.199	2.193
Remaining Buildup	0.000	0.000	0.000	0.000	0.000
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

*************************	FecalColiform
Runoff Quality Continuity	LogN
*************************	----------
Initial Buildup	0.000
Surface Buildup	13.429
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	0.000
Surface Runoff	13.429

Remaining Buildup 0.000
Continuity Error (%) ..... -0.000

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA1	2.83	0.00	0.04	1.28	1.50	1.20	9.81	0.532

****
Subcatchment Washoff Summary
****

Subcatchment	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs	FecalColiform LogN
DA1	686.851	0.023	0.233	0.199	2.193	13.429
System	686.851	0.023	0.233	0.199	2.193	13.429

Analysis begun on: Sat Jul 02 11:32:09 2016
Analysis ended on: Sat Jul 02 11:32:09 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Total Precipitation	12.814	5.230
Evaporation Loss	0.103	0.042
Infiltration Loss	5.767	2.354
Surface Runoff	6.944	2.834
Final Storage	0.000	0.000
Continuity Error (%)	-0.010	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA1	5.23	0.00	0.04	2.35	2.83	2.26	19.59	0.542

Analysis begun on: Fri Jul 01 10:19:31 2016
Analysis ended on: Fri Jul 01 10:19:31 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Total Precipitation	20.114	8.210
Evaporation Loss	0.108	0.044
Infiltration Loss	8.362	3.413
Surface Runoff	11.649	4.755
Final Storage	0.000	0.000
Continuity Error (%)	-0.017	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA1	8.21	0.00	0.04	3.41	4.75	3.80	36.07	0.579

Analysis begun on: Fri Jul 01 10:20:10 2016
Analysis ended on: Fri Jul 01 10:20:10 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
Rainfall File Summary
****

Station ID	First Date	Last Date	Recording Frequency	Periods w/Precip	Periods Missing	Periods Malfunc.
047762	JAN-09-1970	DEC-27-2006	5 min	7665	0	0

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... YES
Infiltration Method ..... GREEN_AMPT
Starting Date JAN-09-1970 00:00:00

Ending Date DEC-27-2006 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Runoff Quantity Continuity **********	Volume acre-feet	Depth inches
Total Precipitation	1034.517	422.252
Evaporation Loss	127.023	51.846
Infiltration Loss	468.657	191.289
Surface Runoff	446.391	182.200
Final Storage	0.029	0.012
Continuity Error (%)	-0.733	

********** Runoff Quality Continuity **********	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs
Initial Buildup	0.000	0.000	0.000	0.000	0.000
Surface Buildup	82787.247	2.785	28.053	23.935	264.317
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	0.000	0.000	0.000	0.000	0.000
Surface Runoff	82787.247	2.785	28.053	23.935	264.317
Remaining Buildup	0.000	0.000	0.000	0.000	0.000
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

********** FecalColiform

Runoff Quality Continuity LogN
********** ----------
Initial Buildup 0.000
Surface Buildup 15.510
Wet Deposition 0.000
Sweeping Removal 0.000
Infiltration Loss 0.000
BMP Removal 0.000
Surface Runoff 15.510
Remaining Buildup 0.000
Continuity Error (%) ..... -0.000

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA1	422.25	0.00	51.85	191.29	182.20	145.45	75.24	0.431

****
Subcatchment Washoff Summary
****

Subcatchment	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs	FecalColiform LogN

DA1	82787.247	2.785	28.053	23.935	264.317	15.510
System	82787.247	2.785	28.053	23.935	264.317	15.510

Analysis begun on: Fri Jul 01 10:20:34 2016
Analysis ended on: Fri Jul 01 10:20:42 2016
Total elapsed time: 00:00:08

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... YES
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Initial LID Storage	0.185	0.076
Total Precipitation	6.933	2.830
Evaporation Loss	0.099	0.041
Infiltration Loss	4.332	1.768
Surface Runoff	2.425	0.990
Final Storage	0.263	0.107
Continuity Error (%)	-0.007	

**************************	TSS	Nitrogen	Copper	Lead	Zinc
Runoff Quality Continuity	lbs	lbs	lbs	lbs	lbs
**************************	----------	----------	----------	----------	----------
Initial Buildup	0.000	0.000	0.000	0.000	0.000
Surface Buildup	615.780	0.020	0.197	0.186	1.943
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	563.672	0.010	0.124	0.142	1.604
Surface Runoff	52.108	0.010	0.073	0.044	0.339
Remaining Buildup	0.000	0.000	0.000	0.000	0.000
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

**************************	FecalColiform
Runoff Quality Continuity	LogN
**************************	----------
Initial Buildup	0.000
Surface Buildup	13.339
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	13.282

Surface Runoff 12.429
Remaining Buildup 0.000
Continuity Error (%) 0.000

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA1	2.83	0.00	0.04	1.77	0.99	0.79	8.68	0.350

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
DA1	PermeablePavement	5.90	0.00	8.54	0.00	0.00	2.64	0.00	-0.00
DA1	Bioretention	128.79	0.52	26.42	95.43	0.00	3.94	10.36	-0.00

****
Subcatchment Washoff Summary
****

Subcatchment	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs	FecalColiform LogN
DA1	52.108	0.010	0.073	0.044	0.339	12.429
System	52.108	0.010	0.073	0.044	0.339	12.429

Analysis begun on: Fri Jul 01 10:48:08 2016
Analysis ended on: Fri Jul 01 10:48:08 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Initial LID Storage	0.185	0.076
Total Precipitation	12.814	5.230
Evaporation Loss	0.103	0.042
Infiltration Loss	7.353	3.001
Surface Runoff	5.281	2.155
Final Storage	0.263	0.107
Continuity Error (%)	-0.009	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA1	5.23	0.00	0.04	3.00	2.16	1.72	17.11	0.412

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
DA1	PermeablePavement	10.97	0.00	13.61	0.00	0.00	2.64	0.00	-0.00
DA1	Bioretention	240.67	0.52	27.02	206.71	0.00	3.94	10.35	-0.00

Analysis begun on: Fri Jul 01 10:49:13 2016
Analysis ended on: Fri Jul 01 10:49:13 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Initial LID Storage	0.185	0.076
Total Precipitation	20.114	8.210
Evaporation Loss	0.112	0.046
Infiltration Loss	10.519	4.293
Surface Runoff	9.367	3.823
Final Storage	0.263	0.107
Continuity Error (%)	0.190	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA1	8.21	0.00	0.05	4.29	3.82	3.05	30.17	0.466

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
DA1	PermeablePavement	17.26	0.00	18.61	0.00	0.00	2.64	0.00	6.50
DA1	Bioretention	379.69	0.52	27.35	345.41	0.00	3.94	10.35	-0.00

Analysis begun on: Fri Jul 01 10:51:09 2016
Analysis ended on: Fri Jul 01 10:51:09 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
Rainfall File Summary
****

Station ID	First Date	Last Date	Recording Frequency	Periods w/Precip	Periods Missing	Periods Malfunc.
047762	JAN-09-1970	DEC-27-2006	5 min	7665	0	0

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... YES
Infiltration Method ..... GREEN_AMPT
Starting Date JAN-09-1970 00:00:00

Ending Date DEC-27-2006 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

Runoff Quantity Continuity	Volume acre-feet	Depth inches
Initial LID Storage	0.029	0.012
Total Precipitation	1034.517	422.252
Evaporation Loss	146.032	59.605
Infiltration Loss	726.753	296.634
Surface Runoff	169.149	69.040
Final Storage	0.264	0.108
Continuity Error (%)	-0.740	

Runoff Quality Continuity	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs
Initial Buildup	0.000	0.000	0.000	0.000	0.000
Surface Buildup	74438.493	2.368	23.783	22.483	234.855
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	70783.008	1.691	18.647	19.374	211.086
Surface Runoff	3655.485	0.676	5.137	3.109	23.769
Remaining Buildup	0.000	0.000	0.000	0.000	0.000
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

********** FecalColiform
Runoff Quality Continuity LogN
********** ----------
Initial Buildup 0.000
Surface Buildup 15.422
Wet Deposition 0.000
Sweeping Removal 0.000
Infiltration Loss 0.000
BMP Removal 15.390
Surface Runoff 14.275
Remaining Buildup 0.000
Continuity Error (%) ..... -0.000

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA1	422.25	0.00	59.61	296.63	69.04	55.12	71.56	0.164

****
LID Performance Summary
****

	Total Inflow	Evap Loss	Infil Loss	Surface Outflow	Drain Outflow	Initial Storage	Final Storage	Continuity Error

Subcatchment	LID Control	in	in	in	in	in	in	in	%
DA1	PermeablePavement	794.96	0.00	794.96	0.00	0.00	0.00	0.00	-0.00
DA1	Bioretention	15716.01	1310.61	7750.56	6647.34	0.00	1.13	9.38	-0.00

****
Subcatchment Washoff Summary
****

Subcatchment	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs	FecalColiform LogN
DA1	3655.485	0.676	5.137	3.109	23.769	14.275
System	3655.485	0.676	5.137	3.109	23.769	14.275

Analysis begun on: Fri Jul 01 10:52:10 2016
Analysis ended on: Fri Jul 01 10:53:12 2016
Total elapsed time: 00:01:02

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... YES
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Total Precipitation	8.749	2.830
Evaporation Loss	0.205	0.066
Infiltration Loss	2.039	0.659
Surface Runoff	6.506	2.104
Final Storage	0.000	0.000
Continuity Error (%)	-0.007	

**************************	TSS	Nitrogen	Copper	Lead	Zinc
Runoff Quality Continuity	lbs	lbs	lbs	lbs	lbs
**************************	----------	----------	----------	----------	----------
Initial Buildup	0.000	0.000	0.000	0.000	0.000
Surface Buildup	1201.991	0.050	0.511	0.278	4.039
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	0.000	0.000	0.000	0.000	0.000
Surface Runoff	1201.991	0.050	0.511	0.278	4.039
Remaining Buildup	0.000	0.000	0.000	0.000	0.000
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

**************************	FecalColiform
Runoff Quality Continuity	LogN
**************************	----------
Initial Buildup	0.000
Surface Buildup	13.821
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	0.000
Surface Runoff	13.821

Remaining Buildup 0.000
Continuity Error (%) ..... -0.000

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA2	2.83	0.00	0.07	0.66	2.10	2.12	16.04	0.744

****
Subcatchment Washoff Summary
****

Subcatchment	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs	FecalColiform LogN
DA2	1201.991	0.050	0.511	0.278	4.039	13.821
System	1201.991	0.050	0.511	0.278	4.039	13.821

Analysis begun on: Fri Jul 01 10:59:58 2016
Analysis ended on: Fri Jul 01 10:59:58 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Total Precipitation	16.169	5.230
Evaporation Loss	0.215	0.070
Infiltration Loss	3.714	1.201
Surface Runoff	12.242	3.960
Final Storage	0.000	0.000
Continuity Error (%)	-0.010	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA2	5.23	0.00	0.07	1.20	3.96	3.99	32.38	0.757

Analysis begun on: Fri Jul 01 11:00:46 2016
Analysis ended on: Fri Jul 01 11:00:46 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Total Precipitation	25.383	8.210
Evaporation Loss	0.221	0.071
Infiltration Loss	5.304	1.716
Surface Runoff	19.861	6.424
Final Storage	0.000	0.000
Continuity Error (%)	-0.013	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA2	8.21	0.00	0.07	1.72	6.42	6.47	57.34	0.782

Analysis begun on: Fri Jul 01 11:01:11 2016
Analysis ended on: Fri Jul 01 11:01:11 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
Rainfall File Summary
****

Station ID	First Date	Last Date	Recording Frequency	Periods w/Precip	Periods Missing	Periods Malfunc.
047762	JAN-09-1970	DEC-27-2006	5 min	7665	0	0

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... YES
Infiltration Method ..... GREEN_AMPT
Starting Date JAN-09-1970 00:00:00

Ending Date DEC-27-2006 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Runoff Quantity Continuity **********	Volume acre-feet	Depth inches
Total Precipitation	1305.462	422.252
Evaporation Loss	236.467	76.485
Infiltration Loss	303.358	98.121
Surface Runoff	772.737	249.942
Final Storage	0.053	0.017
Continuity Error (%)	-0.548	

********** Runoff Quality Continuity **********	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs
Initial Buildup	0.000	0.000	0.000	0.000	0.000
Surface Buildup	142286.698	5.945	60.451	32.968	478.129
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	0.000	0.000	0.000	0.000	0.000
Surface Runoff	142286.698	5.945	60.451	32.968	478.129
Remaining Buildup	0.000	0.000	0.000	0.000	0.000
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

********** FecalColiform

Runoff Quality Continuity LogN
********** ----------
Initial Buildup 0.000
Surface Buildup 15.894
Wet Deposition 0.000
Sweeping Removal 0.000
Infiltration Loss 0.000
BMP Removal 0.000
Surface Runoff 15.894
Remaining Buildup 0.000
Continuity Error (%) 0.000

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA2	422.25	0.00	76.49	98.12	249.94	251.79	94.46	0.592

****
Subcatchment Washoff Summary
****

Subcatchment	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs	FecalColiform LogN

DA2	142286.698	5.945	60.451	32.968	478.129	15.894
System	142286.698	5.945	60.451	32.968	478.129	15.894

Analysis begun on: Fri Jul 01 11:01:34 2016
Analysis ended on: Fri Jul 01 11:01:41 2016
Total elapsed time: 00:00:07

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... YES
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

*************************	---------	-------
Initial LID Storage	1.375	0.445
Total Precipitation	8.749	2.830
Evaporation Loss	0.209	0.068
Infiltration Loss	7.748	2.506
Surface Runoff	0.000	0.000
Final Storage	2.169	0.701
Continuity Error (%)	-0.008	

*************************	TSS	Nitrogen	Copper	Lead	Zinc
Runoff Quality Continuity	lbs	lbs	lbs	lbs	lbs
*************************	----------	----------	----------	----------	----------
Initial Buildup	0.000	0.000	0.000	0.000	0.000
Surface Buildup	679.034	0.021	0.214	0.207	2.137
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	679.034	0.021	0.214	0.207	2.137
Surface Runoff	0.000	0.000	0.000	0.000	0.000
Remaining Buildup	0.000	0.000	0.000	0.000	0.000
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

*************************	FecalColiform
Runoff Quality Continuity	LogN
*************************	----------
Initial Buildup	0.000
Surface Buildup	13.373
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	13.373

Surface Runoff ..... -4.095
Remaining Buildup 0.000
Continuity Error (%) ..... -0.000

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA2	2.83	0.00	0.07	2.51	0.00	0.00	0.00	0.000

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
DA2	PermeablePavement	5.19	0.00	7.83	0.00	0.00	2.64	0.00	-0.00
DA2	Bioretention	17.54	0.52	10.88	0.00	0.00	3.94	10.08	-0.01

****
Subcatchment Washoff Summary
****

Subcatchment	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs	FecalColiform LogN
DA2	0.000	0.000	0.000	0.000	0.000	-4.095
System	0.000	0.000	0.000	0.000	0.000	-4.095

Analysis begun on: Fri Jul 01 11:02:36 2016
Analysis ended on: Fri Jul 01 11:02:36 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Initial LID Storage	1.375	0.445
Total Precipitation	16.169	5.230
Evaporation Loss	0.213	0.069
Infiltration Loss	14.780	4.781
Surface Runoff	0.325	0.105
Final Storage	2.228	0.721
Continuity Error (%)	-0.009	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA2	5.23	0.00	0.07	4.78	0.11	0.11	1.84	0.020

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
DA2	PermeablePavement	9.65	0.00	12.29	0.00	0.00	2.64	0.00	-0.00
DA2	Bioretention	32.73	0.52	24.45	1.35	0.00	3.94	10.35	-0.00

Analysis begun on: Fri Jul 01 11:03:49 2016
Analysis ended on: Fri Jul 01 11:03:49 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Starting Date APR-13-2016 00:00:00
Ending Date APR-16-2016 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

********** Volume Depth
Runoff Quantity Continuity acre-feet inches

**************************	---------	-------
Initial LID Storage	1.375	0.445
Total Precipitation	25.383	8.210
Evaporation Loss	0.222	0.072
Infiltration Loss	19.532	6.318
Surface Runoff	4.777	1.545
Final Storage	2.229	0.721
Continuity Error (%)	-0.013	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA2	8.21	0.00	0.07	6.32	1.55	1.56	33.98	0.188

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
DA2	PermeablePavement	15.18	0.00	17.82	0.00	0.00	2.64	0.00	-0.00
DA2	Bioretention	51.60	0.52	25.74	18.92	0.00	3.94	10.36	-0.00

Analysis begun on: Fri Jul 01 11:04:32 2016
Analysis ended on: Fri Jul 01 11:04:32 2016
Total elapsed time: < 1 sec

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)

****
Rainfall File Summary
****

Station ID	First Date	Last Date	Recording Frequency	Periods w/Precip	Periods Missing	Periods Malfunc.
047762	JAN-09-1970	DEC-27-2006	5 min	7665	0	0

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... YES
Infiltration Method ..... GREEN_AMPT
Starting Date JAN-09-1970 00:00:00

Ending Date DEC-27-2006 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

Runoff Quantity Continuity	Volume acre-feet	Depth inches
Initial LID Storage	0.243	0.078
Total Precipitation	1305.462	422.252
Evaporation Loss	333.239	107.786
Infiltration Loss	979.880	316.942
Surface Runoff	0.309	0.100
Final Storage	0.375	0.121
Continuity Error (%)	-0.620	

Runoff Quality Continuity	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs
Initial Buildup	0.000	0.000	0.000	0.000	0.000
Surface Buildup	81722.055	2.569	25.795	24.894	257.220
Wet Deposition	0.000	0.000	0.000	0.000	0.000
Sweeping Removal	0.000	0.000	0.000	0.000	0.000
Infiltration Loss	0.000	0.000	0.000	0.000	0.000
BMP Removal	81716.202	2.568	25.787	24.889	257.182
Surface Runoff	5.853	0.001	0.008	0.005	0.038
Remaining Buildup	0.000	0.000	0.000	0.000	0.000
Continuity Error (%)	0.000	0.000	0.000	0.000	0.000

********** FecalColiform
Runoff Quality Continuity LogN
********** ----------
Initial Buildup 0.000
Surface Buildup 15.453
Wet Deposition 0.000
Sweeping Removal 0.000
Infiltration Loss 0.000
BMP Removal 15.453
Surface Runoff 11.468
Remaining Buildup 0.000
Continuity Error (%) 0.000

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DA2	422.25	0.00	107.79	316.94	0.10	0.10	2.60	0.000

****
LID Performance Summary
****

	Total Inflow	Evap Loss	Infil Loss	Surface Outflow	Drain Outflow	Initial Storage	Final Storage	Continuity Error

Subcatchment	LID Control	in	in	in	in	in	in	in	%
DA2	PermeablePavement	708.26	0.00	708.26	0.00	0.00	0.00	0.00	-0.00
DA2	Bioretention	2201.94	965.78	1237.47	0.00	0.00	1.13	1.61	-0.08

****
Subcatchment Washoff Summary
****

Subcatchment	TSS lbs	Nitrogen lbs	Copper lbs	Lead lbs	Zinc lbs	FecalColiform LogN
DA2	5.853	0.001	0.008	0.005	0.038	11.468
System	5.853	0.001	0.008	0.005	0.038	11.468

Analysis begun on: Fri Jul 01 11:05:13 2016
Analysis ended on: Fri Jul 01 11:06:11 2016
Total elapsed time: 00:00:58

APPENDIX E-SECTION 5 OF THE LOS ANGELES RIVER WATERSHED REPORT



Los Angeles County 1994-2005

Integrated Receiving Water Impacts Report

Final Report - August 2005

CD Contents





Table of Contents + Acronyms

Executive Summary

Section 1 - Introduction

Section 2 - Regional Study Area

Section 3 - Methods

Section 4 - San Gabriel River WMA

Section 5 - Los Angeles River WMA

Section 6 - Dominguez Channel WMA

Section 7 - Ballona Creek WMA

Section 8 - Malibu Creek WMA

Section 9 - Santa Clara River WMA

Section 10 - Regional Assessment

Section 11 - Regional Monitoring & Special Studies

Section 12 - Conclusions

Section 13 - Recommendations

Section 14 - References

APPENDICES

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F

Appendix G

Appendix H

Appendix I

APPENDIX F-WATER QUALITY COMPLIANCE MASTER PLAN FOR URBAN RUNOFF

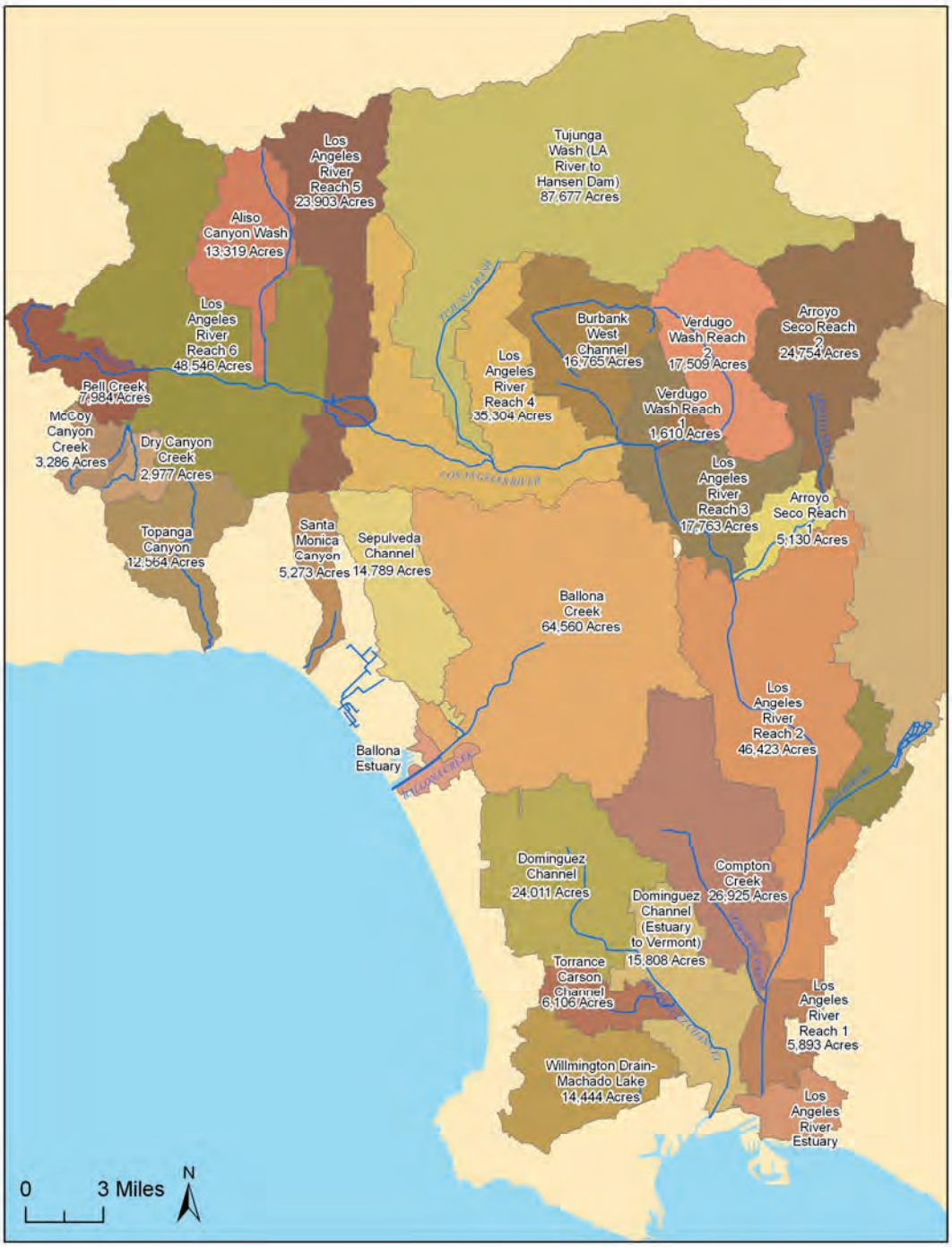


Figure 2-6
Los Angeles Area: 303(d) List-Impaired Subwatersheds and Reaches
Many of sub-watershed boundaries of the Los Angeles River, Dominguez Channel and Ballona Creek watersheds are illustrated above.

APPENDIX G-OLIVE VIEW MEDICAL CENTER CAMPUS MASTER PLAN



LOW IMPACT DEVELOPMENT

Being at such a key point in the greater Los An
Basin watershed, the management of runoff i
critical and should be slowed and treated at e
opportunity. Using Low Impact Development
strategies, wherever possible, the new design
helps water flow from the adjacent mountain
vegetated bioswales, allowing water to return
ground, filtered by plants and soil. Bioswales
mitigate runoff, improving groundwater qual
while taking advantage of the natural flow, u
shape of the land to direct water to the landsc
and reducing the need for irrigation. The reve
areas at the base of the mountains, allow wat
to slow and infiltrate the ground before it rea
the campus perimeter, also naturally stabilizi
slope, minimizing erosion.

Once geotechnical determinations are made a
should the soil be found suitable for infiltratio
LID methodology should be further establishe
applied. Methods may include use of permea
paving in parking and hardscape areas.

Vegetated Bioretention Swales

Drainage Tributary Swale Distributi

Permeable Paving

w Impact Development – Bioretention Plan

APPENDIX H-EPA GUIDE TO STORMWATER RUNOFF

Table 4-1. Median Event Mean Concentrations for Urban Land Uses

Pollutant	Units	Residential		Mixed		Commercial		Open/ Non-Urban	
		Median	COV	Median	COV	Median	COV	Median	COV
BOD	mg/l	10	0.41	7.8	0.52	9.3	0.31	--	--
COD	mg/l	73	0.55	65	0.58	57	0.39	40	0.78
TSS	mg/l	101	0.96	67	1.14	69	0.85	70	2.92
Total Lead	µg/l	144	0.75	114	1.35	104	0.68	30	1.52
Total Copper	µg/l	33	0.99	27	1.32	29	0.81	--	--
Total Zinc	µg/l	135	0.84	154	0.78	226	1.07	195	0.66
Total Kjeldahl Nitrogen	µg/l	1900	0.73	1288	0.50	1179	0.43	965	1.00
Nitrate + Nitrite	µg/l	736	0.83	558	0.67	572	0.48	543	0.91
Total Phosphorus	µg/l	383	0.69	263	0.75	201	0.67	121	1.66
Soluble Phosphorus	µg/l	143	0.46	56	0.75	80	0.71	26	2.11

COV: Coefficient of variation
Source: Nationwide Urban Runoff Program (US EPA 1983)

Results from NURP indicate that there is not a significant difference in pollutant concentrations in runoff from different urban land use categories. There is a significant difference, however, in pollutant concentrations in runoff from urban sources than that produced from non-urban areas.

The pollutants that are found in urban storm water runoff originate from a variety of sources. The major sources include contaminants from residential and commercial areas, industrial activities, construction, streets and parking lots, and atmospheric deposition. Contaminants commonly found in storm water runoff and their likely sources are summarized in Table 4-2.

Table 4-3. Typical Pollutant Loadings from Runoff by Urban Land Use (lbs/acre-yr)

Land Use	TSS	TP	TKN	NH_3-N	NO_2+NO_3-N	BOD	COD	Pb	Zn	Cu
Commercial	1000	1.5	6.7	1.9	3.1	62	420	2.7	2.1	0.4
Parking Lot	400	0.7	5.1	2	2.9	47	270	0.8	0.8	0.04
HDR	420	1	4.2	0.8	2	27	170	0.8	0.7	0.03
MDR	190	0.5	2.5	0.5	1.4	13	72	0.2	0.2	0.14
LDR	10	0.04	0.03	0.02	0.1	NA	NA	0.01	0.04	0.01
Freeway	880	0.9	7.9	1.5	4.2	NA	NA	4.5	2.1	0.37
Industrial	860	1.3	3.8	0.2	1.3	NA	NA	2.4	7.3	0.5
Park	3	0.03	1.5	NA	0.3	NA	2	0	NA	NA
Construction	6000	80	NA	NA	NA	NA	NA	NA	NA	NA

HDR: High Density Residential, MDR: Medium Density Residential, LDR: Low Density Residential
NA: Not available; insufficient data to characterize loadings
Source: Horner et al, 1994

As indicated in Table 4-3, urban storm water runoff can contain significant concentrations of solids, nutrients, organics and metals. A comparison of the concentration of water quality parameters in urban runoff with the concentrations in domestic wastewater is shown in Table 4-4.

APPENDIX I-SITE RECONNAISSANCE PHOTOGRAPHS

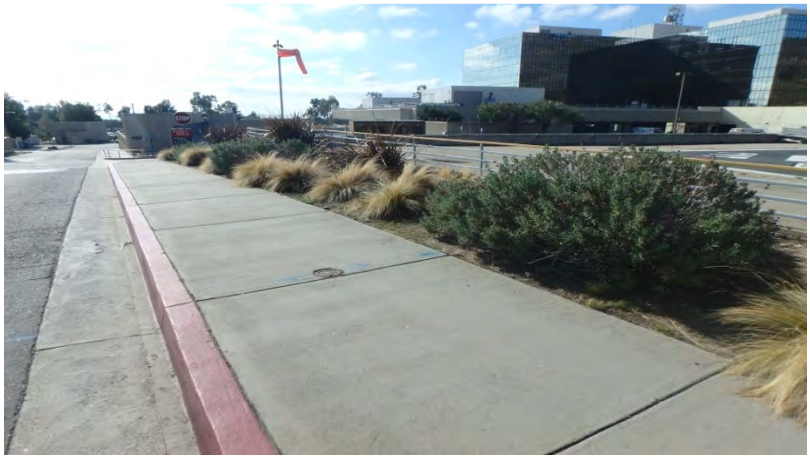
Olive View Site Visit 1/20/2016



Curb drainage throughout site



Wilson Canyon drainage



Landscaping around campus



More Landscaping



Outlet for Wilson Canyon Debris Basin



Front of Wilson Canyon Debris Basin



Water and sediment in Wilson Canyon drain line, upstream



Parking lot, top of campus, adjacent to Wilson Canyon



Buildings and vegetation, walking top of property line



Embankment, moving west along northern extent of property



K-rails to control mud flow



Vegetation at Northern edge of property



Mound constructed to control mud flows



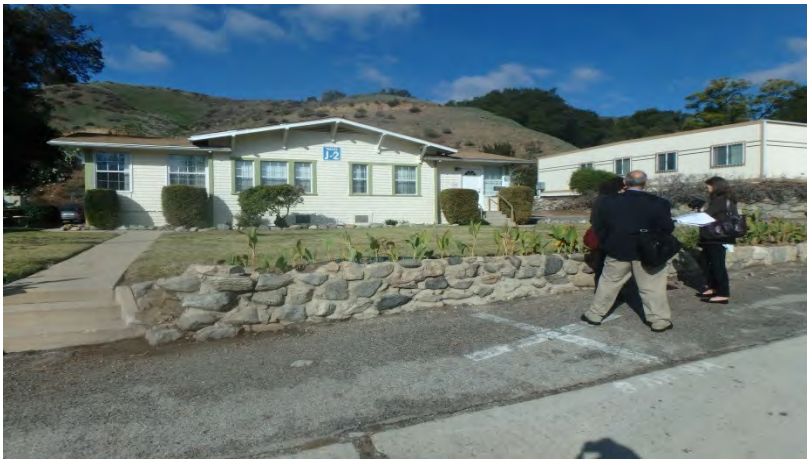
Continuation of mound (roughly 5’x40’)



Backside of mound



Backside of mound (reinforced by concrete)



Vegetation, buildings fronting Sycamore Rd.



Close up of vegetation



Up Sycamore Rd.



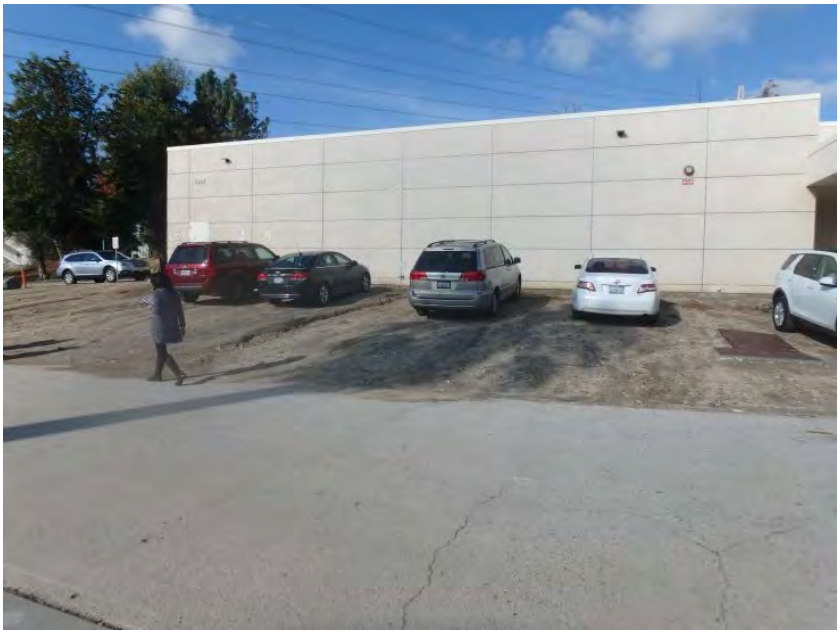
Buildings fronting Sycamore Rd.



Ground Vegetation in planters on Sycamore Rd.



Soil erosion in dirt parking lot on Sycamore Rd.



Wide shot of soil erosion in parking lot



Drainage inlets around corner of Sycamore and Bucher Rd.



Corner of Sycamore and Bucher Ave.



Drainage inlets on corner of Sycamore and Bucher



Drainage and picnic area (Sycamore and Bucher)



Outlet on Bucher Ave.



Drain, moving west on Bucher Rd.



Open grass field along northwestern sector of campus



Sandbags used around drains to prevent excess runoff



North Campus bordering forest





Drains along walkways, west edge of campus



Alternate angle of drains



Soil erosion near northwest edge of campus



Road drain, unclear if leading anywhere



Newly constructed basin (post 2008 fires) Northwest campus



Alternate angle of basin



K-Rails used to control mud flow



Vacant parking lot, west edge of campus



Soil erosion affecting pavement



Pavement along west edge of campus



Connected Impervious Drainage



Protected oak tree



Low watering vegetation outside new Child Care Center



Example of new campus construction, Child Care Center



New vegetation adjacent to Child Care Center



Fire line, Olive View Drive



Ocean storm drain inlet along Olive View Drive



Entrance to parking long on Olive View Drive



Drain inlet to Wilson Creek Channel



Feed into Wilson Canyon Creek



More Wilson Canyon (from road)



Grated drain into Wilson Creek



Drainage feeding into Wilson Canyon Channel



Upstream, Wilson Channel



Soil erosion along Wilson Creek



Schoolhouse Debris Basin



Schoolhouse Debris runoff upstream



Downstream Schoolhouse drainage area

WILSON CANYON DEBRIS BASIN (5-25-2015)



Looking into basin



Wilson Canyon Debris Basin



Wilson Canyon Debris Basin



Wilson Canyon Debris Basin



Wilson Canyon Creek, from top of debris basin, downstream



County sign entering debris basin

APPENDIX J-CITY OF LOS ANGELES HAARD MITIGATION PLAN (DAM FAILURE AND TSUNAMI INNUNDATION)

City *of* Los Angeles

Hazard Mitigation Plan









REVISED
January 2011

ADOPTED
July 2011











These assets are included on Figure M-1 along with the Dam Inundation area. The replacement values of critical response facilities and their contents that fall in the hazard areas are in the following section, “Estimating Potential Losses”.

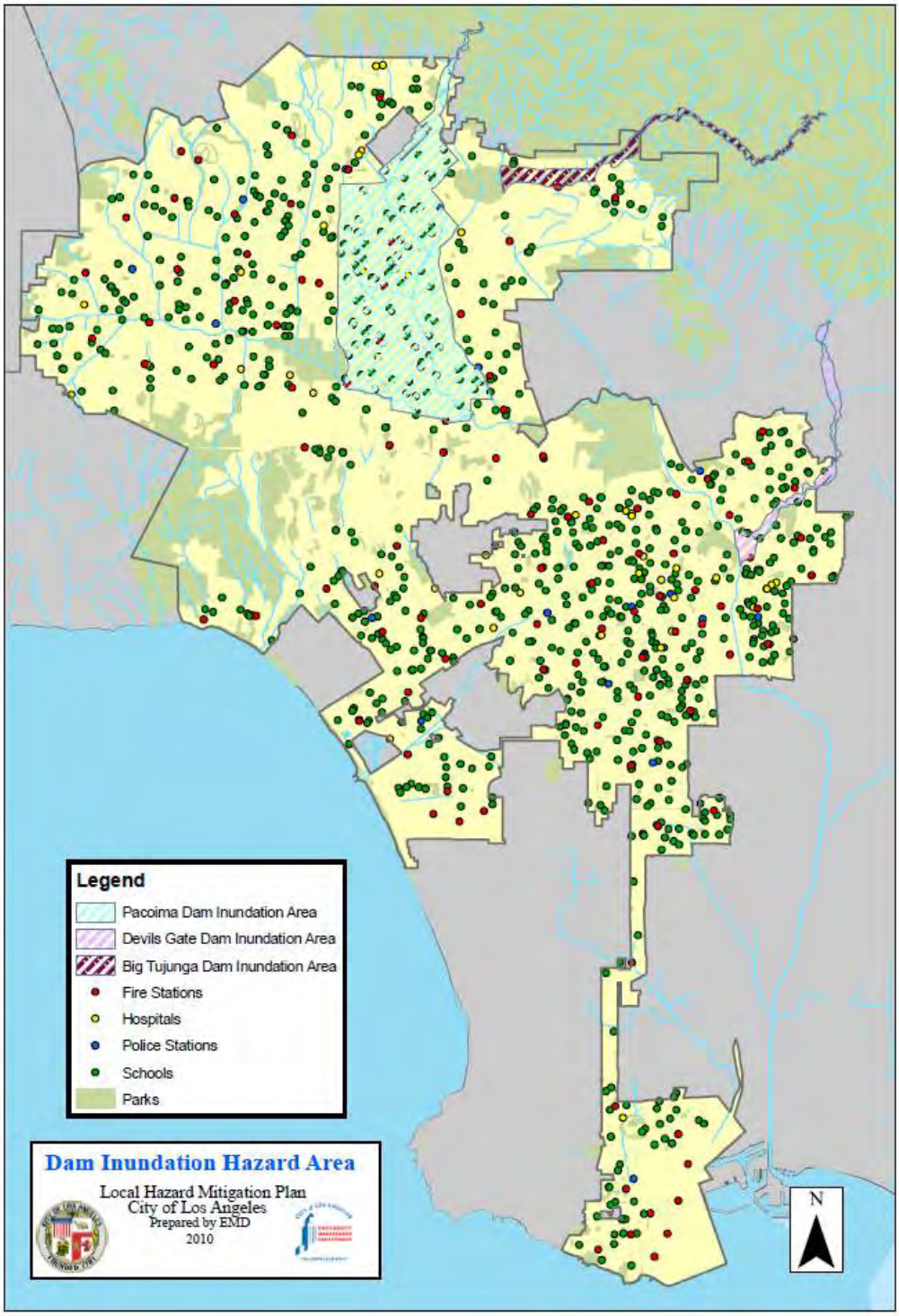


Figure M-1. Critical Response Facilities identified in the Dam Inundation Hazard area.

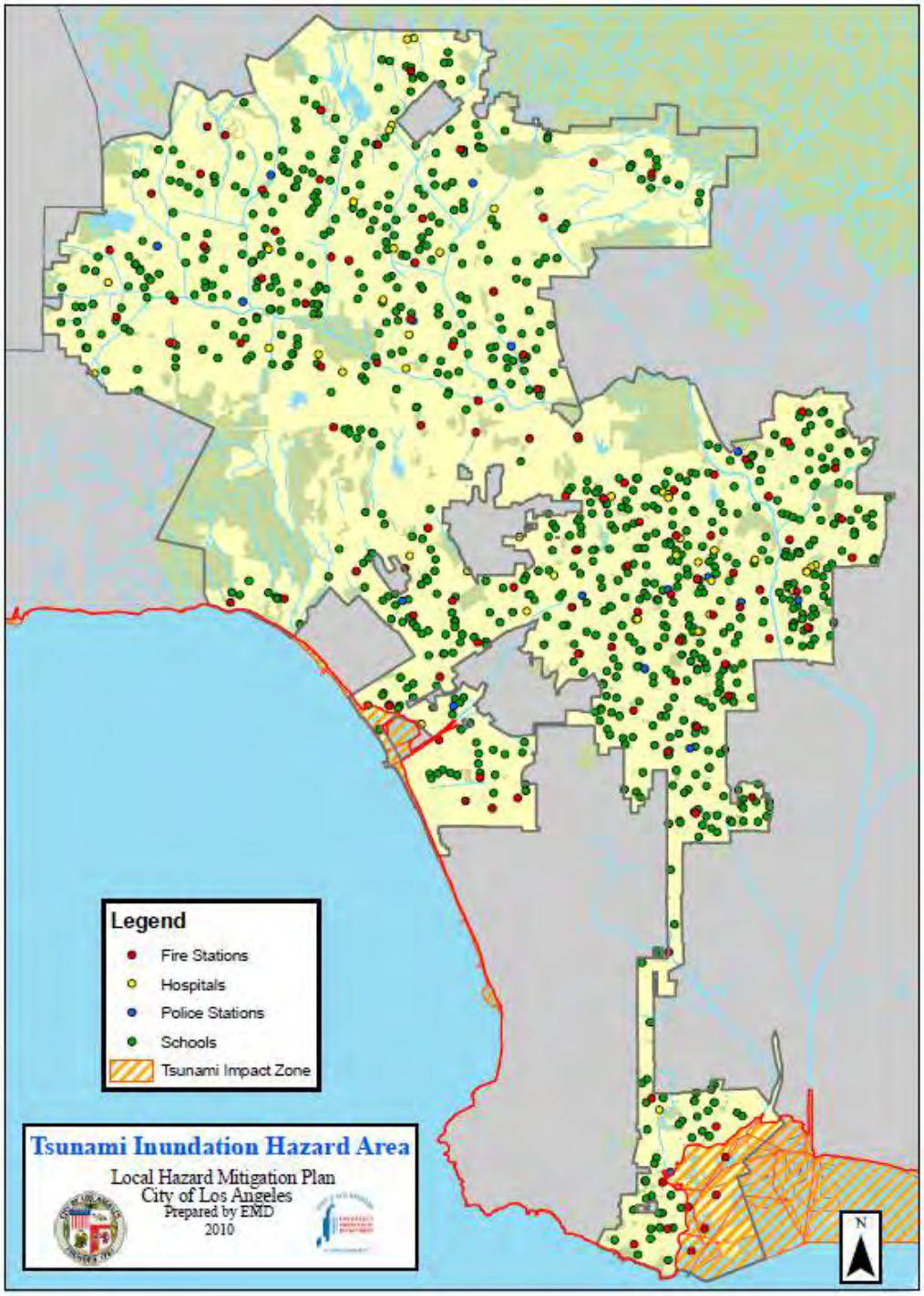


Figure O-1. Critical Response Facilities identified in the Tsunami Inundation Hazard area. Tsunami inundation data provided by the USGS.

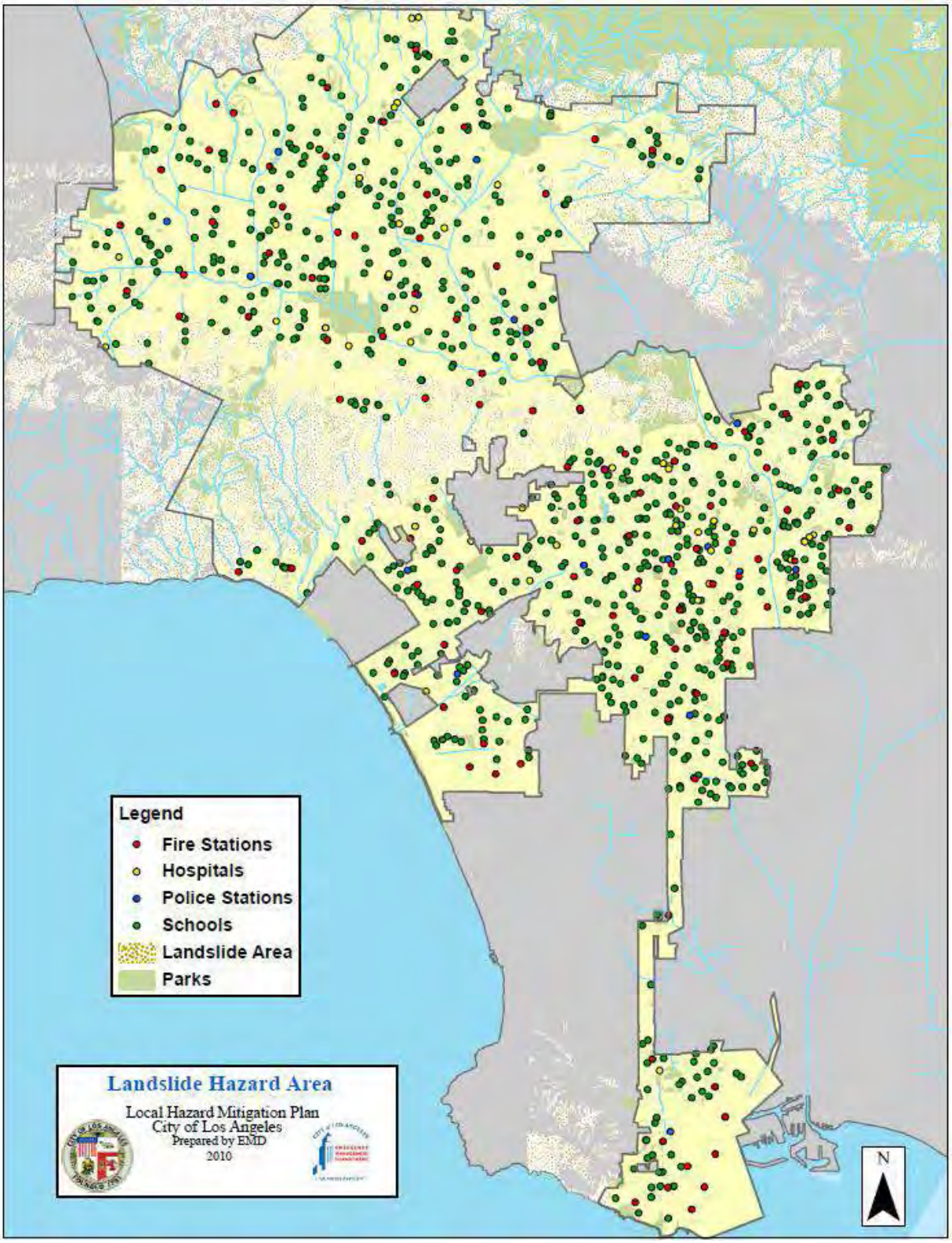


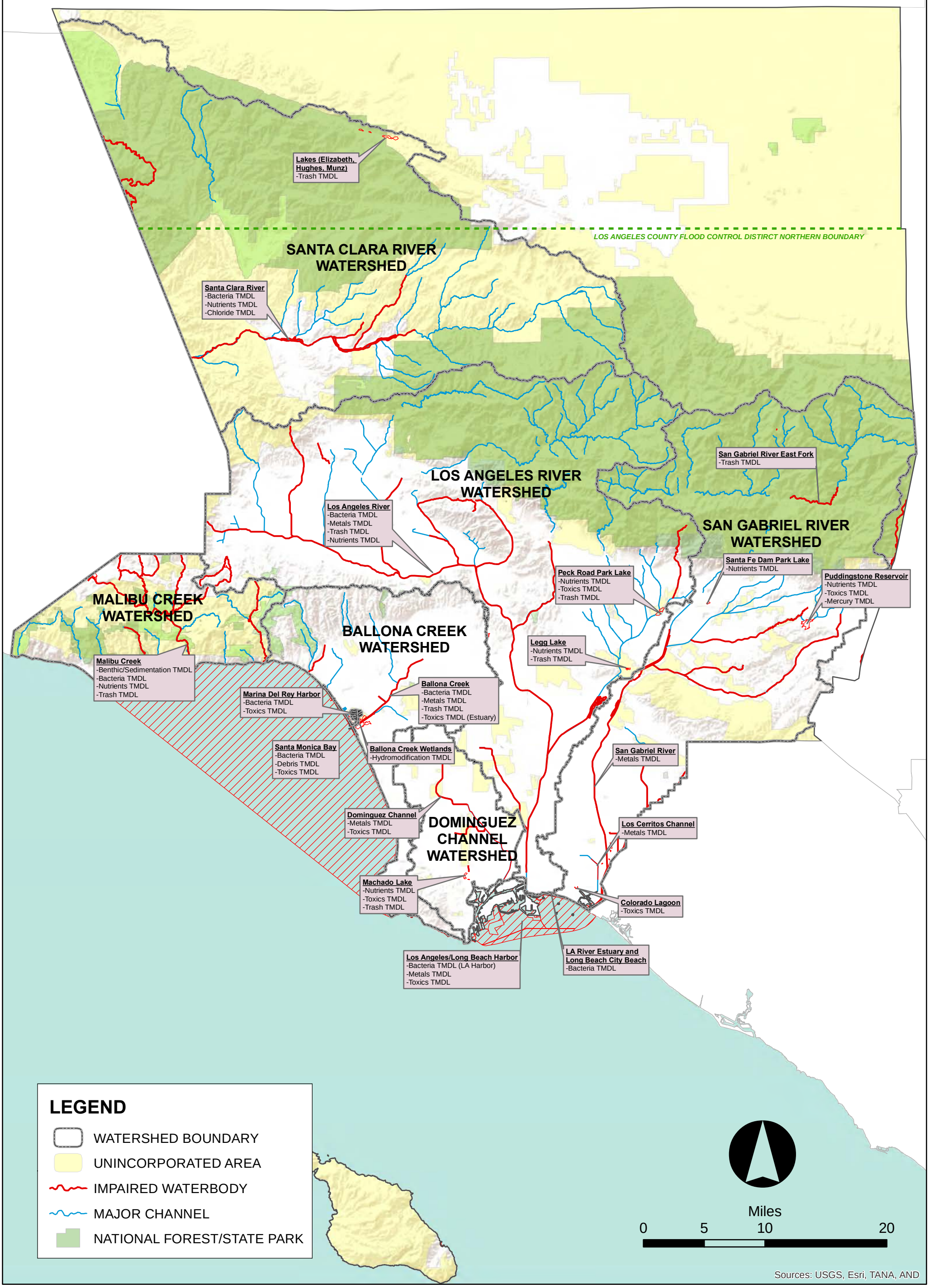
Figure P-1. Critical Response Facilities identified in the Landslide Hazard Area in the City of Los Angeles.

APPENDIX K-COUNTY OF LOS ANGELES LOW IMPACT DEVELOPMENT HANDBOOK TMDL DATA

COUNTY OF LOS ANGELES

MAJOR WATERSHEDS and EFFECTIVE TOTAL MAXIMUM DAILY LOADS

(as of October 2013)



APPENDIX B

Tier 3 Pollutants of Concern

BALLONA CREEK WATERSHED MANAGEMENT AREA

Parameter	Parameter
pH	Cyanide, Total Recoverable
E. coli Bacteria	Copper, Total Recoverable
Total Coliform Bacteria[1]	Lead, Total Recoverable
Fecal Coliform Bacteria[1]	Mercury, Total Recoverable
Enterococcus Bacteria[1]	Selenium, Total Recoverable

[1] Apply only to discharges to the estuary and the ocean

DOMINGUEZ CHANNEL WATERSHED MANAGEMENT AREA

Parameter	Parameter
pH	Cyanide, Total Recoverable
E. coli Bacteria	Copper, Total Recoverable
Total Coliform Bacteria[1]	Lead, Total Recoverable
Fecal Coliform Bacteria[1]	Mercury, Total Recoverable
Enterococcus Bacteria[1]	Selenium, Total Recoverable

[1] Apply only to discharges to the estuary and the ocean

LOS ANGELES RIVER WATERSHED MANAGEMENT AREA

Parameter	Parameter
pH	Total Dissolved Solids
E. coli Bacteria	Turbidity
Total Coliform Bacteria[1]	Aluminum, Total Recoverable
Fecal Coliform Bacteria[1]	Cyanide, Total Recoverable
Enterococcus Bacteria[1]	Copper, Total Recoverable
Chloride	Mercury, Total Recoverable
Nitrite Nitrogen, Total (as N)	Selenium, Total Recoverable
Sulfate	

[1] Apply only to discharges to the estuary and the ocean

MALIBU CREEK WATERSHED MANAGEMENT AREA

Parameter	Parameter
E. coli Bacteria	Total Dissolved Solids
Cyanide, Total Recoverable	
Mercury, Total Recoverable	
Selenium, Total Recoverable	
Sulfate	

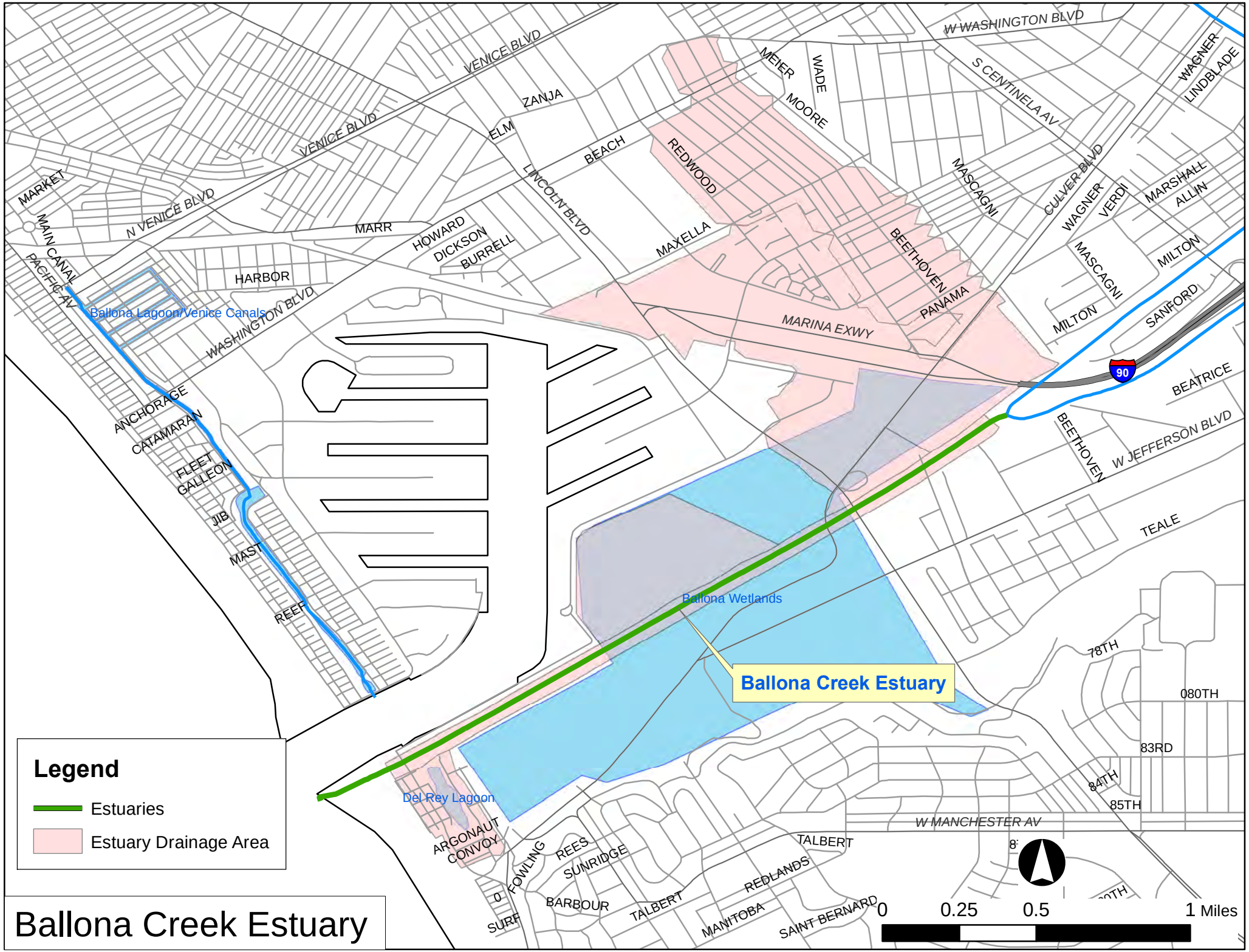
SAN GABRIEL RIVER WATERSHED MANAGEMENT AREA

Parameter	Parameter
pH	Cyanide, Total Recoverable
E. coli Bacteria	Cadmium, Total Recoverable
Total Coliform Bacteria[1]	Copper, Total Recoverable
Fecal Coliform Bacteria[1]	Lead, Total Recoverable
Enterococcus Bacteria[1]	Mercury, Total Recoverable
Chloride	Nickel, Total Recoverable
Nitrate Nitrogen, Total (as N)	Selenium, Total Recoverable
Sulfate	Silver, Total Recoverable
Total Dissolved Solids	Zinc, Total Recoverable
Aluminum, Total Recoverable	

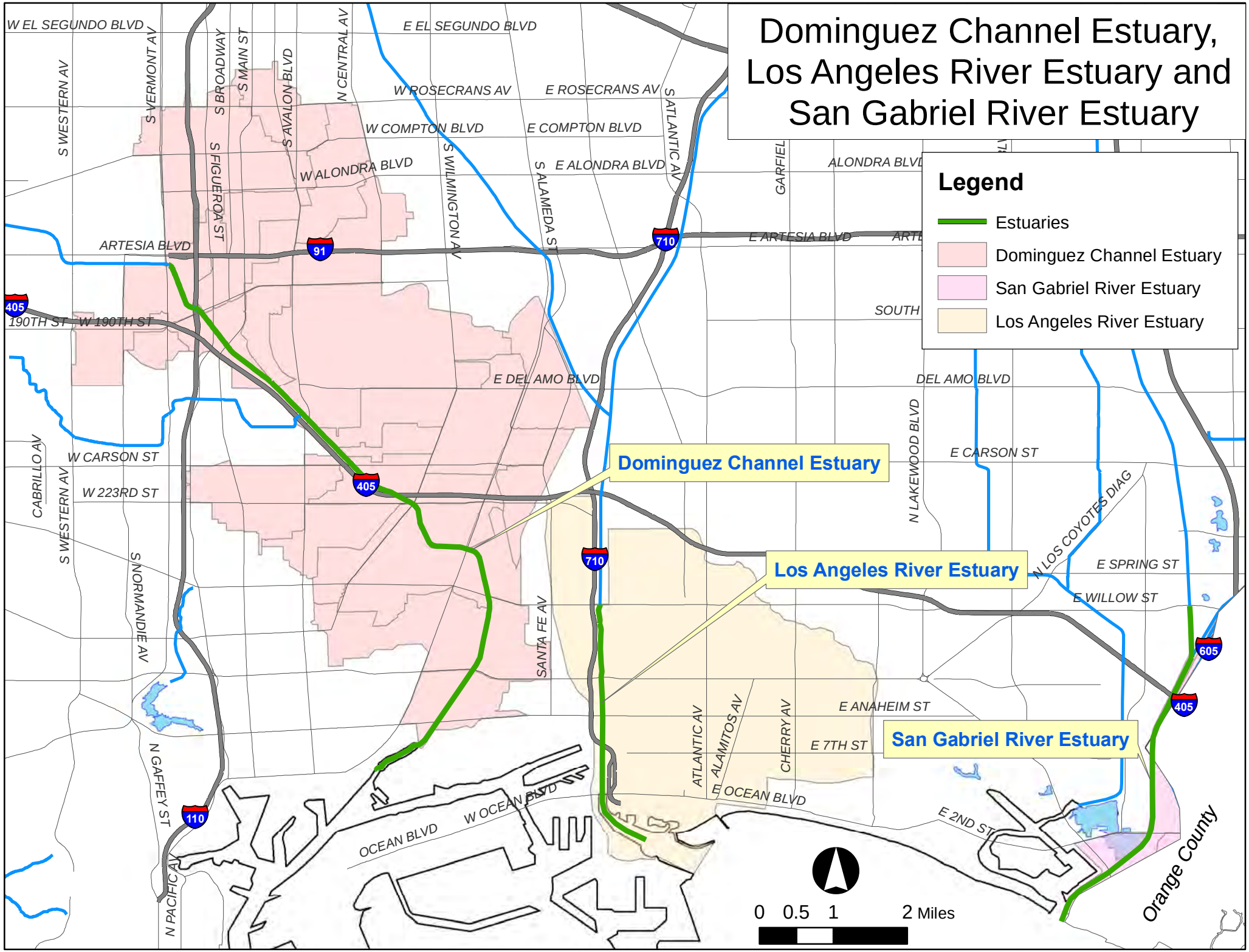
[1] Apply only to discharges to the estuary and the ocean

SANTA CLARA RIVER WATERSHED AREA (LA County portion only)

Parameter	Parameter
E. coli Bacteria	Aluminum, Total Recoverable
Chloride	Cyanide, Total Recoverable
Sulfate	Copper, Total Recoverable
Total Dissolved Solids	Mercury, Total Recoverable
Methylene Blue Active Substances	Selenium, Total Recoverable



Ballona Creek Estuary



Document Name: Basin Plan_LAR-DC

Watearth™
Water Resources + Green Infrastructure

APPENDIX L-PRELIMINARY GEOTECHNICAL EVALUATION

Ninyo & Moore
Geotechnical and Environmental Sciences Consultants

PRELIMINARY GEOTECHNICAL EVALUATION
OLIVE VIEW – UCLA MEDICAL CENTER MASTER PLAN
LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
14445 OLIVE VIEW DRIVE
SYLMAR, CALIFORNIA

PREPARED FOR:
ICF International
601 W. Fifth Street, Suite 900
Los Angeles, California 90071

PREPARED BY:
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants
475 Goddard, Suite 200
Irvine, California 92618

March 18, 2016
Project No. 209600002

March 18, 2016
Project No. 209600002

Mr. Lee Lisecki
ICF International
601 W. Fifth Street, Suite 900
Los Angeles, California 90071

Subject: Preliminary Geotechnical Evaluation
Olive View – UCLA Medical Center Master Plan
Los Angeles County Department of Public Works
14445 Olive View Drive
Sylmar, California

Dear Mr. Lisecki:

In accordance with your request and authorization, Ninyo & Moore has performed a preliminary geotechnical evaluation for the Olive View – UCLA Medical Center Master Plan project located at 14445 Olive View Drive in Sylmar, California. Our evaluation was conducted in general accordance with the scope of services presented in our proposal dated February 2, 2015. This report presents our findings and conclusions regarding the subject site. We understand that the results of this evaluation will be utilized in the preparation of an Environmental Impact Report for the project.

We appreciate the opportunity to provide geotechnical consulting services for this project.

Sincerely,
NINYO & MOORE

Michael Rogers, PG, CEG
Senior Geologist

PROFESSIONAL GEOLOGIST
MICHAEL E. ROGERS
No. 2364
CERTIFIED
ENGINEERING
GEOLOGIST
Exp. 6/30/17
STATE OF CALIFORNIA

Soumitra Guha, PhD, PE, GE
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
SOUMITRA GUHA
NO. GE 2632
EXP. 6/30/17
GEOTECHNICAL
STATE OF CALIFORNIA

ZH/MER/CAP/SG/sc

Distribution: (1) Addressee (via e-mail)

TABLE OF CONTENTS

Page

1. INTRODUCTION 1
2. SCOPE OF SERVICES 2
3. PROJECT DESCRIPTION 2
4. SITE DESCRIPTION 3
5. GEOLOGY 3
   - 5.1. Regional Geology 3
   - 5.2. Site Geology 4
   - 5.3. Santa Susana (Olive View) Fault 4
   - 5.4. Groundwater 5
6. FAULTING AND SEISMICITY 5
   - 6.1. Regional Fault Setting 5
   - 6.2. 1971 San Fernando (Sylmar) Earthquake 7
   - 6.3. 1972 Alquist-Priolo Earthquake Fault Zoning Act 8
7. METHODOLOGY FOR GEOLOGIC IMPACT AND HAZARD ANALYSES 8
8. THRESHOLDS OF SIGNIFICANCE 9
9. CONCLUSIONS AND RECOMMENDATIONS FOR POTENTIAL GEOLOGIC AND SEISMIC IMPACTS/HAZARDS 10
   - 9.1. Surface Fault Rupture 10
   - 9.2. Seismic Ground Shaking 12
   - 9.3. Liquefaction 13
   - 9.4. Landslides 14
   - 9.5. Soil Erosion 16
   - 9.6. Subsidence 17
   - 9.7. Compressible/Collapsible Soils 18
   - 9.8. Expansive Soils 19
   - 9.9. Groundwater and Excavations 20
10. LIMITATIONS 21
11. REFERENCES 22

Tables

Table 1 – Principal Regional Active Faults 6
Table 2 – Summary of Potential Geologic Impacts/Hazards 9

Figures

Figure 1 – Site Location
Figure 2 – Site Aerial View
Figure 3 – Regional Geology
Figure 4 – Fault Locations
Figure 5 – Earthquake Fault Zones
Figure 6 – Seismic Hazard Zones

1. INTRODUCTION

In accordance with your request and authorization, we have performed a preliminary geotechnical evaluation for the Olive View – UCLA Medical Center Master Plan project (project) located at 14445 Olive View Drive in Sylmar, California (Figure 1). This Los Angeles County Department of Public Works (LACDPW) project involves development of a master plan that includes renovation of existing buildings and construction of a new hospital building, administrative building, central utility plant and other structures. We have performed a geotechnical evaluation of the site geologic conditions and the impacts associated with potential geologic and seismic hazards for inclusion in the Environmental Impact Report (EIR) for the project.

The purpose of our evaluation was to assess the geologic conditions at the site and develop preliminary conclusions regarding potential geologic and seismic impacts associated with the project in accordance with the California Environmental Quality Act (CEQA). Where appropriate, recommendations to mitigate potential geologic hazards, as noted in this report, have been provided. Our evaluation was based on review of readily available geologic and seismic data, geotechnical literature and reports, and site reconnaissance. Subsurface exploration was not conducted as part of our evaluation.

The Olive View – UCLA Medical Center site is located in a State of California (1979) Earthquake Fault Zone (EFZ, formerly Alquist-Priolo Special Studies Zone) related to surface ruptures caused by the 1971 San Fernando (Sylmar) Earthquake. Significant damage occurred to the buildings at the site in 1971 due to ground shaking from the San Fernando Earthquake. The potential for surface rupture to occur at the site due to future earthquakes is a potentially significant hazard to existing and planned structures. Fault trenching studies to evaluate the presence and relative activity of faulting at the site have been conducted by other geotechnical consultants. We understand that additional trenching studies will be needed in the future to evaluate buildable zones for the master planning scheme.

2. SCOPE OF SERVICES

Ninyo & Moore's scope of services has included review of geotechnical background materials, geologic reconnaissance of the project area, and geotechnical analysis. Specifically, we have performed the following tasks:

- Review of readily available topographic and geologic maps, published geotechnical literature, geologic and seismic data, groundwater data, and aerial photographs.
- Review of the referenced fault rupture hazard reports provided by ICF International that were obtained from the LACDPW.
- Review of the geotechnical aspects of LACDPW project planning documents, including a description of the master plan elements and brief overview of the fault rupture hazard investigations that have been conducted at the site.
- Geotechnical reconnaissance by a representative from Ninyo & Moore conducted on February 4, 2016, to observe and document the existing surface conditions at the project site.
- Compilation and analysis of existing geotechnical data pertaining to the site.
- Assessment of the general geologic conditions and seismic hazards affecting the area and evaluation of their potential impacts on the project.
- Preparation of this report presenting the results of our study, as well as our conclusions regarding the geologic and seismic impacts on the project, and preliminary recommendations to address the impacts to be included in the EIR.

3. PROJECT DESCRIPTION

Based on our review of the preliminary plans (SmithGroup JJR, 2015), we understand that the proposed project involves the development of a new long-term master plan to guide future medical campus development and delivery of health care services and health-related community programs. Future development under the master plan would include a new ambulatory care center, a replacement central utility plant, renovation of the existing inpatient hospital, outpatient clinics, research and development, education facilities, as well as community/public service areas. The master plan includes eventual replacement of the main hospital building. Other planned improvements include site utilities, hardscape, pavements, landscaping, and low impact development (LID) practices for on-site stormwater management/infiltration.

4. SITE DESCRIPTION

The Olive View – UCLA Medical Center is located north of Interstate 210 and east of Interstate 5 in the Sylmar community of the City of Los Angeles (Figure 1). The medical center campus is situated on the northern edge of the San Fernando Valley at the base of the San Gabriel Mountains (Figures 1 and 2). The campus is approximately 235 acres and is bounded by the Angeles National Forest and the Wilson Debris Basin to the north, Olive View Drive on the south, Wilson Canyon Channel on the east, and Bucher Avenue on the west (Figure 2). The project site is currently improved with an inpatient hospital, outpatient clinics, research/development and education facilities, and community/public service areas. The site is also improved with paved roads and parking areas, landscaped areas, retaining walls, developed pedestrian open space, and undeveloped hillside and canyon areas, unpaved roads and trails.

The project site includes both developed and undeveloped areas. The developed portion of the campus is located in the southern, low-lying portion of the site and west of the Wilson Canyon Channel. The undeveloped portion of the site is located in the elevated northern portion of the site and to the east of the Wilson Canyon Channel. Topography and surface gradients are variable across the site. The topography of the developed portion of the campus slopes gently down toward the west and south, varying from an approximate elevation of 1,500 feet above mean sea level (MSL) near the northeast part of the project area to an approximate elevation of 1,430 feet above MSL along the south part of the project area. The elevations in the hillside areas in the northern portion of the site range from approximately 1,850 feet above MSL to approximately 1,500 feet above MSL.

5. GEOLOGY

5.1. Regional Geology

The project site is located on the northern edge of the San Fernando Valley, a Tertiary-Quaternary period sediment-filled basin within the Transverse Ranges geomorphic province of southern California (Norris and Webb, 1990). Rock units in the province include older Precambrian-era and Jurassic-period metavolcanic, metasedimentary and igneous rocks.

Cretaceous-age marine and non-marine sedimentary and metasedimentary rocks and younger Tertiary-age rocks comprised of volcanic, marine, and non-marine sediments overlie the older rocks (Norris and Webb, 1990). More recent Quaternary sediments, primarily of alluvial origin, comprise the low-lying valley and drainage areas within the region, including the area where the Olive View – UCLA Medical Center Campus project site is located.

The rock formations in the province have been folded and uplifted due to compression and rotation associated with a restraining bend on the San Andreas Fault. The folding and uplifting of the region led to characteristic east-to-west trending structural troughs and mountain ranges. The San Fernando Valley formed as sediment infilled a subsiding basin between the San Gabriel Mountains to the north and the Santa Monica Mountains to the south (Norris and Webb, 1990).

5.2. Site Geology

The medical center is situated on a gently sloping alluvial fan and rock formations at the margin between the northern San Fernando Valley and western end of the San Gabriel Mountains. Regional geologic maps indicate that the upper, elevated northwestern portion of the site is underlain by Tertiary-age Towsley Formation generally comprised of cobble conglomerate and coarse-grained sandstone, and Cretaceous-age metamorphic rocks (Dibblee, 1991). Other elevated hillside areas in the western, northern and eastern portions of the site are mapped as being underlain by Pacoima Formation and older alluvium comprised of weakly consolidated sand and gravel. The lower southern portion of the site, where the existing improvements are located, and the eastern portions of the site at the base of Wilson Canyon are mapped as being underlain by young (Holocene) alluvial deposits generally comprised of gravel, sand and clay sediments. A regional geologic map of the site vicinity is shown on Figure 3.

5.3. Santa Susana (Olive View) Fault

Previous geologic mapping and references indicate the presence of a roughly east-west trending fault (the Olive View Fault) across the northwestern portion of the site (Figure 3).

Although not labeled on the referenced map (Dibblee, 1991) used for Figure 3, the fault has been named as the Olive View fault by others (California Department of Conservation, Division of Mines and Geology [CDMG], 1975; URS, 2010). The United States Geological Survey (USGS) has designated the fault as the eastern extension of the active Santa Susana Fault Zone (USGS, 2014a). This active fault was associated with surface ruptures at the project site caused by the 1971 San Fernando (Sylmar) Earthquake (CDMG, 1975; State of California, 1979).

5.4. Groundwater

The site is located within the San Fernando Valley Groundwater Basin (State of California, 2016). Historic groundwater monitoring well data from the State of California Water Resources Control Board's GeoTracker website (State of California, 2016) were reviewed for our evaluation. Monitoring well data were not available for the medical center site, but were reviewed for commercial properties located in the Sylmar community south of the site. These properties were involved in environmental clean-up activities where monitoring wells were installed and groundwater data from LACDPW wells were utilized. Based on the groundwater information reviewed from the GeoTracker website, groundwater levels from 1993 to 2013 in the Sylmar community approximately 1½ miles south of the project site have ranged from approximately 125 to 200 feet below the ground surface. The historic high groundwater mapped by the California Geological Survey (CGS) near the southern portion of the medical center site is approximately 120 feet deep (CDMG, 1998).

Groundwater levels may be influenced by seasonal variations, precipitation, subsurface stratification, groundwater pumping, irrigation practices, and other factors and are subject to fluctuations. Shallow perched conditions may be present.

6. FAULTING AND SEISMICITY

6.1. Regional Fault Setting

The Olive View-UCLA medical center project site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion at the site

is considered significant. Table 1 lists selected principal known active faults within approximately 50 kilometers of the project area and the maximum moment magnitude (M_{max}) as published by the USGS (2008 and 2014a) in general accordance with the Uniform California Earthquake Rupture Forecast, version 3 (UCERF) (Field, et al., 2013). The approximate fault-to-site distances listed in Table 1, measured from the existing hospital building, were calculated using the USGS web-based program (USGS, 2008).

Table 1 – Principal Regional Active Faults

Fault	Approximate Fault-to-Site Distance [1] miles (kilometers)	Maximum Moment Magnitude [1] (M_{max})
Santa Susana [2]	<0.1 (<0.1)	6.9
Northridge Blind Thrust	0.5 (0.8)	6.9
Sierra Madre (San Fernando)	1.7 (2.8)	7.3
San Gabriel	3.2 (5.2)	7.3
Verdugo	4.7 (7.5)	6.9
Holser	8.6 (13.9)	6.8
Simi-Santa Rosa	14.4 (23.2)	6.9
Hollywood	16.2 (26.0)	6.7
Oak Ridge	16.6 (26.8)	7.4
Upper Elysian Park Blind Thrust	17.0 (27.3)	6.7
Santa Monica	17.3 (27.9)	7.4
Raymond	19.0 (30.5)	6.8
San Cayetano	19.6 (31.6)	7.2
Newport-Inglewood (Los Angeles Basin)	19.7 (31.8)	7.5
Malibu Coast	21.0 (33.8)	7.0
Puente Hills Blind Thrust (LA)	21.2 (34.1)	7.0
Anacapa-Dume	21.9 (35.3)	7.2
San Andreas	22.0 (35.3)	8.2
Palos Verdes	25.3 (40.8)	7.7
Clamshell-Sawpit Canyon	27.5 (44.3)	6.7
Notes: [1] USGS, 2008 [2] USGS, 2014a		

The fault-to-site distance web-based calculator for faults in California is not available as part of the 2014 National Seismic Hazard Map database. However, the 2014 National Seismic

Hazard Map itself shows the Santa Susana fault crossing through the northern portion of the site (USGS, 2014a). Accordingly, the Santa Susana fault is considered to be in the immediate vicinity of the campus site and the fault-to-site distance in Table 1 is shown as less than 0.1 mile. The active Santa Susana fault was not mapped as crossing the project site as part of the USGS 2008 National Seismic Hazard Map (USGS, 2008) database, and is shown to be located approximately 2.9 miles west of the site.

The numerous faults in southern California include active, potentially active, and inactive faults. As defined by the CGS, active faults are faults that have ruptured within Holocene time, or within approximately the last 11,000 years. Potentially active faults are those that show evidence of movement during Quaternary time (approximately the last 1.6 million years) but for which evidence of Holocene movement has not been established. Inactive faults have not ruptured in the last approximately 1.6 million years. Figure 4 shows the approximate site location relative to the principal faults in the region based on the Fault Activity Map of California (Jennings, C.W., and Bryant, W.A., 2010).

The active Northridge Blind Thrust Fault (source of the 1994 Northridge Earthquake) is located approximately 0.5 mile southwest of the project site. Blind thrust faults are low-angle faults at depths that do not break the surface and are, therefore, not shown on Figure 4. Although blind thrust faults do not have a surface trace, they can be capable of generating damaging earthquakes and are included in Table 1.

6.2. 1971 San Fernando (Sylmar) Earthquake

The Olive View-UCLA Medical Center site was previously subjected to substantial ground shaking, surface rupture and earthquake-related damages resulting from the 1971 San Fernando Earthquake (also known as the Sylmar Earthquake). The Magnitude 6.5 earthquake included roughly 12 miles of surface rupture in the site vicinity and produced a maximum slip of 6 feet. The approximate locations of faults associated with major surface ruptures that were mapped at the project site are shown on Figure 5. Other surface ruptures and landslides that occurred at the site as a result of the 1971 earthquake are shown on references reviewed for this evaluation (CDMG, 1975). Damage to the medical center site

included the collapse of stair towers adjacent to buildings, the partial collapse of medical buildings, and the collapse of parking structures. Some structures damaged in the earthquake were later demolished (Southern California Earthquake Data Center, 2016).

The extensive urban damages and loss of life that resulted from the 1971 San Fernando Earthquake led to the enactment of the Alquist-Priolo Act, signed into California law on December 22, 1972.

6.3. 1972 Alquist-Priolo Earthquake Fault Zoning Act

As presented in the CDMG, Special Publication 42 (Hart, E.W., and Bryant, W.A., 1997), the 1972 Alquist-Priolo Earthquake Fault Zoning Act (AP Act) requires the State Geologist to delineate EFZs along known active faults in California. The AP Act also requires building setbacks to be established from the trace of an active fault. EFZs must meet the requirements of being "sufficiently active" (evidence of movement within the last approximate 11,000 years) and "well-defined" (detectable by a trained geologist). It is known that faults often rupture along a complex zone that may include the movement of multiple splays/strands rather than of a single strand. The EFZs are intended to be sufficiently wide enough on both sides of a known active fault to include these known or unknown splays/strands of the fault. The purpose of the AP Act was to prohibit the location of most structures for human occupancy across the traces of active faults, thus mitigating the hazard of fault rupture.

The project site is located in a State of California (1979) EFZ related to surface ruptures caused by the 1971 San Fernando (Sylmar) Earthquake. Figure 5 shows the site location relative to the mapped EFZ.

7. METHODOLOGY FOR GEOLOGIC IMPACT AND HAZARD ANALYSES

As outlined by the CEQA, the proposed project has been evaluated with respect to potential geologic and seismic impacts associated with the project. Evaluation of impacts due to potential geologic and seismic hazards is based on our review of readily available published geotechnical literature and geologic and seismic data pertinent to the proposed project, and site reconnaissance. The references and data reviewed include, but are not limited to, the following:

- Geologic maps and fault maps from the CDMG, CGS and USGS.
- Topographic maps from the USGS.
- Seismic data from the CGS and USGS.
- Geotechnical publications by the CDMG, CGS and USGS.
- State of California EFZ Maps (formerly Alquist-Priolo Special Studies Zones Maps).
- State of California Seismic Hazards Zones Reports and Maps.
- Fault rupture studies by URS Corporation (URS) and AMEC Environment & Infrastructure, Inc. (AMEC).
- Aerial photographs.
- Safety Element of the Los Angeles City General Plan.

8. THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the CEQA guidelines (California Environmental Resources Evaluation System [CERES], 2005a, 2005b), a project is considered to have a geologic impact if its implementation would result in or expose people/structures to potential substantial adverse effects, including the risk of loss, injury, or death from hazards involving one or more of the geologic conditions presented in Table 2. Table 2 also presents the impact potential as defined by CEQA associated with each of the geologic conditions discussed in the following sections.

Table 2 – Summary of Potential Geologic Impacts/Hazards

Geologic Condition	Impact Potential[1]			
	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Earthquake Fault Rupture	x			
Strong Seismic Ground Shaking		x		
Seismically Related Ground Failure, Including Liquefaction		x		
Landslides		x		
Substantial Soil Erosion		x		
Subsidence			x	
Compressible/Collapsible Soils		x		
Expansive Soils		x		
Groundwater and Excavations		x		

Note:
[1]Reference: CERES, 2005, Appendix G – Environmental Checklist Form, Final Text, dated October 26. Website: http://ceres.ca.gov/topic/envlaw/ceqa/guidelines/appendices.html

9. CONCLUSIONS AND RECOMMENDATIONS FOR POTENTIAL GEOLOGIC AND SEISMIC IMPACTS/HAZARDS

Based on our review of geologic and seismic background information, and geotechnical reconnaissance, implementation of the proposed master plan project is not anticipated to have a significant impact on the geologic environment. However, future development at the project site may be subjected to potential impacts from geologic and seismic hazards. Potential impacts on the proposed project based on our preliminary evaluation are provided in the following sections.

The potential geologic and seismic hazards described below may be addressed by employing sound engineering practice in the design and construction of the proposed project elements. This practice includes the implementation of appropriate geotechnical recommendations prior to the design and construction of the facilities at the project site. Typical methods to reduce potential hazards that may be encountered during the construction of improvements are described in the following sections. Where appropriate, recommendations to mitigate potential geologic hazards are provided. Prior to design of the planned improvements, detailed subsurface geotechnical evaluation should be performed to address the site-specific conditions at the locations of the planned improvements and to provide detailed recommendations for design and construction.

9.1. Surface Fault Rupture

Surface fault rupture is the offset or rupturing of the ground surface by relative displacement across a fault during an earthquake. There could be potentially significant impacts associated with siting project improvements across the trace of an active fault. Damage due to fault rupture may include offset/damage to foundations and structural elements. As previously discussed, the medical center site was subjected to surface rupture and damage to structures resulting from the 1971 San Fernando Earthquake. Surface ruptures related to faulting were mapped along the trace of the Olive View fault in the northwestern part of the site. In addition, other ground surface ruptures were mapped at various locations within the project site (CDMG, 1975; State of California, 1979). Due to the surface ruptures along the active Olive View fault (Santa Susana Fault Zone) from the 1971 earthquake, an EFZ was established along the fault. Much of the project site is located within the EFZ (Figure 5).

Fault trenching studies to evaluate the presence and relative activity of faulting at portions of the site have been conducted by other geotechnical consultants on behalf of the LACDPW (URS, 2008; URS, 2010; AMEC, 2013). URS conducted a fault trenching study in 2008 for the proposed Psychiatric Urgent Care Facility in the southern part of the site, and conducted a fault trenching study in 2010 for the proposed Day Care Facility in the southern part of the site. Their studies generally involved performance of subsurface trenches and test pits adjacent to the facilities to explore for the presence of active faulting. URS generally concluded that the trenches exposed older (Pleistocene) alluvium that was not cut by active (Holocene epoch [last 11,000 years]) faulting. Based on their conclusions, URS established a "trench shadow corridor" area for the investigated sites that is free of active faulting and feasible for permitting structures intended for human occupancy in accordance with the provisions of the AP Act.

Based on a figure included in the preliminary project plans (SmithGroup JJR, 2015), AMEC prepared a map in 2013 titled "Preliminary Planning Map for Subsurface Fault Rupture Hazards" as part of the master planning study for the medical center site. The map shows a summary of fault trench locations performed by AMEC and other geotechnical consultants at the site. The map illustrates color-coded areas of the project site where fault trenching has "cleared" areas of active faulting for "potential building sites"; and areas where additional fault trenching can be performed and is "required." The map also illustrates many areas of the site located within the EFZ where fault trenching may not be feasible, including the location of the existing hospital building.

The preliminary project plans indicate that additional fault trenching will be needed in the future to evaluate buildable zones for the master planning scheme (SmithGroup JJR, 2015). Future geologic investigations to evaluate the location and relative activity of potentially active fault splays at the site and the feasibility of locating future site improvements should be conducted by geologic consultants for the LACDPW prior to design of structure locations. The fault investigations should be conducted by a California State Certified Engineering Geologist and should typically involve participation by experts in the field of

paleoseismology, geomorphology and soil stratigraphy. The fault investigations should be reviewed by the CGS. Other methods to explore for the presence of active faulting might include geophysical studies such as high resolution seismic reflection, seismic refraction, ground penetrating radar, and gravity and/or magnetic profiling.

Where the fault investigations find that no active fault splays are present at building sites, proposed structures intended for human occupancy may be feasible for permitting in accordance with the provisions of the AP Act. Where active fault splays are found at the project site, the locations may be deemed not feasible for construction of occupied structures, and appropriate building setback zones will need to be established.

The impacts related to surface rupture at the project site are potentially significant, but can be reduced with methods such as detailed fault investigations to clear sites of active faulting, including review by the CGS, and/or development of structural setback zones.

9.2. Seismic Ground Shaking

Earthquake events from one of the regional active or potentially active faults near the project area could result in strong ground shaking which could affect the project site. The level of ground shaking at a given location depends on many factors, including the size and type of earthquake, distance from the earthquake, and subsurface geologic conditions. The type of construction also affects how particular structures and improvements perform during ground shaking.

The 2013 California Building Code (CBC) recommends that the design of structures be based on spectral response accelerations in the direction of maximum horizontal response (5 percent damped) having a 1 percent probability of collapse in 50 years. Such spectral response accelerations represent the Risk-Targeted Maximum Considered Earthquake (MCE_R) ground motion. The horizontal peak ground acceleration (PGA) that corresponds to the MCE_R for the site was calculated as 1.20g using the USGS (2014b) seismic design tool (web-based). The mapped PGA (PGA_M) which is defined as the Maximum Considered Earthquake Geometric Mean (MCE_G) PGA with adjustment for site class effects in

accordance with the American Society of Civil Engineers (ASCE) 7-10 Standard was estimated to be 1.14g using the USGS (2014b) seismic design tool in accordance with the ASCE 7-10 Standard. These estimates of ground motion do not include near-source factors that may be applicable to the design of structures on site.

This potential level of ground shaking could have high impacts on project improvements without appropriate design mitigation, and should be considered during the detailed design phase of the project. Mitigation of the potential impacts of seismic ground shaking can be achieved through project structural design. Structural elements of planned improvements can be designed to resist or accommodate appropriate site-specific ground motions and to conform to the current seismic design standards, including CBC and County of Los Angeles building regulations. Appropriate structural design and mitigation techniques would reduce the impacts related to seismic ground shaking.

9.3. Liquefaction

Liquefaction is the phenomenon in which loosely deposited granular soils located below the water table undergo rapid loss of shear strength due to excess pore pressure generation when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to rapid rise in pore water pressure causing the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking. The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving and cracking of slabs due to sand boiling, buckling of deep foundations due to liquefaction-induced ground settlement.

According to Seismic Hazard Zones Maps published by the State of California (CDMG, 1999), a portion of the project area in the northeastern part of the site near the mouth of Wilson Canyon is located within an area considered susceptible to liquefaction (Figure 6).

This portion of the site within the lower-lying canyon bottom area was mapped as potentially liquefiable due to the tendency for shallower groundwater and loose, younger alluvial sediments to accumulate in canyon bottoms. However, the overall historic high groundwater levels at the site are deep, on the order of 120 feet or more below the ground surface, and much of the project site is not considered susceptible to liquefaction. Areas of the project site mapped as being underlain by rock formations are not susceptible to liquefaction.

Assessment of the liquefaction potential at the project site should be evaluated by subsurface geotechnical exploration prior to detailed design and construction of project improvements and incorporated into the design, as appropriate. Structural design and mitigation techniques should be developed to reduce the potential impacts of liquefaction. Therefore, the potential impacts due to liquefaction are considered to be less than significant with incorporation of techniques such as structural design, in-situ ground modification, or supporting foundations with piles at depths designed specifically for seismically induced settlement.

9.4. Landslides

Landslides, slope failures, and mudflows of earth materials generally occur where slopes are steep and/or the earth materials are too weak to support themselves. Earthquake-induced landslides may also occur due to seismic ground shaking. Landslides can consist of rockfalls, shallow slumps, mudflows and erosional failures, or deeper-seated rotational and block failures. Shallow failures are typically caused by high incident rainfall or concentrated surface runoff conditions that weaken surficial materials. Rotational slides and block-type slides form deeper within the ground, and are generally related to discontinuities in the rock that manifest into a sliding surface. Rainfall and other water infiltration into the ground can exacerbate and initiate these deeper sliding conditions. Landslides can also be caused by construction activities, such as grading that undercuts the toe of a slope or induces loading at the top of a slope.

Existing landslides are not shown on the northern hillside areas of the site on the geologic maps reviewed. However, the northern portion of the project site contains steep, natural

slopes that have been subjected to fires. In addition, portions of the slopes on the northern part of the site have been designated on the State Seismic Hazard Zones Map (Figure 6) as having potential for earthquake–induced landslides (CDMG, 1999). Furthermore, landslides that were caused by earthquake ground shaking were mapped at the site following the 1971 San Fernando Earthquake (CDMG, 1975).

The southern portion of the project site has shallower slope gradients and has been extensively developed and is primarily covered with pavements, hardscape and structures. The developed southern portion of the site includes some graded slopes at shallow gradients associated with landscaping and open space areas.

Due to the presence of steep hillside areas and previously mapped earthquake–induced landslides in the northern portion of the site, there is a potential for landslides, mudflows or seismic slope instability to impact the proposed project site. Detailed assessment of the landslide and mudflow potential in areas of project improvements should be performed prior to design and construction of improvements and incorporated into the design, as appropriate, to reduce the construction and operational impacts related to landslides. Therefore, the potential impacts due to landslides are considered to be low with incorporation of recommendations discussed below.

To evaluate the potential for landslides, surficial slope failures and/or mudflows to affect future planned improvements, evaluation may include review of geologic maps showing the locations of previous mapped landslides and potential earthquake-induced landslide zones relative to these project components. Where appropriate in close proximity to potential landslide areas, surface reconnaissance to map the locations of landslides and/or subsurface evaluation could be performed. Evaluation of the landslide and surficial slope failure hazard would be performed during design and prior to construction so that, in the event the hazard exists, common design and construction practices can be implemented.

Common construction practices for potentially unstable slope conditions and for areas with the potential for landslides and surficial slope failures include: excavating potentially

unstable material resulting in a flatter and more stable slope configuration; reduction of landslide driving forces by removal of earth materials at the top of the landslide; construction of buttress and/or stabilization fills; construction of retaining walls, installation of rock bolts on the face of the slope, or installation of protective wire mesh on the slope face; and/or the construction of debris impact walls at the toe of the slope to contain rock fall debris. Graded slopes created for future developments within the project site should also be designed to reduce the potential for landslides or mudflows.

9.5. Soil Erosion

Erosion refers to the process by which soil or earth material is loosened or dissolved and removed from its original location. Erosion can occur by varying processes and may occur at the project site where soil or rock is exposed to wind or moving water (both rainfall and surface runoff). The processes of erosion are generally a function of material type, terrain steepness, rainfall or irrigation levels, surface drainage conditions, and general land uses. Review of geologic maps and site reconnaissance indicate that surface exposures at the site are comprised of variable types of soil and rock materials. In addition, the site comprises varied topographic terrain ranging from gentle to steep gradients. In a general sense, steeper slope gradients, such as in the northern portion of the site, provide a higher erosion potential for similar soil types.

Sandy soils typically have low cohesion, and have a relatively higher potential for erosion from surface runoff when exposed in slopes or utilized near the face of fill embankments. Surface soils with higher amounts of clay tend to be less erodible as the clay acts as a binder to hold the soil particles together. Additionally, large portions of the site, including the eastern and northern portions, are currently undeveloped and subject to potential water- and wind-related soil erosion. Soil erosion and soil runoff from natural drainages and non-vegetated areas on the adjacent slopes has the potential to impact the site.

Future construction at the project site would result in ground surface disruption during excavation, grading, and trenching that would create the potential for erosion to occur. However, the erosion potential during construction can be minimized with prudent site

management practices during construction. A Storm Water Pollution Prevention Program (SWPPP) incorporating Best Management Practices (BMPs) for erosion control should be prepared prior to the start of construction in accordance with governing agencies. Following development of site improvements, erosion can be minimized by long-term erosion management practices and drainage provisions incorporated into the design and maintenance of the project. Potential soil erosion related to project site development is considered to have a low impact with incorporation of appropriate design and construction practices.

With the implementation of BMPs incorporated in the project SWPPP during planned construction, water- and wind-related soil erosion can be limited and managed within construction site boundaries. Examples of these procedures could include surface drainage measures for erosion due to water, such as the use of erosion prevention mats or geofabrics, silt fencing, sandbags and plastic sheeting, and temporary drainage devices. Positive surface drainage should be accommodated at project construction sites to allow surface runoff to flow away from site improvements or areas susceptible to erosion. To reduce wind-related erosion, wetting of soil surfaces and/or covering exposed ground areas and soil stockpiles could be considered during construction operations, as appropriate.

During long-term operation of future developments at the project site, soil erosion can be mitigated through site drainage design and maintenance practices. Design procedures can be performed to reduce soil erosion such as appropriate surface drainage design of roadways and facilities to provide for positive surface runoff. Design should address reducing concentrated run-off conditions that could cause erosion and affect the stability of project improvements.

9.6. Subsidence

Subsidence is characterized as a sinking of the ground surface relative to surrounding areas, and can generally occur where deep soil deposits are present. Subsidence in areas of deep soil deposits is typically associated with regional groundwater withdrawal or other fluid withdrawal from the ground such as oil and natural gas. Subsidence can result in the development of ground cracks and damage to site improvements.

The City of Los Angeles and County of Los Angeles references do not indicate mapped areas of subsidence. Historic subsidence is not known to have occurred or been reported in the site region. The Safety Element of the Los Angeles City General Plan (1996) includes information regarding the City's program to preclude potential subsidence within the City. Subsurface extraction activities within the City of Los Angeles are regulated by the Oil Drilling District procedures, which contain provisions for monitoring and imposing measures to preclude subsidence related to oil and gas extraction. Therefore, the potential for subsidence in the Project area is relatively low.

9.7. Compressible/Collapsible Soils

Compressible soils are generally comprised of soils that undergo decrease in volume when exposed to new loading, such as fill or foundation loads. Soil collapse is a phenomenon where the soils undergo a significant decrease in volume upon increase in moisture content, with or without an increase in external loads. Buildings, structures and other improvements may be subject to excessive settlement-related distress when compressible soils or collapsible soils are present.

Based on our background review, the project area is underlain by fill soils, alluvial sediments, and sedimentary rock formations. The alluvial deposits underlying the site are generally unconsolidated to weakly consolidated, based on the young nature of the deposits, reflecting a depositional history without substantial loading, and may be subject to collapse. Older, undocumented fill soils related to previous site development are considered potentially compressible/collapsible. Due to the presence of potentially compressible/collapsible soils at the site, there is a potential for differential settlement to cause damage to project improvements. The potential impacts of settlement are significant without appropriate mitigation during detailed project design and construction.

Since future development within the project area will involve construction of new improvements that would load the existing soils, potential settlement and/or collapsible soils will be a consideration in the detailed design and construction of project improvements. Assessment of soil settlement should be performed prior to detailed design and construction

of project improvements and mitigation techniques should be developed, as appropriate, to reduce the impacts related to settlement.

To evaluate the potential for settlement to affect future project components, surface reconnaissance and subsurface evaluation should be performed. During the detailed design phase of the project, site-specific geotechnical evaluations should be performed to assess the settlement potential of the on-site natural soils and undocumented fill. This may include detailed surface reconnaissance to evaluate site conditions, and drilling of exploratory borings or test pits and laboratory testing of soils, where appropriate, to evaluate site conditions.

Examples of possible mitigation measures for soils with the potential for settlement include removal of the compressible/collapsible soil layers and replacement with compacted fill, surcharging to induce settlement prior to construction of improvements, allowing for a settlement period after or during construction of new fills, and specialized foundation design, including the use of deep foundation systems to support structures. Various in-situ soil improvement techniques are also available, such as dynamic compaction (heavy tamping) or compaction grouting.

9.8. Expansive Soils

Expansive soils include clay minerals that are characterized by their ability to undergo significant volume change (shrink or swell) due to variations in moisture content. Sandy soils are generally not expansive. Changes in soil moisture content can result from rainfall, irrigation, pipeline leakage, surface drainage, perched groundwater, drought, or other factors. Volumetric change of expansive soil may cause excessive cracking and heaving of structures with shallow foundations, concrete slabs-on-grade, or pavements supported on these materials.

Based on our background review and site reconnaissance, the near-surface soils in the project site are predominantly comprised of sandy, coarse-grained materials. These soils typically have a low expansion potential. However, clayey soils may be present in areas of

the project site. Constructing project improvements on expansive soils could have a significant impact on future improvements.

Assessment of the potential for expansive soils should be performed during the design phase of the project through subsurface exploration and mitigation techniques should be developed, as appropriate, to reduce the impacts related to expansive soils. The potential impacts due to expansive soils would be reduced with incorporation of techniques such as over-excavation and replacement with non-expansive soil, soil treatment, moisture management, and/or specific structural design for expansive soil conditions developed during design of the project.

9.9. Groundwater and Excavations

The depth of historic high groundwater at the project site is on the order of 120 feet below the ground surface (CDMG, 1998). Based on the groundwater information reviewed from the GeoTracker website, groundwater levels from 1993 to 2013 in the Sylmar community approximately 1½ miles south of the project site have ranged from approximately 125 to 200 feet below the ground surface (State of California, 2016).

Proposed future improvements at the project site are anticipated to consist of excavations and site grading for new structures. Based on the deep groundwater levels reported in the site region and the anticipated depth of construction activities, groundwater may not have a significant impact on excavations for the planned project improvements. However, areas of shallower perched groundwater may be encountered during excavations, and, if encountered, could have an impact on the construction activities at the sites.

Wet or saturated soil conditions encountered in excavations during construction for the project can cause instability of the excavations, and present a constraint to construction activities. Excavations in areas with shallow perched groundwater may need to be cased/shored and/or dewatered to maintain stability of the excavations and adjacent improvements and provide access for construction.

Groundwater levels may be influenced by seasonal variations, precipitation, irrigation, soil/rock types, groundwater pumping, and other factors and are subject to fluctuations. On-site infiltration of storm water related to LID guidelines may have an impact on existing and planned site improvements and should be evaluated during the detailed design phase of the project.

Further study, including subsurface exploration, should be performed during the detailed design phase of planned improvements to evaluate the presence of seepage and/or perched groundwater, and to evaluate the potential for stormwater infiltration at the site, and the potential impacts on design and construction of project improvements. Mitigation techniques should be developed, as appropriate, to reduce the impacts related to groundwater. The potential impacts due to groundwater would be reduced with incorporation of techniques such as casing, shoring and/or construction dewatering.

10. LIMITATIONS

The purpose of this study was to evaluate geotechnical conditions and potential geologic and seismic hazards at the site using readily available geotechnical data, site reconnaissance, and to provide a preliminary geotechnical report which can be utilized in the preparation of an EIR for the project.

The geotechnical analyses presented in this report have been conducted in general accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No other warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Our preliminary conclusions and recommendations are based on a review of readily available geotechnical literature, geologic and seismic data, and an analysis of the observed conditions. Variations may exist and conditions not observed or described in this report may be encountered.

11. REFERENCES

AMEC Environment & Infrastructure, Inc., 2013, Preliminary Planning Map for Surface Fault Rupture Hazards, Figure 3, Master Planning Study, Olive View-UCLA Medical Center, 14445 Olive View Drive, Sylmar District, Los Angeles, California, dated July 15.

California Building Standards Commission, 2013, California Building Code (CBC): California Code of Regulations, Title 24, Part 2, Volumes 1 and 2.

California Department of Conservation, Division of Mines and Geology (CDMG), State of California, 1975, San Fernando Earthquake of 9 February, 1971, Bulletin.

California Department of Conservation, Division of Mines and Geology, State of California, 1998, Seismic Hazard Evaluation of the San Fernando 7.5-Minute Quadrangle, Los Angeles County, California: Open-File Report 98-06.

California Department of Conservation, Division of Mines and Geology, State of California, 1999, Seismic Hazard Zones Official Map, San Fernando Quadrangle, 7.5-Minute Series: Scale 1:24,000, Open-File Report 98-06, dated March 25.

California Environmental Resources Evaluation System (CERES), 2005a, The California Environmental Quality Act, Title 14; California Code of Regulations, Chapter 3; Guidelines for Implementation of the California Environmental Quality Act, Article 9; Contents of Environmental Impact Reports, Final Text dated May 25, Website: http://ceres.ca.gov/ topic/env_law/ceqa/guidelines/art9.html.

California Environmental Resources Evaluation System (CERES), 2005b, The California Environmental Quality Act, CEQA Guidelines Appendices, Appendix G – Environmental Checklist Form, Final Text dated May 25, Website: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/appendices.html.

Campbell, R.H., Willis, C.J., Irvine, P.J., and Swanson, B.J., 2014, Preliminary Geologic Map of the Los Angeles 30' x 60' Quadrangle, Southern California, Version 2.0: United States Geological Survey, Scale 1:100,000.

County of Los Angeles Department of Regional Planning, 1990, Los Angeles County Safety Element.

County of Los Angeles, Department of Public Works, 2015, Requests for Proposals, Environmental Documentation Services for the Olive View – UCLA Medical Center Campus Master Plan, dated January 15.

Dibblee, T.W., Jr., 1991, Geologic Map of the San Fernando and Van Nuys (North ½) Quadrangles, Los Angeles County, California: Dibblee Foundation, DF-33, Scale 1:24,000.

Field, E.H., Biasi, G.P., Bird, P., Dawson, T.E., Felzer, K.R., Jackson, D.D., Johnson, K.M., Jordan, T.H., Madden, C., Michael, A.J., Milner, K.R., Page, M.T., Parsons, T., Powers, P.M., Shaw, B.E., Thatcher, W.R., Weldon, R.J., II, and Zeng, Y., 2013, Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3) — The time-independent

model: U.S. Geological Survey Open-File Report 2013–1165, California Geological Survey Special Report 228, and Southern California Earthquake Center Publication 1792, http://pubs.usgs.gov/of/2013/1165/.

Google Earth, 2016, Website: http://earth.google.com.

Hart, E.W., and Bryant, W.A., 1997, Fault-Rupture Hazard Zones in California, Alquist-Priolo Special Studies Zone Act of 1972 with Index to Special Studies Zones Maps: California Division of Mines and Geology, Special Publication 42.

Jennings, C.W., and Bryant, W.A., 2010, Fault Activity Map of California: California Division of Mines and Geology, California Geologic Data Map Series, Map No. 6, Scale 1:750,000.

Los Angeles Department of City Planning, 1996, Safety Element of the Los Angeles City General Plan, dated November 26.

Moore, G.L., 2002, Methane and Methane Buffer Zones, City of Los Angeles, City of Los Angeles Bureau of Engineering.

Ninyo & Moore, 2015, Letter of Interest and Qualifications to Provide Environmental Documentation Services for the Olive View – UCLA Medical Center Campus Master Plan, County of Los Angeles, Proposal No. S04-00135, dated February 2.

Norris, R.M., and Webb, R.W., 1990, Geology of California: John Wiley & Sons, 541 pp.

SmithGroup JJR, 2015, Olive View – UCLA Medical Center Campus Master Plan, Appendix, Prepared for the County of Los Angeles, Draft Print dated August 26.

Southern California Earthquake Data Center, 2016, Significant Earthquakes and Faults, San Fernando Earthquake, http://scedc.caltech.edu/significant/sanfernando1971.html.

State of California, 1979, Special Studies Zones, San Fernando Quadrangle, 7.5 Minute Series: Scale 1:24,000, dated January 1.

State of California, State Water Resources Control Board, 2016, GeoTracker Database System, http://geotracker.swrcb.ca.gov/, accessed February 17.

United States Geological Survey, 1966 (Photorevised 1988), San Fernando, California Quadrangle Map, 7.5 Minute Series: Scale 1:24,000.

United States Geological Survey, 2008 National Seismic Hazard Maps – Fault Parameters; http://geohazards.usgs.gov/efusion/hazardfaults_search/hf_search_main.efm.

United States Geological Survey, 2014a, National Seismic Hazard Maps – Interactive Fault Map, http://earthquake.usgs.gov/hazards/qfaults/map/hazfault2014.html.

United States Geological Survey, 2014b, US Seismic Design Maps, US Seismic Design Maps Ground Motion Calculator – Version 3.1.0; http://earthquake.usgs.gov/designmaps/us/application.php.

United States Geological Survey, 2015, San Fernando Quadrangle, California, 7.5 Minute Series: Scale 1:24,000

United States Geological Survey, 2016, Earthquakes Hazards Program, Historic Earthquakes, San Fernando, California, http://earthquake.usgs.gov/earthquakes/states/events/1971_02_09.php.

URS Corporation, 2008, Fault Rupture Hazard Investigation for the Proposed Psychiatric Urgent Care Facility, Olive View-UCLA Medical Center, Southwest Corner of West Way and Jacaranda Terrace, Sylmar, California, dated May 5.

URS Corporation, 2010, Fault Rupture Hazard Investigation for the Proposed Day Care Facility, Olive View-UCLA Medical Center, East of East Way and Comstock Way, Sylmar, California, dated April 28.



REFERENCE: 7.5 MINUTE USGS TOPOGRAPHIC MAP OF SAN FERNANDO, CALIFORNIA QUADRANGLE, DATED 2015, SCALE 1:24000.

N

SCALE IN FEET

0 2,400 4,800

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Ninyo & Moore	SITE LOCATION	FIGURE
PROJECT NO. 209600002 / DATE 3/16	OLIVE VIEW - UCLA MEDICAL CENTER MASTER PLAN 14445 OLIVE VIEW DRIVE SYLMAR, CALIFORNIA	1

209600002_SL.dwg 15:39:19 02/19/2016 GK



REFERENCE: SMITH GROUP JJR, 2015, OLIVE VIEW-UCLA MEDICAL CENTER CAMPUS MASTER PLAN, APPENDIX, PREPARED FOR COUNTY OF LOS ANGELES, DRAFT PRINT DATED AUGUST 26.

LEGEND	
— — · — — · —	SITE BOUNDARY

N

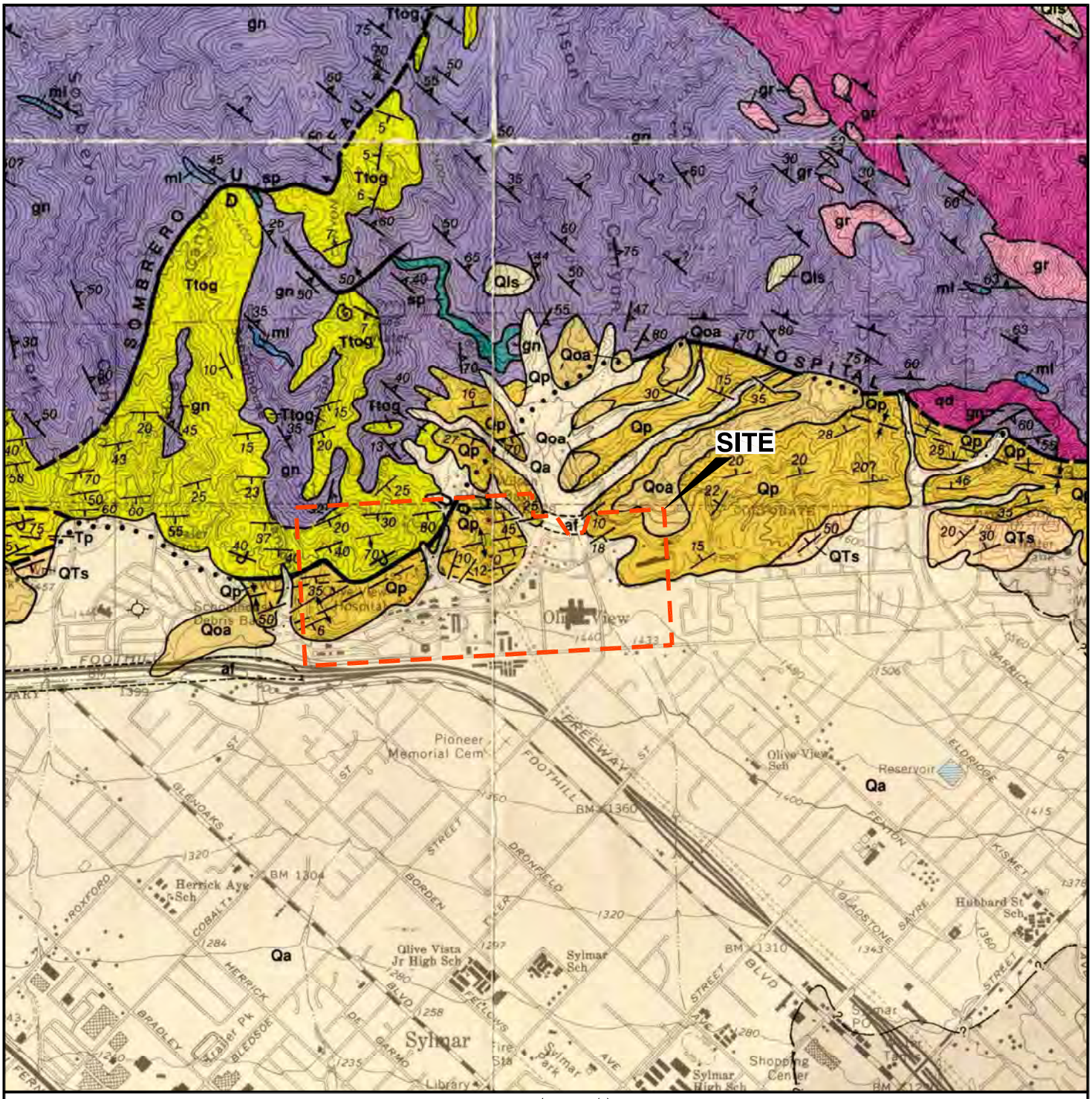
SCALE IN FEET

0 600 1,200

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Ninyo & Moore		SITE AERIAL VIEW	FIGURE
PROJECT NO.	DATE	OLIVE VIEW - UCLA MEDICAL CENTER MASTER PLAN 14445 OLIVE VIEW DRIVE SYLMAR, CALIFORNIA	2
209600002	3/16		

209600002_SA.dwg 10:01:22 02/22/2016 GK



REFERENCE: DIBBLEE, T.W., JR., 1991, GEOLOGIC MAP OF THE SAN FERNANDO AND VAN NUYS (NORTH 1/2) QUADRANGLES, LOS ANGELES COUNTY, CALIFORNIA: DIBBLEE FOUNDATION, DF-33.

N

SCALE IN FEET

0 2,000 4,000

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND

Af	ARTIFICIAL FILL	Ttog	TOWSLEY FORMATION CONGLOMERATE AND SANDSTONE
Qa	ALLUVIUM	gn	MENDENHALL GNEISS
Qoa	OLDER ALLUVIUM		GEOLOGIC CONTACT
Qp	PACOIMA FORMATION GRAVEL AND SAND		FAULT; DOTTED WHERE CONCEALED
		80	STRIKE AND DIP OF BEDDING
			ANTICLINE

Ninyo & Moore

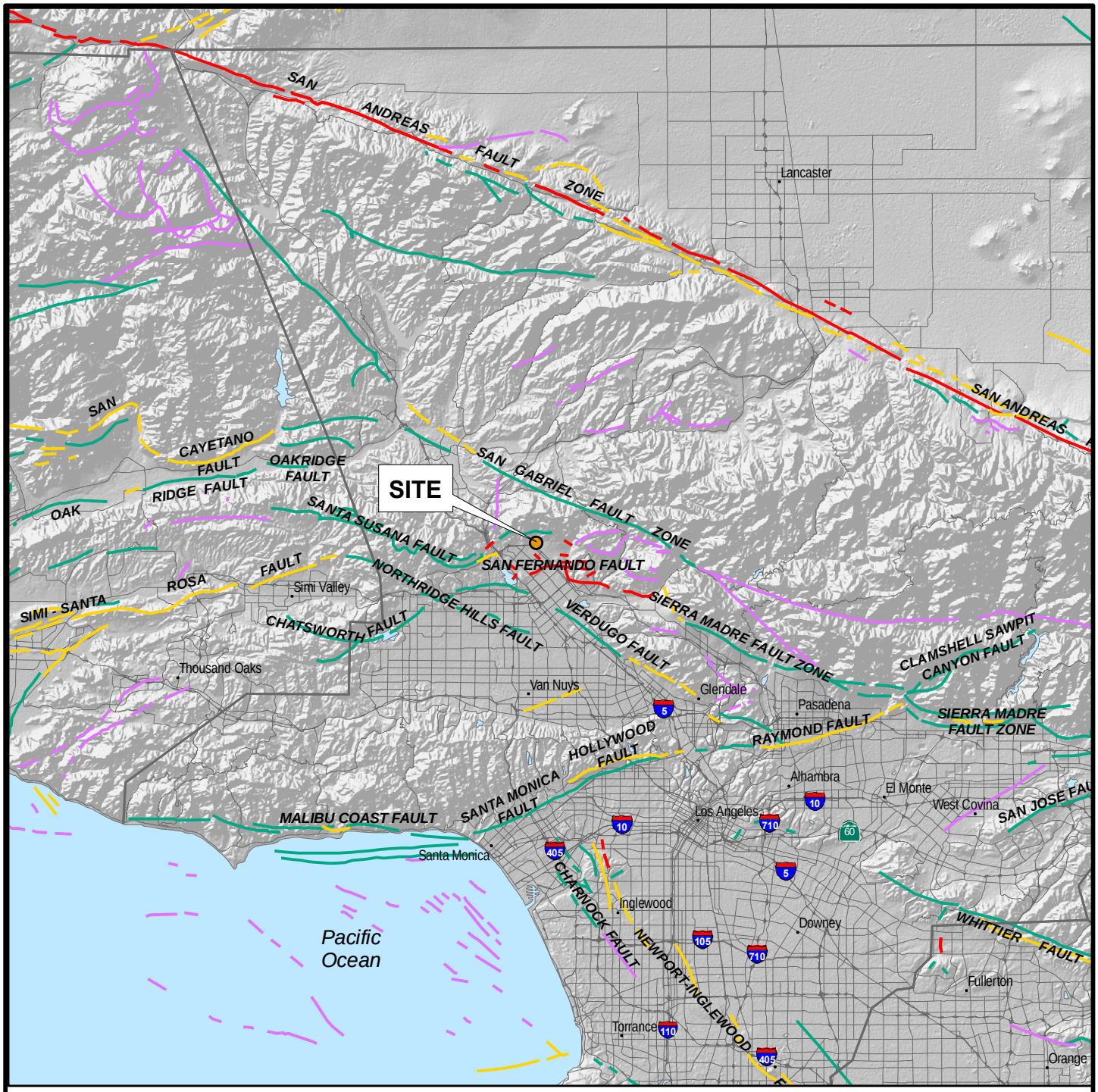
REGIONAL GEOLOGY

FIGURE 3

PROJECT NO.	DATE
209600002	3/16

OLIVE VIEW - UCLA MEDICAL CENTER MASTER PLAN
14445 OLIVE VIEW DRIVE
SYLMAR, CALIFORNIA

209600002_RG.dwg 10:16:22 02/22/2016 GK



GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
REFERENCE: JENNINGS, C.W. AND BRYANT, W.A., 2010, FAULT ACTIVITY MAP OF CALIFORNIA.

LEGEND

FAULT ACTIVITY:

- HISTORICALLY ACTIVE
- LATE QUATERNARY
- HOLOCENE ACTIVE
- QUATERNARY
- COUNTY BOUNDARIES

N

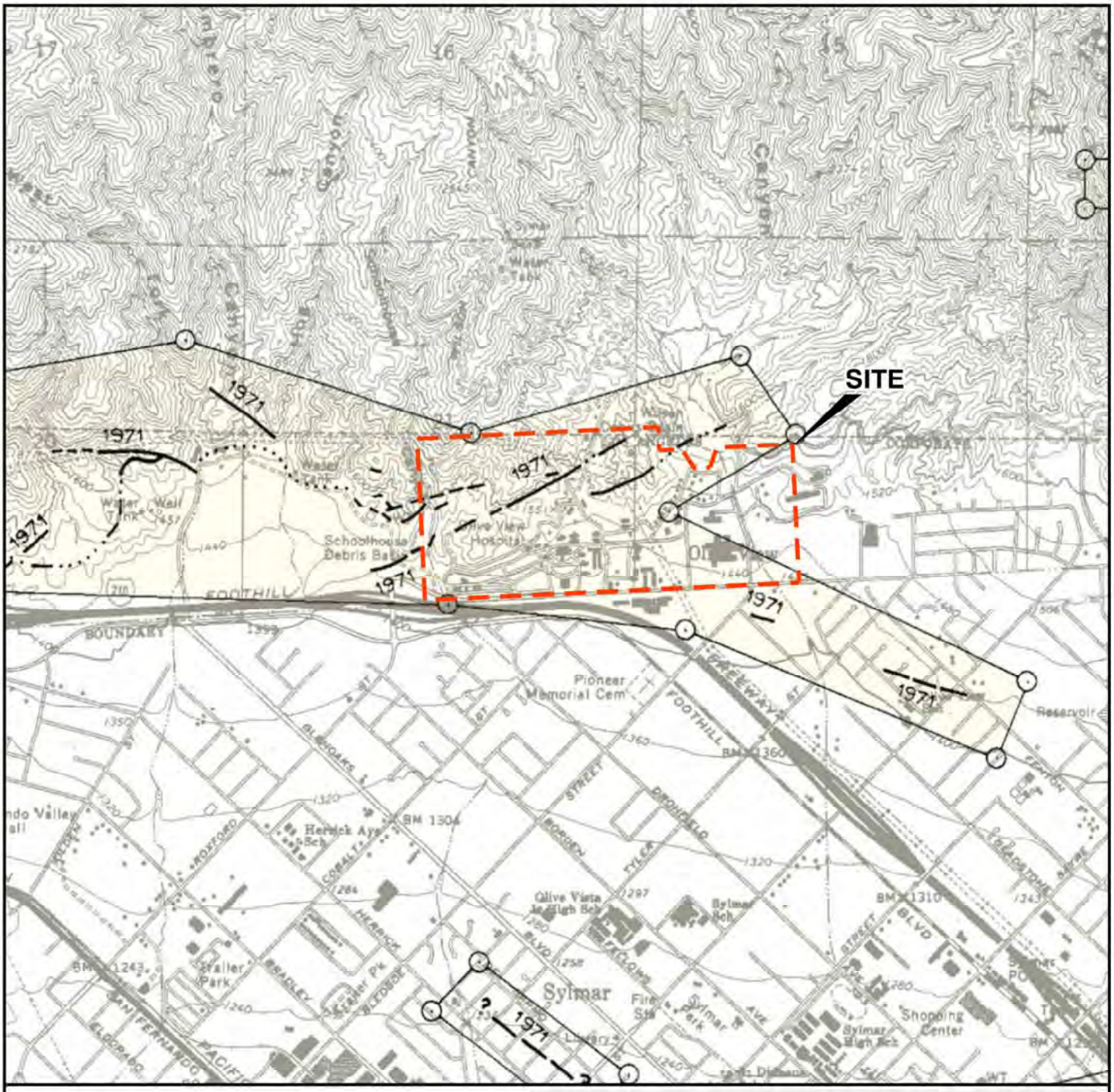
10 0 10

Miles

NOTE: DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore	FAULT LOCATIONS	FIGURE
PROJECT NO. 209600002	DATE 3/16	OLIVE VIEW - UCLA MEDICAL CENTER MASTER PLAN 14445 OLIVE VIEW DRIVE SYLMAR, CALIFORNIA	4

209600002_FL.....GK



N

SCALE IN FEET

0 2,000 4,000

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND

Potentially Active Faults

1906 C

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture, solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

Seaward projection of zone boundary.

Ninyo & Moore

PROJECT NO.	DATE
209600002	3/16

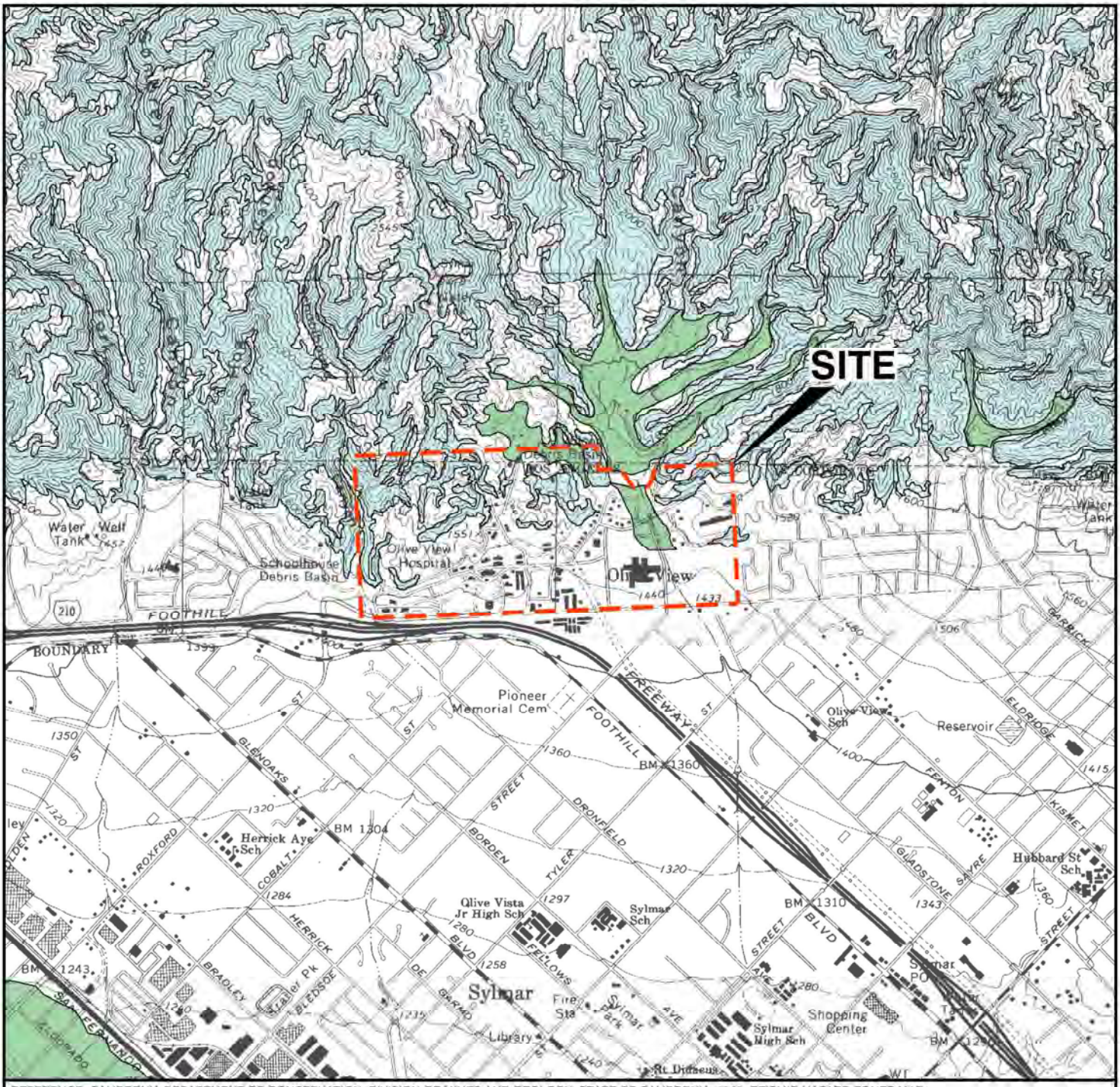
EARTHQUAKE FAULT ZONES

OLIVE VIEW - UCLA MEDICAL CENTER MASTER PLAN
14445 OLIVE VIEW DRIVE
SYLMAR, CALIFORNIA

FIGURE

5

209600002_EFZ.dwg 16:04:19 02/19/2016 GK



REFERENCE: CALIFORNIA DEPARTMENT OF CONSERVATION, DIVISION OF MINES AND GEOLOGY, STATE OF CALIFORNIA, 1999, SEISMIC HAZARD ZONES MAP SAN FERNANDO QUADRANGLE, 7.5-MINUTE SERIES: SCALE 1:24,000.

N

SCALE IN FEET

0 2,000 4,000

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND

EARTHQUAKE-INDUCED LANDSLIDES

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

LIQUEFACTION:

Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Ninyo & Moore

PROJECT NO.	DATE
209600002	3/16

SEISMIC HAZARD ZONES

OLIVE VIEW - UCLA MEDICAL CENTER MASTER PLAN
14445 OLIVE VIEW DRIVE
SYLMAR, CALIFORNIA

FIGURE

6

209600002_SHZ.dwg 15:54:19 02/19/2016 GK

APPENDIX M-LOS ANGELES RWQCB BASIN PLAN (CHAPTER 7) [COVER]

California Regional Water Quality Control Board
Los Angeles Region

Attachment to Resolution No. R11-013

APPENDIX N-THE GREEN VISIONS PLAN FOR 21ST CENTURY SOUTHERN CALIFORNIA (TABLE 7)

Table 7: Average Pollutant Concentrations from Eight Major Land Use Classes (LADPW 2005)

Constituent	High Density Single Family Residential	Light Industrial	Vacant	Retail/ Commercial	Multi-family Residential	Transport-ation	Education	Mixed Residential
Total Suspended Solids (mg/L)	104.7	229.4	164.7	67.4	46.4	75.4	103.0	69.1
Nitrate-N (mg/L)	1.0	0.9	1.1	0.6	1.7	0.8	0.6	0.7
Kjeldahl-N (mg/L)	2.8	3.1	0.8	3.4	1.9	1.8	1.6	2.7
Total Phosphorus (mg/L)	0.4	0.4	0.1	0.4	0.2	0.4	0.3	0.3
Dissolved Copper (ug/L)	8.4	20.2	n/m	14.6	6.8	32.7	12.8	11.5
Dissolved Lead (ug/L)	n/m	n/m	n/m	n/m	n/m	n/m	n/m	n/m
Dissolved Zinc (ug/L)	39.1	460.2	n/m	164.1	75.4	203.9	66.0	125.8
Total Copper (ug/L)	15.3	31.0	9.1	34.8	12.2	51.9	21.5	17.3
Total Lead (ug/L)	9.6	14.9	n/m	11.5	5.1	9.1	4.5	8.7
Total Zinc (ug/L)	80.4	565.6	38.8	238.5	134.9	279.5	123.7	184.9
Fecal Coliform (MPN/100 mL)	1085353.7	653070.4	2174.8	1071656.5	n/m	1340166.7	n/m	n/m

Appendix H2

Hydrology Technical Memorandum Addendum

HYDROLOGY TECHNICAL MEMORANDUM ADDENDUM

Project: **Los Angeles County UCLA-Olive View Medical Center EIR**
Client: ICF International/Los Angeles County
Prepared By: Jennifer J. Walker, P.E., D.WRE, CFM, QSD
Date: April 26, 2019
Purpose: Addendum to Memorandum of Hydrology and Water Quality Results

Note: Draft memorandum released under the authority of Jennifer J. Walker, P.E. (C77079), D.WRE, CFM on 4/26/2019 and should not be used for design or construction.

The purpose of this addendum to the hydrology technical memorandum is to summarize hydrology and water quality potential for impacts related to the revised project description contained in Chapter 2 of the April, 2019 revision to the *Olive View-UCLA Medical Center Campus Master Plan Environmental Impact Report (EIR)*. The primary changes to the project description documented in Chapter 2 of the *Master Plan EIR* are changes in proposed buildings and phasing, as described below. The project description includes refinements to the land use and cover type compared to the original hydrology technical memorandum; however, this did not result in significant changes in proposed project area, Tier 1/Tier 2 boundaries, drainage areas, or type of proposed land use.

For clarity, only those exhibits relevant to the updated project description are included with this addendum to the hydrology memorandum. Exhibit 6 illustrates drainage area boundaries for Drainage Area 1 (DA 1) and Drainage Area 2 (DA 2) within Tier 1 based on current data and the updated project description. Exhibits 7D and 8 illustrate proposed land use within Tier 1 and soils within Tier 1 and Tier 2 of the project.

The goals established for this project remain unchanged and include:

- ✓ Meet City of Los Angeles Low Impact Development (LID) and stormwater treatment criteria;
- ✓ Use LID to reduce proposed conditions peak flows and runoff volumes to below existing conditions;
- ✓ Simulate undeveloped conditions through use of infiltration and groundwater recharge across the project site.

Consistent with the original hydrology technical memorandum, the project proposes to meet minimum LID criteria contained in the City of Los Angeles *Developed Best Management Practices Handbook, Low Impact Development Manual, Part B Planning Activities*, 4th Edition, published June 2011 (*LID Manual*). The Low Impact Development Plan from the *Master Plan* illustrates the location of the following LID features at the site:

- Bioretention;
- Permeable Pavement;
- Dry Wells (now included as a potential parking lot LID feature).

Due to the sandy and relatively well-drained soils within Tier 1 and Tier 2 of the project (Exhibit 8), all three of these LID features are expected to perform similarly in terms of reduction in peak flows and runoff volume to meet minimum LID criteria.

Exhibit 6 compares the original Tier 1, project, and drainage area boundaries to the revised boundaries. Changes in the Tier 1 boundary and Drainage Area 1 (eastern drainage area) are due to refinement of boundary data than at the time of the original study as opposed to proposed project changes. Two versions of Drainage Area 2 are presented, with and without the addition of the Materials Management building to the west of and adjacent to Tier 1 that is included in the proposed project description in Chapter 2 of the *Master Plan EIR*. As shown on Exhibit 6 and in Table 1, the revised drainage area associated with DA 1 is 1.7 ac larger than the original DA 1 and the revised drainage area associated with DA 2 is 4.4 ac greater than the original DA 2.

TABLE 1: ORIGINAL AND REVISED DRAINAGE AREAS AND IMPERVIOUS COVER

Drainage Area	Original			Revised			Difference		
	Area (ac)	% Impervious Existing	% Impervious Proposed	Area (ac)	% Impervious Existing	% Impervious Proposed	Area (ac)	% Impervious Existing	% Impervious Proposed
1	29.4	54.6	50.0	31.1	50.7	52.3	1.7	-3.9	2.3
2	37.1	76.7	49.3	41.5	74.9	46.2	4.4	-1.8	-3.1
2 + Materials Management	37.1	76.7	49.3	43.1	75.8	48.3	6.0	-0.9	-1.0

Given the similar levels of impervious cover in existing and proposed conditions for both drainage areas, the nominal changes in impervious cover ranging from a reduction of 3.9% to an increase in 2.3% will not significantly change peak flows and runoff volumes from the original hydrology study. With the inclusion of proposed LID features, peak flows and runoff volumes will be below existing conditions for the range of events modeled with prior results ranging from a reduction of 12% in the two-year event to 16% in the 100-year event for DA 1 and 41% in the 100-year event and 100% in the two-year event for DA 2.

Likewise, there is no change to pollutants of concern or Total Maximum Daily Loads (TMDLs) for the receiving systems as compared to the original hydrology memorandum. While the revised land use plan included in Chapter 2 of the *Master Plan EIR* shows adjustments to the planned vegetation and location of impervious cover within Tier 1 (Exhibit 7D), there is no change in existing conditions land use and no significant change in the type of proposed land use consistent with a modernized medical center campus. The anticipated pollutant loads from the existing and proposed land use have not changed from the original hydrology study and the anticipated LID performance in terms of water quality and pollutant removal is also consistent with the original hydrology study.

The UCLA Medical Center-Olive View project meets established project goals:

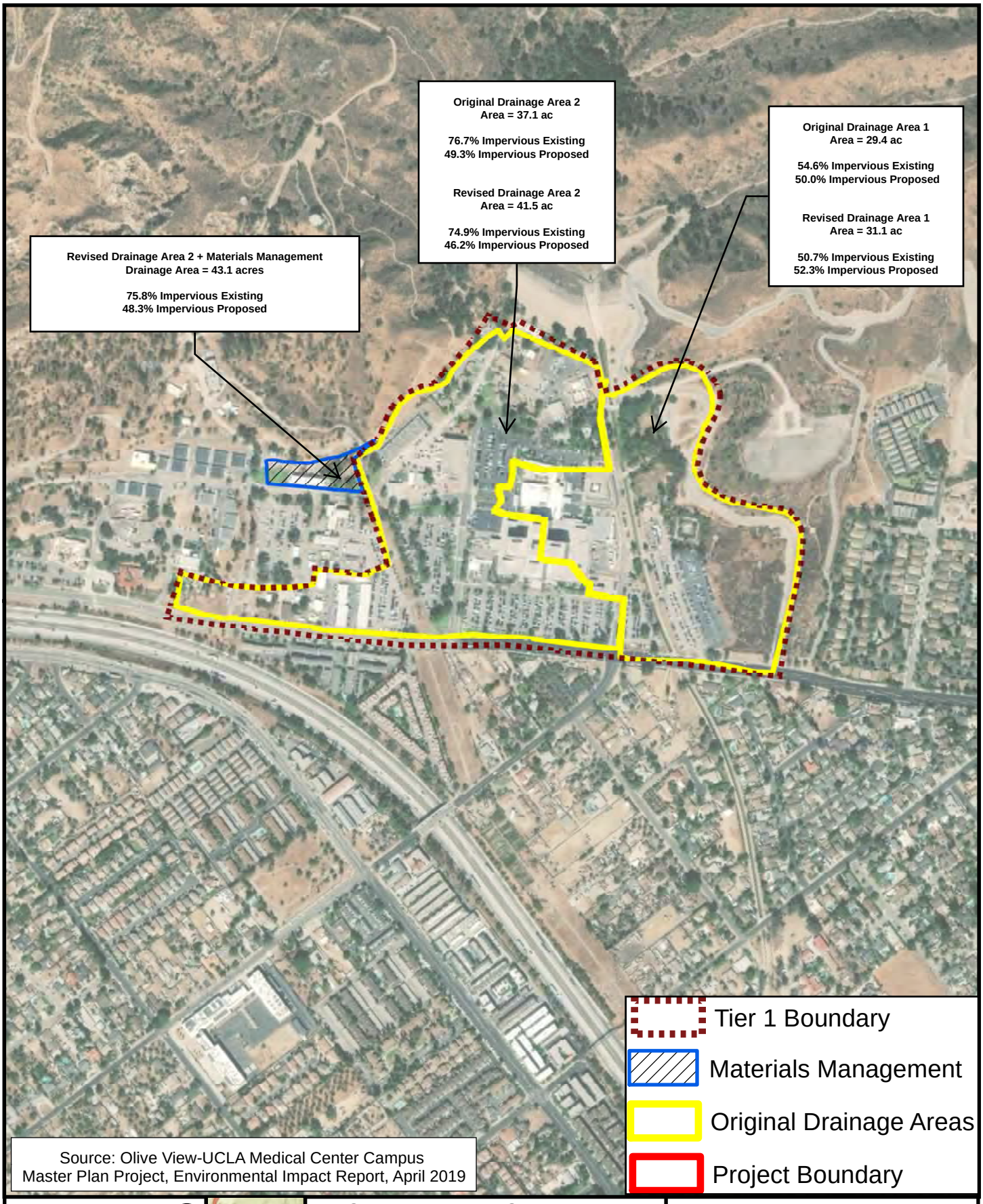
- ✓ Meet City of Los Angeles Low Impact Development (LID) and stormwater treatment criteria;
- ✓ Use LID to reduce proposed conditions peak flows and runoff volumes to below existing conditions;
- ✓ Simulate undeveloped conditions through use of infiltration and groundwater recharge across the project site.

There are no changes to hydrology and water quality thresholds, potential for impacts, or recommendations for the revised project as compared to the original hydrology study. The original recommendations for construction sequencing and Operations & Maintenance (O&M) remain unchanged.

Redevelopment of the UCLA Medical Center-Olive View site represents a significant opportunity for sustainability and LID retrofits within a densely urbanized area and for implementation of Green Infrastructure and LID for Los Angeles County. Thank-you for the opportunity to collaborate on this visionary project.

EXHIBITS

Exhibit 6 – Drainage Area Map
Exhibit 7D – Revised Land Use Map
Exhibit 8 – Soil Map



0 1 " = 700 Feet 800
Feet
Datum: NAD83
Units: US Feet

SITE
San

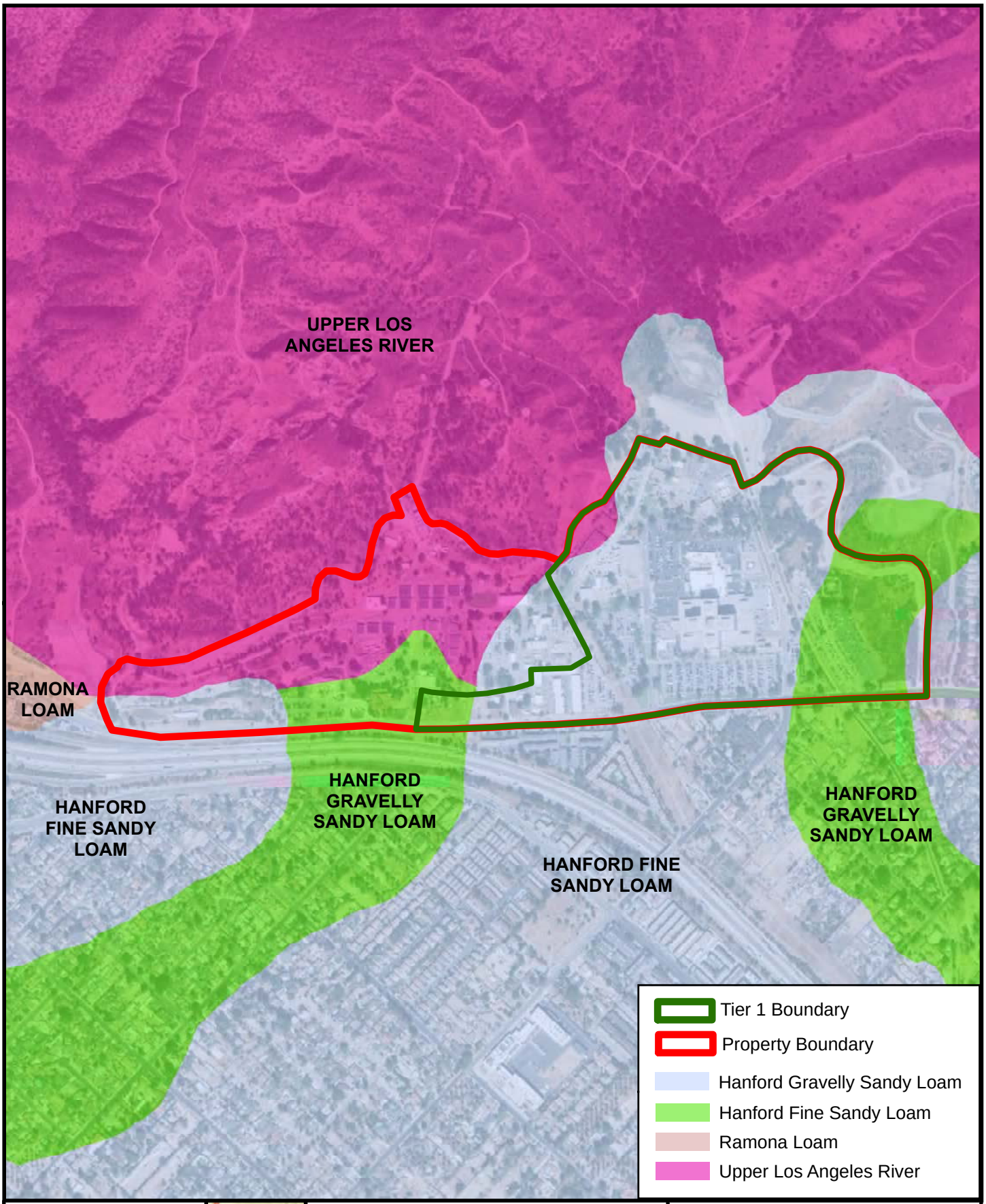
OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA

DRAINAGE AREA MAP

Watearth
Water Resources + Green Infrastructure

Date: Apr 26, 2019

Exhibit 6



1 " = 800 Feet
0 800
Feet

Datum: NAD83
Units: US Feet

SITE
San

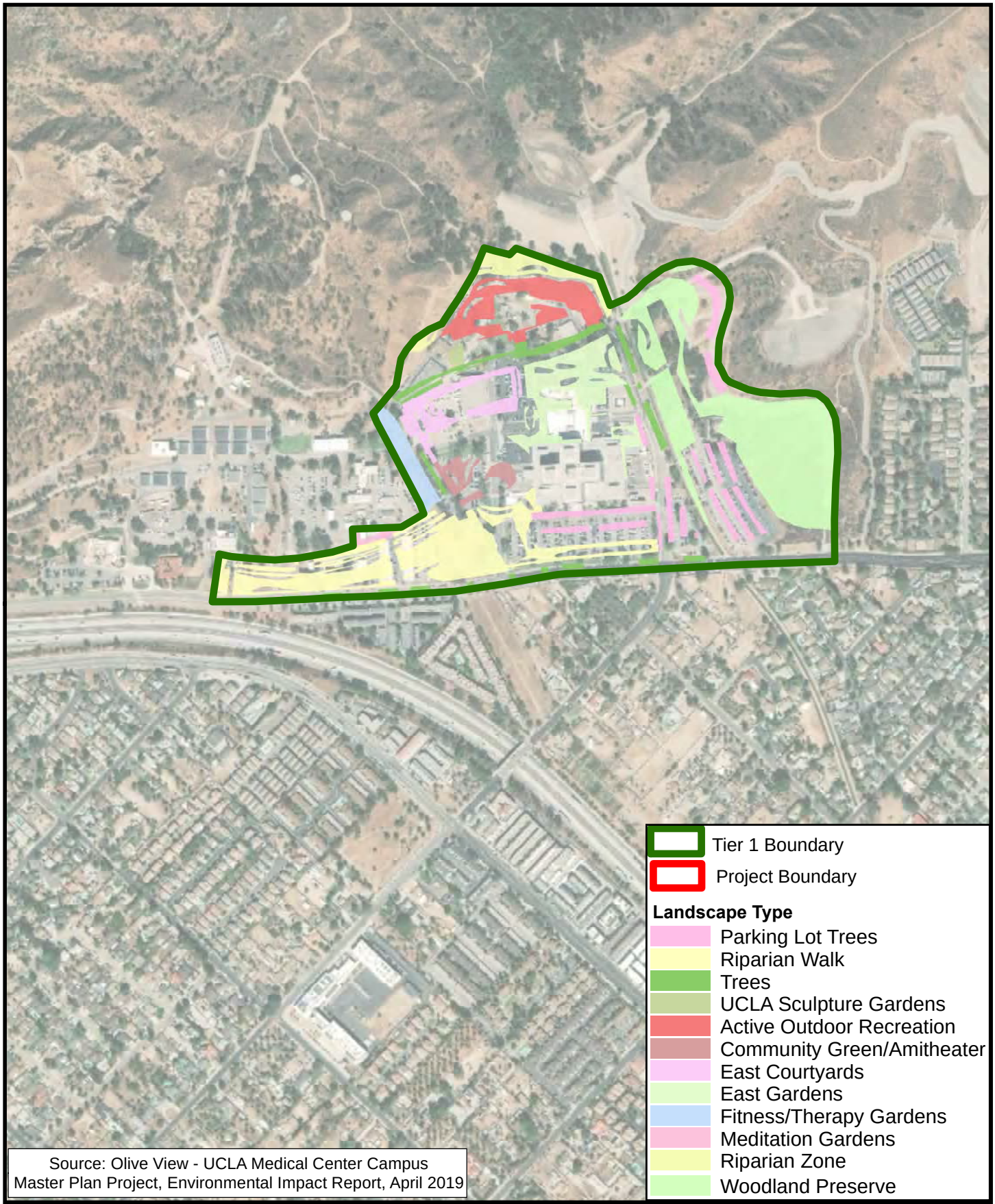
OLIVE VIEW
UCLA - LOS ANGELES
CALIFORNIA
SOIL MAP

Soil types data from Los Angeles County Department of Public Works

Watearth
Water Resources + Green Infrastructure

Date: Apr 26, 2019

Exhibit 8



Source: Olive View - UCLA Medical Center Campus Master Plan Project, Environmental Impact Report, April 2019

0 1 " = 700 Feet 1,000 Feet

Datum: NAD83
Units: US Feet



OLIVE VIEW MASTER PLAN
UCLA-LOS ANGELES
CALIFORNIA

REVISED LANDUSE MAP

Watearth
Water Resources + Green Infrastructure

Date: Apr 26, 2019

Exhibit 7D

Appendix I

Noise Analysis

This spreadsheet calculates traffic noise levels based on TNM Version 2.5 Lookup Tables.

** Type in yellow cells only.

Traffic Data:

☑ Enter ADT Traffic

☐ Enter Loudest-hour Traffic

Units:

☐ Metric

☑ English

Calculate

Link	Roadway	Segment Location	Hard or Soft Ground (H or S)	BARRIER			Total Daily Traffic Volumes (ADT)	Traffic Mix		Vehicle Speed	Sound Levels at Receiver Locations		Distance to CNEL Noise Contour (feet)			
				Present 1=yes	Height min. 7 ft. max. 32 ft.	Distance 35 ft. or 100 ft.		Number #	Description	mph max. 80	Distance feet, min. 33 max. 1000	dB CNEL	75 dB	70 dB	65 dB	60 dB
1	Bledsoe St (existing)	N of Olive View Dr	H				2,487	10	Orange County Arterials	25	50	55.4				
2	Bledsoe St (existing)	Olive View Dr to Foothill Blvd	H				4,779	10	Orange County Arterials	25	50	58.0				
3	Bledsoe St (existing)	Foothill Blvd to Glenoaks Blvd	H				4,934	10	Orange County Arterials	35	50	61.4				66
4	Bledsoe St (existing)	S of Glenoaks Blvd	H				6,217	10	Orange County Arterials	35	50	62.4				85
5	Foothill Blvd (existing)	W of Glenoaks Blvd	H				9,432	10	Orange County Arterials	45	50	67.3			82	246
6	Foothill Blvd (existing)	Glenoaks Blvd to Roxford Street	H				6,336	10	Orange County Arterials	45	50	65.6			56	172
7	Foothill Blvd (existing)	Roxford Street to Bledsoe St	H				8,329	10	Orange County Arterials	45	50	66.8			72	220
8	Foothill Blvd (existing)	Bledsoe St to Polk St	H				15,365	10	Orange County Arterials	45	50	69.4		43	131	370
9	Foothill Blvd (existing)	E of Polk St	H				19,524	10	Orange County Arterials	45	50	70.4		55	165	448
10	Glenoaks Blvd (existing)	N of Foothill Blvd	H				2,455	10	Orange County Arterials	35	50	58.5				33
11	Glenoaks Blvd (existing)	Foothill Blvd to Roxford Street	H				5,043	10	Orange County Arterials	35	50	61.5				68
12	Glenoaks Blvd (existing)	Roxford Street to Bledsoe St	H				12,520	10	Orange County Arterials	35	50	65.4			55	170
13	Glenoaks Blvd (existing)	E of Bledsoe St	H				15,590	10	Orange County Arterials	35	50	66.4			65	208
14	Olive View Drive (existing)	W of Bledsoe St	H				5,912	10	Orange County Arterials	40	50	63.8			37	117
15	Olive View Drive (existing)	E of Bledsoe St	H				4,269	10	Orange County Arterials	40	50	62.4				85
16	Polk St (existing)	N of I-210 WB Ramps	H				16,397	10	Orange County Arterials	40	50	68.2			100	296
17	Polk St (existing)	I-210 WB Ramps to I-210 EB Ramps	H				20,065	10	Orange County Arterials	40	50	69.1		40	123	351
18	Polk St (existing)	I-210 EB Ramps to Foothill Blvd	H				25,969	10	Orange County Arterials	40	50	70.2		52	158	432
19	Polk St (existing)	S of Foothill Blvd	H				18,760	10	Orange County Arterials	40	50	68.8		36	116	332
20	Roxford Street (existing)	Olive View Dr to I-210 WB Ramps	H				13,971	10	Orange County Arterials	35	50	65.9			60	188
21	Roxford Street (existing)	I-210 WB Ramps to I-210 EB Ramps	H				13,853	10	Orange County Arterials	35	50	65.8			59	187
22	Roxford Street (existing)	I-210 EB Ramps to Foothill Blvd	H				15,432	10	Orange County Arterials	35	50	66.3			64	206
23	Roxford Street (existing)	Foothill Blvd to Glenoaks Blvd	H				11,340	10	Orange County Arterials	35	50	65.0			50	155
24	Roxford Street (existing)	Glenoaks Blvd to San Fernando Rd	H				15,185	10	Orange County Arterials	35	50	66.2			64	203
25	Roxford Street (existing)	San Fernando Rd to Encinitas Ave/I-	H				18,260	11	Orange County Arterials, 2% Hvy T	35	50	67.7			91	272
26	Roxford Street (existing)	Encinitas Ave/I-5 NB Ramps to I-5 SB	H				20,829	11	Orange County Arterials, 2% Hvy T	35	50	68.3			103	305
27	San Fernando Rd (existing)	W of Roxford Street	H				8,472	11	Orange County Arterials, 2% Hvy T	40	50	65.9			60	185
28	San Fernando Rd (existing)	E of Roxford Street	H				10,142	11	Orange County Arterials, 2% Hvy T	40	50	66.6			70	217
29	Bledsoe St (existing + project)	N of Olive View Dr	H				3,702	10	Orange County Arterials	25	50	57.0				
30	Bledsoe St (existing + project)	Olive View Dr to Foothill Blvd	H				5,331	10	Orange County Arterials	25	50	58.5				34
31	Bledsoe St (existing + project)	Foothill Blvd to Glenoaks Blvd	H				4,982	10	Orange County Arterials	35	50	61.5				67
32	Bledsoe St (existing + project)	S of Glenoaks Blvd	H				6,217	10	Orange County Arterials	35	50	62.4				85
33	Foothill Blvd (existing + project)	W of Glenoaks Blvd	H				9,892	10	Orange County Arterials	45	50	67.5			86	256
34	Foothill Blvd (existing + project)	Glenoaks Blvd to Roxford Street	H				6,796	10	Orange County Arterials	45	50	65.9			60	184
35	Foothill Blvd (existing + project)	Roxford Street to Bledsoe St	H				8,329	10	Orange County Arterials	45	50	66.8			72	220
36	Foothill Blvd (existing + project)	Bledsoe St to Polk St	H				15,878	10	Orange County Arterials	45	50	69.5		45	136	379
37	Foothill Blvd (existing + project)	E of Polk St	H				19,665	10	Orange County Arterials	45	50	70.5		55	167	450
38	Glenoaks Blvd (existing + project)	N of Foothill Blvd	H				2,455	10	Orange County Arterials	35	50	58.5				33
39	Glenoaks Blvd (existing + project)	Foothill Blvd to Roxford Street	H				5,043	10	Orange County Arterials	35	50	61.5				68
40	Glenoaks Blvd (existing + project)	Roxford Street to Bledsoe St	H				12,614	10	Orange County Arterials	35	50	65.4			55	171
41	Glenoaks Blvd (existing + project)	E of Bledsoe St	H				15,732	10	Orange County Arterials	35	50	66.4			65	210

42	Olive View Drive (existing + project)	W of Bledsoe St	H		7,870	10	Orange County Arterials	40	50	65.0			50	153
43	Olive View Drive (existing + project)	E of Bledsoe St	H		4,965	10	Orange County Arterials	40	50	63.0				97
44	Polk St (existing + project)	N of I-210 WB Ramps	H		16,585	10	Orange County Arterials	40	50	68.2			102	299
45	Polk St (existing + project)	I-210 WB Ramps to I-210 EB Ramps	H		20,344	10	Orange County Arterials	40	50	69.1	40	125	355	
46	Polk St (existing + project)	I-210 EB Ramps to Foothill Blvd	H		26,341	10	Orange County Arterials	40	50	70.2	53	160	437	
47	Polk St (existing + project)	S of Foothill Blvd	H		18,760	10	Orange County Arterials	40	50	68.8	36	116	332	
48	Roxford Street (existing + project)	Olive View Dr to I-210 WB Ramps	H		17,906	10	Orange County Arterials	35	50	67.0		76	235	
49	Roxford Street (existing + project)	I-210 WB Ramps to I-210 EB Ramps	H		16,386	10	Orange County Arterials	35	50	66.6		69	218	
50	Roxford Street (existing + project)	I-210 EB Ramps to Foothill Blvd	H		16,552	10	Orange County Arterials	35	50	66.6		70	220	
51	Roxford Street (existing + project)	Foothill Blvd to Glenoaks Blvd	H		12,001	10	Orange County Arterials	35	50	65.2		53	163	
52	Roxford Street (existing + project)	Glenoaks Blvd to San Fernando Rd	H		15,752	10	Orange County Arterials	35	50	66.4		65	210	
53	Roxford Street (existing + project)	San Fernando Rd to Encinitas Ave/I-	H		18,732	11	Orange County Arterials, 2% Hvy T	35	50	67.8		93	278	
54	Roxford Street (existing + project)	Encinitas Ave/I-5 NB Ramps to I-5 SI	H		21,183	11	Orange County Arterials, 2% Hvy T	35	50	68.4		105	310	

Appendix J

Traffic Study Analysis

Draft Traffic Impact Analysis for the Olive View-UCLA Medical Center Master Plan Project

Prepared for:
ICF International

March 2019

LA16-2811

FEHR & PEERS

Prepared by:

Fehr & Peers
600 Wilshire Blvd., Suite 1050
Los Angeles, CA 90017
(213) 261-3050
www.fehrandpeers.com



Table of Contents

1. INTRODUCTION 1

Project Description 1

Study Scope 4

Organization of Report 5

2. EXISTING CONDITIONS 6

Study Area 6

Existing Street System 6

Existing Transit Service 8

Existing Bicycle and Pedestrian Facilities 10

Existing Traffic Volumes and Levels of Service 12

Existing Traffic Volumes 12

Level of Service Methodology 12

Signal Warrant Analysis 15

Existing Levels of Service 15

3. TRAFFIC PROJECTIONS 17

Project Traffic 17

Project Traffic Generation 17

Project Traffic Distribution 18

Project Traffic Assignment 18

Existing Baseline plus Project Traffic Projections 18

Future Street Network Changes 26

Cumulative (2035) Base Traffic Generation 26

Areawide Traffic Growth 26

Related Projects Traffic Generation 26

Related Projects Trip Distribution and Traffic Assignment 27

Cumulative (2035) Base Traffic Volumes 27

Cumulative (2035) plus Project Traffic Volumes 32

4. TRAFFIC IMPACT ANALYSIS 35

Significant Traffic Impact Criteria 35

Existing plus Project Impact Analysis 36

Cumulative (2035) plus Project Impact Analysis 36

Mitigation Measures 36

Signal Warrant Analysis 36

5. REGIONAL TRANSPORTATION IMPACT ANALYSIS 39

CMP Traffic Impact Analysis 39

Criteria for Analysis 39

Arterial Monitoring Station Analysis 40

Freeway Mainline Monitoring Station Analysis 40

Regional Transit Impact Analysis 40

Analysis of State Highway System 41

Ramp Queueing Analysis 41

Freeway Mainline Analysis 42

6. ACTIVE TRANSPORTATION FACILITY REVIEW 47

7. TIER II ANALYSIS 52

Project Traffic 52

Potential Impacts of Tier II Development 53

8. CONCLUSIONS 55

Appendices

Appendix A: Intersection Lane Configurations

Appendix B: Intersection Traffic Counts

Appendix C: LOS Analysis Worksheets

Appendix D: Queuing Analysis Worksheets

Appendix E: Signal Warrant Analysis

Appendix F: Memorandum of Understanding

List of Figures

Figure 1. Project Site and Study Intersections 2
Figure 2. Tier 1 Site Boundaries 3
Figure 3. Existing Transit Lines 9
Figure 4. Existing and Planned Bicycle Facilities 11
Figure 5. Existing Peak Hour Traffic Volumes 13
Figure 6. Project Trip Distribution 21
Figure 7. Future Vehicle Access and Circulation 22
Figure 8. Project Only Peak Hour Traffic Volumes 23
Figure 9. Existing plus Project Only Peak Hour Traffic Volumes 24
Figure 10. Location of Related Projects 29
Figure 11. Related Project Traffic Volumes 30
Figure 12. Cumulative (2035) Base Peak Hour Traffic Volumes 31
Figure 13. Cumulative (2035) plus Project Peak Hour Traffic Volumes 33
Figure 14. Existing Site Circulation and Identified Locations for Potential Pedestrian Improvements 48
Figure 15. Existing Site Ciruclation and Potential Short-Term Pedestrian Improvements 50
Figure 16. Tier I Planned Trail Development 51

List of Tables

Table 1. Level of Service Definition for Signalized Intersections 14
Table 2. Existing Intersection Level of Service Analysis 16
Table 3A. Tier I Development Estimated Project Trip Generation 19
Table 3B. Special Needs Housing Weekday Trip Generation Estimates 20
Table 4. Existing plus Project Intersection Level of Service Analysis 25
Table 5. Related Project Trip Generation Estimates 28
Table 6. Cumulative (2035) plus Project Intersection Level of Service Analysis 34
Table 7. Intersection Signal Warrant Analysis 38
Table 8. Peak Hour Off-Ramp Intersection 95th Percentile Queues 44
Table 9. Level of Service Definitions for Freeway Mainline and Multilane Highway Segment Analysis 45
Table 10. Existing and Cumulative (2035) Peak Hour Freeway Segment Analysis 46
Table 11. Tier II Development Estimated Project Trip Generation 54

1. INTRODUCTION

This technical report summarizes the results of a traffic study conducted by Fehr & Peers to evaluate the potential traffic impacts of the proposed Olive View-UCLA Medical Center Master Plan project, which is proposed on the site of the existing Olive View-UCLA Medical Center in the Sylmar community of Los Angeles. The location of the project can be seen in Figure 1.

PROJECT DESCRIPTION

The proposed Olive View-UCLA Medical Center Master Plan will guide the future development of improved medical and related support facilities within the current site boundaries. Tier I development would occur through 2035 and Tier II development would occur after 2035. The project includes both the redevelopment of existing facilities and the construction of new facilities. The existing site serves as a primary healthcare facility for County residents and a training center for medical students. The purpose of this project is to enhance the unique, and highly interactive, relationship between the clinical, educational, and research components of the Olive View-UCLA Medical Center Campus and to meet state requirements for seismic safety. The proposed campus site plan with Tier I development is shown in Figure 2 and includes the following changes to the site:

- Construction of a new ambulatory care center and demolition of a portion of the existing hospital
- Construction of a new community center
- Construction of new materials management building
- Expansion of the mental health facilities
- Demolition of campus support buildings, construction of a new administration building and consolidation of administrative activities within the new building
- Demolition of the existing central plant and construction of the new central plant



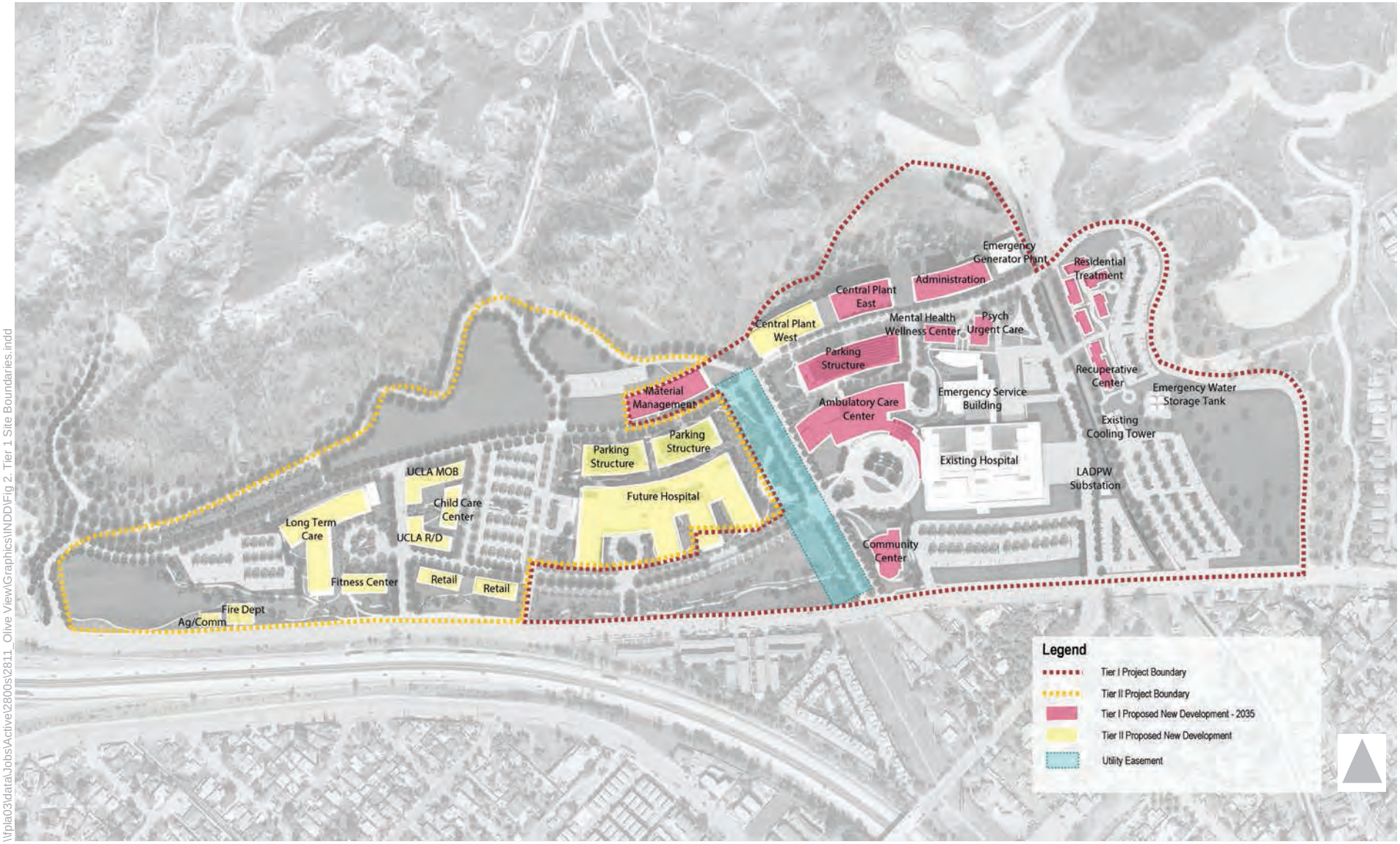
\\fpla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\AI\2019_Updates\Fig 1. Study Area_from2016.ai

Project Site

4 Study Intersection

Figure 1

Project site and Study Area



\\pla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\INDD\Fig 2. Tier 1 Site Boundaries.indd

Figure 2

Tier 1 Site Boundaries

Subsequent to the completion of Tier I, Tier II development will include the addition of hospital space, research and development space, retail space, and utility plant and maintenance facilities.

The project will provide additional open space, trails and beautification of the campus as part of Tier I and Tier II. Site access and internal circulation will be reconfigured and new parking provided. This report includes a quantitative analysis for Tier I development and a qualitative analysis of Tier II development beyond 2035.

STUDY SCOPE

This study evaluates the potential for project-related traffic impacts on the street system surrounding the project site. Peak hour traffic impacts for the project were evaluated for the peak hour during typical weekday morning (7:00 to 10:00 AM) and afternoon (3:00 to 6:00 PM) peak periods. The following traffic scenarios were analyzed in the study:

- Existing Conditions – The analysis of existing traffic conditions is intended to provide a basis for the remainder of the study. The existing conditions analysis includes a description of the street system serving the site, current traffic volumes, and an assessment of the operating conditions at these locations.
- Existing plus Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under existing conditions with the addition of project-generated traffic from Tier I development. The direct impacts of the proposed project on existing traffic operating conditions were then identified.
- Cumulative (2035) Base Conditions – Future traffic projections without the proposed project were developed for the year 2035. The objective of this analysis was to project future traffic growth and operating conditions that could be expected to result from regional growth and related projects in the vicinity of the project site by the year 2035.
- Cumulative (2035) plus Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under future conditions with the addition of project-generated traffic from Tier I development. The cumulative impacts of the proposed project on future traffic operating conditions were then identified.

Following extensive coordination with staff from Los Angeles County, Caltrans and City of Los Angeles Department of Transportation, the 14 intersections listed below were selected to be studied as part of the traffic impact analysis for the proposed project. This coordination led to the execution of a formal Memorandum of Understanding (MOU), which is included as an appendix to this study.

1. Foothill Boulevard & Glenoaks Boulevard

2. I-210 Westbound Ramps & Roxford Street
3. I-210 Eastbound Ramps & Roxford Street
4. Foothill Boulevard & Roxford Street
5. Glenoaks Boulevard & Roxford Street
6. San Fernando Road & Roxford Street
7. I-5 Northbound Off-Ramp/Encinitas Avenue & Roxford Street
8. I-5 Southbound Ramps & Roxford Street
9. Olive View Drive & Bledsoe Street
10. Foothill Boulevard & Bledsoe Street
11. Glenoaks Boulevard & Bledsoe Street
12. I-210 Westbound Ramps & Polk Street
13. I-210 Eastbound Ramps & Polk Street
14. Foothill Boulevard & Polk Street

All intersections are controlled by traffic signals, with the exception of Olive View Drive & Bledsoe Street (Intersection 9), which is all-way stop-controlled. Per LADOT guidelines, this location was analyzed to determine the need for signalization. Figure 1 shows the location of the project site and the 14 study intersections. Lane configurations of the study intersections are shown in Appendix A.

ORGANIZATION OF REPORT

This report is divided into eight chapters, including this introduction. Chapter 2 describes the existing transportation conditions including an inventory of the streets, highways, and transit service in the study area, a summary of traffic volumes, and an assessment of operating conditions. The methodologies used to develop traffic forecasts for the scenarios described above and the forecasts themselves are included in Chapter 3. Chapter 4 presents an assessment of potential intersection traffic impacts of the proposed Tier I development under existing, and future conditions. The results of the regional transportation system analysis are provided in Chapter 5 using trip generation for Tier I development. Chapter 6 estimates the active transportation facilities near the project site. Chapter 7 includes trip generation of Tier II development and a qualitative assessment of potential impacts with Tier II development. Chapter 8 contains the study conclusions. Appendices to this report include details of the technical analysis.

2. EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions in the study area. The assessment of conditions relevant to this study includes a description of the study area, an inventory of the local street system in the vicinity of the project site, a review of traffic volumes on these facilities, an assessment of the resultant operating conditions, and the current transit service in the study area. A detailed description of these elements is presented in this chapter.

STUDY AREA

The proposed project is located at 14445 Olive View Drive in the Sylmar community of Los Angeles. All intersections are located within the City of Los Angeles. Nine driveways along Olive View Drive provide access to the site. The study area extends from the project site southwest to Interstate 5 and southeast to Polk Street.

EXISTING STREET SYSTEM

Primary regional access to the site is provided by Interstate 5 and Interstate 210. Following is a brief description of the streets that serve the site.

Freeways

- Foothill Freeway (I-210) – The Foothill Freeway runs east/west to the south of the project site. Access from the project site to the Foothill Freeway is provided by interchanges at Roxford Street and Polk Street.
- Golden State Freeway (I-5) – The Golden State Freeway runs north/south approximately two miles west of the project site. Access from the project site to the Golden State Freeway is provided by an interchange at Roxford Street and via the Foothill Freeway.

East/West Roadways

- Olive View Drive – Olive View Drive is designated as an Avenue II and is part of the Neighborhood Enhanced Network according to the City of Los Angeles Mobility Plan 2035. The roadway runs east/west immediately adjacent to the project site and provides two travel lanes in each direction and a 2-way left-turn lane. Unrestricted parking is generally available on either side of the street. The posted speed limit is 40 mph.

Northwest/Southeast Roadways

- San Fernando Road – San Fernando Road is designated as an Avenue I and is part of the Bicycle Enhanced Network and the Transit Enhanced Network according to the City of Los Angeles Mobility Plan 2035. The roadway runs northwest/southeast to the south of the project site and provides two travel lanes in each direction and a 2-way left-turn lane. Unrestricted parking is available on many portions of the west side of the street. No parking is allowed adjacent to the Metrolink tracks on the east side of the street. The posted speed limit is 40 mph.

- Glenoaks Boulevard – Glenoaks Boulevard is designated as an Avenue II according to the City of Los Angeles Mobility Plan 2035. The roadway runs northwest/southeast to the south of the project site and provides two travel lanes in each direction with intersection turn lanes on portions of the roadway. Unrestricted parking is available on portions of both sides of the street. The posted speed limit is 35 mph.

- Foothill Boulevard – Foothill Boulevard is designated as an Avenue I according to the City of Los Angeles Mobility Plan 2035. The roadway provides two travel lanes in each direction and a center turn lane north, except between Filbert Street and Bledsoe Street, where there is one travel lane in each direction with a 2-way left-turn lane. There is a bicycle lane between Hubbard Street and Polk Street and between Tyler Street and Balboa Boulevard. Restricted and unrestricted parking is available on portions of both sides of the street. The posted speed limit is 45 mph.

- Encinitas Avenue – Encinitas Avenue is designated as an Avenue II according to the City of Los Angeles Mobility Plan 2035. The roadway runs northwest/southeast approximately two miles to the southwest of the project site. North of Cobalt Street, the roadway provides two travel lanes heading north and one travel lane heading south. South of Cobalt Street, there is one travel lane in each direction. The street also has a 2-way left-turn lane. Restricted and unrestricted parking is available on both sides of the street on portions of the roadway. There is no posted speed limit on the street.

Northeast/Southwest Roadways

- Roxford Street – Roxford Street is designated as an Avenue I according to the City of Los Angeles Mobility Plan 2035. The roadway runs northeast/southwest to the west of the project site. The street provides two travel lanes and a center turn lane in each direction south of Ralston Avenue, and one travel lane in each direction with a center turn lane north of Ralston Avenue. Unrestricted parking is available on either side of the street on portions of the roadway. The posted speed limit is 35 mph.

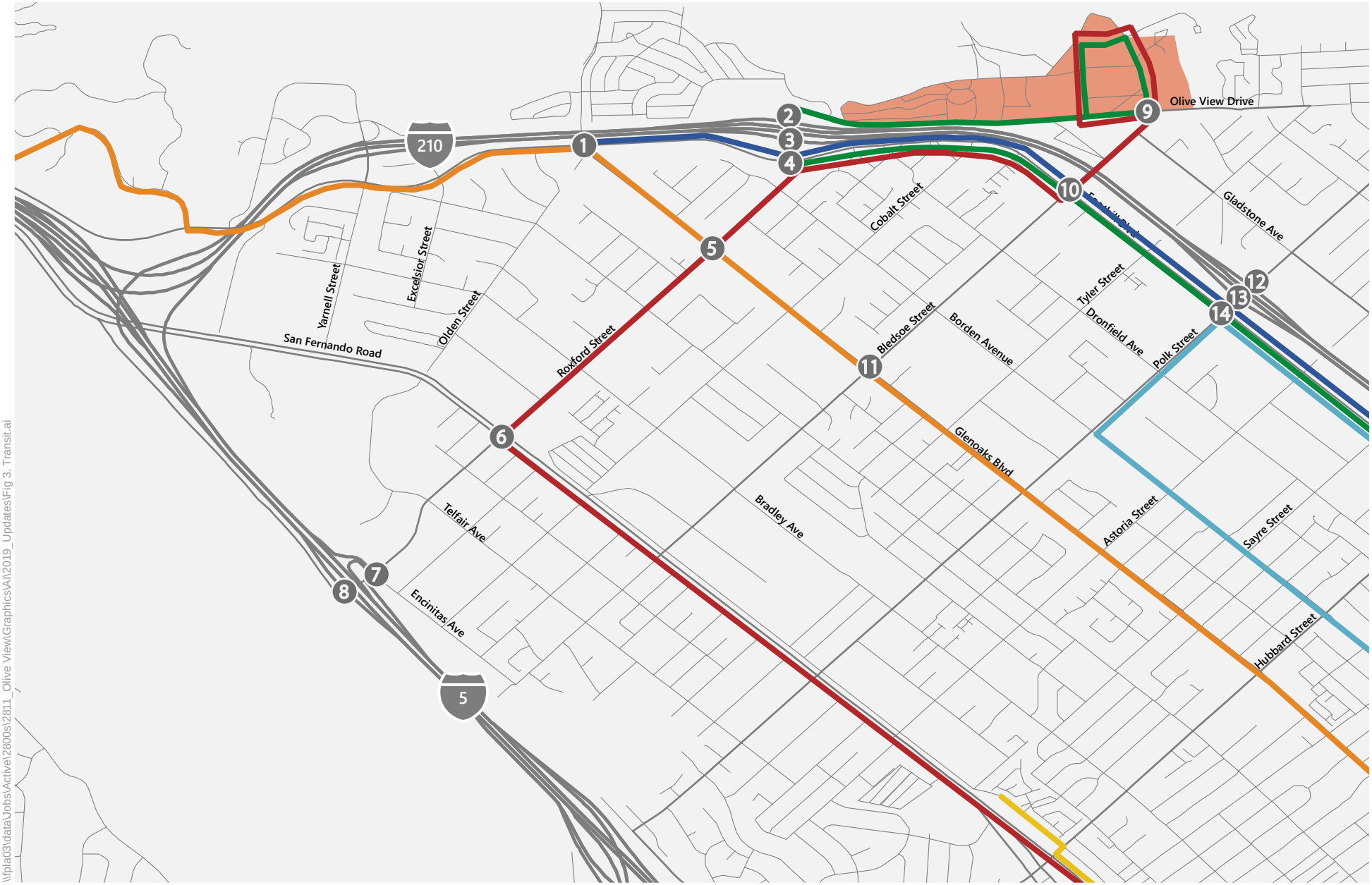
- Bledsoe Street – Bledsoe Street is designated as an Avenue I west of Glenoaks Boulevard and an Avenue II south of San Fernando Road according to the City of Los Angeles Mobility Plan 2035. The roadway runs northeast/southwest to the south of the project site and provides one vehicle travel lane in each direction. There is a bicycle lane in each direction between San Fernando Road and De Garmo Avenue. Unrestricted parking is available on either side of the street on most portions of the roadway. The posted speed limit is 25 mph north of Foothill Boulevard and 35 mph south of Foothill Boulevard.

- Polk Street – Polk Street is designated as an Avenue I according to the City of Los Angeles Mobility Plan 2035. The roadway runs northeast/southwest to the south of the project site and provides two travel lanes in each direction with a center turn lane. There is a bicycle lane in each direction between Laurel Canyon Boulevard and Sunrise Ridge Road and also between San Fernando Road and Glenoaks Boulevard. Restricted and unrestricted parking is available on either side of the street. The posted speed limit is 35 mph is some locations and 40 mph in others.

EXISTING TRANSIT SERVICE

Five bus lines currently operate in the study area. These transit lines are operated by Metro and LADOT. Transit lines are described below and illustrated in Figure 3.

- Metro Line 90 – Line 90 is a north/south line that runs from Downtown Los Angeles to Olive View Medical Center. The line has 30- to 60-minute headways during the AM peak period and 30 to 50 minute headways during the PM peak period. The line runs on Foothill Boulevard, Roxford Street and Olive View Drive within the study area with stops every few blocks, and provides site access via a stop on Reagan Road within the medical center campus.
- Metro Line 224 – Line 224 is a north/south line that runs from the Universal/Studio City Red Line Station to Olive View Medical Center. The line has 8- to 20-minute headways during the AM peak period and 20- to 30-minute headways during the PM peak period. The line runs on San Fernando Road, Roxford Street, Foothill Boulevard, Bledsoe Street, and Olive View Drive within the study area with stops every few blocks. Project site access is provided via the final stop on the line on Kennedy Road within the medical center campus.
- Metro Line 234 – Line 234 is a north/south line that runs from Sherman Oaks to Mission College in Sylmar, with weekend, early morning, and late night service to the Sepulveda Expo Line Station. The line has 15- to 25-minute headways during the AM peak period and 45- to 40-minute headways during the PM peak period. The line runs on Polk Street within the study area with project site access provided via a stop at the intersection of Polk Street & Foothill Boulevard.
- Metro Line 236 – Line 236 is a north/south line that runs from Encino to the Sylmar Metrolink Station. The line has 60- to 65-minute headways during AM and PM peak periods and runs on Foothill Boulevard and Glenoaks Boulevard within the study area. Project site access is provided via a stop at the intersection of Glenoaks Boulevard & Roxford Street.



\\fpla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\All\2019_Updates\Fig 3. Transit.ai

Project Site

Metro 224

Metro 230

Metro 234

Metro 236

Metro 90

LADOT 409

Figure 3

Existing Transit

- LADOT Commuter Express 409 – The Commuter Express 409 is a north/south line that runs from Downtown Los Angeles to Foothill Boulevard & Glenoaks Boulevard in Sylmar and provides directional morning and afternoon peak period service on weekdays only. The line has 25- to 40-minute headways during the AM peak period and 15- to 20-minute headways during the PM peak period. During the AM period, all buses run southbound, and during the PM period all buses run northbound. The line runs on Foothill Boulevard within the study area and provides project site access via a stop at Foothill Boulevard & Bledsoe Street.

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

There is limited dedicated bicycle infrastructure within the study area. South of the project site, a bicycle path (Class I facility) runs along San Fernando Road south of Roxford Street. With the exception of a gap between Tyler Street and Bledsoe Street, bicycle lanes (Class II facilities) exist along much of Foothill Boulevard near the project site. There are additional bicycle lanes at the edge of the study area on Bledsoe Street and Polk Street.

The Los Angeles City Mobility Plan provides for future bicycle lanes within the study area at the following locations:

- Foothill Boulevard between Polk Street and Tyler Street.
- All of Polk Street in the study area
- Roxford Street between Telfair Avenue and Foothill Boulevard
- San Fernando Road north of Roxford Street to the edge of the study area
- All of Glenoaks Boulevard in the study area

In addition, the following segments are part of the neighborhood enhanced network:

- All of Olive View Drive in the study area
- Roxford Street between Foothill Boulevard and Olive View Drive
- All of Herrick Drive in the study area
- All of Dronfield Avenue in the study area
- Gladstone Avenue between Polk Street and Astoria Street
- The entire length of Eldridge Avenue in the study area
- Telfair Avenue east of Roxford Street
- Astoria Street between San Fernando Road and Gladstone Avenue

Figure 4 shows the existing and planned bicycle facilities.

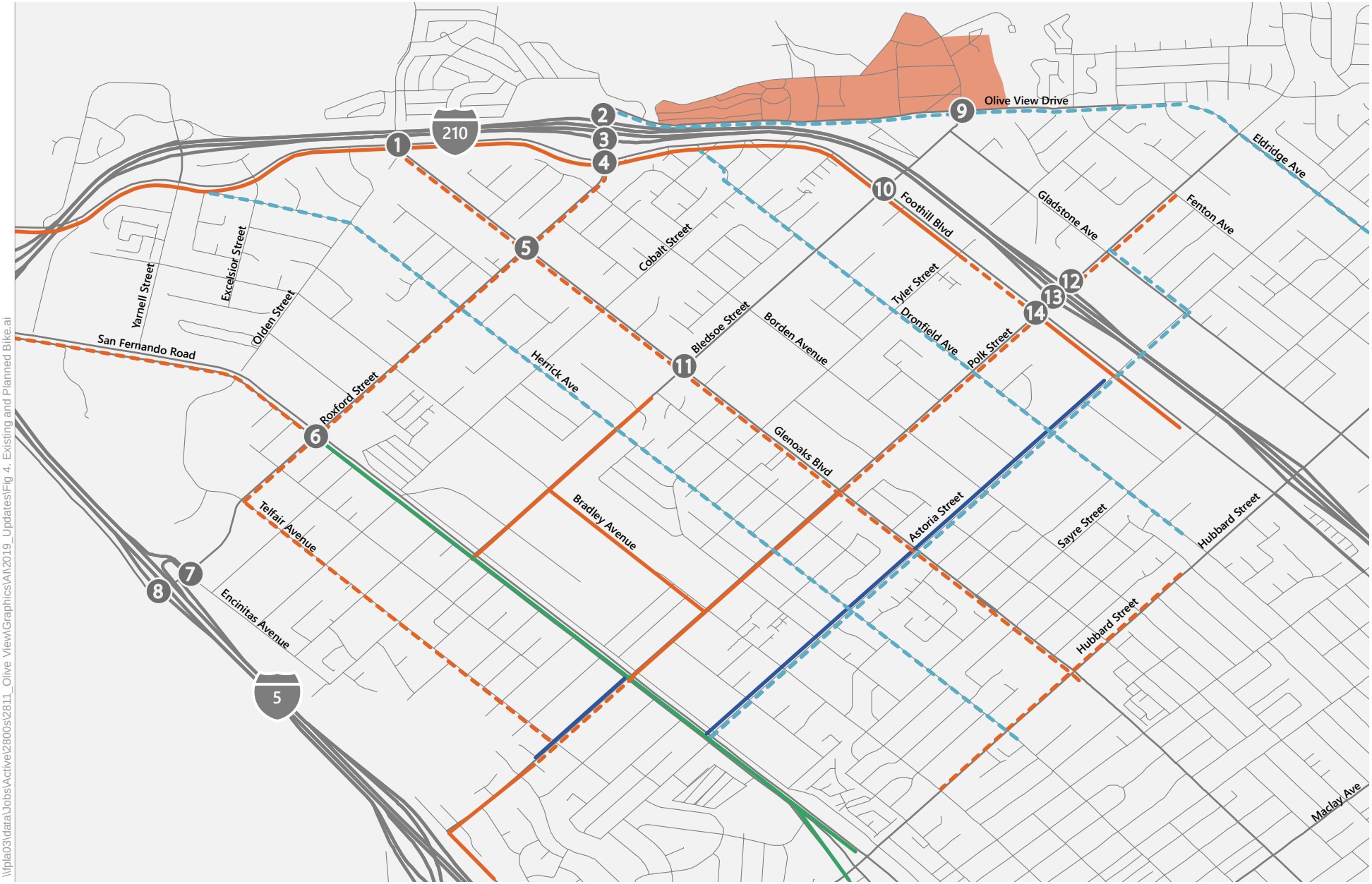


Figure 4

Existing and Planned Bicycle Facilities

\\fpla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\AI\2019_Updates\Fig 4. Existing and Planned Bike.ai

The pedestrian network in the study area is incomplete. Bledsoe Street does not have sidewalks north of Foothill Boulevard. Olive View Drive has incomplete segments of sidewalk. Sidewalks are generally provided on streets in the of the study area southwest of Foothill Boulevard, but portions of many streets lack sidewalks on one or both sides. Crosswalks exist at signalized intersections are either pre-timed or actuated by push-buttons. The portion of Olive View Drive between Roxford Street and the project site is part of the Enhanced Pedestrian Network in the LA Mobility Plan 2035.

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

This section presents the existing peak hour turning movement traffic volumes for each of the intersections analyzed in the study, describes the methodology used to assess the traffic conditions at each intersection, and analyzes the resulting operating conditions at each, indicating volume-to-capacity (V/C) ratios and levels of service. Traffic counts are provided in Appendix B.

EXISTING TRAFFIC VOLUMES

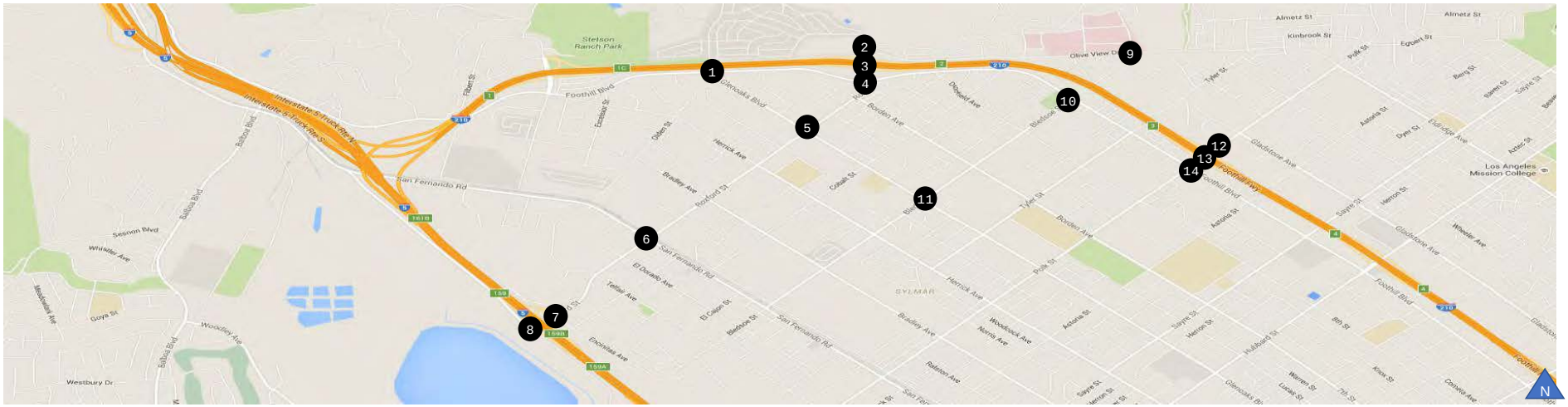
Weekday morning and evening peak period traffic counts were conducted at the 14 analyzed intersections in March and June 2016. Existing peak hour weekday traffic volumes are illustrated in Figure 5. The 2016 volumes were increased by 0.46% per year, the areawide traffic growth factor discussed in Chapter 3, to estimate 2019 volumes for the intersection analysis.

LEVEL OF SERVICE METHODOLOGY

Level of service (LOS) is a qualitative measure used to describe the condition of traffic flow on the street system, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. LOS D is typically recognized as the minimum desirable level of service in urban areas. Table 1 shows levels of service definitions.

The City of Los Angeles requires the use of Critical Movement Analysis (CMA) methodology[1] to evaluate the operations of intersections and this methodology is accepted by the County of Los Angeles, the lead agency for this study. The CMA method of intersection capacity analysis determines the intersection V/C ratio and corresponding LOS for the turning movements and intersection characteristics at signalized intersections. The CALCADB software package developed by Los Angeles Department of Transportation (LADOT) was used to implement the CMA methodology.

[1] *Transportation Research Circular No. 212, Interim Materials on Highway Capacity* (Transportation Research Board, 1980).



Source:

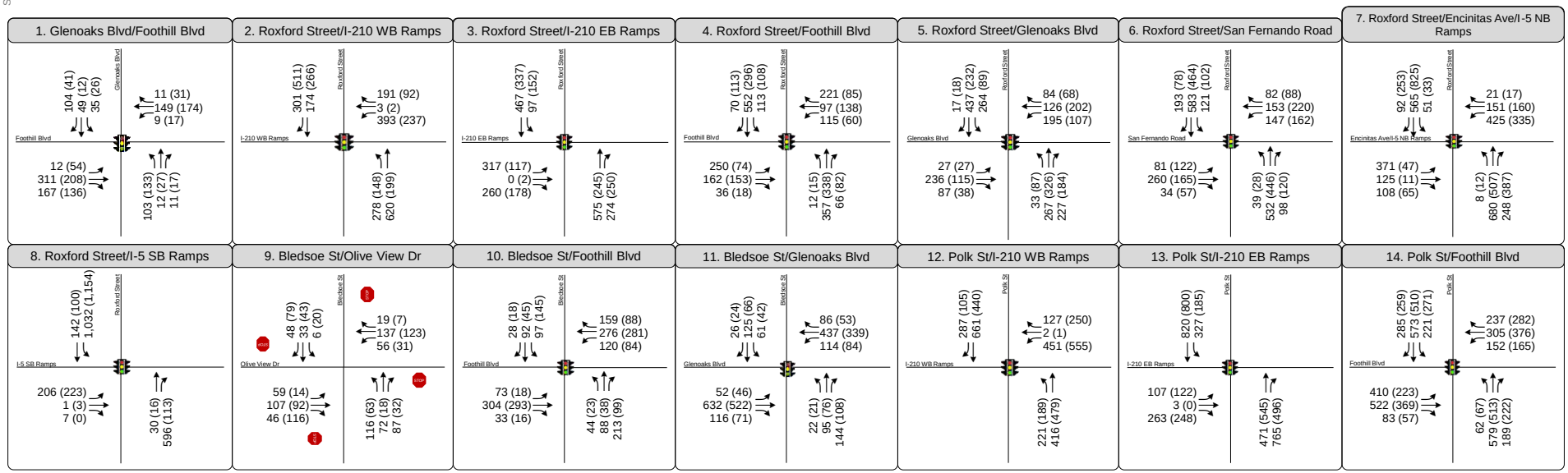


Figure 5
Existing Peak Hour Traffic Volumes

TABLE 1
LEVEL OF SERVICE DEFINITIONS
FOR SIGNALIZED INTERSECTIONS

Level of Service	Intersection Capacity Utilization	Definition
A	0.000-0.600	EXCELLENT. No Vehicle waits longer than one red light and no approach phase is fully used.
B	0.601-0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701-0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801-0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901-1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: *Transportation Research Circular No. 212, Interim Materials on Highway Capacity,* Transportation Research Board, 1980.

The City of Los Angeles' Automated Traffic Surveillance and Control (ATSAC) system is a computer-based traffic signal control system that monitors traffic conditions and system performance to allow ATSAC-operations to manage signal timing to improve traffic flow conditions. The Adaptive Traffic Control System (ATCS) is an enhancement to ATSAC and provides fully traffic-adaptive signal control based on real-time traffic conditions. All of the signalized study intersections are currently operating under the City's ATSAC and ATCS systems. In accordance with established City of Los Angeles procedures, a 0.07 V/C reduction was applied at each intersection where ATSAC is implemented and an additional 0.03 V/C reduction was applied at each intersection where ATCS is implemented.

SIGNAL WARRANT ANALYSIS

The City of Los Angeles Department of Transportation (LADOT) requires that unsignalized intersections be studied only to determine if there is a need for the installation of a traffic signal. A signal warrant analysis was conducted for Olive View Drive & Bledsoe Street using volumes from the AM and PM peak hours. The warrant analyses were conducted in accordance with the procedures described in Chapter 4C of the California Manual on Uniform Traffic Control Devices 2014 (MUTCD 2014). The warrant for a traffic signal is met if the following conditions exist for the same one hour of an average day:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a stop sign equals or exceeds four vehicle-hours for a 1-lane approach or five vehicle-hours for a 2-lane approach.
2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes.
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

In order to conduct the signal warrant analysis, the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2010) methodology was used to calculate delay for the unsignalized intersection that is part of the study.

EXISTING LEVELS OF SERVICE

The existing traffic volumes were analyzed using the methodologies described above to determine the current operating conditions at the signalized intersections. Table 2 summarizes the existing (2019) LOS analysis results for the signalized intersections. As shown in the table, all of the intersections are currently operating at LOS D or better during the analyzed peak hours.

Detailed LOS calculation worksheets are presented in Appendix C.

TABLE 2
EXISTING (2016)
INTERSECTION LEVEL OF SERVICE ANALYSIS

ID	North/South Street Name	East/West Street Name	Peak Hour	Existing	
				V/C	LOS
1	Glenoaks Blvd	Foothill Blvd	AM	0.243	A
			PM	0.167	A
2	Roxford Street	I-210 Westbound Ramps	AM	0.474	A
			PM	0.443	A
4	Roxford Street	Foothill Blvd	AM	0.507	A
			PM	0.373	A
5	Roxford Street	Glenoaks Blvd	AM	0.483	A
			PM	0.294	A
6	Roxford Street	San Fernando	AM	0.424	A
			PM	0.374	A
7	Roxford Street	Encinitas Ave/I-5 Northbound	AM	0.633	B
			PM	0.462	A
8	Roxford Street	I-5 Southbound Ramps	AM	0.848	D
			PM	0.572	A
10	Bledsoe St	Foothill Blvd	AM	0.343	A
			PM	0.281	A
11	Bledsoe St	Glenoaks Blvd	AM	0.409	A
			PM	0.281	A
12	Polk St	I-210 Westbound Ramps	AM	0.655	B
			PM	0.569	A
13	Polk St	I-210 Eastbound Ramps	AM	0.791	C
			PM	0.527	A
14	Polk St	Foothill Blvd	AM	0.738	C
			PM	0.653	B

[a] Intersections 3 and 9 are stop controlled and are analyzed only to determine the need for signalization, per LADOT guidelines.

3. TRAFFIC PROJECTIONS

PROJECT TRAFFIC

The development of project traffic estimates for the proposed project is a 3-step process: trip generation, trip distribution, and traffic assignment.

PROJECT TRAFFIC GENERATION

The existing and proposed (Tier I) land uses on the site are shown in Table 3. Overall, development of the proposed project would involve the incremental development listed below.

- Addition of 43,700 square feet (sf) of administrative office space
- Addition of 26,000 sf of new utility plant and maintenance facilities
- Addition of 313,000 sf of new hospital space
- Addition of 18,800 sf of warehouse/storage space
- Removal of 1,000 sf of mental health facilities
- Addition of 128 short-term housing units for special needs patients
- Addition of 20,000 sf of community center space

Vehicle trip generation for the project was estimated using standard rates developed by the ITE and published in *Trip Generation, 10th Edition*[2]. The square footage of each land use was used to estimate trip generation, with the exception of the day care center, where the number of children was used.

Internal trip credits, defined as a reduction that can be applied to the trip generation estimates due to trips made within the site between land uses, are applied at a rate of 10% of the daily and peak hour trips to all land uses on the site. The buildings and activities on the Olive View-UCLA Medical Center campus are related to one another and this will continue as the site adds complementary uses. The internal trip credits were estimated based on the recommended factors provided in *Trip Generation,* review of traffic studies for projects located in the region and consultation with County of Los Angeles and City of Los Angeles staff as part of the Memorandum of Understanding (MOU) process.

[2] *Trip Generation, 10th Edition* (Institute of Transportation Engineers [ITE], 2017).

A 2% transit, walk and bike credit was applied to the all land uses on the site, based on recent data collected by the South Coast Air Quality Management District on travel to work behavior at this site. These credits account for trips to and from the project site using modes other than automobiles. The site is within walking distance to the several Metro bus lines. In addition, a 10% carpool trip credit was taken for the site, also based on data collected by the South Coast Air Quality Management District on travel to work behavior for the site.

Table 3A-3B estimates the trip generation for development during Tier I. The project is expected to generate a net increase of 3,841 daily trips, including 393 trips (288 inbound/105 outbound) during the AM peak hour and 401 trips (101 inbound/300 outbound) during the PM peak hour.

PROJECT TRAFFIC DISTRIBUTION

The geographic distribution of trips generated by the proposed project is dependent on characteristics of the street system serving the project site, the level of accessibility of routes to and from the proposed project site, and the locations of employment and commercial centers to which residents of the project would be drawn. The general distribution pattern for this study was developed in consultation with LADOT and County staff and is illustrated in Figure 6. Aggregated data on existing staff home zip codes and patient home zip codes was used to determine existing origins for trips coming to and leaving from the project.

PROJECT TRAFFIC ASSIGNMENT

The traffic expected to be generated by the proposed project was assigned to the street network using the distribution pattern described in Figure 6. The net increase in project traffic was assigned based on the vehicle access and circulation diagram from the Olive View-UCLA Master Plan, as seen in Figure 7. Figure 8 illustrates the assignment of net new project traffic for the Tier I Development scenario at the 14 intersections analyzed in this study.

EXISTING BASELINE PLUS PROJECT TRAFFIC PROJECTIONS

The estimated project traffic was added to the Existing traffic volumes to estimate Existing plus Project traffic volumes. Existing plus Project traffic volumes, presented in Figure 9, were analyzed to determine the projected V/C ratios and LOS for each intersection. Table 4 summarizes the Existing plus Project LOS. None of the study intersections are projected to operate at LOS E or F during either of the peak hours.

TABLE 3A
PROJECT TRIP GENERATION ESTIMATES
OLIVE VIEW-UCLA MEDICAL CENTER MASTER PLAN TIER I DEVELOPMENT

	Land Use	ITE Land Use Code	Size [a]	Trip Generation Rates [b]							Estimated Trip Generation						
				Daily	AM Peak Hour			PM Peak Hour			Daily	AM Peak Hour Trips			PM Peak Hour Trips		
				Rate	Rate	% In	% Out	Rate	% In	% Out	Trips	In	Out	Total	In	Out	Total
Existing	**EXISTING USE**																
	Administrative Office	710	108.000 ksf	*[c]*	*[c]*	*86%*	*14%*	*[c]*	*16%*	*84%*	1,143	110	18	128	19	103	122
	Day Care Center	565	82 Students	*4.09*	*[d]*	*53%*	*47%*	*[d]*	*47%*	*53%*	335	34	29	63	29	33	62
	Central Utilities/Industrial /Infrastructure [e]	120	51.000 ksf	*1.5*	*0.51*	*88%*	*12%*	*0.68*	*12%*	*88%*	77	23	3	26	4	31	35
	Hospital/Inpatient	610	534.300 ksf	*10.72*	*[f]*	*68%*	*32%*	*[f]*	*32%*	*68%*	5,728	355	167	522	175	374	549
	Warehouse/Storage	150	49.300 ksf	*[g]*	*[g]*	*77%*	*23%*	*[g]*	*27%*	*73%*	123	24	7	31	9	25	34
	Mental Health	720	11.000 ksf	*[h]*	*[h]*	*78%*	*22%*	*[h]*	*28%*	*72%*	335	24	7	31	11	28	39
	Project Site Subtotal										**7,742**	**570**	**231**	**801**	**247**	**594**	**841**
	Internal Capture (10%) [j]										*-774*	*-57*	-23	*-80*	*-25*	-59	*-84*
	Transit/Walk/Bike Credit (2%) [k]										*-139*	*-10*	-4	*-14*	*-4*	-11	*-15*
	Carpool (10%) [l]										*-697*	*-51*	-21	*-72*	*-22*	-54	*-76*
	Total Existing Trips										**6,132**	**452**	**183**	**635**	**196**	**470**	**666**
Proposed	**PROPOSED PROJECT (TIER 1)**																
	Administrative Office	710	151.700 ksf	*[c]*	*[c]*	*86%*	*14%*	*[c]*	*16%*	*84%*	1,590	145	24	169	27	142	169
	Day Care Center	565	82 Students	*4.09*	*[d]*	*53%*	*47%*	*[d]*	*47%*	*53%*	335	34	29	63	29	33	62
	Central Utilities/Industrial /Infrastructure [e]	120	77.000 ksf	*1.5*	*0.51*	*88%*	*12%*	*0.68*	*12%*	*88%*	116	34	5	39	6	46	52
	Hospital/Inpatient	610	847.000 ksf	*10.72*	*[f]*	*68%*	*32%*	*[f]*	*32%*	*68%*	9,080	512	241	753	260	552	812
	Community Center	495	20.000 ksf	*28.82*	*[i]*	*66%*	*34%*	*[i]*	*47%*	*53%*	576	51	26	77	34	38	72
	Warehouse/Storage	150	68.100 ksf	*[g]*	*[g]*	*77%*	*23%*	*[g]*	*27%*	*73%*	153	25	8	33	10	26	36
	Mental Health	720	10.000 ksf	*[h]*	*[h]*	*78%*	*22%*	*[h]*	*28%*	*72%*	297	23	6	29	10	26	36
	Crisis Residential Housing	[m]	80 Units								306	74	20	94	0	74	74
	Recuperative Housing	[m]	48 Units								48	12	0	12	0	12	12
	Project Site Subtotal										**12,500**	**911**	**359**	**1,270**	**376**	**949**	**1,325**
	Internal Capture (10%) [j]										*-1,215*	*-82*	-34	*-116*	*-38*	-86	*-124*
	Transit/Walk/Bike Credit (2%) [k]										*-219*	*-15*	-6	*-21*	*-7*	-15	*-22*
	Carpool (10%) [l]										*-1,093*	*-74*	-31	*-105*	*-34*	-78	*-112*
	Total Proposed Trips										**9,973**	**740**	**288**	**1,028**	**297**	**770**	**1,067**
Net Change	**Net New Project**										**3,841**	**288**	**105**	**393**	**101**	**300**	**401**

a. Size in thousand square feet (ksf) unless otherwise noted.
b. Source: Institute of Transportation Engineers (ITE), *Trip Generation, 10th Edition* , 2018, and *Trip Generation Handbook* (3rd Edition).
c. ITE administrative office trip generation equations used rather than linear trip generation rate:
   Daily: Ln(T) = 0.97 * Ln(A) + 2.50, where T = trips, A = area in ksf
   AM Peak Hour: T = 0.94(A) + 26.49, where T = trips, A = area in ksf
   PM Peak Hour: Ln(T) = 0.95 * Ln(A) + 0.36, where T = trips, A = area in ksf
d. ITE day care center trip generation equation used rather than linear trip generation rate for AM and PM periods:
   AM Peak Hour: T = 0.66(X) + 8.42, where T = trips, X = number of students
   PM Peak Hour: Ln(T) = 0.87 * Ln(X) + 0.29, where T = trips, X = number of students
e. ITE Code 120 not included in 10th Edition "Trip Generation." Rates and directional distribution taken from ITE 9th Edition code 120, General Heavy Industrial.
f. ITE hospital trip generation equation used rather than linear trip generation rate for AM and PM periods:
   AM Peak Hour: T = 0.74(A) + 126.36, where T = trips, A = area in ksf
   PM Peak Hour: T = 0.84(A) + 100.56, where T = trips, A = area in ksf
g. ITE warehousing trip generation equation used rather than linear trip generation rate:
   Daily: T = 1.58(A) + 45.54, where T = trips, A = area in ksf
   AM Peak Hour: T = 0.12(A) + 25.32, where T = trips, A = area in ksf
   PM Peak Hour: T = 0.12(A) + 27.82, where T = trips, A = area in ksf
h. ITE medical-dental office building trip generation equation used rather than linear trip generation rate:
   Daily: T = 38.42(A) - 87.62, where T = trips, A = area in ksf
   AM Peak Hour: Ln(T) = 0.89 * Ln(A) + 1.31, where T = trips, A = area in ksf
   PM Peak Hour: T = 3.39(A) + 2.02, where T = trips, A = area in ksf
i. ITE Recreational Community Center trip generation equations used rather than linear trip generation rate:
   AM Peak Hour: Ln(T) = 0.54 * Ln(A) + 2.73, where T = trips, A = area in ksf
   PM Peak Hour: Ln(T) = 0.76 * Ln(A) + 2.00, where T = trips, A = area in ksf
j. Internal capture represents the percentage of trips between land uses that occur within the site.
k. Transit/Walk/Bike Credit informted by data from the 2016 AQMD survey.
l. Carpool Credit informted by data from the 2016 AQMD survey.
m. See Table 3A for detailed trip generation estimates for this project element.

TABLE 3B

SPECIAL NEEDS HOUSING WEEKDAY TRIP GENERATION ESTIMATES

	Staff	In	Out	Total
Crisis Res - Clinical	90	74	74	148
Crisis Res - Resid Care	10	8	8	16
Crisis Residential	62	51	51	102
Crisis Residential	25	20	20	40
Recuperative Care	15	12	12	24
Recuperative Care	10	8	8	16
Recuperative Care	5	4	4	8
				0
Total Trips [a]		177	177	354

Time Beginning	Midnight	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	Noon	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
	0	8	0	0	0	0	0	0	0	0	0	0	0	8	0	106	0	4	0	0	0	0	0	0	0	0	0	0	0	51	0	16	0	0	86	0	0	0	0	0	0	0	0	0	0	20	51	4

AM PK: IB 74; 8; 20 OB; IB 12

PM PK: 74 OB; 8; 51; 20; 12 OB; 8; 4; 4

Wkdy AM Pk Period 7 - 10 AM

Wkdy PM Pk Period 3 - 6 PM

[a] Trip generation estimates based on anticipated staffing levels and shifts provided by Los Angeles County.



Project Site

4 Study Intersection

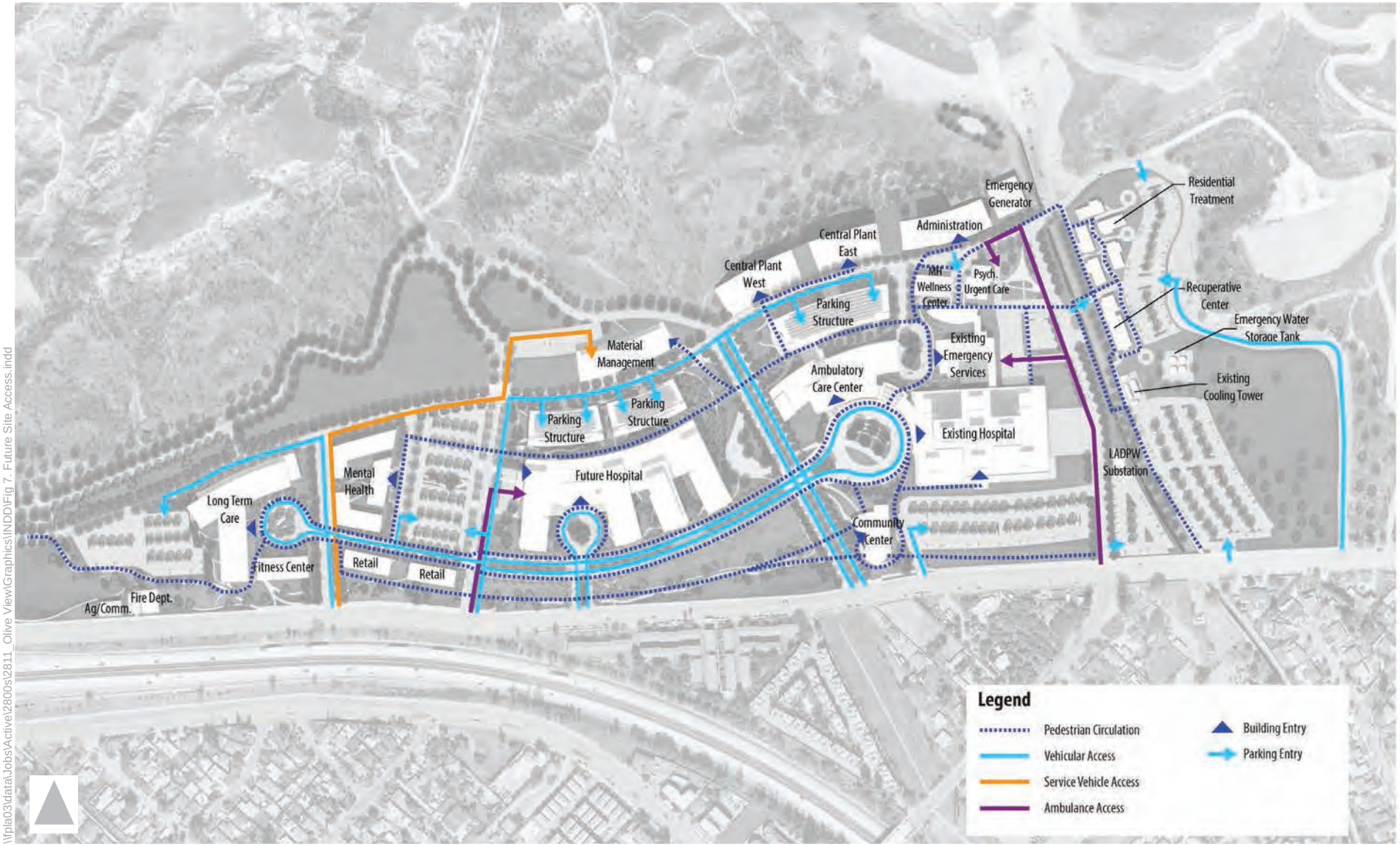
15% Freeway Distribution

2% Surface Street Distribution

Figure 6

Project Trip Distribution

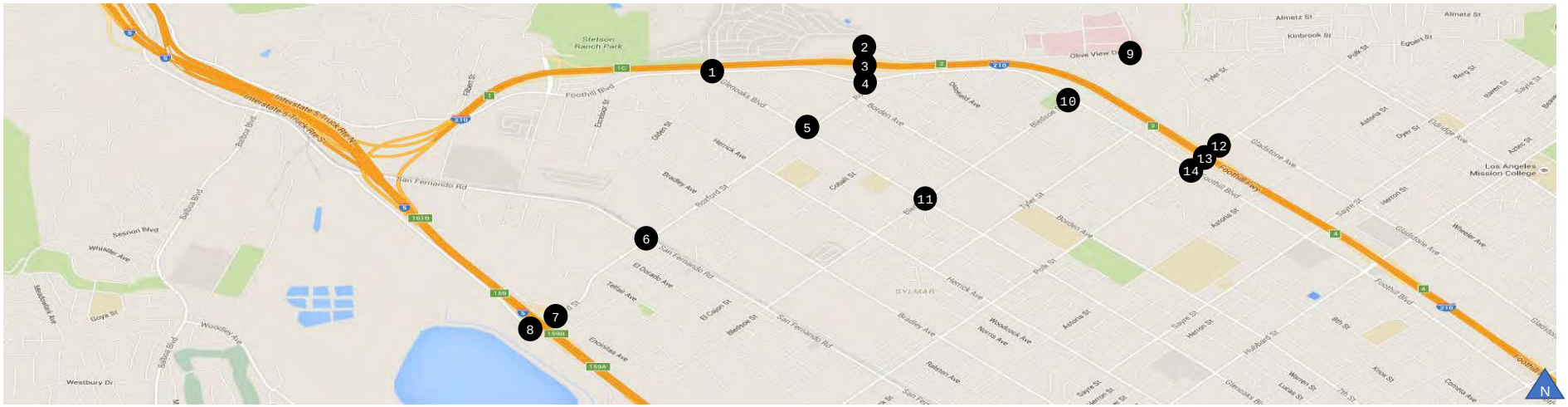
\\fpla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\AI\2019_Updates\Fig 6_Distribution_from2016.ai



\\pla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\INDD\Fig 7. Future Site Access.indd

Figure 7

Future Site Access and Circulation



Source:

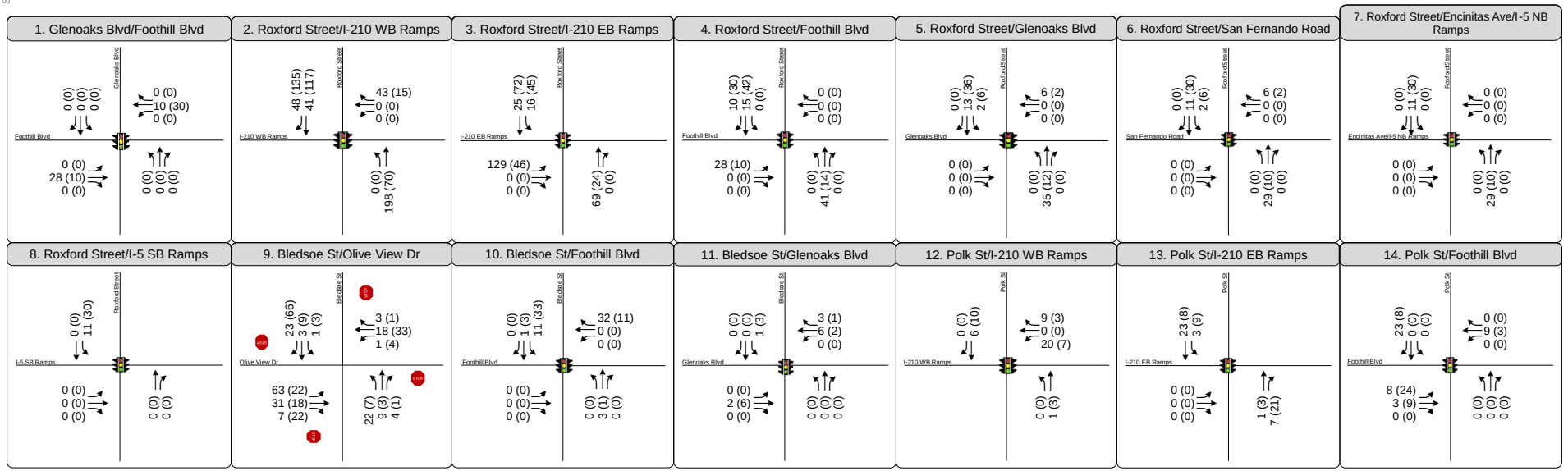
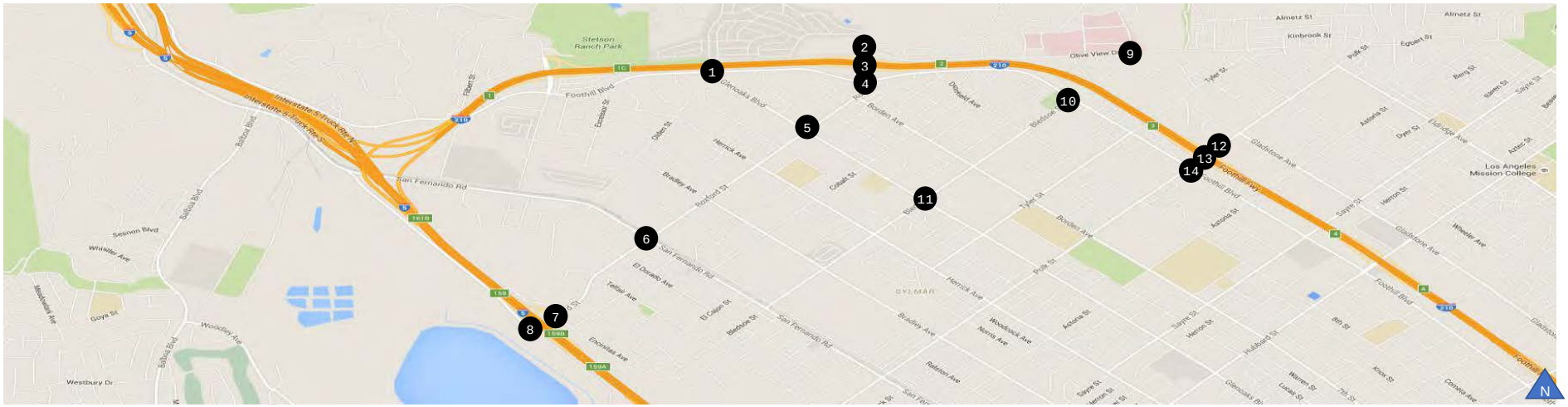


Figure 8
Project Only Peak Hour Traffic Volumes



Source:

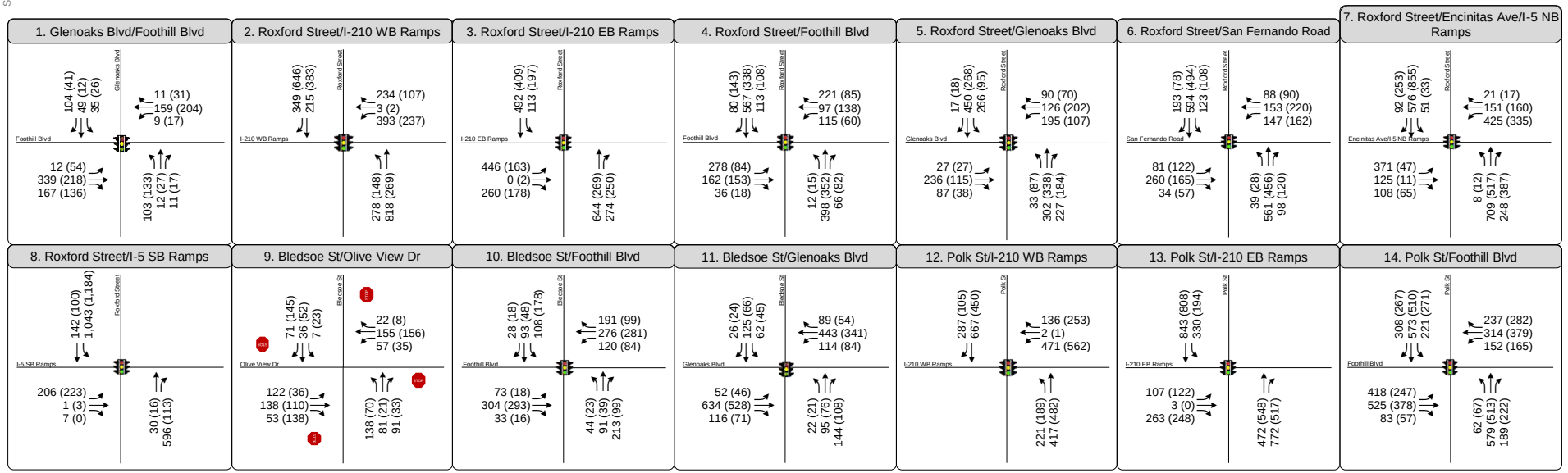


Figure 9
Existing + Project Only Peak Hour Traffic Volumes

TABLE 4
EXISTING PLUS PROJECT
INTERSECTION LEVEL OF SERVICE ANALYSIS

ID [a]	North/South Street Name	East/West Street Name	Peak Hour	Existing		Existing+Project		Project Increase In V/C	Significant Impact?
				V/C	LOS	V/C	LOS		
1	Glenoaks Blvd	Foothill Blvd	AM	0.247	A	0.266	A	0.019	NO
			PM	0.171	A	0.191	A	0.020	NO
2	Roxford Street	I-210 Westbound Ramps	AM	0.482	A	0.528	A	0.046	NO
			PM	0.450	A	0.545	A	0.095	NO
3	Roxford Street	I-210 Eastbound Ramps	AM	0.489	A	0.614	B	0.125	NO
			PM	0.307	A	0.346	A	0.039	NO
4	Roxford Street	Foothill Blvd	AM	0.571	A	0.602	B	0.031	NO
			PM	0.379	A	0.396	A	0.017	NO
5	Roxford Street	Glenoaks Blvd	AM	0.492	A	0.517	A	0.025	NO
			PM	0.299	A	0.311	A	0.012	NO
6	Roxford Street	San Fernando Road	AM	0.431	A	0.443	A	0.012	NO
			PM	0.381	A	0.389	A	0.008	NO
7	Roxford Street	Encinitas Ave/I-5 Northbound	AM	0.686	B	0.696	B	0.010	NO
			PM	0.469	A	0.480	A	0.011	NO
8	Roxford Street	I-5 Southbound Ramps	AM	0.861	D	0.866	D	0.005	NO
			PM	0.581	A	0.593	A	0.012	NO
10	Bledsoe St	Foothill Blvd	AM	0.261	A	0.279	A	0.018	NO
			PM	0.194	A	0.216	A	0.022	NO
11	Bledsoe St	Glenoaks Blvd	AM	0.417	A	0.421	A	0.004	NO
			PM	0.287	A	0.291	A	0.004	NO
12	Polk St	I-210 Westbound Ramps	AM	0.665	B	0.681	B	0.016	NO
			PM	0.579	A	0.587	A	0.008	NO
13	Polk St	I-210 Eastbound Ramps	AM	0.803	D	0.810	D	0.007	NO
			PM	0.536	A	0.550	A	0.014	NO
14	Polk St	Foothill Blvd	AM	0.749	C	0.758	C	0.009	NO
			PM	0.664	B	0.683	B	0.019	NO

[a] Intersection 9 is stop controlled and is analyzed only to determine the need for signalization, per LADOT guidelines.

FUTURE STREET NETWORK CHANGES

The Sylmar Community Plan anticipates that an existing 1-block gap between Olive View Drive and Eldridge Avenue will be removed following construction of a new street segment. There are also plans to connect Encinitas Avenue with Laurel Canyon Boulevard and Amboy Avenue with Edgecliff Avenue. The plan also calls for a widening of Roxford Street between Telfair Avenue and Foothill Boulevard to two travel lanes in each direction. According to information from LADOT, a new traffic signal will be installed at the intersection of West Way and Olive View Drive on the western edge of the Olive View-UCLA Medical Center Campus.

CUMULATIVE (2035) BASE TRAFFIC GENERATION

In order to evaluate the potential impact of the proposed project in the future on the surrounding street system, it was necessary to develop estimates of future traffic conditions both with and without the project. Future traffic volumes without the project were first estimated, the Cumulative (2035) base conditions. The trips generated by the proposed project are then estimated and separately assigned to the surrounding street system.

Cumulative (2035) base traffic projections reflect growth in traffic from two primary sources: background or ambient growth in the existing traffic volumes to reflect the effects of overall regional growth both in and outside of the study area, and traffic generated by specific projects in, or in the vicinity of, the study area. These factors are described below.

AREAWIDE TRAFFIC GROWTH

As part of the MOU process with agency staff, an areawide traffic growth of 0.46% per year was agreed upon for the study area, based on data in the most recent Congestion Management Program (CMP) for Los Angeles County. Future increases in the background traffic volumes due to regional growth and development are expected to continue at this rate, at least through 2035. Existing baseline 2016 traffic volumes were adjusted upward by a factor of 9.1% to reflect areawide regional growth up to 2035.

RELATED PROJECTS TRAFFIC GENERATION

As indicated, the second major source of traffic growth in the study area is from specific cumulative development projects, also called related projects, expected to be built in the vicinity of the proposed project site prior to the proposed buildout. Data describing cumulative projects in the area was gathered from LADOT, Los Angeles Department of City Planning (LADCP), Los Angeles County of Department of

Regional Planning, and from recent environmental studies. A total of 14 cumulative projects were identified in the surrounding area and are listed in Table 5. The locations of the related projects are illustrated in Figure 10. Trip generation estimates for these related projects are conservative in that they do not in every case account for either the existing uses to be removed or the possible use of non-motorized travel modes (transit, walking, etc.).

RELATED PROJECTS TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

The geographic distribution of the traffic generated by the cumulative projects is dependent on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which the employees and potential patrons of the proposed developments are drawn, and the location of the employment and commercial centers to which residents of residential projects would be drawn, and the location of the projects in relation to the surrounding street system. If available, trip distribution from a cumulative project's traffic study was used in this analysis. When trip distribution was not available for a cumulative project, it was estimated based on the factors described above. Figure 11 shows the traffic generated from the related projects at the study intersections.

CUMULATIVE (2035) BASE TRAFFIC VOLUMES

Related project volumes were added to the cumulative traffic volumes to create the Cumulative (2035) base volumes, illustrated in Figure 12, which represent conditions prior to the addition of project traffic.

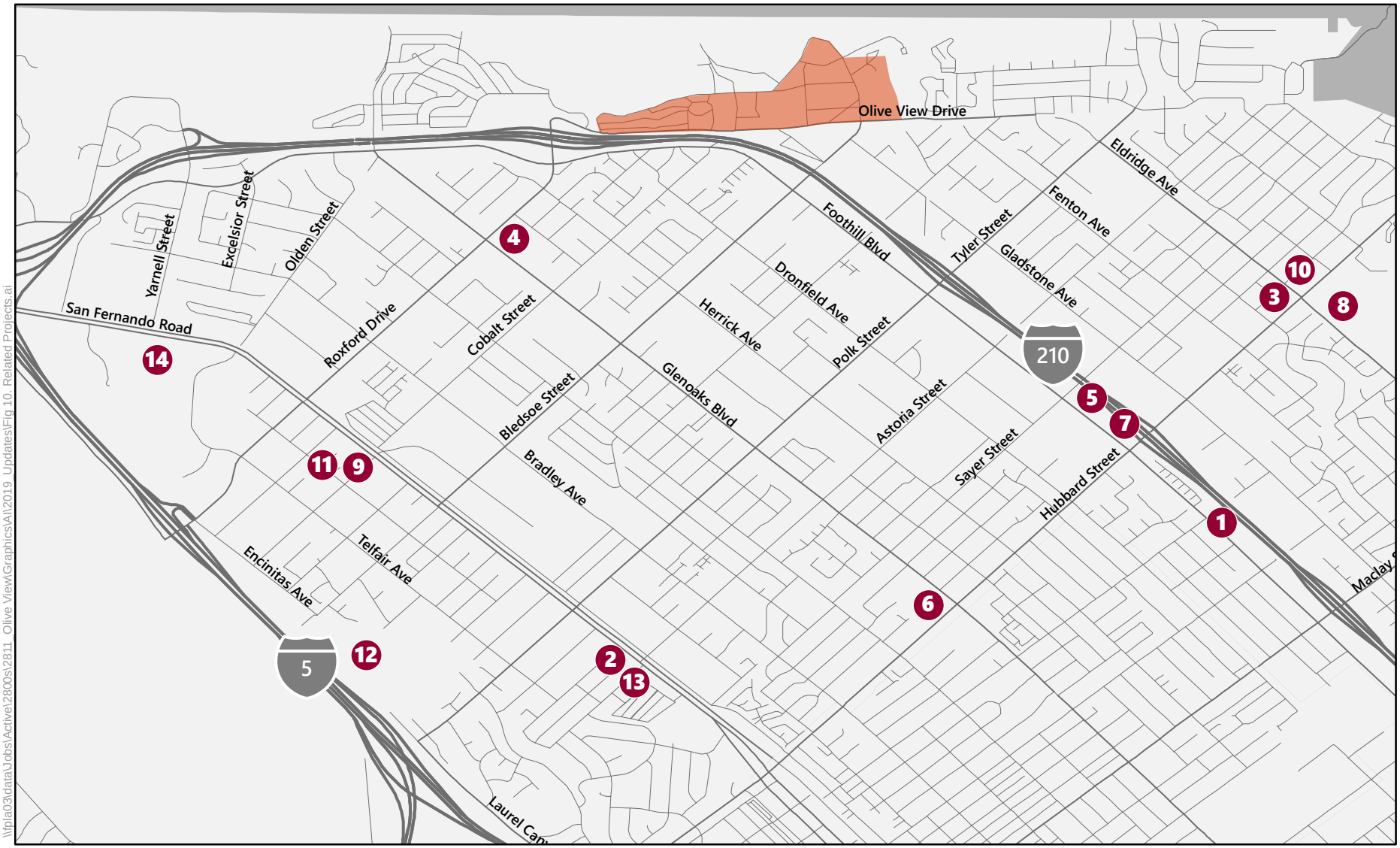
Table 6 summarizes the Cumulative (2035) LOS analysis. Three of the study intersections are projected to operate at LOS E during the AM peak hour:

8. Roxford Street & I-5 Southbound Ramp
9. Polk Street & I-210 Eastbound Ramps
14. Polk Street & Foothill Boulevard

TABLE 5
RELATED PROJECTS TRIP GENERATION ESTIMATES

No.	Project Location or Name	Land Use	Size [a]	Estimated Trip Generation [b]						
				Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
					In	Out	Total	In	Out	Total
1	13401 Foothill Boulevard	Condominiums	250 Units	165	19	91	110	87	43	130
2	12415 San Fernando Road*	Senior Housing Medical Office	150 Units 25.000 KSF	1,335	49	19	68	32	68	100
3	13245 Hubbard Street	High School	500 Students	270	109	46	155	62	53	115
4	13530 Glenoaks Boulevard*	Retail	7.486 KSF	5,400	200	130	330	100	100	200
5	13763 Foothill Boulevard	Fast Food	4.150 KSF	435	20	24	44	7	15	22
6	12625 Glenoaks Boulevard*	Gas Station	5 Fueling Positions	843	31	30	61	35	35	70
7	13651 Foothill Boulevard*	Coffee with Drive Thru Specialty Retail	2.240 KSF 7.000 KSF	1,196	61	58	119	31	34	65
8	Los Angeles Mission College Master Plan [c]	College	N/A	N/A	550	105	655	392	231	623
9	15523 W Cobalt St [d]	Single Family Residences	12 Units	114	2	7	9	8	4	12
10	13228 W Aztec St [d]	Single Family Residences	3 Units	29	1	2	2	2	1	3
11	12995 N El Dorado Avenue [d]	Single Family Residences	3 Units	29	1	2	2	2	1	3
12	Lakeside Park	Park	N/A	810	145	38	183	155	160	315
13	12385 San Fernando Rd	Condominiums Single Family Home Shopping Center General Office Auto Care Center	246 Units -1 Unit 9.000 KSF 0.900 KSF -2.000 KSF	1,482	35	81	106	82	53	135
14	13503 San Fernando Rd	Industrial Rec. Facility	225.000 KSF 9.9 acres	4,202	266	71	337	108	277	385

a. KSF is thousands of square feet.
b. Trip Generation estimates for daily trips, Total AM trips and Total PM trips provided by LADOT. Inbound and outbound split based on data in ITE Trip Generation, 9th Edition, 2012, except as noted.
c. Trip Generation provided by Los Angeles Mission College Master Plan and Public Recreation Improvement DEIR (Ocotober 2005). Rates for inbound and outbound trips provided by ITE Trip Generation, 9th Edition, 2012.
d. Projects provided by Los Angeles Department of City Planning (LADCP). Trip generation estimates based on ITE Trip Generation, 9th Edition, 2012.
* Denotes project has been constructed and occupied.



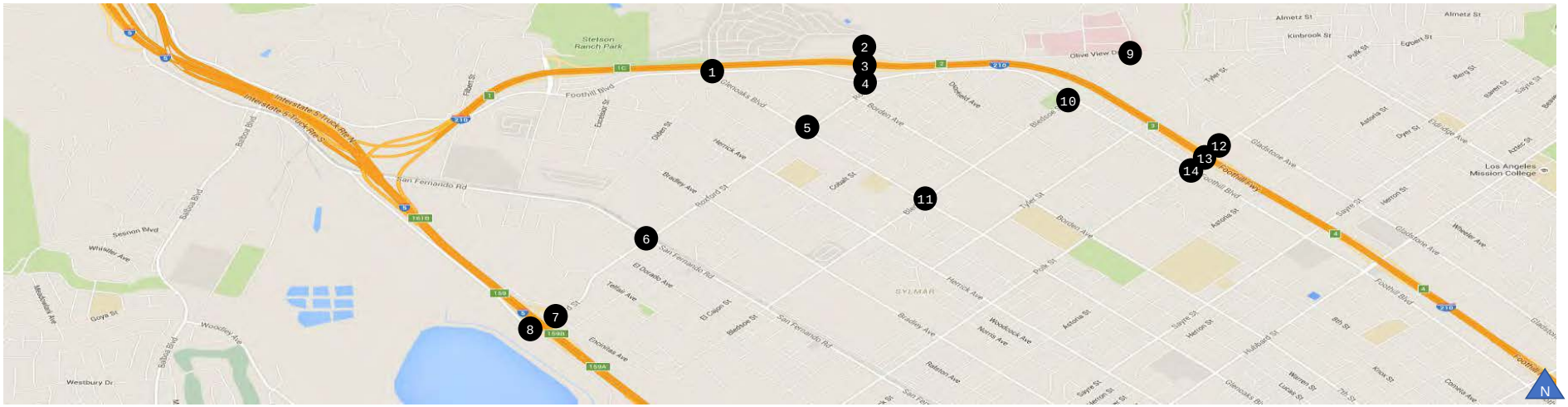
\\fpla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\AI\2019 Updates\Fig 10_Related Projects.ai

Project Site

**Related Project Location**

Figure 10

Related Project Locations

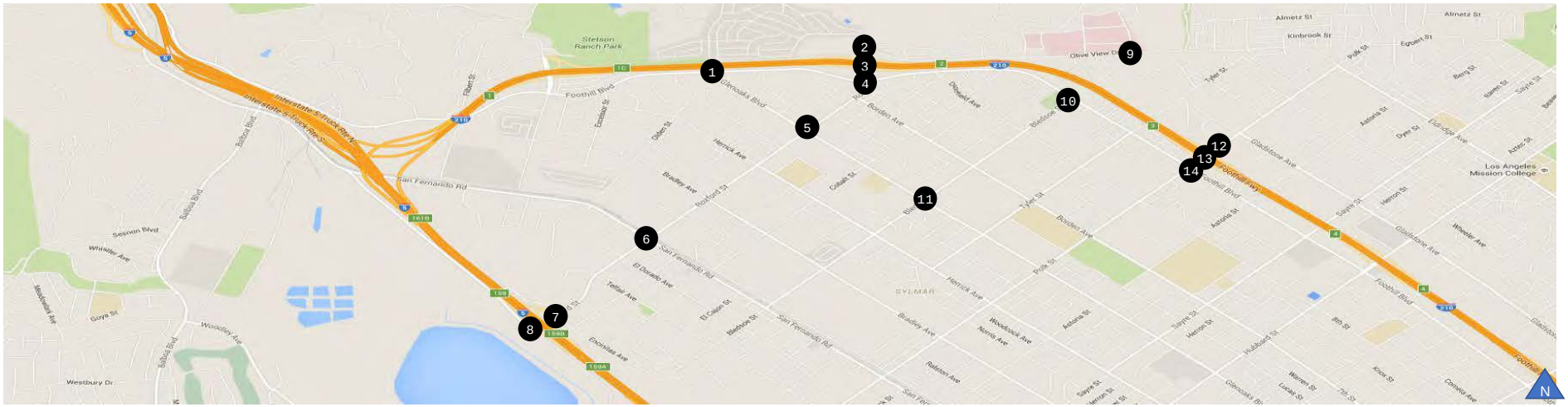


Source:

1. Glenoaks Blvd/Foothill Blvd	2. Roxford Street/I-210 WB Ramps	3. Roxford Street/I-210 EB Ramps	4. Roxford Street/Foothill Blvd	5. Roxford Street/Glenoaks Blvd	6. Roxford Street/San Fernando Road	7. Roxford Street/Encinitas Ave/I-5 NB Ramps
0 (0) 0 (0) 0 (0) 0 (0) 12 (9) 0 (0) 0 (0) 12 (11) 0 (0) 0 (0) 0 (0) 0 (0)	0 (0) 0 (0) 0 (0) 0 (0) 53 (22) 78 (60) 0 (0)	53 (22) 0 (0) 0 (0) 0 (0) 120 (60) 78 (60) 14 (55)	0 (0) 173 (82) 0 (0) 0 (0) 12 (9) 0 (0) 0 (0) 12 (11) 0 (0) 0 (0) 92 (115) 0 (0)	0 (0) 53 (22) 120 (60) 78 (60) 0 (0) 4 (5) 0 (0) 0 (0) 3 (3) 1 (3) 14 (55) 1 (5)	53 (22) 4 (5) 3 (3) 1 (3) 48 (40) 5 (6) 14 (55) 28 (55) 31 (114) 107 (46) 1 (5) 4 (6)	4 (14) 30 (103) 7 (8) 2 (8) 12 (20) 8 (32) 0 (0) 0 (0) 0 (0) 0 (0) 111 (49) 45 (50)

8. Roxford Street/I-5 SB Ramps	9. Bledsoe St/Olive View Dr	10. Bledsoe St/Foothill Blvd	11. Bledsoe St/Glenoaks Blvd	12. Polk St/I-210 WB Ramps	13. Polk St/I-210 EB Ramps	14. Polk St/Foothill Blvd
0 (0) 37 (135) 29 (25) 0 (0) 0 (0) 0 (0) 0 (0)	0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0)	0 (0) 0 (0) 0 (0) 0 (0) 12 (9) 0 (0) 0 (0) 12 (11) 0 (0) 0 (0) 0 (0) 0 (0)	0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 26 (20) 40 (20) 0 (0) 0 (0)	19 (43) 56 (93) 27 (16) 0 (0) 46 (56) 41 (25) 126 (129)	90 (136) 12 (13) 39 (44) 0 (0) 26 (32) 129 (110) 71 (44)	10 (27) 18 (35) 88 (107) 144 (89) 10 (6) 0 (0) 19 (27) 7 (8) 0 (0) 0 (0) 37 (38) 0 (0)

Figure 11
Related Projects Peak Hour Traffic Volumes



1. Glenoaks Blvd/Foothill Blvd	2. Roxford Street/I-210 WB Ramps	3. Roxford Street/I-210 EB Ramps	4. Roxford Street/Foothill Blvd	5. Roxford Street/Glenoaks Blvd	6. Roxford Street/San Fernando Road	7. Roxford Street/Encinitas Ave/I-5 NB Ramps
Foothill Blvd: 112 (44) / 53 (13) / 38 (28); 12 (33) / 172 (196) / 10 (18); 13 (58) / 347 (235) / 180 (146); 111 (143) / 13 (29) / 12 (18)	I-210 WB Ramps: 324 (550) / 187 (286); 206 (99) / 3 (2) / 476 (277); 377 (219) / 667 (214)	I-210 EB Ramps: 556 (385) / 104 (164); 341 (126) / 0 (2) / 400 (252); 697 (324) / 309 (324)	Foothill Blvd: 75 (122) / 767 (401) / 122 (116); 238 (91) / 116 (158) / 124 (65); 269 (80) / 186 (176) / 39 (19); 13 (16) / 476 (479) / 71 (88)	Glenoaks Blvd: 18 (19) / 523 (272) / 404 (156); 168 (133) / 136 (217) / 214 (120); 29 (29) / 254 (124) / 97 (44); 37 (97) / 301 (406) / 245 (203)	San Fernando Road: 261 (106) / 631 (504) / 133 (113); 89 (98) / 213 (277) / 163 (180); 101 (186) / 308 (233) / 68 (175); 149 (76) / 574 (485) / 109 (135)	Encinitas Ave/I-5 NB Ramps: 103 (286) / 638 (991) / 62 (44); 25 (26) / 175 (192) / 465 (393); 399 (51) / 135 (12) / 116 (70); 9 (13) / 843 (595) / 312 (466)

8. Roxford Street/I-5 SB Ramps	9. Bledsoe St/Olive View Dr	10. Bledsoe St/Foothill Blvd	11. Bledsoe St/Glenoaks Blvd	12. Polk St/I-210 WB Ramps	13. Polk St/I-210 EB Ramps	14. Polk St/Foothill Blvd
I-5 SB Ramps: 153 (108) / 1,148 (1,377); 251 (265) / 1 (3) / 8 (0); 32 (17) / 641 (122)	Olive View Dr: 52 (85) / 36 (46) / 6 (22); 20 (8) / 147 (132) / 60 (33); 63 (15) / 115 (99) / 50 (125); 125 (68) / 77 (19) / 94 (34)	Foothill Blvd: 30 (19) / 99 (48) / 104 (156); 171 (95) / 309 (311) / 129 (90); 79 (19) / 339 (326) / 36 (17); 47 (25) / 95 (41) / 229 (107)	Glenoaks Blvd: 28 (26) / 135 (71) / 66 (45); 93 (57) / 470 (365) / 123 (90); 56 (50) / 680 (562) / 151 (96); 64 (43) / 102 (82) / 155 (116)	I-210 WB Ramps: 328 (156) / 767 (567); 164 (285) / 2 (1) / 531 (653); 279 (228) / 574 (644)	I-210 EB Ramps: 972 (997) / 364 (212); 154 (175) / 3 (0) / 309 (299); 636 (697) / 894 (578)	Foothill Blvd: 317 (306) / 635 (584) / 326 (399); 399 (392) / 338 (411) / 164 (178); 460 (267) / 569 (405) / 89 (61); 67 (72) / 660 (590) / 203 (239)

Figure 12
Cumulative (2035) Base Peak Hour Traffic Volumes

CUMULATIVE (2035) PLUS PROJECT TRAFFIC VOLUMES

Estimated project traffic volumes in Figure 8 were added to the Cumulative (2035) Base traffic volumes in Figure 12 to create the Cumulative (2035) plus Project volumes, illustrated in Figure 13. The Cumulative (2035) plus Project scenario presents future traffic conditions following the completion of the proposed project.

Table 6 summarizes the Cumulative (2035) plus Project LOS analysis. Three of the study intersections are projected to operate at LOS E during the AM peak hour:

8. Roxford Street & I-5 Southbound Ramp
13. Polk Street & I-210 Eastbound Ramps
14. Polk Street & Foothill Boulevard

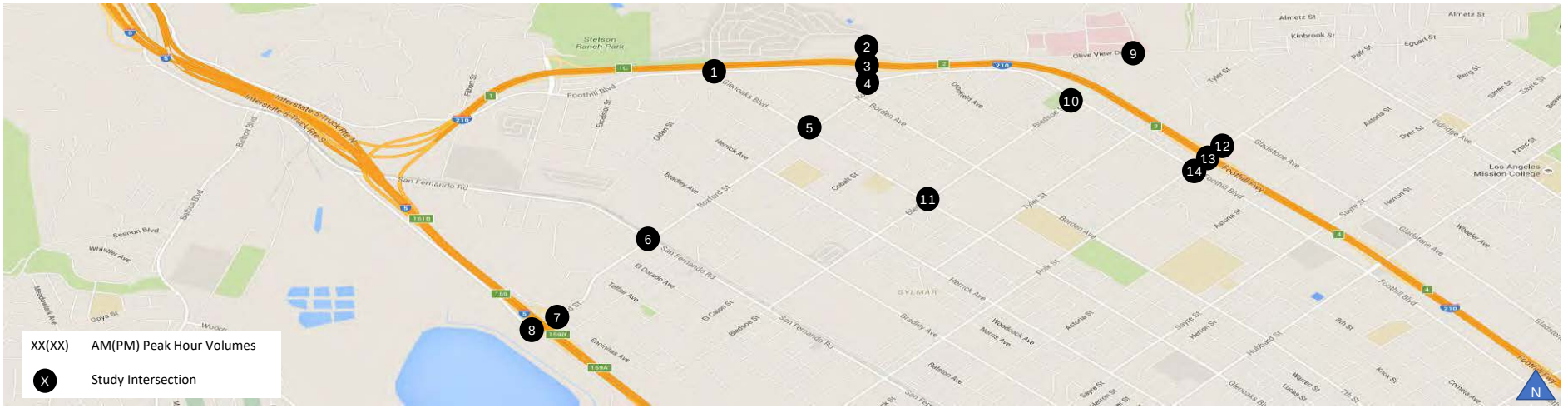


Figure 13
Cumulative (2035) + Project Peak Hour Traffic Volumes

TABLE 6
CUMULATIVE (2035) PLUS PROJECT
INTERSECTION LEVEL OF SERVICE ANALYSIS

ID [a]	North/South Street Name	East/West Street Name	Peak Hour	Cumulative		Cumulative+Project		Project Increase In V/C	Significant Impact?
				V/C	LOS	V/C	LOS		
1	Glenoaks Blvd	Foothill Blvd	AM	0.283	A	0.301	A	0.018	NO
			PM	0.197	A	0.217	A	0.020	NO
2	Roxford Street	I-210 Westbound Ramps	AM	0.596	A	0.642	B	0.046	NO
			PM	0.539	A	0.634	B	0.095	NO
3	Roxford Street	I-210 Eastbound Ramps	AM	0.607	B	0.692	B	0.085	NO
			PM	0.419	A	0.459	A	0.040	NO
4	Roxford Street	Foothill Blvd	AM	0.747	C	0.779	C	0.032	NO
			PM	0.508	A	0.523	A	0.015	NO
5	Roxford Street	Glenoaks Blvd	AM	0.630	B	0.655	B	0.025	NO
			PM	0.411	A	0.423	A	0.012	NO
6	Roxford Street	San Fernando Road	AM	0.588	A	0.592	A	0.004	NO
			PM	0.487	A	0.495	A	0.008	NO
7	Roxford Street	Encinitas Ave/I-5 Northbound	AM	0.809	D	0.819	D	0.010	NO
			PM	0.568	A	0.579	A	0.011	NO
8	Roxford Street	I-5 Southbound Ramps	AM	0.969	E	0.973	E	0.004	NO
			PM	0.703	C	0.715	C	0.012	NO
10	Bledsoe St	Foothill Blvd	AM	0.292	A	0.310	A	0.018	NO
			PM	0.220	A	0.242	A	0.022	NO
11	Bledsoe St	Glenoaks Blvd	AM	0.492	A	0.493	A	0.001	NO
			PM	0.336	A	0.340	A	0.004	NO
12	Polk St	I-210 Westbound Ramps	AM	0.807	D	0.822	D	0.015	NO
			PM	0.729	C	0.737	C	0.008	NO
13	Polk St	I-210 Eastbound Ramps	AM	0.945	E	0.951	E	0.006	NO
			PM	0.666	B	0.680	B	0.014	NO
14	Polk St	Foothill Blvd	AM	0.909	E	0.918	E	0.009	NO
			PM	0.836	D	0.854	D	0.018	NO

[a] Intersection 9 is stop controlled and is analyzed only to determine the need for signalization, per LADOT guidelines.

4. TRAFFIC IMPACT ANALYSIS

This section presents an analysis of the information in the previous chapter to determine the potential traffic impacts of the proposed project on the operating conditions of the surrounding street system. The traffic impact analysis compares the projected LOS at each signalized study intersection under Existing (2019) plus Project conditions to the Existing (2019) conditions and under Cumulative (2035) plus Project conditions to the Cumulative (2035) Base conditions to estimate the incremental increase in the V/C ratio caused by the proposed project. This provides the information needed to assess the potential impact of the project using significance criteria established by local jurisdictions.

SIGNIFICANT TRAFFIC IMPACT CRITERIA

Although the County of Los Angeles is the lead agency for this project, all study intersections are located in the City of Los Angeles. The County defers to the City's threshold of significance for this project.

The City of Los Angeles has established threshold criteria to determine significant traffic impacts of a project in its jurisdiction[3]. Under the LADOT guidelines, an intersection would be significantly impacted if it experienced an increase in V/C ratio equal to or greater than 0.04 for intersections operating at LOS C, equal to or greater than 0.02 for intersections operating at LOS D, and equal to or greater than 0.01 for intersections operating at LOS E or F after the addition of project traffic. Intersections operating at LOS A or B after the addition of the project traffic are not considered significantly impacted regardless of the increase in V/C ratio. The following summarizes the impact criteria:

LOS	Final V/C Ratio	Project-Related Increase in V/C
C	0.701 - 0.800	equal to or greater than 0.040
D	0.801 - 0.900	equal to or greater than 0.020
E or F	> 0.901	equal to or greater than 0.010

[3] *Traffic Study Policies and Procedures* (City of Los Angeles Department of Transportation, December 2016).

EXISTING PLUS PROJECT IMPACT ANALYSIS

The Existing plus Project volumes as estimated in the previous chapter were analyzed to determine potential operating conditions and traffic impacts with the addition of incremental project-generated traffic associated with the Tier I development of Olive View-UCLA Medical Center Master Plan on the Existing conditions. Table 4 shows the results of the analysis. After applying the aforementioned significant impact criteria, it was determined that the proposed project would result in no significant impacts at analyzed intersections under Existing (2019) plus Project conditions. Detailed level of service worksheets are provided in Appendix C.

CUMULATIVE (2035) PLUS PROJECT IMPACT ANALYSIS

The Cumulative (2035) plus Project peak hour traffic volumes were analyzed to determine the projected V/C ratio and LOS for each of the analyzed intersections. Table 6 summarizes the Cumulative (2035) plus Project LOS. As shown in the table, using the criteria for determination of significant impacts, the proposed project would result in no significant impacts at analyzed intersections under Cumulative (2035) plus Project conditions. Detailed level of service worksheets are provided in Appendix C.

MITIGATION MEASURES

The traffic impact analysis determined that the proposed development would not result in significant traffic impacts at any of the analyzed intersections under Existing plus Project or Cumulative (2035) plus Project conditions. Therefore, no mitigations are required.

SIGNAL WARRANT ANALYSIS

Olive View Drive & Bledsoe Street (intersection #9) is currently unsignalized. The City of Los Angeles traffic analysis methodology and significance criteria apply to signalized intersections only. Impact analysis is not conducted for unsignalized intersections. The LADOT Traffic Study Policies & Procedures state that "unsignalized intersections should be evaluated solely to determine the need for the installation of a traffic signal or other traffic control device."

Traffic volumes and lane configurations – using volumes from Figures 5, 9, 12 and 13 – were used to prepare signal warrant analyses at the unsignalized intersections under Existing, Existing plus Project, Cumulative

(2035) Base, and Cumulative (2035) plus Project conditions. The warrant analyses were conducted in accordance with the procedures described in Chapter 4C of the *California Manual on Uniform Traffic Control Devices 2014* (MUTCD 2014). The warrant for a traffic signal is met if the following conditions exist for the same one hour of an average day:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a stop sign equals or exceeds four vehicle-hours for a 1-lane approach or five vehicle-hours for a 2-lane approach.
2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes.
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

As shown in Table 7, the Bledsoe Street & Olive View Drive intersection does not meet the signal warrant thresholds. Signal warrant worksheets are included in Appendix E.

TABLE 7
INTERSECTION SIGNAL WARRANT ANALYSIS

ID	N/S Street Name	E/W Street Name	Analyzed Period	Existing	Existing plus Project	Cumulative (2035) Base	Cumulative (2035) plus Project
9 [a]	Bledsoe St	Olive View Dr	AM	NO	NO	NO	NO
			PM	NO	NO	NO	NO

[a] Detailed analysis presented in Appendix E.

5. REGIONAL TRANSPORTATION IMPACT ANALYSIS

This chapter presents an analysis of potential project impacts on the regional transportation system in terms of vehicular and transit service impacts. This analysis was conducted in accordance with the transportation impact analysis (TIA) procedures outlined in *2010 Congestion Management Program for Los Angeles County* (Los Angeles County Metropolitan Transportation Authority, October 2010). The Congestion Management Program (CMP) requires that, when an environmental impact report (EIR) is prepared for a project, traffic and transit impact analyses be conducted for select regional facilities based on the quantity of project traffic expected to use these facilities.

In addition, after consultation with Caltrans, further analyses of State facilities was conducted to determine the potential project impacts. An analysis was conducted for freeway mainline segments, freeway ramp queueing and a signalized intersection involving Caltrans-controlled facilities.

CMP TRAFFIC IMPACT ANALYSIS

CRITERIA FOR ANALYSIS

The CMP guidelines state that the first issue addressed be the determination of the geographic scope of the study area. The criteria for determining the study area for CMP arterial monitoring intersections and for freeway monitoring locations are:

- All CMP arterial monitoring intersections where the proposed project will add 50 or more trips during either the AM or PM weekday peak hours of adjacent street traffic.
- All CMP mainline freeway monitoring locations where the proposed project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.

The CMP traffic impact analysis guidelines establish that a significant project impact occurs when the proposed project increases traffic demand on a CMP facility by 2% or more of capacity (V/C 0.02), causing or worsening LOS F (V/C > 1.00).

ARTERIAL MONITORING STATION ANALYSIS

The CMP arterial monitoring stations nearest to the project study area are Sierra Highway & San Fernando Road to the north and Victory Boulevard & Woodman Avenue to the south. These intersections are approximately three and 10 miles from the project site, respectively. Based on the project trip generation estimates and distribution, the proposed project would not add 50 or more vehicle trips through either of these stations. Therefore, no further analysis is required for the CMP arterial intersections.

FREEWAY MAINLINE MONITORING STATION ANALYSIS

This section presents an analysis of potential project impacts on the regional freeway system. This analysis was conducted in accordance with the transportation impact analysis procedures outlined in the CMP. The nearest CMP mainline freeway monitoring locations nearest to the project site are:

- I-5 north of State Route 14 (Station 1008)
- I-5 at Osborne Street (Station 1007)
- I-210 east of Polk Street (1058)

According to the trip generation estimates shown in Table 3 and trip distribution estimates presented in Figure 6, the project would result in an increase of up to 58 inbound trips in the morning and up to 60 outbound trips in the evening peak hour on I-5 north of State Route 14, an increase of up to 129 inbound trips in the morning and up to 135 outbound trips in the evening peak hour on I-5 at Osbourne Street, and an increase of up to 72 inbound trips in the morning and up to 75 outbound trips in the evening peak hour on I-210 east of Polk Street. Since fewer than 150 trips would be added during the AM or PM peak hours in the vicinity of the study area, no further analysis of the freeway segments at these segments is required for CMP purposes. A further analysis of the regional freeway system, using both Caltrans and CMP methodology, for I-210, is discussed below.

REGIONAL TRANSIT IMPACT ANALYSIS

Potential increases in transit person trips generated by the proposed project were estimated as follows. Section D.8.4 of the CMP provides a methodology for estimating the number of transit trips expected to result from a proposed project based on the number of vehicle trips. This methodology assumes an average vehicle ridership (AVR) factor of 1.4 in order to estimate the number of person trips to and from the project and then provides guidelines regarding the percentage of person trips assigned to public transit depending on the type of use (commercial versus residential) and the proximity to transit services. Since the project

site is not located within ¼ mile of a designated CMP transit corridor, the CMP guidelines estimate that approximately 3.5% of total person trips generated might use public transit to travel to and from the site. It should be noted that the trip generation estimates for this project include a more conservative transit estimate of 2% based on existing data collected at the site.

Based on the trip generation shown in Table 3, including transit/walk/bike and carpool credits, the existing site is estimated to generate 6,132 daily trips, and the proposed project is estimated to generate 9,973 daily trips, for a net new daily trips of 3,841. Using this same methodology, there are 393 net new AM trips and 401 net new PM trips. Applying the CMP guidelines by converting the vehicle trips to person trips by multiplying by a 1.4 AVR (393 net AM peak hour trips x 1.4 = 550 and 401 net PM peak hour trips x 1.4 = 561) and applying a 3.5% transit use factor (550 net AM peak hour person trips x 3.5% = 19 and 561 net PM peak hour person trips x 3.5% = 20), results in an estimate of approximately 20 new transit person trips during the weekday AM and PM peak hours.

Within ¼ mile of the project site, Metro operates two local lines and within two miles LADOT operates one express bus. These routes have peak period headways of between 20 and 40 minutes. The bus services have an approximate capacity of approximately 560 persons during the peak hours, based on a seating capacity of 40 persons for a standard bus and 40 persons for an express bus and a policy load factor of 1.0. The proposed project would utilize 4% of available transit capacity during the peak hours. Based on this estimate, the project impact is expected to be less than significant.

ANALYSIS OF STATE HIGHWAY SYSTEM

RAMP QUEUEING ANALYSIS

A freeway ramp queuing analysis was conducted at five freeway ramp terminal intersections in the project vicinity in response to a request from Caltrans:

- I-210 Westbound Off-Ramp at Roxford Street (Exit 2)
- I-210 Eastbound Off-Ramp at Roxford Street (Exit 2)
- I-210 Westbound Off-Ramp at Polk Street (Exit 3)
- I-210 Eastbound Off-Ramp at Polk Street (Exit 3)
- I-5 Northbound Off-Ramp at Roxford Street (Exit 159A)

The Synchro traffic analysis software was used to implement the HCM methodology to calculate the 95th percentile queues at and compare them with the available vehicle storage on these ramps. Traffic signal-related information such as phasing and timing plans (minimum green, maximum green, gap, etc.) were obtained from LADOT for each location and the morning and evening peak hour traffic volumes from this study were used. Additional detail such as turn pocket lengths and ramp lengths was coded based on scaled distances from on-line aerial photographs. Following consultation between County staff and Caltrans staff, it was agreed that for the purposes of this study, an impact would be considered adverse if the off-ramp queue extends beyond the length of the ramp itself onto the mainline of the freeway during the peak arrival period. For the purposes of this project the queueing analysis uses the 85% of the ramp length as the effective length. Detailed queue calculations are provided in Appendix D.

Table 8 presents a summary of the ramp queuing analysis for Existing conditions and the Existing plus Project, and Cumulative (2035) plus Project scenarios. The queue lengths are shown not exceed the available ramp storage at any of the locations.

At the request of Caltrans, the existing and projected traffic queues on the northbound left-turn lane from Roxford Street onto westbound I-210 were calculated. The northbound left-turn lane from Roxford Street onto eastbound I-210 is approximately 180 feet long. Under existing conditions, the 95th percentile queue is calculated to be approximately 230 feet in the AM peak hour and 80 feet in the PM peak hour, increasing under Existing plus Project conditions to 245 feet in the AM peak hour and 145 feet in the PM peak hour. The projected 95th percentile northbound left-turn queue under Cumulative plus Project conditions is approximately 355 feet in the AM peak hour and 180 feet in the PM peak hour. Thus, the available storage length is exceeded under existing and future conditions in the AM peak hour. In the PM peak hour under all scenarios the available storage would not be exceeded. Potential options to increase the queue storage on the northbound approach could include (a) modifying the signal timing to provide more green time for this movement when needed or (b) extending the turn lane by restriping the median and left-turn lane. Queuing on a local street is not identified as significant impact in this study and these options are not recommended as mitigation measures but are provided as information at the request of Caltrans.

FREEWAY MAINLINE ANALYSIS

Morning and afternoon peak hour analysis of two selected freeway mainline segments in the project vicinity was conducted in response to a request from Caltrans:

- I-210 west of SR 118
- I-210 east of I-5

Caltrans Performance Measurement System (PeMS) data from October 2018 was used for highway counts. Project-generated trips were assigned to the regional freeway system as described in Chapter 3. The freeway level of service methodology described in the *Highway Capacity Manual* was used to determine the vehicle density on each analyzed segment (passenger cars per mile per lane) by direction and the corresponding level of service. The level of service definitions used for freeway mainline segments are shown in Table 9.

Following consultation with County staff and Caltrans staff, it was agreed that for the purposes of this study, an impact would be considered adverse if the analyzed freeway segment were found to operate at LOS F and the vehicle to capacity ratio increased by more than 2%. As shown in Table 10, this condition is not met at any of the analyzed freeway segments and the project impact would be considered less than significant.

TABLE 8
PEAK HOUR OFF-RAMP INTERSECTION 95TH PERCENTILE QUEUES

Ramp	Cross Street	Ramp Length (ft) [a]	85% Ramp Length (ft)	Ramp Turn Lanes at Intersection			Control	Existing				Queue 85% Exceeds Storage?	Existing + Project				Queue 85% Exceeds Storage?
								AM Queue		PM Queue			AM Queue		PM Queue		
				Lanes	Move	Length [a]		Lane (ft)	Max (ft)	Lane (ft)	Max (ft)		Lane (ft)	Max (ft)	Lane (ft)	Max (ft)	
I-210 Westbound Off-Ramp	Roxford Street	1110	940	2	Left Right/Through/Left	520 1110	Signal	152 95	152	106 63	106	No	167 131	167	108 58	108	No
I-210 Eastbound Off-Ramp	Roxford Street	1050	890	2	Right Through/Left	550 1050	Signal	46 187	187	39 72	72	No	46 331 [b]	331 [b]	38 94	94	No
I-210 Westbound Off-Ramp	Polk Street	930	790	2	Right Through/Left	460 930	Signal	20 176	176	45 435 [b]	435 [b]	No	21 187	187	45 442 [b]	442 [b]	No
I-210 Eastbound Off-Ramp	Polk Street	1180	1000	2	Right Through/Left	690 1180	Signal	118 58	118	112 66	112	No	120 58	120	112 66	112	No
I-5 Southbound Off-Ramp	Roxford Street	980	830	2	Through/Left Through/Right	980 250	Signal	410 [b] 98	410[b]	340 [b] 52	340 [b]	No	417 [b] 98	417 [b]	355 [b] 52	355 [b]	No
I-5 Northbound Off-Ramp at Encinitas Ave	Roxford Street	1500	1280	2	Left Through/Right	190 1500	Signal	53 310 [b]	310 [b]	40 572 [b]	572 [b]	No	53 317 [b]	317 [b]	40 592 [b]	592 [b]	No

Ramp	Cross Street	Ramp Length (ft) [a]	85% Ramp Length (ft)	Ramp Turn Lanes at Intersection			Control	Cumulative (2035) plus Project				Queue 85% Exceeds Storage?
								AM Queue		PM Queue		
				Lanes	Move	Length [a]		Lane (ft)	Max (ft)	Lane (ft)	Max (ft)	
I-210 Westbound Off-Ramp	Roxford Street	1110	940	2	Left Right/Through/Left	520 1110	Signal	200 163	200	116 66	116	No
I-210 Eastbound Off-Ramp	Roxford Street	1050	890	2	Right Through/Left	550 1050	Signal	149 354 [b]	354 [b]	46 101	101	No
I-210 Westbound Off-Ramp	Polk Street	930	790	2	Right Through/Left	460 930	Signal	46 234	234	89 535 [b]	535 [b]	No
I-210 Eastbound Off-Ramp	Polk Street	1180	1000	2	Right Through/Left	690 1180	Signal	140 71	140	136 80	136	No
I-5 Southbound Off-Ramp	Roxford Street	980	830	2	Through/Left Through/Right	980 250	Signal	500 [b] 108	500	473 [b] 57	473 [b]	No
I-5 Northbound Off-Ramp at Encinitas Ave	Roxford Street	1500	1280	2	Left Through/Right	190 1500	Signal	62 373 [b]	373 [b]	15 448 [b]	448 [b]	No

[a]: Storage lengths based on scaled distances from on-line aerial photographs
[b]: 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles

TABLE 9
LEVEL OF SERVICE DEFINITIONS FOR
FREEWAY MAINLINE AND
MULTILANE HIGHWAY SEGMENT ANALYSES

LOS Criteria for Freeway Segments

Level of Service	Density Range (pc/mi/ln)*
A	0-11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	>45

Note:

* pc/mi/ln denotes passenger cars per mile per lane

Source: Highway Capacity Manual, Exh. 23-3, Transportation Research Board, 2010.

TABLE 10
EXISTING AND CUMULATIVE (2035) PEAK HOUR FREEWAY SEGMENT ANALYSIS

Name [a]	Peak Hour	Direction	Existing				Existing plus Project				Change in V/C	Project Impact? [b]
			Density (pc/mi/ln)*	LOS	Volume	V/C	Density (pc/mi/ln)*	LOS	Volume	V/C		
I-210 between Yarnell Street and Roxford Street	AM	EB	45.8	F	6,518	0.925	48.0	F	6,647	0.943	0.018	NO
	AM	WB	23.2	C	4,131	0.586	23.4	C	4,179	0.593	0.007	NO
	PM	EB	32.2	D	6,214	0.881	32.6	D	6,260	0.888	0.007	NO
	PM	WB	46.5	F	6,562	0.931	48.8	F	6,697	0.950	0.019	NO
I-210 between Polk Street and Hubbard Street	AM	EB	41.4	E	6,214	0.881	41.8	E	6,240	0.885	0.004	NO
	AM	WB	28.6	D	4,936	0.700	29.1	D	5,008	0.710	0.010	NO
	PM	EB	34.2	D	5,582	0.792	34.9	D	5,657	0.802	0.010	NO
	PM	WB	98.1	F	8,159	1.157	99.7	F	8,184	1.161	0.004	NO

Name [a]	Peak Hour	Direction	Cumulative (2035)				Cumulative (2035) plus Project				Change in V/C	Cumulative Impact? [b]
			Density (pc/mi/ln)*	LOS	Volume	V/C	Density (pc/mi/ln)*	LOS	Volume	V/C		
I-210 between Yarnell Street and Roxford Street	AM	EB	58.8	F	7,172	1.017	62.2	F	7,301	1.036	0.019	NO
	AM	WB	25.9	C	4,566	0.648	26.2	D	4,614	0.654	0.006	NO
	PM	EB	37.5	E	5,893	0.836	38.0	E	5,939	0.842	0.006	NO
	PM	WB	58.5	F	7,162	1.016	62.0	F	7,297	1.035	0.019	NO
I-210 between Polk Street and Hubbard Street	AM	EB	49.9	F	6,758	0.959	50.4	F	6,784	0.962	0.003	NO
	AM	WB	32.6	D	5,417	0.768	33.3	D	5,489	0.779	0.011	NO
	PM	EB	39.9	E	6,097	0.865	40.8	E	6,172	0.875	0.010	NO
	PM	WB	174.7	F	8,840	1.254	179.7	F	8,865	1.257	0.003	NO

Notes:
* pc/mi/ln denotes passenger cars per mile per lane
[a] Analyzed using Freeway methodology from *Highway Capacity Manual,* Transportation Research Board, 2010.
[b] Impact criteria for this project is defined under 2 conditions. One as mainline LOS F with project compared to mainline LOS < F without project.
The second is if mainline without project is already LOS F and mainline with project is 2% increase in volume/capacity.

6. ACTIVE TRANSPORTATION FACILITY REVIEW

As discussed in Chapter 2, the pedestrian network both within the medical center campus and adjacent to the site is incomplete. Sidewalks exist on portions of Olive View Drive, typically portions that are adjacent to developed residential properties, but sidewalks are discontinuous in front of the site. Many streets in the vicinity are bordered by dirt paths that are used by both pedestrians and equestrians. Not all intersections with sidewalks have ADA accessible ramps, and there are currently no marked crossings on Olive View Drive. Bledsoe Street, the most direct access street for pedestrians coming from the south, also does not have sidewalks or marked crossings north of Foothill Boulevard, with the exception of the bridge crossing I-210.

Within the western portion of the medical center campus, there is little dedicated pedestrian infrastructure in place. Throughout the eastern portion of the campus, however, near the hospital, sidewalks are generally present. Marked crosswalks connect the hospital building with adjacent parking lots. Sidewalks do not exist within the parking lots adjacent to the hospital, requiring pedestrians to walk through the aisles in order to access the pedestrian network. Sidewalks and crosswalks exist near the mental health building, and several crosswalks are also present on Bucher Avenue and Mesa Avenue. Within the site, the pedestrian facilities that exist are generally in good condition: sidewalks are well maintained and crosswalks are clearly visible. There is currently no dedicated bicycle infrastructure either within the project site or immediately adjacent to the project site.

The Master Plan for Olive View-UCLA Medical Center would modify pedestrian circulation patterns within the site, as shown in Figure 7. New sidewalks and paths would be provided on the north side of Olive View Drive, creating uniform pedestrian facilities boarding the campus. Internally, new pedestrian paths will link the existing hospital building, the new ambulatory care center and administration building with the parking structure. These improvements will address many of the existing gaps in the pedestrian network within the site.

Figure 14 identifies additional areas that can be targeted for pedestrian improvements. The figure shows locations for possible short and long-term potential improvements. Short-term improvements are identified at the intersection of Olive View Drive & Bledsoe Street, on Mesa Avenue within the site, and connecting the eastern and western portions of the campus. Short-term improvement could include, but are not limited to, signage (regulatory, warning and guidance) and striping.



Short term improvements Long term improvements Vehicular access Parking Entry

\\fpla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\INDD\Fig 14. ExistingSiteCirc.indd

Figure 14

Existing Site Circulation and Identified Locations for Potential Pedestrian Improvements

Potential short-term improvements are shown in Figure 15, including pedestrian warning signage on Mesa Avenue and Bucher Avenue, marked crosswalks at Olive View Drive & Bledsoe Street, and improved pedestrian wayfinding and paths west of the hospital. Long-term improvements have been identified on Olive Drive adjacent to the site and on Bledsoe Drive connecting the site with the surrounding neighborhood. Long-term improvement may include larger infrastructure projects, such as sidewalk and trail construction. Tier I development includes trail and circulation changes that will improve pedestrian circulation on the site, as seen in Figure 16. Additional long-term improvements on Olive View Drive and Bledsoe Street should be made after receiving community input.



Improve pedestrian wayfinding and paths

Pedestrian warning sign

Marked crossing

Vehicular access

Parking Entry

Figure 15

Existing Site Circulation and Potential Short Term Pedestrian Improvements

\\fpla03\data\Jobs\Active\2800s\2811_Olive View\Graphics\INDD\Fig 15. ShortTermPed.indd



Community Events
Gathering Area
Camp Site
Gardens
Nature Discovery
Quiet Space
Bike
Sensory/Habitat
Wild Flowers
Dog Friendly
Family
Healing Garden
Picnic / Seating
View Deck
Riparian
Active / Fitness
Trailhead
Retail
Visitor Center

\\fpla03data\Jobs\Active\2800s\2811_Olive View\Graphics\INDD\Fig 16. Tier 1 Planned Trail Development.indd

Figure 16

Tier 1 Planned Trail Development

7. TIER II ANALYSIS

PROJECT TRAFFIC

As indicated in Chapter 1, the Master Plan allows for development beyond the 2035 planning horizon of Tier I development that is fully analyzed in this study. Tier II development is envisioned to include the following net changes compared to existing conditions:

- Addition of 43,700 square feet (sf) of administrative office space
- Addition of 103,000 sf of new utility plant and maintenance facilities
- Addition of 913,000 sf of new hospital space
- Addition of 18,800 sf of warehouse/storage space
- Removal of 11,000 sf of mental health facilities
- Addition of 128 short-term housing units for special needs patients
- Addition of 20,000 sf of community center space
- Addition of 120,000 sf of research and development space
- Addition of 40,000 sf of retail space

Tier II development on the site was qualitatively evaluated to determine its potential impacts on the surrounding transportation system. Trip generation was estimated and a qualitative assessment of potential traffic impacts was made for informational purposes at this time. A quantitative analysis of each alternative was not prepared for Tier II development as part of this study, as no specific entitlements for development of that long-term vision for the medical center are currently sought.

Vehicle trip generation for the project was estimated using the same methodology described in Chapter 3, including internal trip credits, bike/walk/transit credits and carpool credits.

Table 11 presents the estimated trip generation for full development of Tier II. Compared to the existing development on the site, the full buildout is estimated to generate a net increase of approximately 10,509 daily trips, including approximately 774 trips (545 inbound/229 outbound) during the AM peak hour and approximately 927 trips (282 inbound/645 outbound) during the PM peak hour. Overall distribution pattern for these trips would be similar to what is described above for Tier I development.

POTENTIAL IMPACTS OF TIER II DEVELOPMENT

The increase in project trips associated with the full buildout of Tier II development and the expected increase of ambient trips beyond 2035 near the project could lead to impacts at some intersections in the vicinity.

The estimated trip generation of full buildout of the Master Plan would be approximately 190% to 280% higher than that of Tier I development in each of the analyzed peak hours. While no intersection-level impacts were identified based on projected Cumulative plus Project levels of service and applicable threshold criteria, the level of increased project-generated traffic with full development could result in significant impacts at several study intersections: Polk Street & I-210 Eastbound Ramps (Study Intersection 13) and Polk Street & Foothill Boulevard (Study Intersection 14). Overall, the level of project-related increase in traffic at the other analyzed intersections would be higher than with Tier I development only, and other locations could be significantly impacted.

TABLE 11
PROJECT TRIP GENERATION ESTIMATES
OLIVE VIEW-UCLA MEDICAL CENTER MASTER PLAN TIER II DEVELOPMENT

	Land Use	ITE Land Use Code	Size [a]	Trip Generation Rates [b]							Estimated Trip Generation						
				Daily	AM Peak Hour			PM Peak Hour			Daily	AM Peak Hour Trips			PM Peak Hour Trips		
				Rate	Rate	% In	% Out	Rate	% In	% Out	Trips	In	Out	Total	In	Out	Total
Existing	**EXISTING USE**																
	Administrative Office	710	108.000 ksf	*[c]*	*[c]*	*86%*	*14%*	*[c]*	*16%*	*84%*	1,143	110	18	128	19	103	122
	Day Care Center	565	82 Students	*4.09*	*[d]*	*53%*	*47%*	*[d]*	*47%*	*53%*	335	34	29	63	29	33	62
	Central Utilities/Industrial /Infrastructure [e]	120	51.000 ksf	*1.5*	*0.51*	*88%*	*12%*	*0.68*	*12%*	*88%*	77	23	3	26	4	31	35
	Hospital/Inpatient	610	534.300 ksf	*10.72*	*[f]*	*68%*	*32%*	*[f]*	*32%*	*68%*	5,728	355	167	522	175	374	549
	Warehouse/Storage	150	49.300 ksf	*[g]*	*[g]*	*77%*	*23%*	*[g]*	*27%*	*73%*	123	24	7	31	9	25	34
	Mental Health	720	11.000 ksf	*[h]*	*[h]*	*78%*	*22%*	*[h]*	*28%*	*72%*	335	24	7	31	11	28	39
	Project Site Subtotal										**7,742**	**570**	**231**	**801**	**247**	**594**	**841**
	Internal Capture (10%) [j]										*-774*	*-57*	-23	*-80*	*-25*	-59	*-84*
	Transit/Walk/Bike Credit (2%) [k]										*-139*	*-10*	-4	*-14*	*-4*	-11	*-15*
	Carpool (10%) [l]										*-697*	*-51*	-21	*-72*	*-22*	-54	*-76*
	Total Existing Trips										**6,132**	**452**	**183**	**635**	**196**	**470**	**666**
Proposed	**PROPOSED PROJECT (TIER I + II)**																
	Administrative Office	710	96.000 ksf	*[c]*	*[c]*	*86%*	*14%*	*[c]*	*16%*	*84%*	1,020	101	16	117	18	92	110
	Day Care Center	565	82 Students	*4.09*	*[d]*	*53%*	*47%*	*[d]*	*47%*	*53%*	335	34	29	63	29	33	62
	Central Utilities/Industrial /Infrastructure [e]	120	154.000 ksf	*1.5*	*0.51*	*88%*	*12%*	*0.68*	*12%*	*88%*	231	69	10	79	13	92	105
	Hospital/Inpatient	610	1,436.00 ksf	*10.72*	*[f]*	*68%*	*32%*	*[f]*	*32%*	*68%*	15,394	809	380	1,189	418	889	1,307
	Community Center	495	20.000 ksf	*28.82*	*[i]*	*66%*	*34%*	*[i]*	*47%*	*53%*	576	51	26	77	34	38	72
	Warehouse/Storage	150	68.100 ksf	*[g]*	*[g]*	*77%*	*23%*	*[g]*	*27%*	*73%*	153	25	8	33	10	26	36
	Research & Development	760	120.000 ksf	*[m]*	*0.42*	*75%*	*25%*	*0.49*	*15%*	*85%*	1,432	37	13	50	9	50	59
	Retail	820	40.000 ksf	37.75	0.94	62%	38%	3.81	48%	52%	1,510	24	14	38	73	79	152
	Crisis Residential Housing	[n]	80 Units								306	74	20	94	0	74	74
	Recuperative Housing	[n]	48 Units								48	12	0	12	0	12	12
	Project Site Subtotal										**20,918**	**1,236**	**516**	**1,752**	**603**	**1,385**	**1,988**
	Internal Capture (10%) [j]										*-2,056*	*-115*	-50	*-165*	*-60*	-130	*-190*
	Transit/Walk/Bike Credit (2%) [k]										*-370*	*-21*	-9	*-30*	*-11*	-23	*-34*
	Carpool (10%) [l]										*-1,851*	*-103*	-45	*-148*	*-54*	-117	*-171*
	Total Proposed Trips										**16,641**	**997**	**412**	**1,409**	**478**	**1,115**	**1,593**
Net Change	**Net New Project**										**10,509**	**545**	**229**	**774**	**282**	**645**	**927**

a. Size in thousand square feet (ksf) unless otherwise noted
b. Source: Institute of Transportation Engineers (ITE), *Trip Generation, 10th Edition* , 2018, and *Trip Generation Handbook* (3rd Edition).
c. ITE administrative office trip generation equations used rather than linear trip generation rate:
   Daily: Ln(T) = 0.97 * Ln(A) + 2.50, where T = trips, A = area in ksf
   AM Peak Hour: T = 0.94(A) + 26.49, where T = trips, A = area in ksf
   PM Peak Hour: Ln(T) = 0.95 * Ln(A) + 0.36, where T = trips, A = area in ksf
d. ITE day care center trip generation equation used rather than linear trip generation rate for AM and PM periods:
   AM Peak Hour: T = 0.66(X) + 8.42, where T = trips, X = number of students
   PM Peak Hour: Ln(T) = 0.87 * Ln(X) + 0.29, where T = trips, X = number of students
e. ITE Code 120 not included in 10th Edition "Trip Generation." Rates and directional distribution taken from ITE 9th Edition code 120, General Heavy Industrial.
f. ITE hospital trip generation equation used rather than linear trip generation rate for AM and PM periods:
   AM Peak Hour: T = 0.74(A) + 126.36, where T = trips, A = area in ksf
   PM Peak Hour: T = 0.84(A) + 100.56, where T = trips, A = area in ksf
g. ITE warehousing trip generation equation used rather than linear trip generation rate:
   Daily: T = 1.58(A) + 45.54, where T = trips, A = area in ksf
   AM Peak Hour: T = 0.12(A) + 25.32, where T = trips, A = area in ksf
   PM Peak Hour: T = 0.12(A) + 27.82, where T = trips, A = area in ksf
h. ITE medical-dental office building trip generation equation used rather than linear trip generation rate:
   Daily: T = 38.42(A) - 87.62, where T = trips, A = area in ksf
   AM Peak Hour: Ln(T) = 0.89 * Ln(A) + 1.31, where T = trips, A = area in ksf
   PM Peak Hour: T = 3.39(A) + 2.02, where T = trips, A = area in ksf
i. ITE Recreational Community Center trip generation equations used rather than linear trip generation rate:
   AM Peak Hour: Ln(T) = 0.54 * Ln(A) + 2.73, where T = trips, A = area in ksf
   PM Peak Hour: Ln(T) = 0.76 * Ln(A) + 2.00, where T = trips, A = area in ksf
j. Internal capture represents the percentage of trips between land uses that occur within the site.
k. Transit/Walk/Bike Credit informted by data from the 2016 AQMD survey.
l. Carpool Credit informted by data from the 2016 AQMD survey.
m. ITE research and development trip generation equation used for daily trips, rather than linear trip generation rate:
   Daily: T = 10.23(A) + 204.68, where T = trips, A = area in ksf
n. See Table 3B for detailed trip generation estimates for this project element.

8. CONCLUSIONS

This study was undertaken to evaluate the potential traffic impacts of the proposed Olive View-UCLA Medical Center project. The following summarizes the results of this analysis:

- The proposed project is divided into two tiers of development. Only Tier I development (through 2035) was analyzed quantitatively as part of this report. Tier I would include increases in administrative office, central utilities, hospital, and community center and decreases in warehouse/storage space. Tier II development represents a long-term vision for full buildout of the medical center, but no specific entitlements beyond Tier I are now sought and limited analysis is provided here for information only.
- The study analyzed 13 signalized intersections, one unsignalized intersections and four directional freeway segments in the vicinity of the project.
- Tier I development is estimated to generate net new 3,841 daily trips, including 393 trips (288 inbound/105 outbound) during the AM peak hour and 401 trips (101 inbound/300 outbound) during the PM peak hour.
- The LOS analysis for Existing plus Project and the Cumulative (2035) plus Project scenarios determined that the proposed project would not significantly impact traffic at any intersections.
- Analyses of potential impacts on the regional transportation system conducted in accordance with CMP requirements determined that the project would not have a significant impact on CMP monitoring intersections, freeway mainline segments or transit.
- Peak hour signal warrant analysis was conducted for one stop-controlled intersection that is adjacent to the project site. The warrant was found not to be met under either existing or future conditions for the intersection of Olive View Drive & Bledsoe Street.
- Analyses of potential impacts on the regional transportation facilities in accordance with Caltrans found no project or cumulative impacts on Interstate 210 during either the AM or PM peak hours.
- A queueing analysis was conducted on freeway off ramps near the project site. Queueing does not exceed the ramp storage at any of the analyzed off-ramp locations during any of the analyzed time periods or scenarios.
- Compared to existing trip generation, Tier II development (full build-out of the master plan) is estimated to generate approximately net new 10,603 daily trips, including approximately 781 trips in the AM peak hour and approximately 934 trips in the PM peak hour. A qualitative assessment was made and potential impacts were identified.

REFERENCES

2010 Congestion Management Program for Los Angeles County (Los Angeles County Metropolitan Transportation Authority, October 2010)

Highway Capacity Manual (Transportation Research Board, 2010)

Los Angeles Mission College Facilities Master Plan and Public Recreation Improvement Program Draft Environmental Impact Report. Volume 1. (October 2005)

Mobility Plan 2035 (City of Los Angeles, 2015); https://la2b.org/documents/

Olive View - Medical Center Campus Master Plan. (Draft Print. August 26, 2015)

Sylmar Community Plan (City of Los Angeles Department of City Planning, June 2015)

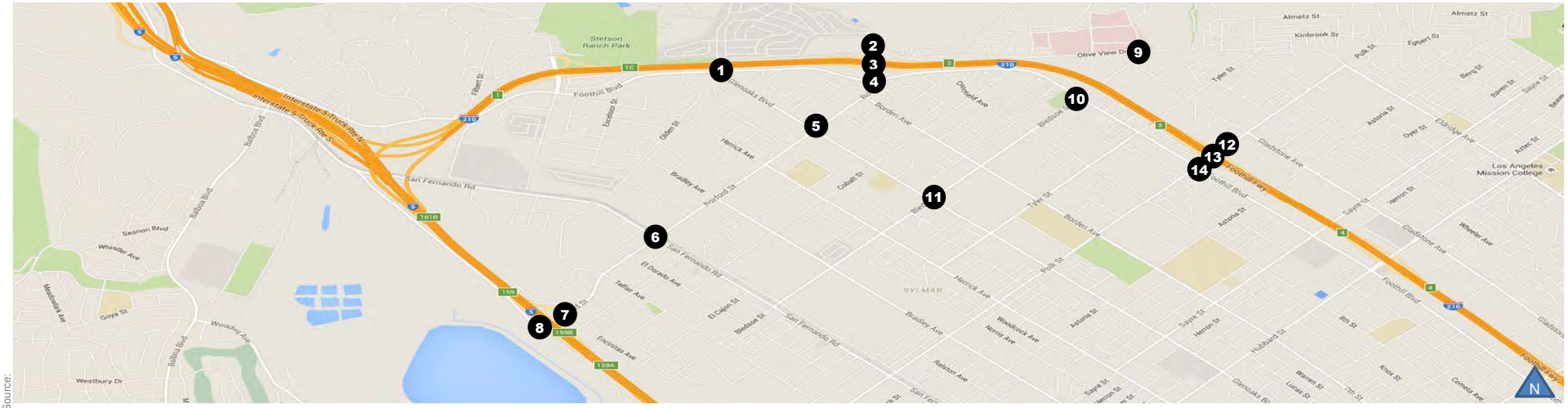
Traffic Study Policies and Procedures (City of Los Angeles Department of Transportation, December 2016)

Transportation Research Circular No. 212, Interim Materials on Highway Capacity (Transportation Research Board, 1980)

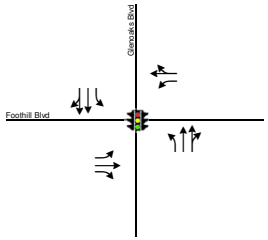
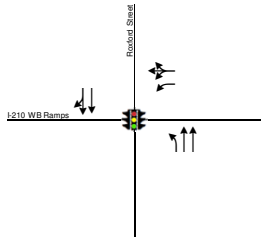
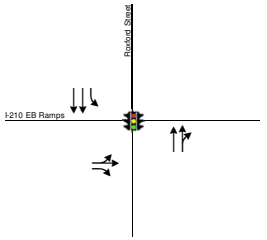
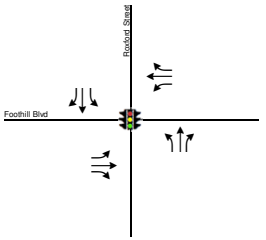
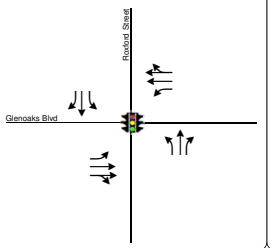
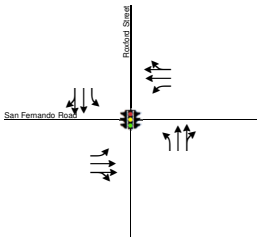
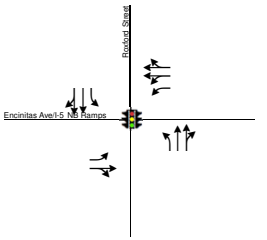
Trip Generation, 9th Edition (ITE, 2012)

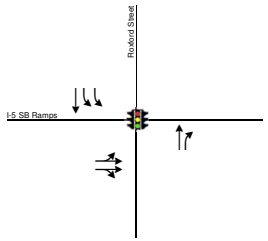
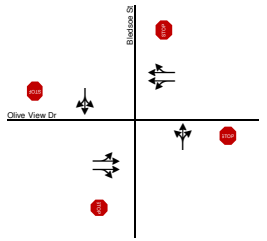
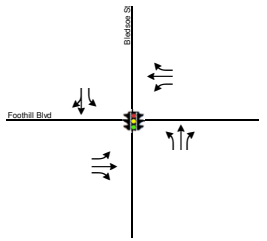
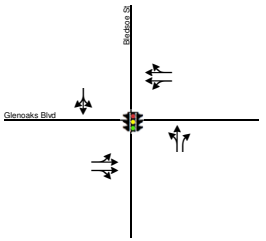
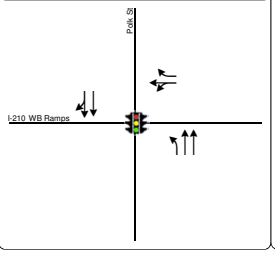
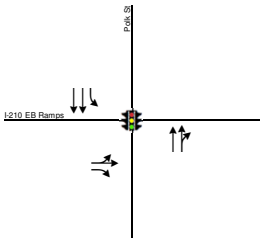
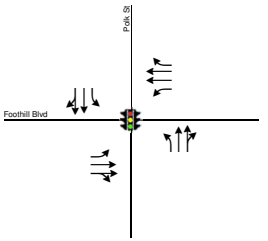
Trip Generation, 10th Edition (ITE, 2017)

APPENDIX A: INTERSECTION LANE CONFIGURATIONS



Source:

1. Glenoaks Blvd/Foothill Blvd	2. Roxford Street/I-210 WB Ramps	3. Roxford Street/I-210 EB Ramps	4. Roxford Street/Foothill Blvd	5. Roxford Street/Glenoaks Blvd	6. Roxford Street/San Fernando Road	7. Roxford Street/Encinitas Ave /I-5 NB Ramps
						

8. Roxford Street/I-5 SB Ramps	9. Bledsoe St/Olive View Dr	10. Bledsoe St/Foothill Blvd	11. Bledsoe St/Glenoaks Blvd	12. Polk St/I-210 WB Ramps	13. Polk St/I-210 EB Ramps	14. Polk St/Foothill Blvd
						

APPENDIX B: INTERSECTION TRAFFIC COUNTS

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5421-001 **Day:** Thursday

City: Sylmar **Date:** 6/9/2016

AM

NS/EW Streets:	Bledsoe St			Bledsoe St			Glenoaks Blvd			Glenoaks Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	0	1	0	0	2	0	0	2	0	
7:00 AM	2	10	14	8	12	6	6	100	16	21	67	11	273
7:15 AM	7	11	37	8	31	9	10	157	28	30	78	11	417
7:30 AM	6	40	44	18	35	12	17	171	31	32	119	24	549
7:45 AM	5	38	34	24	37	1	10	162	30	26	146	34	547
8:00 AM	4	5	27	10	20	4	14	133	25	24	88	16	370
8:15 AM	3	6	15	3	10	3	9	89	16	10	56	6	226
8:30 AM	2	8	8	5	6	5	5	48	7	10	54	6	164
8:45 AM	1	12	9	6	13	3	3	46	1	7	35	8	144
9:00 AM	5	5	6	1	4	1	3	32	3	9	35	4	108
9:15 AM	1	3	13	5	4	3	2	39	6	10	30	4	120
9:30 AM	1	7	23	6	5	4	3	41	1	6	31	2	130
9:45 AM	2	6	24	7	7	6	4	44	3	9	44	7	163
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	39	151	254	101	184	57	86	1062	167	194	783	133	3211
APPROACH %'s :	8.78%	34.01%	57.21%	29.53%	53.80%	16.67%	6.54%	80.76%	12.70%	17.48%	70.54%	11.98%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	22	94	142	60	123	26	51	623	114	112	431	85	1883
PEAK HR FACTOR :		0.717			0.804			0.900			0.762		0.857

UTURNS	NB	SB	EB	WB
TOTAL	0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5421-001 **Day:** Thursday

City: Sylmar **Date:** 6/9/2016

PM

NS/EW Streets:	Bledsoe St			Bledsoe St			Glenoaks Blvd			Glenoaks Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	0	1	0	0	2	0	0	2	0	
3:00 PM	4	14	13	15	28	11	11	63	11	28	93	19	310
3:15 PM	5	20	14	10	25	7	13	117	18	10	73	12	324
3:30 PM	5	25	36	5	14	9	7	134	29	33	80	13	390
3:45 PM	5	15	27	16	16	7	12	137	12	24	99	13	383
4:00 PM	6	15	30	10	10	1	13	127	11	16	82	14	335
4:15 PM	5	13	20	8	17	3	6	103	13	19	96	13	316
4:30 PM	10	24	18	16	13	10	5	101	9	25	88	12	331
4:45 PM	1	16	22	6	12	4	4	91	9	14	90	12	281
5:00 PM	3	22	24	9	6	7	4	103	18	18	71	14	299
5:15 PM	5	14	22	5	7	4	3	101	14	16	76	17	284
5:30 PM	2	16	22	9	16	6	4	77	10	20	91	15	288
5:45 PM	5	17	15	11	11	4	6	65	13	15	88	17	267
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	56	211	263	120	175	73	88	1219	167	238	1027	171	3808
APPROACH %'s :	10.57%	39.81%	49.62%	32.61%	47.55%	19.84%	5.97%	82.70%	11.33%	16.57%	71.52%	11.91%	
PEAK HR START TIME :	315 PM												TOTAL
PEAK HR VOL :	21	75	107	41	65	24	45	515	70	83	334	52	1432
PEAK HR FACTOR :		0.769			0.774			0.926			0.862		0.918

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-001 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Roxford St			Roxford St			I-210 WB Ramps			I-210 WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	2	0	0	0	0	1.3	0.3	0.3	
7:00 AM	65	114	0	0	30	50	0	0	0	64	0	25	348
7:15 AM	81	117	0	0	48	57	0	0	0	82	0	38	423
7:30 AM	80	152	0	0	58	121	0	0	0	108	0	29	548
7:45 AM	61	203	0	0	34	79	0	0	0	111	1	83	572
8:00 AM	52	140	0	0	32	40	0	0	0	87	2	38	391
8:15 AM	32	136	0	0	24	45	0	0	0	36	2	39	314
8:30 AM	37	102	0	0	27	45	0	0	0	37	2	27	277
8:45 AM	23	104	0	0	21	41	0	0	0	28	0	37	254
9:00 AM	25	79	0	0	41	34	0	0	0	22	0	21	222
9:15 AM	26	53	0	0	30	35	0	0	0	33	0	25	202
9:30 AM	22	64	0	0	32	43	0	0	0	21	0	20	202
9:45 AM	20	58	0	0	22	46	0	0	0	22	0	22	190
TOTAL VOLUMES :	524	1322	0	0	399	636	0	0	0	651	7	404	3943
APPROACH %'s :	28.39%	71.61%	0.00%	0.00%	38.55%	61.45%	#DIV/0!	#DIV/0!	#DIV/0!	61.30%	0.66%	38.04%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	274	612	0	0	172	297	0	0	0	388	3	188	1934
PEAK HR FACTOR :		0.839			0.655			0.000			0.742		0.845

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB	SB	EB	WB
	0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-001 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Roxford St			Roxford St			I-210 WB Ramps			I-210 WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	2	0	0	0	0	1.3	0.3	0.3	
3:00 PM	42	68	0	0	43	45	0	0	0	54	0	27	279
3:15 PM	31	47	0	0	42	63	0	0	0	47	0	31	261
3:30 PM	41	51	0	0	101	166	0	0	0	45	1	19	424
3:45 PM	25	53	0	0	44	92	0	0	0	69	1	27	311
4:00 PM	26	41	0	0	46	115	0	0	0	64	0	26	318
4:15 PM	26	36	0	0	47	88	0	0	0	66	1	28	292
4:30 PM	44	68	0	0	84	209	0	0	0	51	1	25	482
4:45 PM	44	46	0	0	67	116	0	0	0	51	0	17	341
5:00 PM	32	46	0	0	64	91	0	0	0	66	0	21	320
5:15 PM	36	47	0	0	46	90	0	0	0	51	0	20	290
5:30 PM	30	39	0	0	39	72	0	0	0	55	0	16	251
5:45 PM	26	43	0	0	25	56	0	0	0	56	0	18	224
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	403	585	0	0	648	1203	0	0	0	675	4	275	3793
APPROACH %'s :	40.79%	59.21%	0.00%	0.00%	35.01%	64.99%	#DIV/0!	#DIV/0!	#DIV/0!	70.75%	0.42%	28.83%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	146	196	0	0	262	504	0	0	0	234	2	91	1435
PEAK HR FACTOR :		0.763			0.654			0.000			0.861		0.744

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	1	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB	SB	EB	WB
	1	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-002 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Roxford St			Roxford St			I-210 EB Ramps			I-210 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	1	2	0	0.5	0.5	1	0	0	0	
7:00 AM	0	104	55	17	73	0	78	0	44	0	0	0	371
7:15 AM	0	124	67	24	108	0	70	0	75	0	0	0	468
7:30 AM	0	155	78	33	129	0	75	0	61	0	0	0	531
7:45 AM	0	183	71	21	126	0	80	0	72	0	0	0	553
8:00 AM	0	105	54	18	98	0	88	0	48	0	0	0	411
8:15 AM	0	70	35	9	55	0	93	0	30	0	0	0	292
8:30 AM	0	62	24	13	48	0	79	0	16	0	0	0	242
8:45 AM	0	55	31	14	39	0	71	0	26	0	0	0	236
9:00 AM	0	43	27	27	37	0	60	0	17	0	0	0	211
9:15 AM	0	37	35	19	42	0	41	0	12	0	0	0	186
9:30 AM	0	45	29	13	41	0	42	0	17	0	0	0	187
9:45 AM	0	40	29	15	29	0	39	0	19	0	0	0	171
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1023	535	223	825	0	816	0	437	0	0	0	3859
APPROACH %'s :	0.00%	65.66%	34.34%	21.28%	78.72%	0.00%	65.12%	0.00%	34.88%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	567	270	96	461	0	313	0	256	0	0	0	1963
PEAK HR FACTOR :		0.824			0.860			0.936			0.000		0.887

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB	SB	EB	WB
	0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-002 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Roxford St			Roxford St			I-210 EB Ramps			I-210 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	1	2	0	0.5	0.5	1	0	0	0	
3:00 PM	0	70	31	24	71	0	41	0	24	0	0	0	261
3:15 PM	0	51	40	28	59	0	28	0	32	0	0	0	238
3:30 PM	0	64	40	63	82	0	26	1	40	0	0	0	316
3:45 PM	0	50	52	27	90	0	31	0	49	0	0	0	299
4:00 PM	0	41	54	23	86	0	23	0	27	0	0	0	254
4:15 PM	1	36	47	30	79	0	29	0	39	0	0	0	261
4:30 PM	0	75	59	48	87	0	37	0	40	0	0	0	346
4:45 PM	0	60	49	38	83	0	28	1	50	0	0	0	309
5:00 PM	0	52	76	39	92	0	27	0	37	0	0	0	323
5:15 PM	0	55	63	25	70	0	23	1	49	0	0	0	286
5:30 PM	0	49	56	25	71	0	20	0	40	0	0	0	261
5:45 PM	0	43	47	11	71	0	27	2	41	0	0	0	242
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	646	614	381	941	0	340	5	468	0	0	0	3396
APPROACH %'s :	0.08%	51.23%	48.69%	28.82%	71.18%	0.00%	41.82%	0.62%	57.56%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	242	247	150	332	0	115	2	176	0	0	0	1264
PEAK HR FACTOR :		0.912			0.893			0.927			0.000		0.913

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	1	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB	SB	EB	WB
	1	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-003 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Roxford St			Roxford St			Foothill Blvd			Foothill Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
7:00 AM	5	60	14	14	78	11	41	34	6	13	18	52	346
7:15 AM	4	88	13	32	142	12	35	34	9	39	31	57	496
7:30 AM	3	108	18	32	142	22	55	38	10	27	28	71	554
7:45 AM	4	90	20	31	146	20	100	37	6	28	17	58	557
8:00 AM	1	66	14	16	114	15	57	51	11	19	20	32	416
8:15 AM	4	59	16	10	69	4	31	38	5	11	15	14	276
8:30 AM	2	45	9	7	54	8	15	14	1	7	15	26	203
8:45 AM	4	52	13	10	44	7	13	20	0	4	12	23	202
9:00 AM	0	43	9	11	33	10	10	16	1	8	12	12	165
9:15 AM	2	48	12	6	37	9	11	9	2	9	17	12	174
9:30 AM	1	44	9	9	41	10	13	15	2	10	17	16	187
9:45 AM	4	31	13	11	31	5	17	11	4	14	20	21	182
TOTAL VOLUMES :	NL 34	NT 734	NR 160	SL 189	ST 931	SR 133	EL 398	ET 317	ER 57	WL 189	WT 222	WR 394	TOTAL 3758
APPROACH %'s :	3.66%	79.09%	17.24%	15.08%	74.30%	10.61%	51.55%	41.06%	7.38%	23.48%	27.58%	48.94%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	12	352	65	111	544	69	247	160	36	113	96	218	2023
PEAK HR FACTOR :		0.831			0.919			0.774			0.841		0.908

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	1	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
TOTAL VOLUMES :	NB 0	SB 1	EB 0	WB 0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-003 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Roxford St			Roxford St			Foothill Blvd			Foothill Blvd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	1	1	1	1	1	1	1	1	1	1	1					
3:00 PM	5	69	18	14	63	17	17	27	10	11	23	15	289	0	0	0	0
3:15 PM	3	60	18	24	48	13	19	21	7	17	17	15	262	0	0	0	0
3:30 PM	3	71	19	21	83	21	18	22	11	13	16	13	311	0	0	0	0
3:45 PM	2	62	17	23	83	23	21	27	5	12	28	19	322	0	0	0	0
4:00 PM	4	64	30	22	69	24	15	27	7	16	31	15	324	0	0	0	0
4:15 PM	2	50	15	16	79	22	18	30	8	13	24	16	293	0	0	0	0
4:30 PM	2	89	21	24	73	32	17	39	5	11	34	24	371	0	0	0	0
4:45 PM	3	67	22	25	86	24	20	40	4	20	30	21	362	0	0	0	0
5:00 PM	8	87	18	27	67	32	19	35	4	14	40	25	376	0	0	0	0
5:15 PM	2	90	20	31	66	23	17	37	5	14	32	14	351	0	0	0	0
5:30 PM	4	71	20	23	68	20	12	22	6	16	40	18	320	0	0	0	0
5:45 PM	1	59	16	26	63	22	18	31	2	18	30	16	302	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	39	839	234	276	848	273	211	358	74	175	345	211	3883	0	0	0	0
APPROACH %'s :	3.51%	75.45%	21.04%	19.76%	60.70%	19.54%	32.81%	55.68%	11.51%	23.94%	47.20%	28.86%					
PEAK HR START TIME :	430 PM												TOTAL				
PEAK HR VOL :	15	333	81	107	292	111	73	151	18	59	136	84	1460				
PEAK HR FACTOR :		0.949			0.944			0.945			0.883		0.971				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-004 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Roxford St			Roxford St			Glenoaks Blvd			Glenoaks Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	9	45	23	41	92	5	3	31	14	30	15	14	322
7:15 AM	3	51	64	70	111	4	7	72	24	53	20	20	499
7:30 AM	10	83	66	69	130	6	8	59	29	52	33	28	573
7:45 AM	13	73	71	72	105	7	8	60	15	55	32	17	528
8:00 AM	7	56	23	49	85	0	4	42	18	32	39	18	373
8:15 AM	6	42	26	20	53	1	2	20	7	19	17	15	228
8:30 AM	9	44	14	11	49	2	2	18	11	11	15	11	197
8:45 AM	3	39	25	8	42	1	1	14	10	11	13	6	173
9:00 AM	3	29	10	11	44	3	2	18	5	15	17	5	162
9:15 AM	5	29	21	12	29	2	4	12	12	12	16	7	161
9:30 AM	8	27	15	8	49	2	9	15	13	15	21	15	197
9:45 AM	8	40	16	7	44	2	3	15	8	11	19	4	177
TOTAL VOLUMES :	NL 84	NT 558	NR 374	SL 378	ST 833	SR 35	EL 53	ET 376	ER 166	WL 316	WT 257	WR 160	TOTAL 3590
APPROACH %'s :	8.27%	54.92%	36.81%	30.34%	66.85%	2.81%	8.91%	63.19%	27.90%	43.11%	35.06%	21.83%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	33	263	224	260	431	17	27	233	86	192	124	83	1973
PEAK HR FACTOR :		0.818			0.863			0.840			0.883		0.861

UTURNS	NB	SB	EB	WB
	0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-004 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Roxford St			Roxford St			Glenoaks Blvd			Glenoaks Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
3:00 PM	17	65	23	15	54	6	5	29	12	37	38	13	314
3:15 PM	9	48	32	21	54	11	11	39	18	28	27	19	317
3:30 PM	18	75	48	35	43	0	15	52	12	38	37	22	395
3:45 PM	13	68	41	48	45	4	5	36	14	27	32	11	344
4:00 PM	16	92	45	35	49	5	4	19	9	26	33	17	350
4:15 PM	23	78	28	24	66	2	4	35	11	24	50	19	364
4:30 PM	20	80	45	18	55	3	9	37	9	32	42	22	372
4:45 PM	22	74	45	24	58	4	3	35	8	21	44	16	354
5:00 PM	14	96	48	18	49	8	10	26	6	20	50	17	362
5:15 PM	29	74	44	20	58	4	10	27	12	33	48	20	379
5:30 PM	21	78	44	26	64	2	4	25	11	32	57	14	378
5:45 PM	24	58	24	24	44	3	8	29	20	28	50	8	320
TOTAL VOLUMES :	NL 226	NT 886	NR 467	SL 308	ST 639	SR 52	EL 88	ET 389	ER 142	WL 346	WT 508	WR 198	TOTAL 4249
APPROACH %'s :	14.31%	56.11%	29.58%	30.83%	63.96%	5.21%	14.22%	62.84%	22.94%	32.89%	48.29%	18.82%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	86	322	181	88	229	18	27	113	37	106	199	67	1473
PEAK HR FACTOR :		0.932			0.910			0.903			0.903		0.972

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-005 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Roxford St			Roxford St			San Fernando Rd			San Fernando Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	5	104	28	14	145	20	22	53	4	34	26	15	470
7:15 AM	9	133	21	30	170	50	20	40	9	39	49	22	592
7:30 AM	14	132	26	29	154	74	10	53	8	41	48	25	614
7:45 AM	6	152	26	40	136	50	26	92	7	24	32	15	606
8:00 AM	9	108	24	20	115	16	24	71	10	41	22	19	479
8:15 AM	9	85	24	17	99	22	11	31	11	28	11	17	365
8:30 AM	6	84	28	10	80	23	8	38	6	25	22	10	340
8:45 AM	12	62	27	14	67	12	5	32	5	21	19	13	289
9:00 AM	6	68	32	13	75	14	10	24	5	18	14	13	292
9:15 AM	5	63	29	11	58	6	12	16	13	24	17	14	268
9:30 AM	1	63	25	15	72	13	8	22	7	23	15	16	280
9:45 AM	12	65	28	20	53	8	5	25	6	35	14	13	284
TOTAL VOLUMES :	NL 94	NT 1119	NR 318	SL 233	ST 1224	SR 308	EL 161	ET 497	ER 91	WL 353	WT 289	WR 192	TOTAL 4879
APPROACH %'s :	6.14%	73.09%	20.77%	13.20%	69.35%	17.45%	21.50%	66.36%	12.15%	42.33%	34.65%	23.02%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	38	525	97	119	575	190	80	256	34	145	151	81	2291
PEAK HR FACTOR :		0.897			0.860			0.740			0.827		0.933

UTURNS

	NB	SB	EB	WB
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	1	1	0
TOTAL VOLUMES :	NB 0	SB 1	EB 1	WB 0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-005 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Roxford St			Roxford St			San Fernando Rd			San Fernando Rd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
3:00 PM	7	102	46	25	74	21	18	23	18	35	29	13	411	0	0	0	0
3:15 PM	9	88	32	14	86	16	13	26	7	43	31	24	389	0	0	0	0
3:30 PM	18	99	42	41	107	23	26	34	17	41	41	27	516	0	0	0	0
3:45 PM	14	107	42	17	86	17	11	42	11	38	40	24	449	0	0	0	0
4:00 PM	13	134	48	30	108	27	24	34	13	37	40	24	532	0	0	0	0
4:15 PM	12	97	45	19	95	20	11	33	6	40	46	21	445	0	0	0	0
4:30 PM	8	128	35	40	143	18	23	29	11	36	62	16	549	0	0	0	0
4:45 PM	9	100	25	16	97	21	33	38	12	49	49	27	476	0	0	0	0
5:00 PM	3	113	31	30	131	24	38	53	20	41	52	19	555	0	0	0	0
5:15 PM	8	99	27	15	87	14	26	43	13	34	54	25	445	0	0	0	0
5:30 PM	4	92	38	19	97	14	25	38	14	31	58	28	458	0	0	0	0
5:45 PM	6	112	20	31	92	11	16	30	7	29	48	13	415	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	111	1271	431	297	1203	226	264	423	149	454	550	261	5640	0	0	0	0
APPROACH %'s :	6.12%	70.10%	23.77%	17.21%	69.70%	13.09%	31.58%	50.60%	17.82%	35.89%	43.48%	20.63%					
PEAK HR START TIME :	430 PM												TOTAL				
PEAK HR VOL :	28	440	118	101	458	77	120	163	56	160	217	87	2025				
PEAK HR FACTOR :		0.857			0.791			0.764			0.928		0.912				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-006 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Roxford St			Roxford St			Encinitas Ave			Encinitas Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	0.5	0.5	1.5	1	0.5	
7:00 AM	2	165	71	9	156	17	48	11	18	99	28	1	625
7:15 AM	1	153	51	13	149	16	78	19	28	114	32	4	658
7:30 AM	4	184	53	11	170	24	72	19	28	124	43	6	738
7:45 AM	1	179	68	11	149	20	115	41	24	87	45	6	746
8:00 AM	2	155	73	15	89	31	101	44	27	94	29	5	665
8:15 AM	4	155	87	11	111	27	50	21	16	76	29	9	596
8:30 AM	7	164	44	5	92	12	35	12	15	57	27	7	477
8:45 AM	5	145	58	7	82	19	18	11	15	59	28	2	449
9:00 AM	7	150	55	9	85	18	13	4	17	51	24	5	438
9:15 AM	2	103	50	6	82	17	13	3	15	53	20	9	373
9:30 AM	8	83	56	13	78	16	9	4	19	56	13	9	364
9:45 AM	3	108	44	13	71	22	10	4	15	58	26	9	383
TOTAL VOLUMES :	46	1744	710	123	1314	239	562	193	237	928	344	72	6512
APPROACH %'s :	1.84%	69.76%	28.40%	7.34%	78.40%	14.26%	56.65%	19.46%	23.89%	69.05%	25.60%	5.36%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	8	671	245	50	557	91	366	123	107	419	149	21	2807
PEAK HR FACTOR :		0.931			0.851			0.828			0.851		0.941

CONTROL : Signalized

UTURNS

	NB	SB	EB	WB
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
TOTAL VOLUMES :	0	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-006 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Roxford St			Roxford St			Encinitas Ave			Encinitas Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	0.5	0.5	1.5	1	0.5	
3:00 PM	15	125	74	8	116	40	24	4	15	55	37	5	518
3:15 PM	12	132	77	5	110	41	11	3	21	65	37	7	521
3:30 PM	10	128	91	11	170	51	14	7	15	72	33	7	609
3:45 PM	5	148	84	7	139	30	14	7	10	62	47	10	563
4:00 PM	16	152	71	11	217	54	13	5	14	71	38	8	670
4:15 PM	3	129	96	6	125	35	17	2	17	67	34	12	543
4:30 PM	1	142	88	9	189	45	18	4	11	72	32	7	618
4:45 PM	6	132	103	8	181	44	7	4	16	78	44	3	626
5:00 PM	2	118	93	11	256	93	9	1	15	93	45	4	740
5:15 PM	3	108	98	5	188	68	12	2	22	87	37	3	633
5:30 PM	5	120	79	9	173	46	12	3	18	67	32	10	574
5:45 PM	1	114	102	14	116	47	13	3	17	69	32	5	533
TOTAL VOLUMES :	79	1548	1056	104	1980	594	164	45	191	858	448	81	7148
APPROACH %'s :	2.94%	57.70%	39.36%	3.88%	73.94%	22.18%	41.00%	11.25%	47.75%	61.86%	32.30%	5.84%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	12	500	382	33	814	250	46	11	64	330	158	17	2617
PEAK HR FACTOR :		0.927			0.762			0.840			0.889		0.884

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	1	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
TOTAL VOLUMES :	0	1	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-007 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Roxford St			Roxford St			I-5 EB Ramps			I-5 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	1	2	0	0.5	1	0.5	0	0	0	
7:00 AM	0	2	138	232	28	0	51	0	2	0	0	0	453
7:15 AM	0	11	184	263	37	0	33	0	2	0	0	0	530
7:30 AM	0	10	148	284	38	0	45	1	1	0	0	0	527
7:45 AM	0	7	118	239	37	0	74	0	2	0	0	0	477
8:00 AM	0	9	127	178	32	0	69	0	2	0	0	0	417
8:15 AM	0	10	115	183	28	0	55	2	0	0	0	0	393
8:30 AM	0	8	96	152	23	0	54	0	2	0	0	0	335
8:45 AM	0	6	42	137	21	0	59	0	2	0	0	0	267
9:00 AM	0	8	27	140	19	0	58	0	2	0	0	0	254
9:15 AM	0	2	37	135	24	0	32	0	2	0	0	0	232
9:30 AM	0	7	33	137	29	0	42	0	0	0	0	0	248
9:45 AM	0	7	48	129	22	0	36	0	0	0	0	0	242
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	87	1113	2209	338	0	608	3	17	0	0	0	4375
APPROACH %'s :	0.00%	7.25%	92.75%	86.73%	13.27%	0.00%	96.82%	0.48%	2.71%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	30	588	1018	140	0	203	1	7	0	0	0	1987
PEAK HR FACTOR :		0.792			0.899			0.694			0.000		0.937

UTURNS				
NB	SB	EB	WB	
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-007 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Roxford St			Roxford St			I-5 EB Ramps			I-5 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	1	2	0	0.5	1	0.5	0	0	0	
3:00 PM	0	13	50	175	25	0	42	0	0	0	0	0	305
3:15 PM	0	17	46	174	29	0	47	0	3	0	0	0	316
3:30 PM	0	9	53	241	23	0	55	0	1	0	0	0	382
3:45 PM	0	5	43	191	21	0	56	0	0	0	0	0	316
4:00 PM	0	13	31	295	25	0	54	1	1	0	0	0	420
4:15 PM	0	6	27	198	23	0	66	0	0	0	0	0	320
4:30 PM	0	3	32	261	19	0	60	1	0	0	0	0	376
4:45 PM	0	7	27	259	25	0	54	0	0	0	0	0	372
5:00 PM	0	4	30	350	22	0	49	1	0	0	0	0	456
5:15 PM	0	2	22	268	33	0	57	1	0	0	0	0	383
5:30 PM	0	2	15	234	28	0	46	0	2	0	0	0	327
5:45 PM	0	4	11	195	18	0	58	0	1	0	0	0	287
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	85	387	2841	291	0	644	4	8	0	0	0	4260
APPROACH %'s :	0.00%	18.01%	81.99%	90.71%	9.29%	0.00%	98.17%	0.61%	1.22%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	16	111	1138	99	0	220	3	0	0	0	0	1587
PEAK HR FACTOR :		0.907			0.831			0.914			0.000		0.870

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-008 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Bledsoe St			Bledsoe St			Olive View Dr			Olive View Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	2	0	0	2	0	
7:00 AM	18	5	5	2	5	3	10	16	14	7	29	3	117
7:15 AM	25	18	12	0	7	5	11	16	10	9	35	4	152
7:30 AM	24	11	17	4	12	26	19	33	11	27	42	7	233
7:45 AM	40	25	43	0	8	14	17	34	12	17	34	5	249
8:00 AM	25	17	14	2	6	2	11	23	12	2	24	3	141
8:15 AM	28	14	9	1	7	5	6	29	6	3	15	5	128
8:30 AM	26	6	3	0	6	7	7	8	13	3	10	2	91
8:45 AM	24	8	1	1	7	5	9	13	13	1	11	2	95
9:00 AM	11	8	4	1	7	4	6	10	20	3	8	2	84
9:15 AM	14	6	4	1	6	3	7	8	9	1	11	2	72
9:30 AM	11	10	4	0	8	6	7	4	9	2	18	5	84
9:45 AM	15	5	6	1	4	3	4	10	16	2	17	1	84
TOTAL VOLUMES :	261	133	122	13	83	83	114	204	145	77	254	41	1530
APPROACH %'s :	50.58%	25.78%	23.64%	7.26%	46.37%	46.37%	24.62%	44.06%	31.32%	20.70%	68.28%	11.02%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	114	71	86	6	33	47	58	106	45	55	135	19	775
PEAK HR FACTOR :		0.627			0.512			0.829			0.688		0.778

CONTROL : 4-Way Stop

UTURNS	NB	SB	EB	WB
	1	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	1	0
	0	0	0	0
	0	0	1	0
	0	0	1	0
	0	0	1	0
	0	0	1	0
TOTAL VOLUMES :	1	0	5	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-008 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Bledsoe St			Bledsoe St			Olive View Dr			Olive View Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 2	ER 0	WL 0	WT 2	WR 0	TOTAL
3:00 PM	12	6	4	2	10	2	3	23	23	3	11	3	102
3:15 PM	12	7	4	1	4	4	4	9	19	1	23	0	88
3:30 PM	15	7	5	8	25	28	2	24	35	19	34	6	208
3:45 PM	6	12	6	6	10	15	2	15	21	4	21	3	121
4:00 PM	16	10	5	3	16	5	5	20	26	6	20	2	134
4:15 PM	13	8	8	1	5	14	2	10	14	3	21	1	100
4:30 PM	10	7	12	8	16	25	1	27	42	10	46	2	206
4:45 PM	19	2	8	4	9	17	6	24	19	5	31	2	146
5:00 PM	18	1	5	6	12	20	2	28	25	8	15	1	141
5:15 PM	15	8	7	2	5	16	5	12	28	8	29	2	137
5:30 PM	13	7	14	4	7	11	6	15	15	7	18	2	119
5:45 PM	18	5	11	5	6	8	1	18	13	7	17	2	111
TOTAL VOLUMES :	NL 167	NT 80	NR 89	SL 50	ST 125	SR 165	EL 39	ET 225	ER 280	WL 81	WT 286	WR 26	TOTAL 1613
APPROACH %'s :	49.70%	23.81%	26.49%	14.71%	36.76%	48.53%	7.17%	41.36%	51.47%	20.61%	72.77%	6.62%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	62	18	32	20	42	78	14	91	114	31	121	7	630
PEAK HR FACTOR :		0.933			0.714			0.782			0.685		0.765

UTURNS

	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	1	0	0	0
	0	0	0	0
	NB 1	SB 0	EB 0	WB 0

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-009 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Bledsoe St			Bledsoe St			Foothill Blvd			Foothill Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	10	6	32	21	7	3	5	64	7	11	55	16	237
7:15 AM	8	16	39	20	17	8	11	82	7	28	82	27	345
7:30 AM	20	18	62	35	44	8	15	84	13	34	67	36	436
7:45 AM	13	37	64	22	22	8	31	69	12	36	79	56	449
8:00 AM	2	16	45	19	8	4	15	65	1	20	44	38	277
8:15 AM	1	10	18	15	8	3	12	64	2	4	33	41	211
8:30 AM	0	10	14	15	3	3	2	42	1	18	34	22	164
8:45 AM	1	8	11	22	2	2	3	48	1	13	25	23	159
9:00 AM	2	6	15	27	4	2	2	36	1	10	25	17	147
9:15 AM	3	6	15	9	7	3	5	31	2	5	34	15	135
9:30 AM	3	1	20	17	5	1	1	42	0	10	33	21	154
9:45 AM	3	8	15	15	4	4	3	35	2	5	42	15	151
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	66	142	350	237	131	49	105	662	49	194	553	327	2865
APPROACH %'s :	11.83%	25.45%	62.72%	56.83%	31.41%	11.75%	12.87%	81.13%	6.00%	18.06%	51.49%	30.45%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	43	87	210	96	91	28	72	300	33	118	272	157	1507
PEAK HR FACTOR :		0.746			0.618			0.904			0.800		0.839

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	1	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB	SB	EB	WB
	0	0	1	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-009 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Bledsoe St			Bledsoe St			Foothill Blvd			Foothill Blvd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	1	1	1	1	0	1	2	0	1	2	0					
3:00 PM	4	9	23	28	15	3	5	59	2	25	43	17	233	0	0	0	0
3:15 PM	2	11	21	15	10	2	3	43	0	26	41	16	190	0	0	0	0
3:30 PM	3	4	26	54	15	4	4	54	2	25	44	20	255	0	0	0	0
3:45 PM	3	13	19	30	13	1	3	55	5	18	58	21	239	0	0	0	0
4:00 PM	10	9	30	37	11	2	4	79	4	24	57	27	294	0	0	0	0
4:15 PM	9	13	32	20	5	0	7	49	4	22	52	15	228	0	0	0	0
4:30 PM	10	6	22	50	12	6	8	70	1	22	71	24	302	0	0	0	0
4:45 PM	3	13	14	33	7	5	2	72	5	23	72	19	268	0	0	0	0
5:00 PM	5	8	23	39	10	3	4	78	4	20	65	19	278	0	0	0	0
5:15 PM	5	10	39	21	15	4	4	69	6	18	69	25	285	0	0	0	0
5:30 PM	6	19	27	23	6	5	3	69	3	25	78	20	284	0	0	0	0
5:45 PM	8	17	34	20	8	4	7	58	6	23	59	25	269	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	68	132	310	370	127	39	54	755	42	271	709	248	3125	0	0	0	0
APPROACH %'s :	13.33%	25.88%	60.78%	69.03%	23.69%	7.28%	6.35%	88.72%	4.94%	22.07%	57.74%	20.20%					
PEAK HR START TIME :	430 PM												TOTAL				
PEAK HR VOL :	23	37	98	143	44	18	18	289	16	83	277	87	1133				
PEAK HR FACTOR :		0.731			0.754			0.939			0.955		0.938				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5421-002 **Day:** Thursday

City: Sylmar **Date:** 6/9/2016

AM

NS/EW Streets:	Glenoaks Blvd			Glenoaks Blvd			Foothill Blvd			Foothill Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	1	0	1	1	0	
7:00 AM	19	2	4	9	9	26	5	41	42	0	35	3	195
7:15 AM	19	4	2	9	14	29	1	53	45	4	36	3	219
7:30 AM	32	2	1	10	15	32	2	80	43	3	38	2	260
7:45 AM	32	4	4	7	10	16	4	133	35	2	38	3	288
8:00 AM	31	5	2	7	6	9	4	55	41	3	21	4	188
8:15 AM	25	3	3	15	3	12	4	31	16	1	24	4	141
8:30 AM	17	4	2	8	1	12	8	29	20	3	21	3	128
8:45 AM	16	4	2	2	8	7	3	20	12	1	13	5	93
9:00 AM	16	1	2	4	5	11	9	31	16	2	19	0	116
9:15 AM	21	5	1	4	3	7	5	19	17	2	15	5	104
9:30 AM	15	7	3	7	3	12	7	22	14	1	26	11	128
9:45 AM	20	3	1	10	5	12	6	21	14	0	23	3	118
TOTAL VOLUMES :	263	44	27	92	82	185	58	535	315	22	309	46	1978
APPROACH %'s :	78.74%	13.17%	8.08%	25.63%	22.84%	51.53%	6.39%	58.92%	34.69%	5.84%	81.96%	12.20%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	102	12	11	35	48	103	12	307	165	9	147	11	962
PEAK HR FACTOR :		0.781			0.816			0.703			0.971		0.835

UTURNS				
NB	SB	EB	WB	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5421-002 **Day:** Thursday

City: Sylmar **Date:** 6/9/2016

PM

NS/EW Streets:	Glenoaks Blvd			Glenoaks Blvd			Foothill Blvd			Foothill Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
3:00 PM	27	8	1	2	3	8	9	28	33	0	29	7	155
3:15 PM	23	9	1	13	4	8	7	54	48	2	40	6	215
3:30 PM	28	7	5	4	6	7	11	64	33	0	26	11	202
3:45 PM	39	6	3	4	4	4	14	46	33	2	39	10	204
4:00 PM	35	6	7	9	0	10	12	52	25	4	39	8	207
4:15 PM	25	5	3	6	4	9	10	56	31	1	47	9	206
4:30 PM	40	8	3	8	5	8	17	56	40	6	48	6	245
4:45 PM	31	8	4	3	3	13	14	41	38	6	38	8	207
5:00 PM	28	7	2	3	7	10	15	55	30	3	31	7	198
5:15 PM	30	13	4	5	3	12	14	39	41	1	37	9	208
5:30 PM	36	7	5	5	3	9	7	55	21	2	40	7	197
5:45 PM	32	13	5	7	8	6	14	44	29	2	46	10	216
TOTAL VOLUMES :	NL 374	NT 97	NR 43	SL 69	ST 50	SR 104	EL 144	ET 590	ER 402	WL 29	WT 460	WR 98	TOTAL 2460
APPROACH %'s :	72.76%	18.87%	8.37%	30.94%	22.42%	46.64%	12.68%	51.94%	35.39%	4.94%	78.36%	16.70%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	131	27	17	26	12	40	53	205	134	17	172	31	865
PEAK HR FACTOR :		0.858			0.929			0.867			0.917		0.883

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	1	0
	0	1	0	0
TOTAL VOLUMES :	NB 0	SB 1	EB 1	WB 0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-010 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Polk St			Polk St			I-210 WB Ramps			I-210 WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 2	ER 0	WL 0.5	WT 0.5	WR 1	TOTAL
7:00 AM	42	54	0	0	163	57	0	0	0	63	0	13	392
7:15 AM	59	66	0	0	178	89	0	0	0	105	1	24	522
7:30 AM	57	100	0	0	182	84	0	0	0	123	0	31	577
7:45 AM	44	142	0	0	190	65	0	0	0	134	0	35	610
8:00 AM	58	102	0	0	102	45	0	0	0	83	1	35	426
8:15 AM	29	52	0	0	100	31	0	0	0	73	0	26	311
8:30 AM	28	61	0	0	74	28	0	0	0	53	0	23	267
8:45 AM	36	42	0	0	81	22	0	0	0	68	1	19	269
9:00 AM	21	44	0	0	70	19	0	0	0	52	0	15	221
9:15 AM	23	37	0	0	67	9	0	0	0	51	0	17	204
9:30 AM	25	40	0	0	70	18	0	0	0	53	1	24	231
9:45 AM	29	45	0	0	74	14	0	0	0	39	0	14	215
TOTAL VOLUMES :	NL 451	NT 785	NR 0	SL 0	ST 1351	SR 481	EL 0	ET 0	ER 0	WL 897	WT 4	WR 276	TOTAL 4245
APPROACH %'s :	36.49%	63.51%	0.00%	0.00%	73.74%	26.26%	#DIV/0!	#DIV/0!	#DIV/0!	76.21%	0.34%	23.45%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	218	410	0	0	652	283	0	0	0	445	2	125	2135
PEAK HR FACTOR :		0.844			0.875			0.000			0.846		0.875

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	1	0	0	0
	0	0	0	0
	0	0	0	0
	NB 1	SB 0	EB 0	WB 0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-010 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Polk St			Polk St			I-210 WB Ramps			I-210 WB Ramps				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	0	2	0	0	2	0	0.5	0.5	1					
3:00 PM	48	77	0	0	68	18	0	0	0	129	0	32	372	0	0	0	0
3:15 PM	35	88	0	0	74	27	0	0	0	115	0	57	396	0	0	0	0
3:30 PM	41	90	0	0	103	18	0	0	0	109	0	59	420	1	0	0	0
3:45 PM	35	103	0	0	108	24	0	0	0	97	0	57	424	0	0	0	0
4:00 PM	63	85	0	0	86	13	0	0	0	125	0	57	429	0	0	0	0
4:15 PM	48	111	0	0	83	21	0	0	0	132	0	58	453	0	0	0	0
4:30 PM	45	101	0	0	88	24	0	0	0	126	1	53	438	0	0	0	0
4:45 PM	48	119	0	0	100	21	0	0	0	126	0	60	474	0	0	0	0
5:00 PM	48	118	0	0	107	22	0	0	0	133	0	69	497	0	0	0	0
5:15 PM	38	120	0	0	105	27	0	0	0	146	1	62	499	1	0	0	0
5:30 PM	51	134	0	0	101	35	0	0	0	131	0	48	500	0	0	0	0
5:45 PM	49	100	0	0	121	20	0	0	0	137	0	68	495	1	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	549	1246	0	0	1144	270	0	0	0	1506	2	680	5397	3	0	0	0
APPROACH %'s :	30.58%	69.42%	0.00%	0.00%	80.91%	19.09%	#DIV/0!	#DIV/0!	#DIV/0!	68.83%	0.09%	31.08%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	186	472	0	0	434	104	0	0	0	547	1	247	1991				
PEAK HR FACTOR :		0.889			0.954			0.000			0.951		0.996				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-011 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Polk St			Polk St			I-210 EB Ramps			I-210 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0.5	WT 0.5	WR 1	TOTAL
7:00 AM	0	76	181	96	123	0	21	1	87	0	0	0	585
7:15 AM	0	107	183	78	211	0	22	0	70	0	0	0	671
7:30 AM	0	127	192	68	223	0	30	0	55	0	0	0	695
7:45 AM	0	155	199	81	252	0	33	2	47	0	0	0	769
8:00 AM	0	114	147	57	123	0	38	0	36	0	0	0	515
8:15 AM	0	69	146	60	116	0	10	0	31	0	0	0	432
8:30 AM	0	81	103	44	79	0	10	0	30	0	0	0	347
8:45 AM	0	66	104	40	110	0	10	0	38	0	0	0	368
9:00 AM	0	52	89	36	86	0	12	0	27	0	0	0	302
9:15 AM	0	52	73	40	77	0	9	0	32	0	0	0	283
9:30 AM	0	60	101	40	85	0	7	1	36	0	0	0	330
9:45 AM	0	66	75	35	74	0	7	0	33	0	0	0	290
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1025	1593	675	1559	0	209	4	522	0	0	0	5587
APPROACH %'s :	0.00%	39.15%	60.85%	30.21%	69.79%	0.00%	28.44%	0.54%	71.02%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	465	755	323	809	0	106	3	259	0	0	0	2720
PEAK HR FACTOR :		0.862			0.850			0.844			0.000		0.884

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB	SB	EB	WB
	0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-011 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Polk St			Polk St			I-210 EB Ramps			I-210 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0.5	WT 0.5	WR 1	TOTAL
3:00 PM	0	107	110	27	171	0	21	0	56	0	0	0	492
3:15 PM	0	115	125	25	162	0	15	1	47	0	0	0	490
3:30 PM	0	101	97	50	164	0	19	2	39	0	0	0	472
3:45 PM	0	103	95	45	161	0	35	1	73	0	0	0	513
4:00 PM	0	142	121	30	179	0	13	0	48	0	0	0	533
4:15 PM	0	119	113	22	188	0	34	1	46	0	0	0	523
4:30 PM	0	128	125	46	172	0	28	0	43	0	0	0	542
4:45 PM	0	126	108	44	187	0	31	0	46	0	0	0	542
5:00 PM	0	145	122	48	186	0	25	0	55	0	0	0	581
5:15 PM	0	123	124	43	201	0	37	0	68	0	0	0	596
5:30 PM	0	151	116	45	189	0	27	0	60	0	0	0	588
5:45 PM	0	119	127	46	213	0	31	0	62	0	0	0	598
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1479	1383	471	2173	0	316	5	643	0	0	0	6470
APPROACH %'s :	0.00%	51.68%	48.32%	17.81%	82.19%	0.00%	32.78%	0.52%	66.70%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	538	489	182	789	0	120	0	245	0	0	0	2363
PEAK HR FACTOR :		0.962			0.937			0.869			0.000		0.988

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	1	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB	SB	EB	WB
	0	1	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-012 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

AM

NS/EW Streets:	Polk St			Polk St			Foothill Blvd			Foothill Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	9	109	42	68	107	32	95	99	17	43	44	58	723
7:15 AM	7	137	45	64	143	76	90	116	24	35	76	56	869
7:30 AM	17	148	38	44	145	76	116	156	22	33	87	59	941
7:45 AM	28	177	61	42	170	97	103	144	19	39	94	61	1035
8:00 AM	18	115	49	31	79	47	79	106	14	20	67	64	689
8:15 AM	18	119	34	44	74	22	58	75	10	22	49	33	558
8:30 AM	9	91	17	29	51	30	56	60	6	18	53	36	456
8:45 AM	10	82	29	36	75	32	51	55	19	22	35	35	481
9:00 AM	2	55	19	27	56	25	45	68	6	24	48	40	415
9:15 AM	4	61	26	31	60	20	35	44	7	18	42	31	379
9:30 AM	5	60	27	34	50	29	51	64	7	20	47	44	438
9:45 AM	4	62	34	32	56	21	37	53	13	31	49	32	424
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	131	1216	421	482	1066	507	816	1040	164	325	691	549	7408
APPROACH %'s :	7.41%	68.78%	23.81%	23.45%	51.87%	24.67%	40.40%	51.49%	8.12%	20.77%	44.15%	35.08%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	61	571	186	218	565	281	404	515	82	150	301	234	3568
PEAK HR FACTOR :		0.769			0.861			0.851			0.883		0.862

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	1
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB	SB	EB	WB
	0	0	0	1

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-5115-012 **Day:** Tuesday

City: Sylmar **Date:** 3/8/2016

PM

NS/EW Streets:	Polk St			Polk St			Foothill Blvd			Foothill Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
3:00 PM	11	98	33	63	111	47	43	88	8	39	77	65	683
3:15 PM	15	107	40	59	101	46	61	70	10	39	81	70	699
3:30 PM	6	95	40	52	104	49	52	105	10	49	57	46	665
3:45 PM	13	90	33	68	107	50	60	79	8	38	84	58	688
4:00 PM	18	131	45	59	107	54	52	82	17	44	91	76	776
4:15 PM	12	115	53	51	128	59	52	97	5	44	78	59	753
4:30 PM	16	136	62	49	99	62	67	87	19	36	100	61	794
4:45 PM	16	114	50	44	127	59	53	90	12	42	108	66	781
5:00 PM	11	147	52	52	127	63	55	95	15	32	84	64	797
5:15 PM	21	100	54	76	135	50	73	89	14	47	95	68	822
5:30 PM	20	135	54	72	117	68	48	91	13	35	102	81	836
5:45 PM	14	124	59	67	124	74	44	89	14	49	90	65	813
TOTAL VOLUMES :	NL 173	NT 1392	NR 575	SL 712	ST 1387	SR 681	EL 660	ET 1062	ER 145	WL 494	WT 1047	WR 779	TOTAL 9107
APPROACH %'s :	8.08%	65.05%	26.87%	25.61%	49.89%	24.50%	35.35%	56.88%	7.77%	21.29%	45.13%	33.58%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	66	506	219	267	503	255	220	364	56	163	371	278	3268
PEAK HR FACTOR :		0.942			0.967			0.909			0.931		0.977

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	NB 0	SB 0	EB 0	WB 0

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5421-001
N/S Street: Bledsoe St
E/W Street: Glenoaks Blvd
DATE: 6/9/2016 DAY: Thursday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	1	1	0	2	0	2
7:15 AM	0	0	0	4	0	0	0	2
7:30 AM	1	1	0	13	0	3	0	4
7:45 AM	0	1	1	10	0	0	0	3
8:00 AM	0	0	0	4	0	0	0	3
8:15 AM	0	0	0	1	0	1	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	2	0	0	0
9:30 AM	0	1	0	0	0	0	1	0
9:45 AM	0	0	1	0	0	0	0	0
TOTALS	**1**	**3**	**3**	**33**	**2**	**7**	**1**	**14**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	2	1	0	0	0	0
3:15 PM	0	0	15	0	0	0	0	0
3:30 PM	1	0	21	0	1	0	4	3
3:45 PM	0	0	10	0	0	1	7	0
4:00 PM	0	0	12	1	0	0	2	0
4:15 PM	0	1	1	0	0	0	2	0
4:30 PM	0	1	1	0	0	0	0	0
4:45 PM	1	0	1	0	0	1	0	0
5:00 PM	0	0	1	1	0	0	0	0
5:15 PM	0	0	2	0	1	0	0	0
5:30 PM	0	1	1	0	1	0	0	2
5:45 PM	0	0	1	2	0	0	0	0
TOTALS	**2**	**3**	**68**	**5**	**3**	**2**	**15**	**5**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	2	0	1	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**4**	**0**	**1**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-001
N/S Street: Roxford St
E/W Street: I-210 WB Ramps
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	3	2	0	0
9:00 AM	0	0	0	0	2	1	0	0
9:15 AM	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**5**	**5**	**1**	**1**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	1	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	1	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	3	0	0
4:30 PM	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	2	0	2	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**2**	**5**	**3**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	3	0	0	1	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0
TOTALS	**0**	**3**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-002
N/S Street: Roxford St
E/W Street: I-210 EB Ramps
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	3	2	0	0
9:00 AM	0	0	0	0	2	1	0	0
9:15 AM	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**5**	**4**	**1**	**3**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	1	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	1	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	3	1	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	2	0	1	0
5:30 PM	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**2**	**4**	**2**	**1**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	1	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0
TOTALS	**0**	**4**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-003
N/S Street: Roxford St
E/W Street: Foothill Blvd
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	1	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0
7:30 AM	1	0	0	0	0	0	0	0
7:45 AM	0	0	3	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	0	0	0	0
8:30 AM	2	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
9:00 AM	0	2	0	0	0	0	0	0
9:15 AM	0	0	1	0	0	0	0	0
9:30 AM	2	0	0	0	0	2	0	0
9:45 AM	0	0	0	0	0	0	0	0
TOTALS	**5**	**2**	**4**	**2**	**1**	**2**	**0**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	1	0	1	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	2	0
9:00 AM	0	0	0	0	0	1	0	2	0	0	0	0
9:15 AM	0	0	0	0	0	1	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**1**	**2**	**1**	**2**	**0**	**1**	**2**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	2	0	0
3:45 PM	0	1	1	0	0	0	0	0
4:00 PM	0	1	0	0	0	0	0	1
4:15 PM	0	0	1	0	0	2	0	1
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	4	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0
TOTALS	**0**	**5**	**2**	**0**	**4**	**6**	**0**	**4**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	2	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	1	0	0	0	0	1	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	1	0	0	1	0
TOTALS	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**6**	**0**	**0**	**2**	**1**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-004
N/S Street: Roxford St
E/W Street: Glenoaks Blvd
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	3	0	2	0	0	2	0	0
7:15 AM	0	2	2	1	0	18	0	0
7:30 AM	8	3	0	2	2	20	3	0
7:45 AM	0	0	0	1	4	2	0	0
8:00 AM	0	1	1	2	0	2	1	1
8:15 AM	1	0	0	0	0	0	0	0
8:30 AM	3	0	1	0	4	2	0	0
8:45 AM	1	1	0	0	1	0	1	0
9:00 AM	0	0	1	0	0	0	0	0
9:15 AM	0	0	0	0	1	0	0	0
9:30 AM	1	0	0	0	1	1	1	3
9:45 AM	1	1	0	0	0	0	0	1
TOTALS	**18**	**8**	**7**	**6**	**13**	**47**	**6**	**5**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	2	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	1	0
TOTALS	**0**	**2**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**2**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	1	1	2	4	0	3	2	2
3:15 PM	1	0	0	1	0	0	2	1
3:30 PM	0	2	2	6	0	0	1	3
3:45 PM	0	0	2	9	4	3	2	0
4:00 PM	0	6	1	3	0	1	1	4
4:15 PM	1	3	2	2	6	0	2	3
4:30 PM	5	1	0	7	0	0	2	2
4:45 PM	0	0	1	3	1	0	1	1
5:00 PM	0	0	0	3	1	0	6	2
5:15 PM	0	1	2	1	2	1	0	1
5:30 PM	0	1	0	0	1	0	1	0
5:45 PM	5	8	1	1	0	2	0	2
TOTALS	**13**	**23**	**13**	**40**	**15**	**10**	**20**	**21**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	1	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	1	1	0	0	0
3:30 PM	0	0	1	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	1	0	1	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**3**	**2**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**1**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-005
N/S Street: Roxford St
E/W Street: San Fernando Rd
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	3	0	0	3	0	2	0
7:15 AM	0	6	0	0	2	1	1	2
7:30 AM	0	3	1	1	0	0	1	2
7:45 AM	0	0	1	0	0	0	1	0
8:00 AM	0	0	0	0	0	1	0	0
8:15 AM	0	3	1	1	0	0	0	1
8:30 AM	0	0	2	1	0	3	0	1
8:45 AM	0	0	0	1	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	1	0	2	0	0
TOTALS	**0**	**15**	**5**	**5**	**5**	**8**	**5**	**6**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	1	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	1	0	2	0	0
3:15 PM	0	0	1	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	1	0	0	0	0	0	0	0
4:00 PM	2	0	1	0	0	1	0	1
4:15 PM	0	0	0	0	1	2	0	0
4:30 PM	2	1	1	0	0	1	0	2
4:45 PM	0	0	1	0	1	0	0	0
5:00 PM	0	0	4	1	0	0	0	1
5:15 PM	0	0	0	0	0	1	0	0
5:30 PM	0	1	0	0	0	2	0	0
5:45 PM	0	0	1	1	0	2	0	0
TOTALS	**5**	**2**	**9**	**3**	**2**	**11**	**0**	**4**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-006
N/S Street: Roxford St
E/W Street: Encinitas Ave
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0
8:15 AM	0	0	0	0	1	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	1	0	0	0
9:15 AM	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	2	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	2	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	2	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	2	1	0	0
5:45 PM	0	0	0	0	1	1	0	0
TOTALS	**0**	**0**	**0**	**0**	**9**	**4**	**0**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-007
N/S Street: Roxford St
E/W Street: I-5 EB Ramps
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-008
N/S Street: Bledsoe St
E/W Street: Olive View Dr
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	1	0	0	2	0	2	0
7:15 AM	1	2	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0
7:45 AM	2	1	0	0	0	0	4	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	3	1	0	0	1	1	0
8:30 AM	0	0	1	0	0	0	1	0
8:45 AM	0	0	0	1	0	0	0	0
9:00 AM	0	1	0	0	0	0	1	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	1	0	0	0	0	1	0
TOTALS	**3**	**10**	**2**	**1**	**2**	**1**	**10**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	1	0	0	1	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	1	1	1	1	0	0	2	2
3:15 PM	0	0	0	0	0	0	1	1
3:30 PM	8	2	1	1	0	4	0	2
3:45 PM	2	0	0	0	0	0	0	1
4:00 PM	1	2	1	0	1	0	1	0
4:15 PM	1	0	0	0	0	0	0	1
4:30 PM	1	1	0	0	0	0	1	2
4:45 PM	2	3	0	0	0	1	0	3
5:00 PM	0	0	0	0	2	0	0	2
5:15 PM	4	1	0	0	0	0	0	1
5:30 PM	3	2	0	0	2	3	0	1
5:45 PM	3	0	0	1	0	1	0	1
TOTALS	**26**	**12**	**3**	**3**	**5**	**9**	**5**	**17**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	1	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	2	0	0	0
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**1**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-009
N/S Street: Bledsoe St
E/W Street: Foothill Blvd
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	1	2	2	1	2	1	0	1
7:15 AM	0	0	2	0	1	6	0	0
7:30 AM	0	0	3	3	0	15	0	0
7:45 AM	0	0	1	0	2	8	2	0
8:00 AM	0	1	0	0	2	2	0	1
8:15 AM	0	0	1	0	0	0	0	0
8:30 AM	1	0	0	1	0	2	1	0
8:45 AM	3	1	0	0	0	0	1	0
9:00 AM	0	0	1	1	2	0	1	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	0	2	0	0	0	1	1	1
9:45 AM	0	1	3	0	1	1	0	0
TOTALS	**5**	**7**	**13**	**6**	**10**	**36**	**6**	**3**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	2	0	0	0	1
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**3**	**1**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	1	2	0	0	1
3:15 PM	0	0	0	0	0	0	1	1
3:30 PM	0	0	0	1	0	2	0	0
3:45 PM	0	0	0	1	3	2	0	0
4:00 PM	0	0	1	1	4	1	0	0
4:15 PM	0	1	0	0	0	1	1	1
4:30 PM	2	0	1	0	0	0	2	0
4:45 PM	2	0	1	4	0	2	0	0
5:00 PM	0	0	0	1	1	0	0	0
5:15 PM	0	0	0	1	1	3	0	0
5:30 PM	0	0	2	0	4	0	0	0
5:45 PM	0	1	2	4	1	2	1	0
TOTALS	**4**	**2**	**7**	**14**	**16**	**13**	**5**	**3**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	1	0	0	0	0	2	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	1	1	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	1	0
TOTALS	**0**	**1**	**1**	**1**	**1**	**0**	**0**	**4**	**1**	**1**	**2**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5421-002
N/S Street: Glenoaks Blvd
E/W Street: Foothill Blvd
DATE: 6/9/2016 DAY: Thursday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	1	1	0	0	0	0
7:15 AM	0	0	2	0	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	2
7:45 AM	0	0	1	1	0	0	0	0
8:00 AM	0	0	3	1	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0
8:30 AM	0	0	0	0	1	0	2	1
8:45 AM	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	1	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	1	0	0	1	1
9:45 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**7**	**5**	**2**	**1**	**3**	**4**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1	0	0	1	0
9:00 AM	0	0	0	0	0	1	0	1	0	0	1	0
9:15 AM	0	0	0	0	0	0	0	1	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**3**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	1	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	1	0	1	0	0	0
4:00 PM	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	1	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	5	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	2
TOTALS	**0**	**0**	**3**	**9**	**1**	**0**	**0**	**3**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	1	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	1	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	2	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**2**	**0**	**2**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-010
N/S Street: Polk St
E/W Street: I-210 WB Ramps
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	1
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	1	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	1	0	0
3:30 PM	0	0	0	0	0	4	0	0
3:45 PM	0	0	0	0	1	1	0	0
4:00 PM	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	1	0	1	0
4:30 PM	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	2	0	0	0
5:15 PM	0	0	0	0	2	4	1	1
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**6**	**11**	**3**	**3**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	1	0	0	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-011
N/S Street: Polk St
E/W Street: I-210 EB Ramps
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	1
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	1	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**2**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	1	0	0
3:30 PM	0	0	0	0	0	3	0	0
3:45 PM	0	0	0	0	1	2	1	0
4:00 PM	0	0	0	0	0	2	0	0
4:15 PM	0	0	0	0	3	0	1	0
4:30 PM	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	2	0	1
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**4**	**11**	**2**	**3**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	1	0	0	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	1	0	1	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0
4:45 PM	0	1	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**2**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 16-5115-012
N/S Street: Polk St
E/W Street: Foothill Blvd
DATE: 3/8/2016 DAY: Tuesday
CITY: Sylmar

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	3	0	7	0	3	0	4
7:15 AM	2	2	6	10	0	15	1	2
7:30 AM	1	1	4	9	0	7	0	2
7:45 AM	6	1	7	5	4	0	1	0
8:00 AM	2	1	3	3	1	2	3	2
8:15 AM	1	2	1	3	1	1	1	0
8:30 AM	0	3	3	2	1	2	1	0
8:45 AM	0	0	2	1	0	0	0	1
9:00 AM	0	0	1	3	0	0	0	0
9:15 AM	1	0	1	2	0	0	0	1
9:30 AM	0	1	0	2	1	1	0	0
9:45 AM	0	1	1	0	2	1	0	0
TOTALS	**13**	**15**	**29**	**47**	**10**	**32**	**7**	**12**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	1	0	0	0	0	0	0	1	0	0	2	0
8:45 AM	1	1	0	0	0	0	0	1	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	2	1	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**2**	**1**	**1**	**0**	**2**	**0**	**0**	**4**	**1**	**0**	**3**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	1	0	5	8	5	1	1	1
3:15 PM	2	4	5	2	1	1	0	2
3:30 PM	2	0	3	5	2	8	3	2
3:45 PM	1	1	1	2	1	2	2	1
4:00 PM	0	1	0	1	1	0	0	1
4:15 PM	0	0	2	13	3	0	4	0
4:30 PM	0	1	0	3	1	1	0	0
4:45 PM	1	1	5	3	1	1	1	1
5:00 PM	1	2	6	7	4	2	1	1
5:15 PM	2	2	2	4	3	2	1	0
5:30 PM	1	3	1	2	3	0	1	1
5:45 PM	0	0	6	10	1	0	0	0
TOTALS	**11**	**15**	**36**	**60**	**26**	**18**	**14**	**10**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	1	0	0	1	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:30 PM	0	0	0	0	1	0	0	0	0	0	1	0
3:45 PM	0	0	0	0	0	0	0	3	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	1	0	0
4:30 PM	0	0	1	0	1	0	0	1	0	0	0	0
4:45 PM	0	1	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0
TOTALS	**0**	**1**	**2**	**1**	**2**	**0**	**1**	**9**	**0**	**2**	**1**	**0**

APPENDIX C: LOS ANALYSIS WORKSHEETS

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
1	North-South Street:	Glenoaks Blvd	East-West Street:	Foothill Blvd
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
	No. of Phases				2				2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0				0
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
	ATSAC-1 or ATSAC+ATCS-2?				2				2
	Override Capacity				0				0
	MOVEMENT	Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	111	1	**111**		143	1	**143**	
	Left-Through		0				0		
	Through	13	1	13		29	1	24	
	Through-Right		1				1		
	Right	12	0	12		18	0	18	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	38	1	38		28	1	28	
	Left-Through		0				0		
	Through	53	1	53		13	1	13	
	Through-Right		1				1		
	Right	112	0	**106**		44	0	**15**	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	13	1	13		58	1	**58**	
	Left-Through		0				0		
	Through	375	1	**375**		245	1	245	
	Through-Right		0				0		
	Right	180	1	125		146	1	75	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	10	1	**10**		18	1	18	
	Left-Through		0				0		
	Through	182	0	194		226	0	**259**	
	Through-Right		1				1		
	Right	12	0	0		33	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
	CRITICAL VOLUMES		North-South:	217			North-South:	158	
			East-West:	385			East-West:	317	
			SUM:	602			SUM:	475	
	VOLUME/CAPACITY (V/C) RATIO:			0.401				0.317	
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.301**				**0.217**	
	LEVEL OF SERVICE (LOS):			**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
2	North-South Street:	Roxford Street	East-West Street:	I-210 WB Ramps
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	377	1	**377**	219	1	**219**
	Left-Through		0			0	
	Through	865	2	433	284	2	142
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	228	1	228	403	1	403
	Through-Right		1			1	
	Right	372	0	**372**	685	0	**685**
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	476	1	**364**	277	1	**197**
	Left-Through		0			0	
	Through	3	0	364	2	0	197
	Through-Right		0			0	
	Right	249	0	0	114	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
	CRITICAL VOLUMES		*North-South:*	749		*North-South:*	904
			East-West:	364		*East-West:*	197
			SUM:	1113		*SUM:*	1101
	VOLUME/CAPACITY *(V/C)* RATIO:			0.742			0.734
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.642**			**0.634**
	LEVEL OF SERVICE (LOS):			**B**			**B**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
3	North-South Street:	Roxford Street	East-West Street:	I-210 EB Ramps
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	766	1	**538**	348	1	**336**
	Through-Right		1			1	
	Right	309	0	309	324	0	324
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	120	1	**120**	209	1	**209**
	Left-Through		0			0	
	Through	581	2	291	457	2	229
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	470	0	470	172	0	172
	Left-Through		1			1	
	Through	0	0	**470**	2	0	174
	Through-Right		0			0	
	Right	400	1	400	252	1	**252**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	**0**	0	0	**0**
	Left-Through		0			0	
	Through	0	0	0	0	0	0
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			North-South:	658		North-South:	545
			East-West:	470		East-West:	252
			SUM:	1128		SUM:	797
VOLUME/CAPACITY (V/C) RATIO:				0.792			0.559
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.692**			**0.459**
LEVEL OF SERVICE (LOS):				**B**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	
4	

PROJECT TITLE: <Project Name>
North-South Street: Roxford Street **East-West Street:** Foothill Blvd
Scenario: Cumulative plus Project
Count Date: 1/0/1900 **Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	3	NB-- 0	SB--	3
		EB-- 3	WB--	3	EB-- 3	WB--	3
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		**Volume**	**No. of Lanes**	**Lane Volume**	**Volume**	**No. of Lanes**	**Lane Volume**
NORTHBOUND	Left	13	1	**13**	16	1	16
	Left-Through		0			0	
	Through	517	1	517	493	1	**493**
	Through-Right		0			0	
	Right	71	1	9	88	1	56
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	122	1	122	116	1	**116**
	Left-Through		0			0	
	Through	782	1	**782**	443	1	443
	Through-Right		0			0	
	Right	85	1	0	152	1	62
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	297	1	**297**	90	1	**90**
	Left-Through		0			0	
	Through	186	1	186	176	1	176
	Through-Right		0			0	
	Right	39	1	26	19	1	3
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	124	1	124	65	1	65
	Left-Through		0			0	
	Through	116	1	**116**	158	1	**158**
	Through-Right		0			0	
	Right	238	1	116	91	1	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	795		*North-South:*	609
			East-West:	413		*East-West:*	248
			SUM:	1208		*SUM:*	857
VOLUME/CAPACITY *(V/C)* RATIO:				0.879			0.623
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.779**			**0.523**
LEVEL OF SERVICE (LOS):				**C**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	
5	

PROJECT TITLE: <Project Name>
North-South Street: Roxford Street **East-West Street:** Glenoaks Blvd
Scenario: Cumulative plus Project
Count Date: 1/0/1900 **Analyst:** <Fehr & Peers> **Date:** <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
	MOVEMENT	Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	37	1	37		97	1	97	
	Left-Through		0				0		
	Through	336	1	**336**		418	1	**418**	
	Through-Right		0				0		
	Right	245	1	138		203	1	143	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	406	1	**406**		162	1	**162**	
	Left-Through		0				0		
	Through	536	1	536		308	1	308	
	Through-Right		0				0		
	Right	18	1	4		19	1	5	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	29	1	29		29	1	**29**	
	Left-Through		0				0		
	Through	254	1	**176**		124	1	84	
	Through-Right		1				1		
	Right	97	0	97		44	0	44	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	214	1	**214**		120	1	120	
	Left-Through		0				0		
	Through	136	1	136		217	1	**176**	
	Through-Right		1				1		
	Right	174	0	0		135	0	135	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			*North-South:*	742			*North-South:*	580	
			East-West:	390			*East-West:*	205	
			SUM:	1132			*SUM:*	785	
VOLUME/CAPACITY *(V/C)* RATIO:				0.755				0.523	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.655**				**0.423**	
LEVEL OF SERVICE (LOS):				**B**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
6	North-South Street:	Roxford Street	East-West Street:	San Fernando Road
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			4			4
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			0			0
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	2	NB-- 0	SB--	2
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	149	1	**149**	76	1	76
	Left-Through		0			0	
	Through	603	1	356	495	1	**315**
	Through-Right		1			1	
	Right	109	0	109	135	0	135
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	135	1	135	119	1	**119**
	Left-Through		0			0	
	Through	642	1	**452**	534	1	320
	Through-Right		1			1	
	Right	261	0	261	106	0	106
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	101	1	101	186	1	186
	Left-Through		0			0	
	Through	308	1	**188**	233	1	**204**
	Through-Right		1			1	
	Right	68	0	68	175	0	175
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	163	1	**163**	180	1	**180**
	Left-Through		0			0	
	Through	213	1	154	277	1	189
	Through-Right		1			1	
	Right	95	0	95	100	0	100
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		*North-South:*	601		*North-South:*	434
			East-West:	351		*East-West:*	384
			SUM:	952		*SUM:*	818
	VOLUME/CAPACITY *(V/C)* RATIO:			0.692			0.595
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.592**			**0.495**
	LEVEL OF SERVICE (LOS):			**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
7	North-South Street:	Roxford Street	East-West Street:	Encinitas Ave/I-5 NB Ramps
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					3				3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					2				2
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB--	0	SB--	0	NB--	0	SB--	0
		EB--	0	WB--	0	EB--	0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	9	1	9		13	1	**13**	
	Left-Through		0				0		
	Through	872	1	**592**		605	1	536	
	Through-Right		1				1		
	Right	312	0	312		466	0	466	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	62	1	**62**		44	1	44	
	Left-Through		0				0		
	Through	649	1	376		1021	1	**654**	
	Through-Right		1				1		
	Right	103	0	103		286	0	286	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	399	1	**399**		51	1	51	
	Left-Through		0				0		
	Through	135	0	251		12	0	**82**	
	Through-Right		1				1		
	Right	116	0	0		70	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	465	1	**256**		393	1	216	
	Left-Through		1				1		
	Through	175	0	200		192	0	**218**	
	Through-Right		1				1		
	Right	25	0	25		26	0	26	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	654			North-South:	667	
			East-West:	655			East-West:	300	
			SUM:	1309			SUM:	967	
VOLUME/CAPACITY (V/C) RATIO:				0.919				0.679	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.819**				**0.579**	
LEVEL OF SERVICE (LOS):				**D**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
8	North-South Street:	Roxford Street	East-West Street:	I-5 SB Ramps
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				1			1
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	32	1	32	17	1	17
	Through-Right		0			0	
	Right	641	1	**641**	122	1	**122**
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	1159	2	**637**	1407	2	**774**
	Left-Through		0			0	
	Through	153	1	153	108	1	108
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	251	0	**251**	265	0	**265**
	Left-Through		1			1	
	Through	1	0	9	3	0	3
	Through-Right		1			1	
	Right	8	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	1278		*North-South:*	896
			East-West:	251		*East-West:*	265
			SUM:	1529		*SUM:*	1161
VOLUME/CAPACITY *(V/C)* RATIO:				1.073			0.815
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.973**			**0.715**
LEVEL OF SERVICE (LOS):				**E**			**C**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	
9	

PROJECT TITLE: <Project Name>
North-South Street: Bledsoe St **East-West Street:** Olive View Dr
Scenario: Cumulative plus Project
Count Date: 1/0/1900 **Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				0			0
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	147	0	147	75	0	**75**
	Left-Through		0			0	
	Through	86	0	**331**	22	0	132
	Through-Right		0			0	
	Right	98	0	0	35	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
SOUTHBOUND	Left	7	0	**7**	25	0	25
	Left-Through		0			0	
	Through	39	0	121	55	0	**231**
	Through-Right		0			0	
	Right	75	0	0	151	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
EASTBOUND	Left	126	0	**126**	37	0	37
	Left-Through		1			1	
	Through	146	0	165	117	0	**151**
	Through-Right		1			1	
	Right	57	0	165	147	0	151
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	61	0	61	37	0	**37**
	Left-Through		1			1	
	Through	165	0	**125**	165	0	106
	Through-Right		1			1	
	Right	23	0	125	9	0	106
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	338		*North-South:*	306
			East-West:	251		*East-West:*	188
			SUM:	589		*SUM:*	494
VOLUME/CAPACITY *(V/C)* RATIO:				0.428			0.359
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.428			0.359
LEVEL OF SERVICE (LOS):				A			A

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
10	North-South Street:	Bledsoe St	East-West Street:	Foothill Blvd
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
	MOVEMENT	Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	47	1	47		25	1	25	
	Left-Through		0				0		
	Through	98	1	98		42	1	42	
	Through-Right		0				0		
	Right	229	1	**165**		107	1	**62**	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	115	1	**115**		189	1	**189**	
	Left-Through		0				0		
	Through	100	0	130		51	0	70	
	Through-Right		1				1		
	Right	30	0	0		19	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	79	1	**79**		19	1	19	
	Left-Through		0				0		
	Through	339	1	188		326	1	**172**	
	Through-Right		1				1		
	Right	36	0	36		17	0	17	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	129	1	129		90	1	**90**	
	Left-Through		0				0		
	Through	309	1	**256**		311	1	209	
	Through-Right		1				1		
	Right	203	0	203		106	0	106	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	280			North-South:	251	
			East-West:	335			East-West:	262	
			SUM:	615			SUM:	513	
VOLUME/CAPACITY (V/C) RATIO:				0.410				0.342	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.310**				**0.242**	
LEVEL OF SERVICE (LOS):				**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
11	North-South Street:	Bledsoe St	East-West Street:	Glenoaks Blvd
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	64	0	**64**		43	0	**43**	
	Left-Through		1				1		
	Through	102	0	166		82	0	125	
	Through-Right		0				0		
	Right	155	1	155		116	1	116	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	67	0	67		48	0	48	
	Left-Through		0				0		
	Through	135	0	**230**		71	0	**145**	
	Through-Right		0				0		
	Right	28	0	0		26	0	0	
	Left-Through-Right		1				1		
	Left-Right		0				0		
EASTBOUND	Left	56	0	56		50	0	50	
	Left-Through		1				1		
	Through	682	0	**473**		568	0	**382**	
	Through-Right		1				1		
	Right	151	0	473		96	0	382	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	123	0	**123**		90	0	**90**	
	Left-Through		1				1		
	Through	476	0	532		367	0	393	
	Through-Right		1				1		
	Right	96	0	532		58	0	393	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			*North-South:*	294			*North-South:*	188	
			East-West:	596			*East-West:*	472	
			SUM:	890			*SUM:*	660	
VOLUME/CAPACITY *(V/C)* RATIO:				0.593				0.440	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.493**				**0.340**	
LEVEL OF SERVICE (LOS):				**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
12	North-South Street:	Polk St	East-West Street:	I-210 WB Ramps
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	279	1	**279**	228	1	**228**
	Left-Through		0			0	
	Through	575	2	288	647	2	324
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	773	1	**551**	577	1	**367**
	Through-Right		1			1	
	Right	328	0	328	156	0	156
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	551	0	551	660	0	660
	Left-Through		1			1	
	Through	2	0	**553**	1	0	**661**
	Through-Right		0			0	
	Right	173	1	173	288	1	288
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		*North-South:*	830		*North-South:*	595
			East-West:	553		*East-West:*	661
			SUM:	1383		*SUM:*	1256
	VOLUME/CAPACITY *(V/C)* RATIO:			0.922			0.837
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.822**			**0.737**
	LEVEL OF SERVICE (LOS):			**D**			**C**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
13	North-South Street:	Polk St	East-West Street:	I-210 EB Ramps
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				2			2
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	637	1	637	700	1	**650**
	Through-Right		1			1	
	Right	901	0	**901**	599	0	599
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	367	1	**367**	221	1	**221**
	Left-Through		0			0	
	Through	995	2	498	1005	2	503
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	154	0	154	175	0	175
	Left-Through		1			1	
	Through	3	0	157	0	0	175
	Through-Right		0			0	
	Right	309	1	**309**	299	1	**299**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			North-South:	1268		North-South:	871
			East-West:	309		East-West:	299
			SUM:	1577		SUM:	1170
VOLUME/CAPACITY (V/C) RATIO:				1.051			0.780
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.951**			**0.680**
LEVEL OF SERVICE (LOS):				**E**			**B**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
14	North-South Street:	Polk St	East-West Street:	Foothill Blvd
	Scenario:	Cumulative plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					4				4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		3	EB-- 0	WB--		3
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	67	1	67		72	1	72	
	Left-Through		0				0		
	Through	660	1	**432**		590	1	**415**	
	Through-Right		1				1		
	Right	203	0	203		239	0	239	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	326	1	**326**		399	1	**399**	
	Left-Through		0				0		
	Through	635	1	488		584	1	449	
	Through-Right		1				1		
	Right	340	0	340		314	0	314	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	468	1	**468**		291	1	**291**	
	Left-Through		0				0		
	Through	572	1	331		414	1	238	
	Through-Right		1				1		
	Right	89	0	89		61	0	61	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	164	1	164		178	1	178	
	Left-Through		0				0		
	Through	347	2	**174**		414	2	**207**	
	Through-Right		0				0		
	Right	399	1	73		392	1	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			*North-South:*	758			*North-South:*	814	
			East-West:	642			*East-West:*	498	
			SUM:	1400			*SUM:*	1312	
VOLUME/CAPACITY *(V/C)* RATIO:				1.018				0.954	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.918**				**0.854**	
LEVEL OF SERVICE (LOS):				**E**				**D**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
1	North-South Street:	Glenoaks Blvd	East-West Street:	Foothill Blvd
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	111	1	**111**	143	1	**143**
	Left-Through		0			0	
	Through	13	1	13	29	1	24
	Through-Right		1			1	
	Right	12	0	12	18	0	18
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	38	1	38	28	1	28
	Left-Through		0			0	
	Through	53	1	53	13	1	13
	Through-Right		1			1	
	Right	112	0	**106**	44	0	**15**
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	13	1	13	58	1	**58**
	Left-Through		0			0	
	Through	347	1	**347**	235	1	235
	Through-Right		0			0	
	Right	180	1	125	146	1	75
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	10	1	**10**	18	1	18
	Left-Through		0			0	
	Through	172	0	184	196	0	**229**
	Through-Right		1			1	
	Right	12	0	0	33	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			North-South:	217		North-South:	158
			East-West:	357		East-West:	287
			SUM:	574		SUM:	445
VOLUME/CAPACITY (V/C) RATIO:				0.383			0.297
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.283**			**0.197**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
2	North-South Street:	Roxford Street	East-West Street:	I-210 WB Ramps
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	377	1	**377**	219	1	**219**
	Left-Through		0			0	
	Through	667	2	334	214	2	107
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	187	1	187	286	1	286
	Through-Right		1			1	
	Right	324	0	**324**	550	0	**550**
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	476	1	**343**	277	1	**189**
	Left-Through		0			0	
	Through	3	0	343	2	0	189
	Through-Right		0			0	
	Right	206	0	0	99	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
	CRITICAL VOLUMES		*North-South:*	701		*North-South:*	769
			East-West:	343		*East-West:*	189
			SUM:	1044		*SUM:*	958
	VOLUME/CAPACITY *(V/C)* RATIO:			0.696			0.639
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.596**			**0.539**
	LEVEL OF SERVICE (LOS):			**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
3	North-South Street:	Roxford Street	East-West Street:	I-210 EB Ramps
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	697	1	**503**	324	1	**324**
	Through-Right		1			1	
	Right	309	0	309	324	0	324
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	104	1	**104**	164	1	**164**
	Left-Through		0			0	
	Through	556	2	278	385	2	193
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	341	0	341	126	0	126
	Left-Through		1			1	
	Through	0	0	341	2	0	128
	Through-Right		0			0	
	Right	400	1	**400**	252	1	**252**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	**0**	0	0	**0**
	Left-Through		0			0	
	Through	0	0	0	0	0	0
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	607		*North-South:*	488
			East-West:	400		*East-West:*	252
			SUM:	1007		*SUM:*	740
VOLUME/CAPACITY *(V/C)* RATIO:				0.707			0.519
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.607**			**0.419**
LEVEL OF SERVICE (LOS):				**B**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
4	North-South Street:	Roxford Street	East-West Street:	Foothill Blvd
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	3	NB-- 0	SB--	3
		EB-- 3	WB--	3	EB-- 3	WB--	3
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	13	1	**13**	16	1	16
	Left-Through		0			0	
	Through	476	1	476	479	1	**479**
	Through-Right		0			0	
	Right	71	1	9	88	1	56
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	122	1	122	116	1	**116**
	Left-Through		0			0	
	Through	767	1	**767**	401	1	401
	Through-Right		0			0	
	Right	75	1	0	122	1	42
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	269	1	**269**	80	1	80
	Left-Through		0			0	
	Through	186	1	186	176	1	**176**
	Through-Right		0			0	
	Right	39	1	26	19	1	3
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	124	1	124	65	1	**65**
	Left-Through		0			0	
	Through	116	1	**116**	158	1	158
	Through-Right		0			0	
	Right	238	1	116	91	1	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	780		*North-South:*	595
			East-West:	385		*East-West:*	241
			SUM:	1165		*SUM:*	836
VOLUME/CAPACITY *(V/C)* RATIO:				0.847			0.608
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.747**			**0.508**
LEVEL OF SERVICE (LOS):				**C**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
5	North-South Street:	Roxford Street	East-West Street:	Glenoaks Blvd
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
	MOVEMENT	Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	37	1	37		97	1	97	
	Left-Through		0				0		
	Through	301	1	**301**		406	1	**406**	
	Through-Right		0				0		
	Right	245	1	138		203	1	143	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	404	1	**404**		156	1	**156**	
	Left-Through		0				0		
	Through	523	1	523		272	1	272	
	Through-Right		0				0		
	Right	18	1	4		19	1	5	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	29	1	29		29	1	29	
	Left-Through		0				0		
	Through	254	1	**176**		124	1	**84**	
	Through-Right		1				1		
	Right	97	0	97		44	0	44	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	214	1	**214**		120	1	**120**	
	Left-Through		0				0		
	Through	136	1	136		217	1	175	
	Through-Right		1				1		
	Right	168	0	0		133	0	133	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	705			North-South:	562	
			East-West:	390			East-West:	204	
			SUM:	1095			SUM:	766	
VOLUME/CAPACITY (V/C) RATIO:				0.730				0.511	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.630**				**0.411**	
LEVEL OF SERVICE (LOS):				**B**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
6	North-South Street:	Roxford Street	East-West Street:	San Fernando Road
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	2	NB-- 0	SB--	2
	EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?			2			2
Override Capacity			0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	149	1	**149**	76	1	76
	Left-Through		0			0	
	Through	574	1	342	485	1	**310**
	Through-Right		1			1	
	Right	109	0	109	135	0	135
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	133	1	133	113	1	**113**
	Left-Through		0			0	
	Through	631	1	**446**	504	1	305
	Through-Right		1			1	
	Right	261	0	261	106	0	106
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	101	1	101	186	1	186
	Left-Through		0			0	
	Through	308	1	**188**	233	1	**204**
	Through-Right		1			1	
	Right	68	0	68	175	0	175
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	163	1	**163**	180	1	**180**
	Left-Through		0			0	
	Through	213	1	151	277	1	188
	Through-Right		1			1	
	Right	89	0	89	98	0	98
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	595		*North-South:*	423
			East-West:	351		*East-West:*	384
			SUM:	946		*SUM:*	807
VOLUME/CAPACITY *(V/C)* RATIO:				0.688			0.587
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.588**			**0.487**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
7	North-South Street:	Roxford Street	East-West Street:	Encinitas Ave/I-5 NB Ramps
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					3				3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					2				2
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0		NB-- 0	SB--	0	
		EB-- 0	WB--	0		EB-- 0	WB--	0	
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
	MOVEMENT	Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	9	1	9		13	1	**13**	
	Left-Through		0				0		
	Through	843	1	**578**		595	1	531	
	Through-Right		1				1		
	Right	312	0	312		466	0	466	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	62	1	**62**		44	1	44	
	Left-Through		0				0		
	Through	638	1	371		991	1	**639**	
	Through-Right		1				1		
	Right	103	0	103		286	0	286	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	399	1	**399**		51	1	51	
	Left-Through		0				0		
	Through	135	0	251		12	0	**82**	
	Through-Right		1				1		
	Right	116	0	0		70	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	465	1	**256**		393	1	216	
	Left-Through		1				1		
	Through	175	0	200		192	0	**218**	
	Through-Right		1				1		
	Right	25	0	25		26	0	26	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	640			North-South:	652	
			East-West:	655			East-West:	300	
			SUM:	1295			SUM:	952	
VOLUME/CAPACITY (V/C) RATIO:				0.909				0.668	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.809**				**0.568**	
LEVEL OF SERVICE (LOS):				**D**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
8	North-South Street:	Roxford Street	East-West Street:	I-5 SB Ramps
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				1			1
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	32	1	32	17	1	17
	Through-Right		0			0	
	Right	641	1	**641**	122	1	**122**
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	1148	2	**631**	1377	2	**757**
	Left-Through		0			0	
	Through	153	1	153	108	1	108
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	251	0	**251**	265	0	**265**
	Left-Through		1			1	
	Through	1	0	9	3	0	3
	Through-Right		1			1	
	Right	8	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	1272		*North-South:*	879
			East-West:	251		*East-West:*	265
			SUM:	1523		*SUM:*	1144
VOLUME/CAPACITY *(V/C)* RATIO:				1.069			0.803
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.969**			**0.703**
LEVEL OF SERVICE (LOS):				**E**			**C**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
9	North-South Street:	Bledsoe St	East-West Street:	Olive View Dr
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					4				4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					0				0
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	125	0	125		68	0	**68**	
	Left-Through		0				0		
	Through	77	0	**296**		19	0	121	
	Through-Right		0				0		
	Right	94	0	0		34	0	0	
	Left-Through-Right		1				1		
	Left-Right		0				0		
SOUTHBOUND	Left	6	0	**6**		22	0	22	
	Left-Through		0				0		
	Through	36	0	94		46	0	**153**	
	Through-Right		0				0		
	Right	52	0	0		85	0	0	
	Left-Through-Right		1				1		
	Left-Right		0				0		
EASTBOUND	Left	63	0	**63**		15	0	15	
	Left-Through		1				1		
	Through	115	0	114		99	0	114	
	Through-Right		1				1		
	Right	50	0	114		125	0	**125**	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	60	0	60		33	0	**33**	
	Left-Through		1				1		
	Through	147	0	**114**		132	0	87	
	Through-Right		1				1		
	Right	20	0	114		8	0	87	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	302			North-South:	221	
			East-West:	177			East-West:	158	
			SUM:	479			SUM:	379	
VOLUME/CAPACITY (V/C) RATIO:				0.348				0.276	
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.348				0.276	
LEVEL OF SERVICE (LOS):				A				A	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
10	North-South Street:	Bledsoe St	East-West Street:	Foothill Blvd
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	47	1	47		25	1	25	
	Left-Through		0				0		
	Through	95	1	95		41	1	41	
	Through-Right		0				0		
	Right	229	1	**165**		107	1	**62**	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	104	1	**104**		156	1	**156**	
	Left-Through		0				0		
	Through	99	0	129		48	0	67	
	Through-Right		1				1		
	Right	30	0	0		19	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	79	1	**79**		19	1	19	
	Left-Through		0				0		
	Through	339	1	188		326	1	**172**	
	Through-Right		1				1		
	Right	36	0	36		17	0	17	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	129	1	129		90	1	**90**	
	Left-Through		0				0		
	Through	309	1	**240**		311	1	203	
	Through-Right		1				1		
	Right	171	0	171		95	0	95	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			*North-South:*	269			*North-South:*	218	
			East-West:	319			*East-West:*	262	
			SUM:	588			*SUM:*	480	
VOLUME/CAPACITY *(V/C)* RATIO:				0.392				0.320	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.292**				**0.220**	
LEVEL OF SERVICE (LOS):				**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
11	North-South Street:	Bledsoe St	East-West Street:	Glenoaks Blvd
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			0			0
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	64	0	**64**	43	0	**43**
	Left-Through		1			1	
	Through	102	0	166	82	0	125
	Through-Right		0			0	
	Right	155	1	155	116	1	116
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	66	0	66	45	0	45
	Left-Through		0			0	
	Through	135	0	**229**	71	0	**142**
	Through-Right		0			0	
	Right	28	0	0	26	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
EASTBOUND	Left	56	0	56	50	0	50
	Left-Through		1			1	
	Through	680	0	**472**	562	0	**379**
	Through-Right		1			1	
	Right	151	0	472	96	0	379
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	123	0	**123**	90	0	**90**
	Left-Through		1			1	
	Through	470	0	528	365	0	391
	Through-Right		1			1	
	Right	93	0	528	57	0	391
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		*North-South:*	293		*North-South:*	185
			East-West:	595		*East-West:*	469
			SUM:	888		*SUM:*	654
	VOLUME/CAPACITY *(V/C)* RATIO:			0.592			0.436
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.492**			**0.336**
	LEVEL OF SERVICE (LOS):			**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
12	North-South Street:	Polk St	East-West Street:	I-210 WB Ramps
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	279	1	**279**	228	1	**228**
	Left-Through		0			0	
	Through	574	2	287	644	2	322
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	767	1	**548**	567	1	**362**
	Through-Right		1			1	
	Right	328	0	328	156	0	156
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	531	0	531	653	0	653
	Left-Through		1			1	
	Through	2	0	**533**	1	0	**654**
	Through-Right		0			0	
	Right	164	1	164	285	1	285
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		*North-South:*	827		*North-South:*	590
			East-West:	533		*East-West:*	654
			SUM:	1360		*SUM:*	1244
	VOLUME/CAPACITY *(V/C)* RATIO:			0.907			0.829
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.807**			**0.729**
	LEVEL OF SERVICE (LOS):			**D**			**C**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
13	North-South Street:	Polk St	East-West Street:	I-210 EB Ramps
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	636	1	636	697	1	**638**
	Through-Right		1			1	
	Right	894	0	**894**	578	0	578
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	364	1	**364**	212	1	**212**
	Left-Through		0			0	
	Through	972	2	486	997	2	499
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	154	0	154	175	0	175
	Left-Through		1			1	
	Through	3	0	157	0	0	175
	Through-Right		0			0	
	Right	309	1	**309**	299	1	**299**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		North-South:	1258		North-South:	850
			East-West:	309		East-West:	299
			SUM:	1567		SUM:	1149
	VOLUME/CAPACITY (V/C) RATIO:			1.045			0.766
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.945**			**0.666**
	LEVEL OF SERVICE (LOS):			**E**			**B**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
14	North-South Street:	Polk St	East-West Street:	Foothill Blvd
	Scenario:	Cumulative		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					4				4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		3	EB-- 0	WB--		3
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
	MOVEMENT	Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	67	1	67		72	1	72	
	Left-Through		0				0		
	Through	660	1	**432**		590	1	**415**	
	Through-Right		1				1		
	Right	203	0	203		239	0	239	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	326	1	**326**		399	1	**399**	
	Left-Through		0				0		
	Through	635	1	476		584	1	445	
	Through-Right		1				1		
	Right	317	0	317		306	0	306	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	460	1	**460**		267	1	**267**	
	Left-Through		0				0		
	Through	569	1	329		405	1	233	
	Through-Right		1				1		
	Right	89	0	89		61	0	61	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	164	1	164		178	1	178	
	Left-Through		0				0		
	Through	338	2	**169**		411	2	**206**	
	Through-Right		0				0		
	Right	399	1	73		392	1	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			*North-South:*	758			*North-South:*	814	
			East-West:	629			*East-West:*	473	
			SUM:	1387			*SUM:*	1287	
VOLUME/CAPACITY *(V/C)* RATIO:				1.009				0.936	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.909**				**0.836**	
LEVEL OF SERVICE (LOS):				**E**				**D**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
1	North-South Street:	Glenoaks Blvd	East-West Street:	Foothill Blvd
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	103	1	**103**	133	1	**133**
	Left-Through		0			0	
	Through	12	1	12	27	1	22
	Through-Right		1			1	
	Right	11	0	11	17	0	17
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	35	1	35	26	1	26
	Left-Through		0			0	
	Through	49	1	49	12	1	12
	Through-Right		1			1	
	Right	104	0	**98**	41	0	**14**
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	12	1	12	54	1	**54**
	Left-Through		0			0	
	Through	339	1	**339**	218	1	218
	Through-Right		0			0	
	Right	167	1	116	136	1	70
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	9	1	**9**	17	1	17
	Left-Through		0			0	
	Through	159	0	170	204	0	**235**
	Through-Right		1			1	
	Right	11	0	0	31	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			North-South:	201		North-South:	147
			East-West:	348		East-West:	289
			SUM:	549		SUM:	436
VOLUME/CAPACITY (V/C) RATIO:				0.366			0.291
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.266**			**0.191**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
2	North-South Street:	Roxford Street	East-West Street:	I-210 WB Ramps
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
	No. of Phases				2				2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				2				2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
	ATSAC-1 or ATSAC+ATCS-2?				2				2
	Override Capacity				0				0
	MOVEMENT	Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	278	1	**278**		148	1	**148**	
	Left-Through		0				0		
	Through	818	2	409		269	2	135	
	Through-Right		0				0		
	Right	0	0	0		0	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	0	0	0		0	0	0	
	Left-Through		0				0		
	Through	215	1	215		383	1	383	
	Through-Right		1				1		
	Right	349	0	**349**		646	0	**646**	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	0	0	0		0	0	0	
	Left-Through		0				0		
	Through	0	0	**0**		0	0	**0**	
	Through-Right		0				0		
	Right	0	0	0		0	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	393	1	**315**		237	1	**173**	
	Left-Through		0				0		
	Through	3	0	315		2	0	173	
	Through-Right		0				0		
	Right	234	0	0		107	0	0	
	Left-Through-Right		1				1		
	Left-Right		0				0		
	CRITICAL VOLUMES		*North-South:*	627			*North-South:*	794	
			East-West:	315			*East-West:*	173	
			SUM:	942			*SUM:*	967	
	VOLUME/CAPACITY *(V/C)* RATIO:			0.628				0.645	
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.528**				**0.545**	
	LEVEL OF SERVICE (LOS):			**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
3	North-South Street:	Roxford Street	East-West Street:	I-210 EB Ramps
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	644	1	**459**	269	1	**260**
	Through-Right		1			1	
	Right	274	0	274	250	0	250
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	113	1	**113**	197	1	**197**
	Left-Through		0			0	
	Through	492	2	246	409	2	205
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	446	0	446	163	0	163
	Left-Through		1			1	
	Through	0	0	**446**	2	0	165
	Through-Right		0			0	
	Right	260	1	260	178	1	**178**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	**0**	0	0	**0**
	Left-Through		0			0	
	Through	0	0	0	0	0	0
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			North-South:	572		North-South:	457
			East-West:	446		East-West:	178
			SUM:	1018		SUM:	635
VOLUME/CAPACITY (V/C) RATIO:				0.714			0.446
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.614**			**0.346**
LEVEL OF SERVICE (LOS):				**B**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	
4	

PROJECT TITLE: <Project Name>
North-South Street: Roxford Street **East-West Street:** Foothill Blvd
Scenario: Existing plus Project
Count Date: 1/0/1900 **Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	3	NB-- 0	SB--	3
		EB-- 3	WB--	3	EB-- 3	WB--	3
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	12	1	**12**	15	1	15
	Left-Through		0			0	
	Through	398	1	398	352	1	**352**
	Through-Right		0			0	
	Right	66	1	9	82	1	52
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	113	1	113	108	1	**108**
	Left-Through		0			0	
	Through	567	1	**567**	338	1	338
	Through-Right		0			0	
	Right	80	1	0	143	1	59
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	278	1	**278**	84	1	**84**
	Left-Through		0			0	
	Through	162	1	162	153	1	153
	Through-Right		0			0	
	Right	36	1	24	18	1	3
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	115	1	115	60	1	60
	Left-Through		0			0	
	Through	97	1	97	138	1	**138**
	Through-Right		0			0	
	Right	221	1	**108**	85	1	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	579		*North-South:*	460
			East-West:	386		*East-West:*	222
			SUM:	965		*SUM:*	682
VOLUME/CAPACITY *(V/C)* RATIO:				0.702			0.496
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.602**			**0.396**
LEVEL OF SERVICE (LOS):				**B**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	
5	

PROJECT TITLE: <Project Name>
North-South Street: Roxford Street **East-West Street:** Glenoaks Blvd
Scenario: Existing plus Project
Count Date: 1/0/1900 **Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		**Volume**	**No. of Lanes**	**Lane Volume**	**Volume**	**No. of Lanes**	**Lane Volume**
NORTHBOUND	Left	33	1	33	87	1	87
	Left-Through		0			0	
	Through	302	1	**302**	338	1	**338**
	Through-Right		0			0	
	Right	227	1	130	184	1	131
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	266	1	**266**	95	1	**95**
	Left-Through		0			0	
	Through	450	1	450	268	1	268
	Through-Right		0			0	
	Right	17	1	4	18	1	5
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	27	1	27	27	1	27
	Left-Through		0			0	
	Through	236	1	**162**	115	1	**77**
	Through-Right		1			1	
	Right	87	0	87	38	0	38
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	195	1	**195**	107	1	**107**
	Left-Through		0			0	
	Through	126	1	108	202	1	136
	Through-Right		1			1	
	Right	90	0	90	70	0	70
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	568		*North-South:*	433
			East-West:	357		*East-West:*	184
			SUM:	925		*SUM:*	617
VOLUME/CAPACITY *(V/C)* RATIO:				0.617			0.411
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.517**			**0.311**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
6	North-South Street:	Roxford Street	East-West Street:	San Fernando Road
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			4			4
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			0			0
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	2	NB-- 0	SB--	2
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	39	1	39	28	1	28
	Left-Through		0			0	
	Through	561	1	**330**	456	1	**288**
	Through-Right		1			1	
	Right	98	0	98	120	0	120
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	123	1	**123**	108	1	**108**
	Left-Through		0			0	
	Through	594	1	394	494	1	286
	Through-Right		1			1	
	Right	193	0	193	78	0	78
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	81	1	81	122	1	**122**
	Left-Through		0			0	
	Through	260	1	**147**	165	1	111
	Through-Right		1			1	
	Right	34	0	34	57	0	57
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	147	1	**147**	162	1	162
	Left-Through		0			0	
	Through	153	1	121	220	1	**155**
	Through-Right		1			1	
	Right	88	0	88	90	0	90
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		*North-South:*	453		*North-South:*	396
			East-West:	294		*East-West:*	277
			SUM:	747		*SUM:*	673
	VOLUME/CAPACITY *(V/C)* RATIO:			0.543			0.489
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.443**			**0.389**
	LEVEL OF SERVICE (LOS):			**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
7	North-South Street:	Roxford Street	East-West Street:	Encinitas Ave/I-5 NB Ramps
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					3				3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					2				2
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	8	1	8		12	1	**12**	
	Left-Through		0				0		
	Through	709	1	**479**		517	1	452	
	Through-Right		1				1		
	Right	248	0	248		387	0	387	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	51	1	**51**		33	1	33	
	Left-Through		0				0		
	Through	576	1	334		855	1	**554**	
	Through-Right		1				1		
	Right	92	0	92		253	0	253	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	371	1	**371**		47	1	47	
	Left-Through		0				0		
	Through	125	0	233		11	0	**76**	
	Through-Right		1				1		
	Right	108	0	0		65	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	425	1	**234**		335	1	**184**	
	Left-Through		1				1		
	Through	151	0	172		160	0	177	
	Through-Right		1				1		
	Right	21	0	21		17	0	17	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	530			North-South:	566	
			East-West:	605			East-West:	260	
			SUM:	1135			SUM:	826	
VOLUME/CAPACITY (V/C) RATIO:				0.796				0.580	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.696**				**0.480**	
LEVEL OF SERVICE (LOS):				**B**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
8	North-South Street:	Roxford Street	East-West Street:	I-5 SB Ramps
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				1			1
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	30	1	30	16	1	16
	Through-Right		0			0	
	Right	596	1	**596**	113	1	**113**
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	1043	2	**574**	1184	2	**651**
	Left-Through		0			0	
	Through	142	1	142	100	1	100
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	206	0	**206**	223	0	**223**
	Left-Through		1			1	
	Through	1	0	8	3	0	3
	Through-Right		1			1	
	Right	7	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	1170		*North-South:*	764
			East-West:	206		*East-West:*	223
			SUM:	1376		*SUM:*	987
VOLUME/CAPACITY *(V/C)* RATIO:				0.966			0.693
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.866**			**0.593**
LEVEL OF SERVICE (LOS):				**D**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
9	North-South Street:	Bledsoe St	East-West Street:	Olive View Dr
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				0			0
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	138	0	138	70	0	**70**
	Left-Through		0			0	
	Through	81	0	**310**	21	0	124
	Through-Right		0			0	
	Right	91	0	0	33	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
SOUTHBOUND	Left	7	0	**7**	23	0	23
	Left-Through		0			0	
	Through	36	0	114	52	0	**220**
	Through-Right		0			0	
	Right	71	0	0	145	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
EASTBOUND	Left	122	0	**122**	36	0	36
	Left-Through		1			1	
	Through	138	0	157	110	0	**142**
	Through-Right		1			1	
	Right	53	0	157	138	0	142
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	57	0	57	35	0	**35**
	Left-Through		1			1	
	Through	155	0	**117**	156	0	100
	Through-Right		1			1	
	Right	22	0	117	8	0	100
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	317		*North-South:*	290
			East-West:	239		*East-West:*	177
			SUM:	556		*SUM:*	467
VOLUME/CAPACITY *(V/C)* RATIO:				0.404			0.340
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.404			0.340
LEVEL OF SERVICE (LOS):				A			A

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
10	North-South Street:	Bledsoe St	East-West Street:	Foothill Blvd
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	44	1	44		23	1	23	
	Left-Through		0				0		
	Through	91	1	91		39	1	39	
	Through-Right		0				0		
	Right	213	1	**153**		99	1	**57**	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	108	1	**108**		178	1	**178**	
	Left-Through		0				0		
	Through	93	0	121		48	0	66	
	Through-Right		1				1		
	Right	28	0	0		18	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	73	1	**73**		18	1	18	
	Left-Through		0				0		
	Through	304	1	169		293	1	**155**	
	Through-Right		1				1		
	Right	33	0	33		16	0	16	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	120	1	120		84	1	**84**	
	Left-Through		0				0		
	Through	276	1	**234**		281	1	190	
	Through-Right		1				1		
	Right	191	0	191		99	0	99	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	261			North-South:	235	
			East-West:	307			East-West:	239	
			SUM:	568			SUM:	474	
VOLUME/CAPACITY (V/C) RATIO:				0.379				0.316	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.279**				**0.216**	
LEVEL OF SERVICE (LOS):				**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
11	North-South Street:	Bledsoe St	East-West Street:	Glenoaks Blvd
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	22	0	**22**	21	0	**21**
	Left-Through		1			1	
	Through	95	0	117	76	0	97
	Through-Right		0			0	
	Right	144	1	144	108	1	108
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	62	0	62	45	0	45
	Left-Through		0			0	
	Through	125	0	**213**	66	0	**135**
	Through-Right		0			0	
	Right	26	0	0	24	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
EASTBOUND	Left	52	0	**52**	46	0	46
	Left-Through		1			1	
	Through	634	0	427	528	0	**346**
	Through-Right		1			1	
	Right	116	0	427	71	0	346
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	114	0	114	84	0	**84**
	Left-Through		1			1	
	Through	443	0	**494**	341	0	282
	Through-Right		1			1	
	Right	89	0	494	54	0	282
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	235		*North-South:*	156
			East-West:	546		*East-West:*	430
			SUM:	781		*SUM:*	586
VOLUME/CAPACITY *(V/C)* RATIO:				0.521			0.391
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.421**			**0.291**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
12	North-South Street:	Polk St	East-West Street:	I-210 WB Ramps
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	221	1	**221**	189	1	**189**
	Left-Through		0			0	
	Through	417	2	209	482	2	241
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	667	1	**477**	450	1	**278**
	Through-Right		1			1	
	Right	287	0	287	105	0	105
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	471	0	471	562	0	562
	Left-Through		1			1	
	Through	2	0	**473**	1	0	**563**
	Through-Right		0			0	
	Right	136	1	136	253	1	253
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		North-South:	698		North-South:	467
			East-West:	473		East-West:	563
			SUM:	1171		SUM:	1030
	VOLUME/CAPACITY (V/C) RATIO:			0.781			0.687
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.681**			**0.587**
	LEVEL OF SERVICE (LOS):			**B**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
13	North-South Street:	Polk St	East-West Street:	I-210 EB Ramps
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	472	1	472	548	1	**533**
	Through-Right		1			1	
	Right	772	0	**772**	517	0	517
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	330	1	**330**	194	1	**194**
	Left-Through		0			0	
	Through	843	2	422	808	2	404
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	107	0	107	122	0	122
	Left-Through		1			1	
	Through	3	0	110	0	0	122
	Through-Right		0			0	
	Right	263	1	**263**	248	1	**248**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		North-South:	1102		North-South:	727
			East-West:	263		East-West:	248
			SUM:	1365		SUM:	975
	VOLUME/CAPACITY (V/C) RATIO:			0.910			0.650
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.810**			**0.550**
	LEVEL OF SERVICE (LOS):			**D**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
14	North-South Street:	Polk St	East-West Street:	Foothill Blvd
	Scenario:	Existing plus Project		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	3	EB-- 0	WB--	3
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	62	1	62	67	1	67
	Left-Through		0			0	
	Through	579	1	**384**	513	1	**368**
	Through-Right		1			1	
	Right	189	0	189	222	0	222
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	221	1	**221**	271	1	**271**
	Left-Through		0			0	
	Through	573	1	441	510	1	389
	Through-Right		1			1	
	Right	308	0	308	267	0	267
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	418	1	**418**	247	1	**247**
	Left-Through		0			0	
	Through	525	1	304	378	1	218
	Through-Right		1			1	
	Right	83	0	83	57	0	57
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	152	1	152	165	1	165
	Left-Through		0			0	
	Through	314	2	**157**	379	2	**190**
	Through-Right		0			0	
	Right	237	1	16	282	1	11
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			North-South:	605		North-South:	639
			East-West:	575		East-West:	437
			SUM:	1180		SUM:	1076
VOLUME/CAPACITY (V/C) RATIO:				0.858			0.783
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.758**			**0.683**
LEVEL OF SERVICE (LOS):				**C**			**B**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	
1	

PROJECT TITLE: <Project Name>
North-South Street: Glenoaks Blvd **East-West Street:** Foothill Blvd
Scenario: Existing
Count Date: 1/0/1900 **Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	103	1	**103**	133	1	**133**
	Left-Through		0			0	
	Through	12	1	12	27	1	22
	Through-Right		1			1	
	Right	11	0	11	17	0	17
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	35	1	35	26	1	26
	Left-Through		0			0	
	Through	49	1	49	12	1	12
	Through-Right		1			1	
	Right	104	0	**98**	41	0	**14**
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	12	1	12	54	1	**54**
	Left-Through		0			0	
	Through	311	1	**311**	208	1	208
	Through-Right		0			0	
	Right	167	1	116	136	1	70
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	9	1	**9**	17	1	17
	Left-Through		0			0	
	Through	149	0	160	174	0	**205**
	Through-Right		1			1	
	Right	11	0	0	31	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	201		*North-South:*	147
			East-West:	320		*East-West:*	259
			SUM:	521		*SUM:*	406
VOLUME/CAPACITY *(V/C)* RATIO:				0.347			0.271
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.247**			**0.171**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
2	North-South Street:	Roxford Street	East-West Street:	I-210 WB Ramps
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				2			2
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
	EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?			2			2
Override Capacity			0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	278	1	**278**	148	1	**148**
	Left-Through		0			0	
	Through	620	2	310	199	2	100
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	174	1	174	266	1	266
	Through-Right		1			1	
	Right	301	0	**301**	511	0	**511**
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	393	1	**294**	237	1	**166**
	Left-Through		0			0	
	Through	3	0	294	2	0	166
	Through-Right		0			0	
	Right	191	0	0	92	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	579		*North-South:*	659
			East-West:	294		*East-West:*	166
			SUM:	873		*SUM:*	825
VOLUME/CAPACITY *(V/C)* RATIO:				0.582			0.550
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.482**			**0.450**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
3	North-South Street:	Roxford Street	East-West Street:	I-210 EB Ramps
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	575	1	**425**	245	1	245
	Through-Right		1			1	
	Right	274	0	274	250	0	**250**
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	97	1	**97**	152	1	**152**
	Left-Through		0			0	
	Through	467	2	234	337	2	169
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	317	0	317	117	0	117
	Left-Through		1			1	
	Through	0	0	**317**	2	0	119
	Through-Right		0			0	
	Right	260	1	260	178	1	**178**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	**0**	0	0	**0**
	Left-Through		0			0	
	Through	0	0	0	0	0	0
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	522		*North-South:*	402
			East-West:	317		*East-West:*	178
			SUM:	839		*SUM:*	580
VOLUME/CAPACITY *(V/C)* RATIO:				0.589			0.407
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.489**			**0.307**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
4	North-South Street:	Roxford Street	East-West Street:	Foothill Blvd
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	3	NB-- 0	SB--	3
		EB-- 3	WB--	3	EB-- 3	WB--	3
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	12	1	**12**	15	1	15
	Left-Through		0			0	
	Through	357	1	357	338	1	**338**
	Through-Right		0			0	
	Right	66	1	9	82	1	52
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	113	1	113	108	1	**108**
	Left-Through		0			0	
	Through	552	1	**552**	296	1	296
	Through-Right		0			0	
	Right	70	1	0	113	1	39
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	250	1	**250**	74	1	74
	Left-Through		0			0	
	Through	162	1	162	153	1	**153**
	Through-Right		0			0	
	Right	36	1	24	18	1	3
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	115	1	115	60	1	**60**
	Left-Through		0			0	
	Through	97	1	97	138	1	138
	Through-Right		0			0	
	Right	221	1	**108**	85	1	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	564		*North-South:*	446
			East-West:	358		*East-West:*	213
			SUM:	922		*SUM:*	659
VOLUME/CAPACITY *(V/C)* RATIO:				0.671			0.479
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.571**			**0.379**
LEVEL OF SERVICE (LOS):				**A**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
5	North-South Street:	Roxford Street	East-West Street:	Glenoaks Blvd
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
	MOVEMENT	Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	33	1	33		87	1	87	
	Left-Through		0				0		
	Through	267	1	**267**		326	1	**326**	
	Through-Right		0				0		
	Right	227	1	130		184	1	131	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	264	1	**264**		89	1	**89**	
	Left-Through		0				0		
	Through	437	1	437		232	1	232	
	Through-Right		0				0		
	Right	17	1	4		18	1	5	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	27	1	27		27	1	27	
	Left-Through		0				0		
	Through	236	1	**162**		115	1	**77**	
	Through-Right		1				1		
	Right	87	0	87		38	0	38	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	195	1	**195**		107	1	**107**	
	Left-Through		0				0		
	Through	126	1	105		202	1	135	
	Through-Right		1				1		
	Right	84	0	84		68	0	68	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	531			North-South:	415	
			East-West:	357			East-West:	184	
			SUM:	888			SUM:	599	
VOLUME/CAPACITY (V/C) RATIO:				0.592				0.399	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.492**				**0.299**	
LEVEL OF SERVICE (LOS):				**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
6	North-South Street:	Roxford Street	East-West Street:	San Fernando Road
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					4				4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		2	NB-- 0	SB--		2
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	39	1	39		28	1	28	
	Left-Through		0				0		
	Through	532	1	**315**		446	1	**283**	
	Through-Right		1				1		
	Right	98	0	98		120	0	120	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	121	1	**121**		102	1	**102**	
	Left-Through		0				0		
	Through	583	1	388		464	1	271	
	Through-Right		1				1		
	Right	193	0	193		78	0	78	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	81	1	81		122	1	**122**	
	Left-Through		0				0		
	Through	260	1	**147**		165	1	111	
	Through-Right		1				1		
	Right	34	0	34		57	0	57	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	147	1	**147**		162	1	162	
	Left-Through		0				0		
	Through	153	1	118		220	1	**154**	
	Through-Right		1				1		
	Right	82	0	82		88	0	88	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			*North-South:*	436			*North-South:*	385	
			East-West:	294			*East-West:*	276	
			SUM:	730			*SUM:*	661	
VOLUME/CAPACITY *(V/C)* RATIO:				0.531				0.481	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.431**				**0.381**	
LEVEL OF SERVICE (LOS):				**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
7	North-South Street:	Roxford Street	East-West Street:	Encinitas Ave/I-5 NB Ramps
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				2			2
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	8	1	8	12	1	**12**
	Left-Through		0			0	
	Through	680	1	**464**	507	1	447
	Through-Right		1			1	
	Right	248	0	248	387	0	387
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	51	1	**51**	33	1	33
	Left-Through		0			0	
	Through	565	1	329	825	1	**539**
	Through-Right		1			1	
	Right	92	0	92	253	0	253
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	371	1	**371**	47	1	47
	Left-Through		0			0	
	Through	125	0	233	11	0	**76**
	Through-Right		1			1	
	Right	108	0	0	65	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	425	1	**234**	335	1	**184**
	Left-Through		1			1	
	Through	151	0	172	160	0	177
	Through-Right		1			1	
	Right	21	0	21	17	0	17
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			North-South:	515		North-South:	551
			East-West:	605		East-West:	260
			SUM:	1120		SUM:	811
VOLUME/CAPACITY (V/C) RATIO:				0.786			0.569
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.686**			**0.469**
LEVEL OF SERVICE (LOS):				**B**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
8	North-South Street:	Roxford Street	East-West Street:	I-5 SB Ramps
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			3			3
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			1			1
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	30	1	30	16	1	16
	Through-Right		0			0	
	Right	596	1	**596**	113	1	**113**
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	1032	2	**568**	1154	2	**635**
	Left-Through		0			0	
	Through	142	1	142	100	1	100
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	206	0	**206**	223	0	**223**
	Left-Through		1			1	
	Through	1	0	8	3	0	3
	Through-Right		1			1	
	Right	7	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		North-South:	1164		North-South:	748
			East-West:	206		East-West:	223
			SUM:	1370		SUM:	971
	VOLUME/CAPACITY (V/C) RATIO:			0.961			0.681
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.861**			**0.581**
	LEVEL OF SERVICE (LOS):			**D**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
9	North-South Street:	Bledsoe St	East-West Street:	Olive View Dr
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?				0			0
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	116	0	116	63	0	**63**
	Left-Through		0			0	
	Through	72	0	**275**	18	0	113
	Through-Right		0			0	
	Right	87	0	0	32	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
SOUTHBOUND	Left	6	0	**6**	20	0	20
	Left-Through		0			0	
	Through	33	0	87	43	0	**142**
	Through-Right		0			0	
	Right	48	0	0	79	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
EASTBOUND	Left	59	0	**59**	14	0	14
	Left-Through		1			1	
	Through	107	0	106	92	0	106
	Through-Right		1			1	
	Right	46	0	106	116	0	**116**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	56	0	56	31	0	**31**
	Left-Through		1			1	
	Through	137	0	**106**	123	0	81
	Through-Right		1			1	
	Right	19	0	106	7	0	81
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	281		*North-South:*	205
			East-West:	165		*East-West:*	147
			SUM:	446		*SUM:*	352
VOLUME/CAPACITY *(V/C)* RATIO:				0.324			0.256
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.324			0.256
LEVEL OF SERVICE (LOS):				A			A

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
10	North-South Street:	Bledsoe St	East-West Street:	Foothill Blvd
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB--	0	SB--	0	NB--	0	SB--	0
		EB--	0	WB--	0	EB--	0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	44	1	44		23	1	23	
	Left-Through		0				0		
	Through	88	1	88		38	1	38	
	Through-Right		0				0		
	Right	213	1	**153**		99	1	**57**	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	97	1	**97**		145	1	**145**	
	Left-Through		0				0		
	Through	92	0	120		45	0	63	
	Through-Right		1				1		
	Right	28	0	0		18	0	0	
	Left-Through-Right		0				0		
	Left-Right		0				0		
EASTBOUND	Left	73	1	**73**		18	1	18	
	Left-Through		0				0		
	Through	304	1	169		293	1	**155**	
	Through-Right		1				1		
	Right	33	0	33		16	0	16	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	120	1	120		84	1	**84**	
	Left-Through		0				0		
	Through	276	1	**218**		281	1	185	
	Through-Right		1				1		
	Right	159	0	159		88	0	88	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			North-South:	250			North-South:	202	
			East-West:	291			East-West:	239	
			SUM:	541			SUM:	441	
VOLUME/CAPACITY (V/C) RATIO:				0.361				0.294	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.261**				**0.194**	
LEVEL OF SERVICE (LOS):				**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
11	North-South Street:	Bledsoe St	East-West Street:	Glenoaks Blvd
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM				PM			
No. of Phases					2				2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?					0				0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--		0	NB-- 0	SB--		0
		EB-- 0	WB--		0	EB-- 0	WB--		0
ATSAC-1 or ATSAC+ATCS-2?					2				2
Override Capacity					0				0
MOVEMENT		Volume	No. of Lanes	Lane Volume		Volume	No. of Lanes	Lane Volume	
NORTHBOUND	Left	22	0	**22**		21	0	**21**	
	Left-Through		1				1		
	Through	95	0	117		76	0	97	
	Through-Right		0				0		
	Right	144	1	144		108	1	108	
	Left-Through-Right		0				0		
	Left-Right		0				0		
SOUTHBOUND	Left	61	0	61		42	0	42	
	Left-Through		0				0		
	Through	125	0	**212**		66	0	**132**	
	Through-Right		0				0		
	Right	26	0	0		24	0	0	
	Left-Through-Right		1				1		
	Left-Right		0				0		
EASTBOUND	Left	52	0	**52**		46	0	46	
	Left-Through		1				1		
	Through	632	0	426		522	0	**343**	
	Through-Right		1				1		
	Right	116	0	426		71	0	343	
	Left-Through-Right		0				0		
	Left-Right		0				0		
WESTBOUND	Left	114	0	114		84	0	**84**	
	Left-Through		1				1		
	Through	437	0	**490**		339	0	280	
	Through-Right		1				1		
	Right	86	0	490		53	0	280	
	Left-Through-Right		0				0		
	Left-Right		0				0		
CRITICAL VOLUMES			*North-South:*	234			*North-South:*	153	
			East-West:	542			*East-West:*	427	
			SUM:	776			*SUM:*	580	
VOLUME/CAPACITY *(V/C)* RATIO:				0.517				0.387	
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.417**				**0.287**	
LEVEL OF SERVICE (LOS):				**A**				**A**	

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
12	North-South Street:	Polk St	East-West Street:	I-210 WB Ramps
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				2			2
Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
	EB-- 0	WB--	0	EB-- 0	WB--	0
ATSAC-1 or ATSAC+ATCS-2?			2			2
Override Capacity			0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	221	1	**221**	189	1	**189**
	Left-Through		0			0	
	Through	416	2	208	479	2	240
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	661	1	**474**	440	1	**273**
	Through-Right		1			1	
	Right	287	0	287	105	0	105
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	451	0	451	555	0	555
	Left-Through		1			1	
	Through	2	0	**453**	1	0	**556**
	Through-Right		0			0	
	Right	127	1	127	250	1	250
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			*North-South:*	695		*North-South:*	462
			East-West:	453		*East-West:*	556
			SUM:	1148		*SUM:*	1018
VOLUME/CAPACITY *(V/C)* RATIO:				0.765			0.679
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.665**			**0.579**
LEVEL OF SERVICE (LOS):				**B**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
13	North-South Street:	Polk St	East-West Street:	I-210 EB Ramps
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
	No. of Phases			2			2
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	0	EB-- 0	WB--	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2
	Override Capacity			0			0
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	471	1	471	545	1	**521**
	Through-Right		1			1	
	Right	765	0	**765**	496	0	496
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	327	1	**327**	185	1	**185**
	Left-Through		0			0	
	Through	820	2	410	800	2	400
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	107	0	107	122	0	122
	Left-Through		1			1	
	Through	3	0	110	0	0	122
	Through-Right		0			0	
	Right	263	1	**263**	248	1	**248**
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	0	0	0	0	0	0
	Left-Through		0			0	
	Through	0	0	**0**	0	0	**0**
	Through-Right		0			0	
	Right	0	0	0	0	0	0
	Left-Through-Right		0			0	
	Left-Right		0			0	
	CRITICAL VOLUMES		North-South:	1092		North-South:	706
			East-West:	263		East-West:	248
			SUM:	1355		SUM:	954
	VOLUME/CAPACITY (V/C) RATIO:			0.903			0.636
	V/C LESS ATSAC/ATCS ADJUSTMENT:			**0.803**			**0.536**
	LEVEL OF SERVICE (LOS):			**D**			**A**

Version: 1i Beta; 8/4/2011

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	<Project Name>		
14	North-South Street:	Polk St	East-West Street:	Foothill Blvd
	Scenario:	Existing		
	Count Date:	1/0/1900	Analyst: <Fehr & Peers>	Date: <date>

		AM			PM		
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB--	0	NB-- 0	SB--	0
		EB-- 0	WB--	3	EB-- 0	WB--	3
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0

	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	62	1	62	67	1	67
	Left-Through		0			0	
	Through	579	1	**384**	513	1	**368**
	Through-Right		1			1	
	Right	189	0	189	222	0	222
	Left-Through-Right		0			0	
	Left-Right		0			0	
SOUTHBOUND	Left	221	1	**221**	271	1	**271**
	Left-Through		0			0	
	Through	573	1	429	510	1	385
	Through-Right		1			1	
	Right	285	0	285	259	0	259
	Left-Through-Right		0			0	
	Left-Right		0			0	
EASTBOUND	Left	410	1	**410**	223	1	**223**
	Left-Through		0			0	
	Through	522	1	303	369	1	213
	Through-Right		1			1	
	Right	83	0	83	57	0	57
	Left-Through-Right		0			0	
	Left-Right		0			0	
WESTBOUND	Left	152	1	152	165	1	165
	Left-Through		0			0	
	Through	305	2	**153**	376	2	**188**
	Through-Right		0			0	
	Right	237	1	16	282	1	11
	Left-Through-Right		0			0	
	Left-Right		0			0	
CRITICAL VOLUMES			North-South:	605		North-South:	639
			East-West:	563		East-West:	411
			SUM:	1168		SUM:	1050
VOLUME/CAPACITY (V/C) RATIO:				0.849			0.764
V/C LESS ATSAC/ATCS ADJUSTMENT:				**0.749**			**0.664**
LEVEL OF SERVICE (LOS):				**C**			**B**

Version: 1i Beta; 8/4/2011

APPENDIX D: QUEUING ANALYSIS WORKSHEETS



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	333	305	302	674	516
v/c Ratio	0.65	0.54	0.67	0.36	0.28
Control Delay	23.1	12.0	23.7	10.0	4.0
Queue Delay	0.0	0.0	0.0	0.5	0.0
Total Delay	23.1	12.0	23.7	10.4	4.0
Queue Length 50th (ft)	106	50	73	67	16
Queue Length 95th (ft)	152	95	#228	127	47
Internal Link Dist (ft)		1110		192	297
Turn Bay Length (ft)	520		150		
Base Capacity (vph)	703	730	451	1879	1854
Starvation Cap Reductn	0	0	0	704	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.42	0.67	0.57	0.28

Intersection Summary

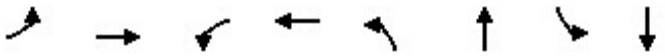
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	345	283	923	105	508
v/c Ratio	0.69	0.44	0.65	0.51	0.26
Control Delay	27.1	4.9	16.4	34.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.4
Total Delay	27.1	4.9	16.4	34.4	8.1
Queue Length 50th (ft)	107	0	128	36	47
Queue Length 95th (ft)	187	46	192	#81	71
Internal Link Dist (ft)	1050		137		192
Turn Bay Length (ft)		550		220	
Base Capacity (vph)	528	670	1411	206	1957
Starvation Cap Reductn	0	0	0	0	886
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.42	0.65	0.51	0.47

Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	403	253	231	418	9	1009	55	714
v/c Ratio	1.22	0.37	0.66	0.49	0.07	1.48	0.14	0.91
Control Delay	150.2	13.3	30.9	19.3	22.9	248.7	24.0	43.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	150.2	13.3	30.9	19.3	22.9	248.7	24.0	43.8
Queue Length 50th (ft)	~197	46	79	64	3	~313	17	138
Queue Length 95th (ft)	#441	129	#241	140	14	#364	53	#310
Internal Link Dist (ft)		1500		424		127		291
Turn Bay Length (ft)	190		80		40		60	
Base Capacity (vph)	329	693	350	853	130	681	395	793
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.37	0.66	0.49	0.07	1.48	0.14	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	233	33	648	1122	154
v/c Ratio	0.47	0.05	0.74	0.97	0.25
Control Delay	31.8	18.2	10.1	47.0	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	18.2	10.1	47.0	19.5
Queue Length 50th (ft)	51	10	33	254	50
Queue Length 95th (ft)	84	30	157	#410	98
Internal Link Dist (ft)	980	121			183
Turn Bay Length (ft)			30	140	
Base Capacity (vph)	1132	601	880	1154	626
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.05	0.74	0.97	0.25

Intersection Summary

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



Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	492	138	240	452	1030
v/c Ratio	0.52	0.15	1.94	0.41	0.90
Control Delay	11.5	2.0	467.4	16.9	30.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	2.0	467.4	16.9	30.8
Queue Length 50th (ft)	104	0	~141	71	164
Queue Length 95th (ft)	176	20	#260	81	#281
Internal Link Dist (ft)	930			194	221
Turn Bay Length (ft)		460			
Base Capacity (vph)	946	908	124	1108	1140
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.15	1.94	0.41	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	119	286	1344	355	891
v/c Ratio	0.27	0.66	0.60	2.31	0.42
Control Delay	17.7	22.7	4.6	615.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.4
Total Delay	17.7	22.7	4.6	615.1	7.2
Queue Length 50th (ft)	35	75	41	~218	67
Queue Length 95th (ft)	58	118	120	m#306	m104
Internal Link Dist (ft)	1180		226		194
Turn Bay Length (ft)		690			
Base Capacity (vph)	799	742	2244	154	2115
Starvation Cap Reductn	0	0	0	0	670
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.39	0.60	2.31	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: Roxford St & Foothill Fwy WB Ramp

03/07/2019



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	186	174	161	216	844
v/c Ratio	0.51	0.42	0.45	0.10	0.38
Control Delay	25.2	12.0	12.3	5.3	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	12.0	12.3	5.3	2.6
Queue Length 50th (ft)	64	24	24	13	17
Queue Length 95th (ft)	106	63	87	31	50
Internal Link Dist (ft)		1110		192	297
Turn Bay Length (ft)	520		150		
Base Capacity (vph)	703	721	359	2201	2193
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.45	0.10	0.38

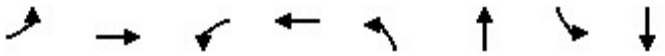
Intersection Summary



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	129	193	538	165	366
v/c Ratio	0.34	0.39	0.39	0.55	0.17
Control Delay	21.1	5.7	8.5	32.7	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	5.7	8.5	32.7	5.8
Queue Length 50th (ft)	40	0	35	53	25
Queue Length 95th (ft)	72	39	71	#140	52
Internal Link Dist (ft)	1050		137		192
Turn Bay Length (ft)		550		150	
Base Capacity (vph)	530	608	1413	299	2189
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.32	0.38	0.55	0.17

Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	51	83	182	374	13	972	36	1172
v/c Ratio	0.14	0.13	0.41	0.38	0.12	1.20	0.09	1.46
Control Delay	17.3	6.6	20.7	17.6	24.6	121.6	23.6	236.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	6.6	20.7	17.6	24.6	121.6	23.6	236.6
Queue Length 50th (ft)	13	3	56	54	5	~225	11	~331
Queue Length 95th (ft)	45	34	146	119	18	#255	40	#572
Internal Link Dist (ft)		1500		156		127		291
Turn Bay Length (ft)	190		80		40		60	
Base Capacity (vph)	353	647	442	979	109	813	394	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.13	0.41	0.38	0.12	1.20	0.09	1.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	245	17	123	1254	109
v/c Ratio	0.39	0.05	0.32	0.82	0.13
Control Delay	23.6	21.9	8.0	21.4	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	21.9	8.0	21.4	11.6
Queue Length 50th (ft)	42	5	0	201	23
Queue Length 95th (ft)	71	20	39	#340	52
Internal Link Dist (ft)	980	121			183
Turn Bay Length (ft)			30	140	
Base Capacity (vph)	1506	798	748	1533	832
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.02	0.16	0.82	0.13

Intersection Summary

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



Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	604	272	205	521	592
v/c Ratio	1.14	0.41	0.49	0.27	0.31
Control Delay	107.3	4.6	13.9	8.3	6.9
Queue Delay	0.0	0.0	0.0	0.3	0.0
Total Delay	107.3	4.6	13.9	8.5	6.9
Queue Length 50th (ft)	~263	0	54	59	46
Queue Length 95th (ft)	#435	45	85	46	72
Internal Link Dist (ft)	930			194	221
Turn Bay Length (ft)		460			
Base Capacity (vph)	531	665	416	1934	1913
Starvation Cap Reductn	0	0	0	752	0
Spillback Cap Reductn	0	0	0	0	19
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.14	0.41	0.49	0.44	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	133	270	1131	201	870
v/c Ratio	0.32	0.65	0.52	0.88	0.40
Control Delay	19.1	22.4	5.5	43.8	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.6
Total Delay	19.1	22.4	5.5	43.8	5.4
Queue Length 50th (ft)	40	69	52	20	22
Queue Length 95th (ft)	66	112	133	m#113	m114
Internal Link Dist (ft)	1180		226		194
Turn Bay Length (ft)		780			
Base Capacity (vph)	796	744	2183	228	2159
Starvation Cap Reductn	0	0	0	0	808
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.36	0.52	0.88	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	359	325	302	889	613
v/c Ratio	0.67	0.61	0.78	0.48	0.33
Control Delay	23.4	17.8	33.7	11.5	4.3
Queue Delay	0.0	0.0	0.0	0.9	0.0
Total Delay	23.4	17.8	33.7	12.4	4.3
Queue Length 50th (ft)	113	78	83	101	21
Queue Length 95th (ft)	167	131	#245	177	55
Internal Link Dist (ft)		1110		192	297
Turn Bay Length (ft)	520		150		
Base Capacity (vph)	703	685	386	1840	1850
Starvation Cap Reductn	0	0	0	621	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.47	0.78	0.73	0.33

Intersection Summary

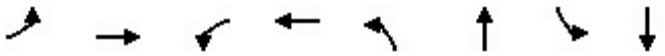
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	485	283	998	123	535
v/c Ratio	0.90	0.42	0.75	0.60	0.29
Control Delay	43.6	4.6	20.2	39.3	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.5
Total Delay	43.6	4.6	20.2	39.3	8.7
Queue Length 50th (ft)	167	0	150	43	50
Queue Length 95th (ft)	#331	46	#250	#105	75
Internal Link Dist (ft)	1050		137		192
Turn Bay Length (ft)		550		150	
Base Capacity (vph)	541	680	1322	206	1899
Starvation Cap Reductn	0	0	0	0	878
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.90	0.42	0.75	0.60	0.52

Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	403	253	231	418	9	1041	55	726
v/c Ratio	1.23	0.37	0.66	0.49	0.07	1.54	0.14	0.92
Control Delay	153.2	13.3	31.2	19.4	22.9	273.4	24.0	44.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	153.2	13.3	31.2	19.4	22.9	273.4	24.0	44.7
Queue Length 50th (ft)	~198	46	79	64	3	~329	17	141
Queue Length 95th (ft)	#441	129	#241	140	14	#384	53	#317
Internal Link Dist (ft)		1500		424		127		291
Turn Bay Length (ft)	190		80		40		60	
Base Capacity (vph)	327	691	348	849	128	677	394	791
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.23	0.37	0.66	0.49	0.07	1.54	0.14	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	233	33	648	1134	154
v/c Ratio	0.47	0.05	0.74	0.98	0.25
Control Delay	31.8	18.2	10.1	49.2	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	18.2	10.1	49.2	19.5
Queue Length 50th (ft)	51	10	33	259	50
Queue Length 95th (ft)	84	30	157	#417	98
Internal Link Dist (ft)	980	121			183
Turn Bay Length (ft)			30	140	
Base Capacity (vph)	1132	601	880	1154	626
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.05	0.74	0.98	0.25

Intersection Summary

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



Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	514	148	240	453	1037
v/c Ratio	0.54	0.16	1.94	0.41	0.91
Control Delay	11.9	2.0	467.3	16.9	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	2.0	467.3	16.9	31.6
Queue Length 50th (ft)	111	0	~141	70	167
Queue Length 95th (ft)	187	21	#260	81	#284
Internal Link Dist (ft)	930			194	221
Turn Bay Length (ft)		460			
Base Capacity (vph)	946	913	124	1108	1139
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.16	1.94	0.41	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	119	286	1352	359	916
v/c Ratio	0.27	0.66	0.60	2.41	0.44
Control Delay	17.6	23.0	4.7	665.4	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.4
Total Delay	17.6	23.0	4.7	665.4	7.3
Queue Length 50th (ft)	35	76	42	~223	71
Queue Length 95th (ft)	58	120	122	m#311	m109
Internal Link Dist (ft)	1180		226		194
Turn Bay Length (ft)		690			
Base Capacity (vph)	799	739	2241	149	2105
Starvation Cap Reductn	0	0	0	0	657
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.39	0.60	2.41	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	196	180	161	292	1118
v/c Ratio	0.52	0.41	0.67	0.13	0.50
Control Delay	24.9	10.4	29.0	5.7	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	10.4	29.0	5.7	3.3
Queue Length 50th (ft)	67	20	31	18	27
Queue Length 95th (ft)	108	58	#146	43	73
Internal Link Dist (ft)		1110		192	297
Turn Bay Length (ft)	520		150		
Base Capacity (vph)	703	725	240	2175	2242
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.25	0.67	0.13	0.50

Intersection Summary

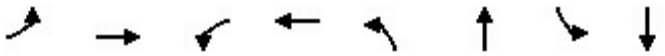
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	179	193	564	214	445
v/c Ratio	0.43	0.37	0.47	0.59	0.21
Control Delay	21.8	5.2	10.0	34.4	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	5.2	10.0	34.4	6.5
Queue Length 50th (ft)	55	0	44	67	34
Queue Length 95th (ft)	94	38	75	#200	64
Internal Link Dist (ft)	1050		137		192
Turn Bay Length (ft)		550		150	
Base Capacity (vph)	532	609	1304	361	2124
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.32	0.43	0.59	0.21

Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	51	83	182	374	13	983	36	1204
v/c Ratio	0.14	0.13	0.41	0.38	0.12	1.22	0.09	1.50
Control Delay	17.3	6.6	20.7	17.6	24.6	129.7	23.6	255.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	6.6	20.7	17.6	24.6	129.7	23.6	255.0
Queue Length 50th (ft)	13	3	56	54	5	~233	11	~347
Queue Length 95th (ft)	45	34	146	119	18	#267	40	#592
Internal Link Dist (ft)		1500		156		127		291
Turn Bay Length (ft)	190		80		40		60	
Base Capacity (vph)	353	647	442	979	109	809	394	803
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.13	0.41	0.38	0.12	1.22	0.09	1.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	245	17	123	1287	109
v/c Ratio	0.39	0.05	0.32	0.84	0.13
Control Delay	23.6	21.9	8.0	22.5	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	21.9	8.0	22.5	11.6
Queue Length 50th (ft)	42	5	0	209	23
Queue Length 95th (ft)	71	20	39	#355	52
Internal Link Dist (ft)	980	121			183
Turn Bay Length (ft)			30	140	
Base Capacity (vph)	1506	798	748	1533	832
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.02	0.16	0.84	0.13

Intersection Summary

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



Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	612	275	205	524	603
v/c Ratio	1.15	0.41	0.50	0.27	0.32
Control Delay	112.9	4.6	14.1	8.2	7.0
Queue Delay	0.0	0.0	0.0	0.3	0.0
Total Delay	112.9	4.6	14.1	8.5	7.0
Queue Length 50th (ft)	~269	0	54	58	48
Queue Length 95th (ft)	#442	45	85	46	74
Internal Link Dist (ft)	930			194	221
Turn Bay Length (ft)		460			
Base Capacity (vph)	531	667	410	1934	1914
Starvation Cap Reductn	0	0	0	758	0
Spillback Cap Reductn	0	0	0	0	21
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.15	0.41	0.50	0.45	0.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	133	270	1158	211	878
v/c Ratio	0.32	0.64	0.53	0.97	0.41
Control Delay	19.0	22.4	5.6	61.6	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.6
Total Delay	19.0	22.4	5.6	61.6	5.4
Queue Length 50th (ft)	40	69	54	46	22
Queue Length 95th (ft)	66	112	137	m#125	m116
Internal Link Dist (ft)	1180		226		194
Turn Bay Length (ft)		780			
Base Capacity (vph)	796	743	2181	217	2155
Starvation Cap Reductn	0	0	0	0	799
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.36	0.53	0.97	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	414	377	410	940	652
v/c Ratio	0.72	0.66	1.20	0.54	0.36
Control Delay	23.8	19.3	139.5	13.0	4.7
Queue Delay	0.0	0.0	0.0	1.2	0.0
Total Delay	23.8	19.3	139.5	14.2	4.7
Queue Length 50th (ft)	127	95	~192	120	25
Queue Length 95th (ft)	200	163	#354	190	58
Internal Link Dist (ft)		861		192	297
Turn Bay Length (ft)	520		150		
Base Capacity (vph)	703	683	341	1746	1788
Starvation Cap Reductn	0	0	0	539	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.55	1.20	0.78	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

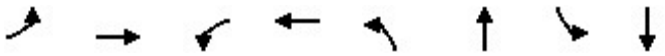
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	511	435	1169	130	632
v/c Ratio	0.97	0.68	0.87	0.63	0.33
Control Delay	56.6	14.8	26.9	41.5	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.6
Total Delay	56.6	14.8	26.9	41.5	9.1
Queue Length 50th (ft)	180	57	196	46	61
Queue Length 95th (ft)	#354	149	#331	#113	90
Internal Link Dist (ft)	961		137		192
Turn Bay Length (ft)		550		150	
Base Capacity (vph)	528	637	1343	206	1899
Starvation Cap Reductn	0	0	0	0	847
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.97	0.68	0.87	0.63	0.60

Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	434	273	252	470	10	1287	67	817
v/c Ratio	1.45	0.40	0.76	0.56	0.09	1.90	0.17	1.03
Control Delay	244.5	14.0	37.8	20.7	23.4	431.5	24.3	69.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	244.5	14.0	37.8	20.7	23.4	431.5	24.3	69.3
Queue Length 50th (ft)	~236	52	91	75	3	~442	21	166
Queue Length 95th (ft)	#491	141	#278	160	15	#529	62	#373
Internal Link Dist (ft)		332		424		127		291
Turn Bay Length (ft)			80		40		60	
Base Capacity (vph)	299	691	333	837	117	678	394	790
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.45	0.40	0.76	0.56	0.09	1.90	0.17	1.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	283	35	697	1260	166
v/c Ratio	0.97dl	0.06	0.80	1.10	0.27
Control Delay	32.7	18.9	13.9	86.5	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.7	18.9	13.9	86.5	20.3
Queue Length 50th (ft)	63	11	53	~347	55
Queue Length 95th (ft)	100	32	#272	#500	108
Internal Link Dist (ft)	318	121			183
Turn Bay Length (ft)			30	140	
Base Capacity (vph)	1120	594	875	1141	619
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.06	0.80	1.10	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	601	188	303	625	1197
v/c Ratio	0.64	0.21	2.44	0.56	1.05
Control Delay	13.7	5.2	685.8	18.6	63.2
Queue Delay	0.0	0.0	0.0	0.6	15.7
Total Delay	13.7	5.2	685.8	19.2	78.8
Queue Length 50th (ft)	139	18	~155	80	~241
Queue Length 95th (ft)	234	46	m#267	m114	#358
Internal Link Dist (ft)	906			194	221
Turn Bay Length (ft)		460			
Base Capacity (vph)	946	879	124	1108	1137
Starvation Cap Reductn	0	0	0	195	0
Spillback Cap Reductn	0	0	0	0	41
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.21	2.44	0.68	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	170	336	1671	399	1082
v/c Ratio	0.32	0.68	0.80	3.24	0.56
Control Delay	16.1	23.1	11.9	1029.1	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.7
Total Delay	16.1	23.1	11.9	1029.1	9.5
Queue Length 50th (ft)	47	96	124	~262	100
Queue Length 95th (ft)	71	140	#361	m#326	m125
Internal Link Dist (ft)	983		226		194
Turn Bay Length (ft)		780			
Base Capacity (vph)	798	727	2082	123	1930
Starvation Cap Reductn	0	0	0	0	483
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.46	0.80	3.24	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	220	207	238	309	1183
v/c Ratio	0.56	0.45	1.14	0.14	0.53
Control Delay	25.0	10.9	125.8	6.2	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	10.9	125.8	6.2	3.7
Queue Length 50th (ft)	74	26	~101	21	31
Queue Length 95th (ft)	116	66	#178	47	84
Internal Link Dist (ft)		861		192	297
Turn Bay Length (ft)	520		150		
Base Capacity (vph)	703	733	209	2134	2229
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.28	1.14	0.14	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

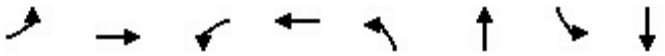
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	189	274	730	227	497
v/c Ratio	0.43	0.46	0.58	0.66	0.24
Control Delay	21.4	5.3	10.6	40.7	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	5.3	10.6	40.7	6.9
Queue Length 50th (ft)	56	0	58	74	41
Queue Length 95th (ft)	101	46	96	#213	70
Internal Link Dist (ft)	961		137		192
Turn Bay Length (ft)		550		150	
Base Capacity (vph)	530	665	1339	343	2082
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.41	0.55	0.66	0.24

Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	89	218	446	14	1165	48	1421
v/c Ratio	0.18	0.14	0.50	0.45	0.13	1.43	0.12	1.77
Control Delay	18.0	6.5	22.6	18.4	24.8	222.4	23.8	376.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	6.5	22.6	18.4	24.8	222.4	23.8	376.3
Queue Length 50th (ft)	14	3	69	67	5	~314	15	~448
Queue Length 95th (ft)	48	35	178	143	19	#390	49	#721
Internal Link Dist (ft)		332		156		127		291
Turn Bay Length (ft)			80		40		60	
Base Capacity (vph)	312	650	439	981	109	815	394	801
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.14	0.50	0.45	0.13	1.43	0.12	1.77

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	291	18	133	1529	117
v/c Ratio	0.45	0.05	0.34	1.00	0.14
Control Delay	24.0	22.4	8.1	45.2	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	22.4	8.1	45.2	12.1
Queue Length 50th (ft)	50	6	0	~324	25
Queue Length 95th (ft)	83	21	40	#473	57
Internal Link Dist (ft)	318	121			183
Turn Bay Length (ft)			30	140	
Base Capacity (vph)	1495	792	750	1522	826
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.02	0.18	1.00	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	718	313	248	703	797
v/c Ratio	1.35	0.51	0.79	0.36	0.42
Control Delay	194.1	9.8	29.9	7.6	7.8
Queue Delay	0.2	0.0	0.0	0.5	0.0
Total Delay	194.4	9.8	29.9	8.1	7.8
Queue Length 50th (ft)	~352	30	81	50	68
Queue Length 95th (ft)	#535	89	m#166	58	103
Internal Link Dist (ft)	906			194	221
Turn Bay Length (ft)		460			
Base Capacity (vph)	531	617	312	1934	1913
Starvation Cap Reductn	0	0	0	733	0
Spillback Cap Reductn	16	0	0	0	83
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.39	0.51	0.79	0.59	0.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	190	325	1412	240	1092
v/c Ratio	0.36	0.67	0.70	1.94	0.56
Control Delay	17.1	23.1	10.7	452.9	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.7
Total Delay	17.1	23.1	10.7	452.9	8.6
Queue Length 50th (ft)	54	93	116	~130	94
Queue Length 95th (ft)	80	136	#308	m#184	m156
Internal Link Dist (ft)	983		226		194
Turn Bay Length (ft)		780			
Base Capacity (vph)	796	726	2008	124	1952
Starvation Cap Reductn	0	0	0	0	492
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.45	0.70	1.94	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX E: SIGNAL WARRANT ANALYSIS

EXISTING

FEHR PEERS

Project	Olive View-UCLA MP TIA
Major Street	Olive View Drive
Scenario	Existing Conditions
Minor Street	Bledsoe St
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	114	6	58	55
Through	71	33	106	135
Right	86	47	45	19
Total	271	86	209	209

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	12.1
Approach with Worst Case Delay	NB
Total Vehicles on Approach	271

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Conditions	**0.9**	**271**	**775**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Olive View Drive	Project	Olive View-UCLA MP TIA
Minor Street	Bledsoe St	Scenario	Existing Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	62	20	14	31
Through	18	42	91	121
Right	32	78	114	7
Total	112	140	219	159

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	9.2
Approach with Worst Case Delay	SB
Total Vehicles on Approach	112

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Conditions	**0.3**	**140**	**630**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Roxford St	Project	Olive View-UCLA MP TIA
Minor Street	I-210 EB Ramps	Scenario	Existing Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	96	313	0
Through	567	461	0	0
Right	270	0	256	0
Total	837	557	569	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	213.3
Approach with Worst Case Delay	EB
Total Vehicles on Approach	569

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Conditions	**33.7**	**569**	**1,963**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	Roxford St	Project	Olive View-UCLA MP TIA
Minor Street	I-210 EB Ramps	Scenario	Existing Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	150	115	0
Through	242	332	2	0
Right	247	0	176	0
Total	489	482	293	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	18.6
Approach with Worst Case Delay	EB
Total Vehicles on Approach	293

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Conditions	**1.5**	**293**	**1,264**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

EXISTING PLUS PROJECT

FEHR PEERS

Major Street	Olive View Drive	Project	Olive View-UCLA MP TIA
Minor Street	Bledsoe St	Scenario	Existing plus Project Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	132	7	88	57
Through	79	37	119	148
Right	89	61	53	22
Total	300	105	260	227

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	14
Approach with Worst Case Delay	NB
Total Vehicles on Approach	300

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing plus Project Conditions	**1.2**	**300**	**892**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Olive View Drive	Project	Olive View-UCLA MP TIA
Minor Street	Bledsoe St	Scenario	Existing plus Project Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	71	23	30	34
Through	22	50	104	134
Right	34	105	131	8
Total	127	178	265	176

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	10
Approach with Worst Case Delay	SB
Total Vehicles on Approach	178

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing plus Project Conditions	**0.5**	**178**	**746**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Roxford St	Project	Olive View-UCLA MP TIA
Minor Street	I-210 EB Ramps	Scenario	Existing plus Project Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	107	438	0
Through	590	472	0	0
Right	270	0	256	0
Total	860	579	694	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	498.6
Approach with Worst Case Delay	EB
Total Vehicles on Approach	694

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existingplus Project Conditions	**96.1**	**694**	**2,133**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	Roxford St	Project	Olive View-UCLA MP TIA
Minor Street	I-210 EB Ramps	Scenario	Existing plus Project Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	172	182	0
Through	254	354	2	0
Right	247	0	176	0
Total	501	526	360	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	44.5
Approach with Worst Case Delay	EB
Total Vehicles on Approach	360

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing plus Project Conditions	**4.5**	**360**	**1,387**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

CUMULATIVE

FEHR PEERS

Project	Olive View-UCLA MP TIA
Major Street	Olive View Drive
Scenario	Cumulative Conditions
Minor Street	Bledsoe St
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	124	7	63	60
Through	77	36	116	147
Right	94	51	49	21
Total	295	94	228	228

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	13.2
Approach with Worst Case Delay	NB
Total Vehicles on Approach	295

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Conditions	**1.1**	**295**	**845**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Olive View Drive	Project	Olive View-UCLA MP TIA
Minor Street	Bledsoe St	Scenario	Cumulative Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	68	22	15	34
Through	20	46	99	132
Right	35	85	124	8
Total	123	153	238	174

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	9.5
Approach with Worst Case Delay	SB
Total Vehicles on Approach	123

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Conditions	**0.3**	**153**	**688**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Roxford St	Project	Olive View-UCLA MP TIA
Minor Street	I-210 EB Ramps	Scenario	Cumulative Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	105	342	0
Through	697	556	0	0
Right	309	0	399	0
Total	1,006	661	741	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	370.1
Approach with Worst Case Delay	EB
Total Vehicles on Approach	741

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Conditions	**76.2**	**741**	**2,408**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	Roxford St	Project	Olive View-UCLA MP TIA
Minor Street	I-210 EB Ramps	Scenario	Cumulative Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	164	125	0
Through	324	384	2	0
Right	325	0	252	0
Total	649	548	379	0

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	25.4
Approach with Worst Case Delay	EB
Total Vehicles on Approach	379

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Conditions	**2.7**	**649**	**1,576**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

CUMULATIVE PLUS PROJECT

FEHR PEERS

Major Street	Olive View Drive	Project	Olive View-UCLA MP TIA
Minor Street	Bledsoe St	Scenario	Cumulative plus Project Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	142	8	93	62
Through	85	40	129	160
Right	97	65	57	24
Total	324	113	279	246

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	15.6
Approach with Worst Case Delay	NB
Total Vehicles on Approach	324

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative plus Project Conditions	**1.4**	**324**	**962**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Olive View Drive	Project	Olive View-UCLA MP TIA
Minor Street	Bledsoe St	Scenario	Cumulative plus Project Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	77	25	31	37
Through	24	54	112	145
Right	37	112	141	9
Total	138	191	284	191

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	10.5
Approach with Worst Case Delay	SB
Total Vehicles on Approach	191

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative plus Project Conditions	**0.6**	**191**	**804**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Roxford St	Project	Olive View-UCLA MP TIA
Minor Street	I-210 EB Ramps	Scenario	Cumulative plus Project Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	116	467	0
Through	720	567	0	0
Right	309	0	399	0
Total	1,029	683	866	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	750.6
Approach with Worst Case Delay	EB
Total Vehicles on Approach	866

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative plus Project Conditions	**180.6**	**866**	**2,578**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Project	Olive View-UCLA MP TIA
Major Street	Roxford St
Scenario	Cumulative plus Project Conditions
Minor Street	I-210 EB Ramps
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	186	192	0
Through	336	406	2	0
Right	325	0	252	0
Total	661	592	446	0

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	85.7
Approach with Worst Case Delay	EB
Total Vehicles on Approach	446

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative plus Project Conditions	**10.6**	**661**	**1,699**
Limiting Value	**5**	**150**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

APPENDIX F: MEMORANDUM OF UNDERSTANDING

SCOPING FOR TRAFFIC STUDY

Project Name:	Olive View-UCLA Medical Center Master Plan

This Memorandum of Understanding (MOU) acknowledges Los Angeles County Department of Public Works, Traffic and Lighting Division (TLD) requirements of traffic impact analysis for the project and is subject to change:

Project Address:	14445 Olive View Dr, Los Angeles, CA 91342		
Project Description:	The proposed project is an update to the Olive View-UCLA Medical Center Master Plan. The project includes both the redevelopment of existing land uses and the construction of new related land uses (research and development space). The master plan will be implemented in two tiers. Only Tier 1 will be analyzed quantitatively as part of this study. The attached Figures 1 and 2 show the existing uses on the site and the Tier 1 boundaries, respectively. The net change on the project site would be composed of: • Addition of 43,700 square feet of administrative office • Addition of 26,000 square feet of central utilities • Addition of 312,700 square feet of hospital • Addition of 20,000 square feet of community center • Addition of 18,800 square feet of warehouse/storage space • 80 units of crisis residential housing and 48 units of recuperative housing		
City:	Los Angeles		
Project Build-out Year:	2035	**Ambient or CMP Growth Rate Per Year:**	0.46%
Closest Intersection (Xtn) to the Project			
Xtn N/S Street Name:	Olive View Drive		
Xtn E/W Street Name:	Bledsoe Drive		
Thomas Guide Pg+Grid:	481, J1 482, A1	**Los Angeles County Supervisorial District:**	5

	Consultant	Developer
Company:	Fehr & Peers	Olive View-UCLA Medical Ctr
Name:	Netai Basu	Hoda El Sokkary, P.E., M.Sc.
Address:	600 Wilshire Blvd, Suite 1050	900 S. Fremont Ave.
City, State, Zip Code:	Los Angeles, CA 90017	Alhambra, CA 91803
Phone #:	(213) 261-3073	(626) 300-2332
Fax #:		
Email:	nbasu@fehrandpeers.com	HELSOKKARY@dpw.lacounty.gov

For General Questions, please contact Traffic Studies Section at (626) 300-4740

By: GS
Date: 1/24/19

SCOPING FOR TRAFFIC STUDY

Project Name:	Olive View-UCLA Medical Center Master Plan

By: _____

Print Name: Netai Basu

Phone: 213-261-3073

Email: n.basu@fehrandpeers.com

1.24.19

Consultant/Developer's Representative **Date**

Reviewed By: _____

Print Name: Ghassan Shelleh

Phone: 626.300.4820

Email: gshelleh@dpw.lacounty.gov

1/24/19

TLD's Representative **Date**

By: Durre Shamsi

Print Name: Durre Shamsi

Phone: 818-374-4699

Email: durre.shamsi@lacity.org

City of Los Angeles DOT Representative **Date**

1. Traffic Distribution: Figure(s) illustrating project trip distribution in percentages and volumes at the studied intersections analyzed.

See Figure 3.

Trip Credit/Reduction: Exact amount of credit subject to approval by TLD.

Existing Active Land Use Credit	Yes/no	Yes
Previous Land Use Credit	Yes/no	No
Internal Trip Reduction	Yes/no	Yes
Retail Pass-by Trip Reduction (10%)	Yes/no	No

SCOPING FOR TRAFFIC STUDY

Project Name:	Olive View-UCLA Medical Center Master Plan

2. Trip Generation

Trip Generation Rate(s) Source: ITE Trip Generation	I – Institute of Transportation Engineers; S – San Diego Traffic Generators; C – County; O – Other:									

	Land Use Description (Code)	Trip Generation Source	*AVTE vs.	Quantity	Daily Trips Generated	Weekday a.m. peak		Weekday p.m. peak		Weekend peak hour	
						In	Out	In	Out	In	Out
	See Exhibits A and B	I, O				X	X	X	X	N/A	N/A

* - Average Vehicle Trip Ends.

By: GS
Date: 1/24/19

SCOPING FOR TRAFFIC STUDY

Project Name:	Olive View-UCLA Medical Center Master Plan

3. Study Intersections: At minimum, the study shall include the following intersections. The list is subject to change after related projects, trip generation and distribution are determined. Consultant should check with adjoining Cities regarding their requirements in addition to the following County/City intersections. Documentation of the consultation from these agencies shall be included in the traffic study.

Xtn #	Jurisdictional Split	Thomas Guide Page+Grid	N/S and E/W Street Names	Signalized	CMP
1	Los Angeles City 100%	481, H2	Glenoaks Boulevard & Foothill Boulevard	Yes	No
2	Los Angeles City 100%	481, H2	Roxford Street & I-210 WB Ramps	Yes	No
3	Los Angeles City 100%	481, H2	Roxford Street & I-210 EB Ramps	No	No
4	Los Angeles City 100%	481, H2	Roxford Street & Foothill Boulevard	Yes	No
5	Los Angeles City 100%	481, H2	Roxford Street & Glenoaks Boulevard	Yes	No
6	Los Angeles City 100%	481, G4	Roxford Street & San Fernando Road	Yes	No
7	Los Angeles City 100%	481, F4	Roxford Street & Encinitas Avenue/I-5 NB Ramps	Yes	No
8	Los Angeles City 100%	481, F4	Roxford Street & I-5 SB Ramps	Yes	No
9	Los Angeles City 100%	482, A2	Bledsoe Street & Olive View Drive	No	No
10	Los Angeles City 100%	482, A2	Bledsoe Street & Foothill Boulevard	Yes	No

For General Questions, please contact Traffic Studies Section at (626) 300-4740

By: GS
Date: 1/24/19

SCOPING FOR TRAFFIC STUDY

Project Name:	Olive View-UCLA Medical Center Master Plan

Xtn #	Jurisdictional Split	Thomas Guide Page+Grid	N/S and E/W Street Names	Signalized	CMP
11	Los Angeles City 100%	482, B3	Glenoaks Boulevard & Bledsoe Street	Yes	No
12	Los Angeles City 100%	482, B3	Polk Street & I-210 WB Ramps	Yes	No
13	Los Angeles City 100%	482, A3	Polk Street & I-210 EB Ramps	Yes	No
14	Los Angeles City 100%	482, A3	Polk Street & Foothill Boulevard	Yes	No

For General Questions, please contact Traffic Studies Section at (626) 300-4740

By: GS
Date: 1/24/19

SCOPING FOR TRAFFIC STUDY

Project Name:	Olive View-UCLA Medical Center Master Plan

4. Related Projects: Project Consultant shall consultant with Los Angeles County Department of Regional Planning and planning departments of adjoining Cities to identify planned development in the vicinity of the project site.

5. Congested Management Program (CMP): Project Consultant shall conduct CMP analysis in accordance with the County's Traffic Impact Analysis Report Guidelines.

6. Freeway Analysis: Project Consultant shall consult with the State of California Department of Transportation (Caltrans) to determine the California Environmental Quality Act levels of significance with regard to traffic impacts on Caltrans' freeway facilities. This consultation shall also include a determination of Caltrans requirements for the study of traffic impacts to its facilities and the mitigation of any such impacts. This analysis must follow the most current Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002). If Caltrans finds that the project has a significant impact on the freeway, Caltrans shall be requested to include the basis for this finding in their response. If fees are proposed to mitigate the freeway impact, Caltrans shall be requested to identify the specific project to which the fees will apply. These written comments from Caltrans shall be included with the traffic study and submitted to Public Works for review and approval. If a documented good faith effort is made to consult with Caltrans and written comments cannot be obtained from within a reasonable amount of time, an analysis of the freeway impact shall be made using the County of Los Angeles' CMP Land Use Analysis Guidelines.

7. Site Access Analysis: Project's in rural areas shall conduct a site access analysis in accordance with the County's Access Management for Private Developments Guidelines Manual. All schools, waste/recycling collection or other projects as determined by TLD shall conduct a queuing analysis to ensure queues do not spill-over onto County roads. For schools, provide boundary map and information on neighboring schools including day care facilities. The traffic study will also document pick-up and drop-off procedures.

8. Other Instructions:

Traffic counts may be conducted immediately per the following:
• Must be taken on Tuesdays, Wednesdays or Thursdays.
• Must exclude holidays, and the first weekdays before and after the holiday.
• Must be taken on days when local schools or colleges are in session.
• Must be taken on days of good weather, and avoid atypical conditions (e.g., road construction, detours, or major traffic incidents).
• Traffic counts used for other traffic studies in the area shall **NOT** be reused again, unless 25% of the counts conducted for that particular traffic study are validated with new counts. The difference in volumes between the old and new counts at each corresponding movement should not be more than 10%.
• New traffic counts shall be checked to ensure the difference in volumes at corresponding approaches, if applicable, between two adjacent intersections is no more than 10% unless the difference can be justified.
For all proposed mitigation measures to address project specific impacts, the project shall include conceptual plans for the improvements in the traffic study which shall be made part of the review and approval of the traffic study. All proposed improvements shall be within public the right-of-way.

For General Questions, please contact Traffic Studies Section at (626) 300-4740

By: CS
Date: 1/24/19

Project Name:	Olive View-UCLA Medical Center Master Plan

For all proposed mitigation measures to address cumulative impacts, the project shall include conceptual plans and cost estimates for the improvements in the traffic study which shall be made part of the review and approval of the traffic study.

Unless otherwise approved by TLD, level-of-service analysis shall be performed based on the following scenarios:

(a) Traffic conditions in the vicinity of the project as they exist at the time the notice of preparation (NOP) is published, or if no NOP is published, at the time environmental analysis is commenced;
(b) Traffic in (a) plus project traffic;
(c) Traffic in (b) with the proposed mitigation measures (if necessary);
(d) Traffic in (b) plus the cumulative traffic that includes project and other known developments at the time the notice of preparation (NOP) is published, or if no NOP is published, at the time environmental analysis is commenced; and
(e) Traffic in (d) with the proposed mitigation measures (if necessary).
(f) Traffic in the cumulative base year, in accordance with City of Los Angeles guidelines.

Any required Traffic Index calculations shall be prepared in accordance with the latest version of the Caltrans Highway Design Manual

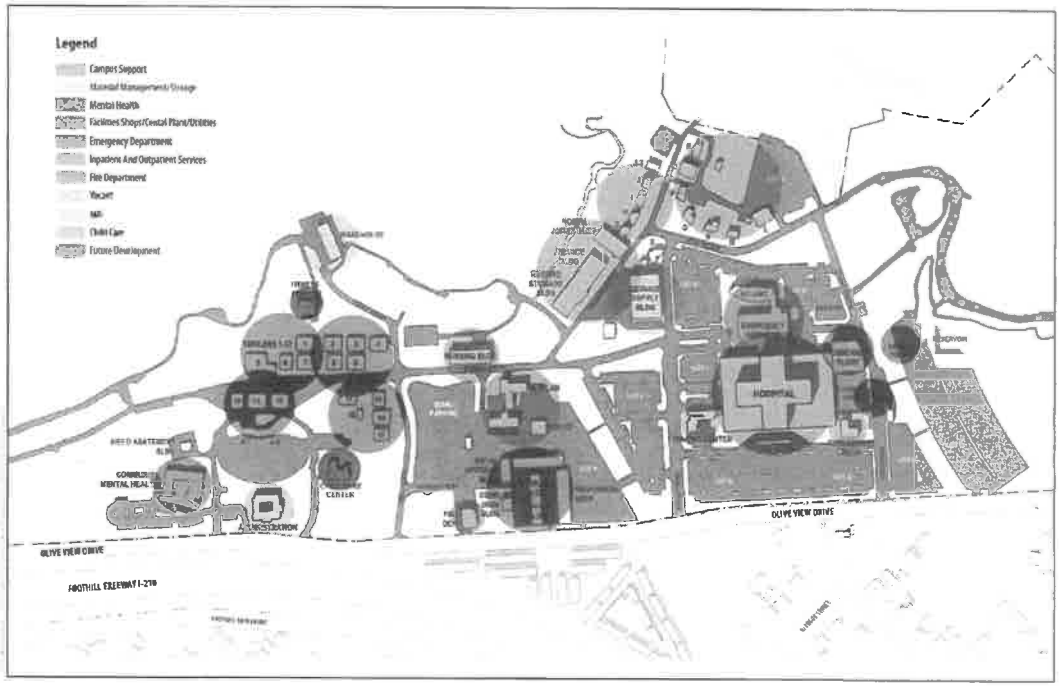
The comment period for the Notice of Preparation for the EIR ended on May 2, 2016. Existing traffic

counts collected in March and June of 2016 will be used in this traffic study.

By: GS
Date: 7/24/19

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
TRAFFIC AND LIGHTING DIVISION
APPLICATION FOR ENVIRONMENTAL IMPACT REPORT
TRAFFIC STUDY REVIEW SERVICES, ORDINANCE NO. 91-0101

Department Receipt No.:		**Date:**	
Project No.:	P14445AC	**Studies No.:**	
Project Name:	Olive View-UCLA Medical Center Master Plan		
Applicant/Engineer:	Netai Basu (Traffic Study Project Mgr.)	**Telephone No.:**	(213) 261-3073
Company:	Fehr & Peers	**Fax No.:**	
Address:	600 Wilshire Blvd, Suite 1050		
City, State:	Los Angeles, CA	**Zip:**	90017



Existing Campus Land Use Plan

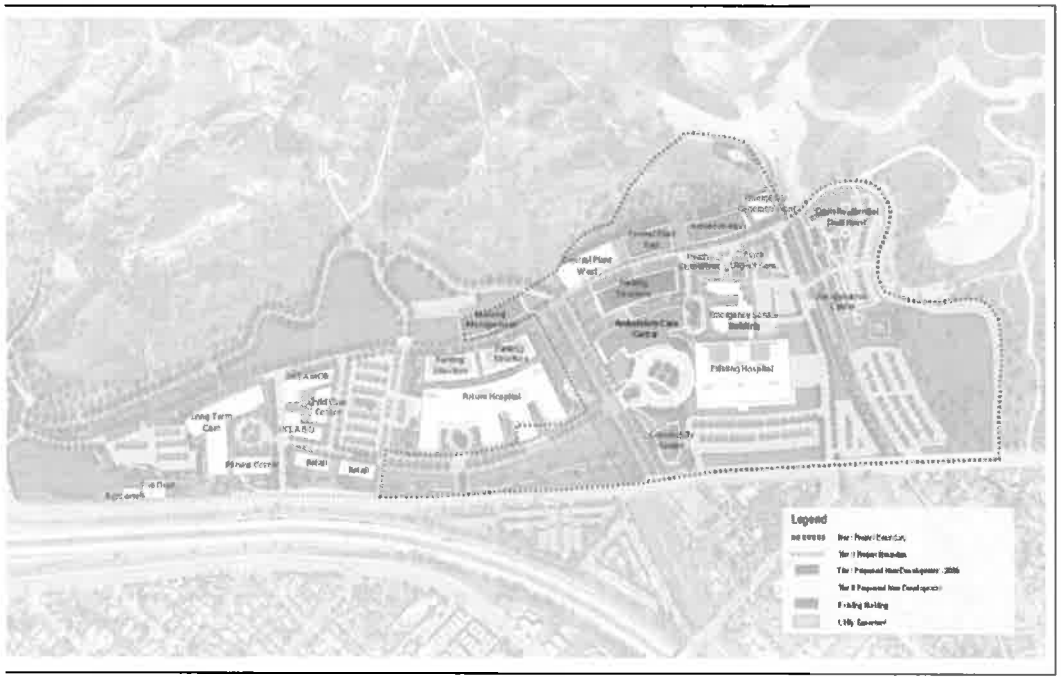
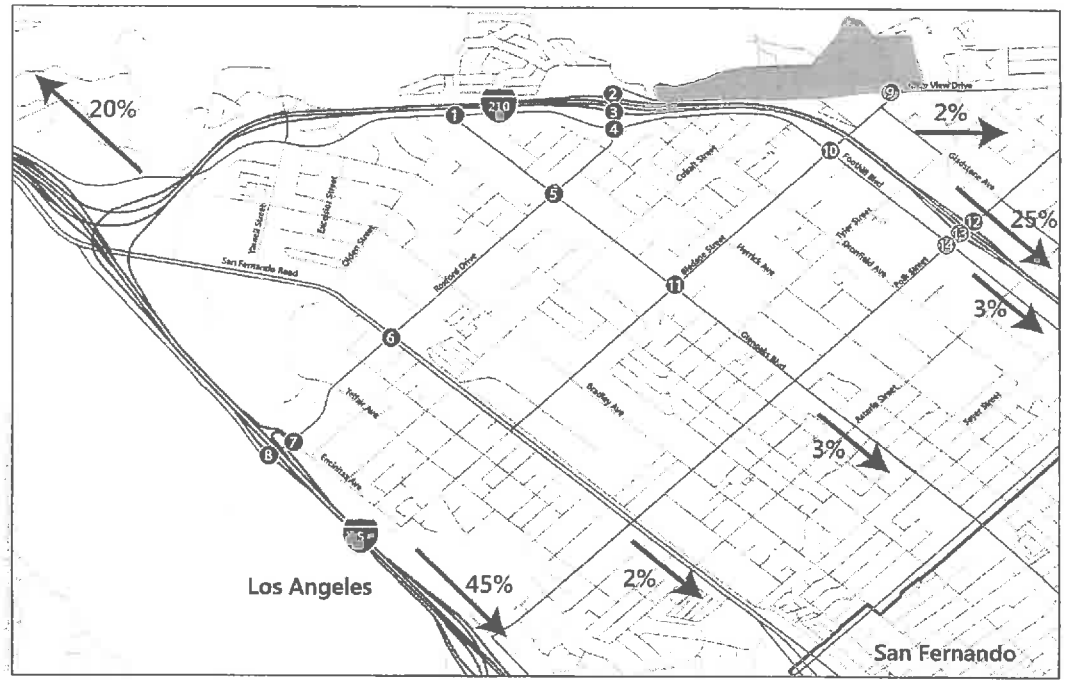


Figure 2

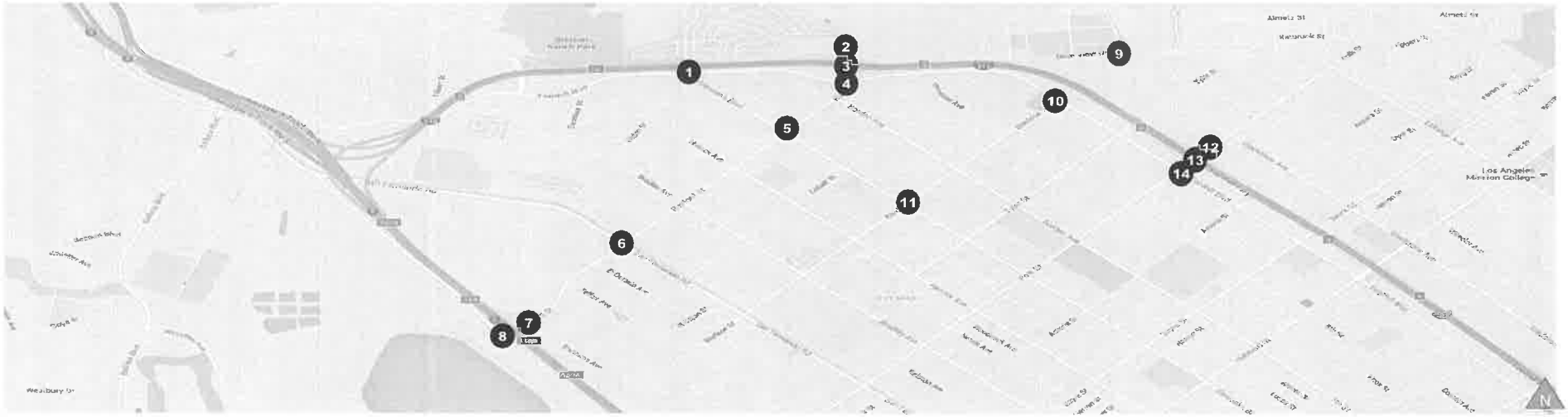
Site Map with Tier 1 Boundaries

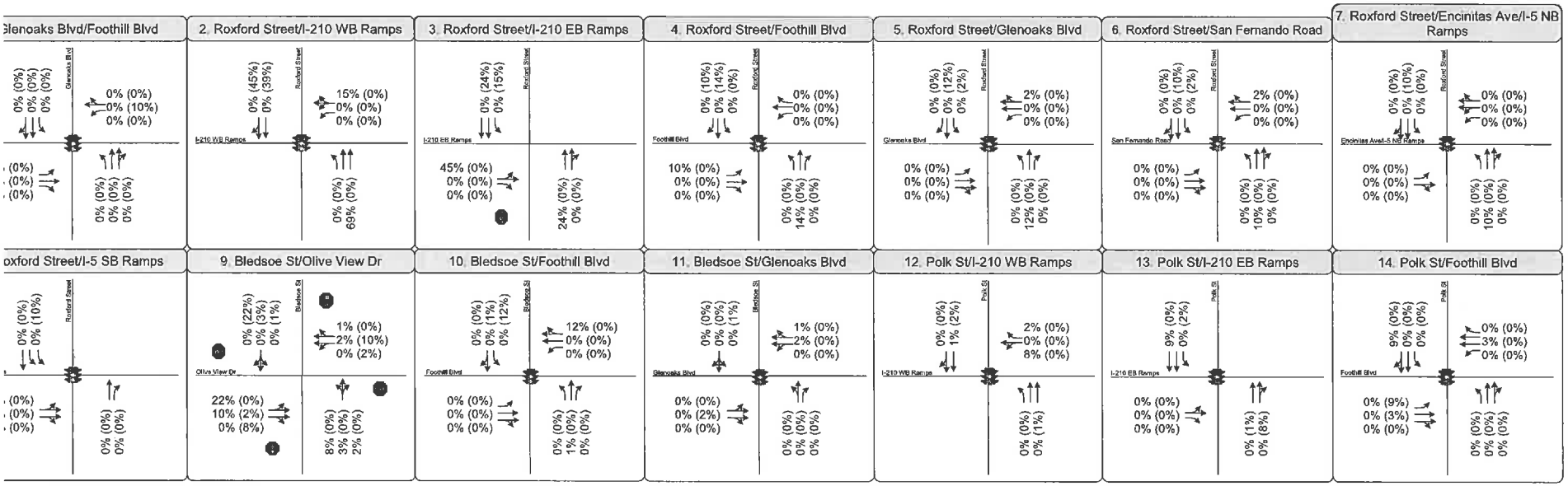


Source: County staff home ZIP codes for current employees; current and future patient data from Hospital Master Plan.

Figure 3

Distribution





LEGEND

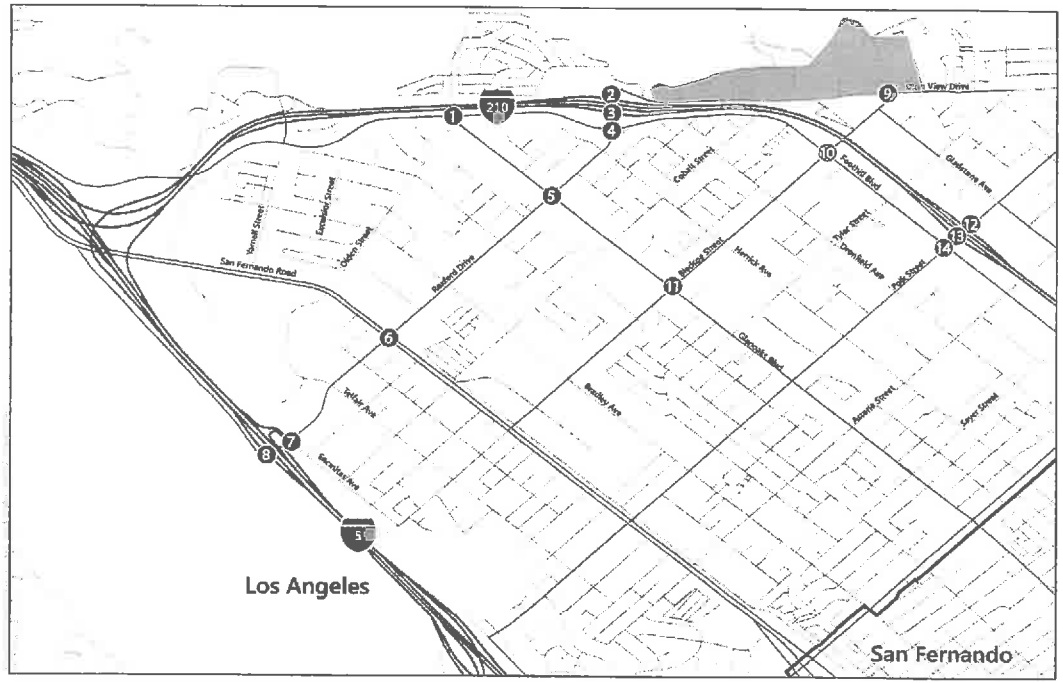
- (#) Study Intersection
- XX% (XX%) Inbound (Outbound) Distribution
- Lane Configuration

Project Driveway Volumes:

Project trips were assigned to three sets of driveways: west of Bledsoe Street & Olive View Drive, Bledsoe Street & Olive View Drive, and east of Bledsoe Street & Olive View Drive. As shown in intersection #9, 26% of traffic is expected to access the project using the driveway at Bledsoe Street & Olive View Drive. There is only one driveway east of Bledsoe Street & Olive View Drive, which is assigned 12%. The remaining 62% of trips are assigned to the six driveways west of Bledsoe Street & Olive View Drive.

Figure 4
Project Distribution

This page is intentionally left blank.



Project Site

4 Study Intersection

Figure 5

Study Area

EXHIBIT A
PROPOSED PROJECT TRIP GENERATION
OLIVE VIEW-UCLA MEDICAL CENTER MASTER PLAN TIER I DEVELOPMENT

	Land Use	ITE Land Use Code	Size [a]	Trip Generation Rates [b]						Estimated Trip Generation						
				Daily	AM Peak Hour			PM Peak Hour			Daily	AM Peak Hour Trips			PM Peak Hour Trips		
				Rate	Rate	% In	% Out	Rate	% In	% Out	Trips	In	Out	Total	In	Out	Total
Existing	**EXISTING USE**																
	Administrative Office	710	108.000 ksf	[c]	[c]	86%	14%	[c]	16%	84%	1,143	110	18	128	19	103	122
	Day Care Center	565	82 Students	4.09	[d]	53%	47%	[d]	47%	53%	335	34	29	63	29	33	62
	Central Utilities/Industrial /Infrastructure [e]	120	51.000 ksf	1.5	0.51	88%	12%	0.68	12%	88%	77	23	3	26	4	31	35
	Hospital/Inpatient	610	534.300 ksf	10.72	[f]	68%	32%	[f]	32%	68%	5,726	355	167	522	175	374	549
	Warehouse/Storage	150	49.300 ksf	[g]	[g]	77%	23%	[g]	27%	73%	123	24	7	31	9	25	34
	Mental Health	720	11.000 ksf	[h]	[h]	78%	22%	[h]	28%	72%	335	24	7	31	11	28	39
	Project Site Subtotal										**7,742**	**570**	**231**	**801**	**247**	**594**	**841**
	Internal Capture (10%) [j]										*-774*	*-57*	*-23*	*-80*	*-25*	*-59*	*-84*
	Transit/Walk/Bike Credit (2%) [k]										*-139*	*-10*	*-4*	*-14*	*-4*	*-11*	*-15*
	Carpool (10%) [l]										*-697*	*-51*	*-21*	*-72*	*-22*	*-54*	*-76*
	Total Existing Trips										**6,132**	**452**	**183**	**635**	**196**	**470**	**666**
Proposed	**PROPOSED PROJECT (TIER 1)**																
	Administrative Office	710	151.700 ksf	[c]	[c]	86%	14%	[c]	16%	84%	1,590	145	24	169	27	142	169
	Day Care Center	565	82 Students	4.09	[d]	53%	47%	[d]	47%	53%	335	34	29	63	29	33	62
	Central Utilities/Industrial /Infrastructure [e]	120	77.600 ksf	1.5	0.51	88%	12%	0.68	12%	88%	116	34	5	39	6	46	52
	Hospital/Inpatient	610	847.000 ksf	10.72	[f]	68%	32%	[f]	32%	68%	9,080	512	241	753	260	552	812
	Community Center	495	20.000 ksf	23.82	[i]	66%	34%	[i]	47%	53%	576	51	26	77	34	38	72
	Warehouse/Storage	150	68.100 ksf	[g]	[g]	77%	23%	[g]	27%	73%	153	25	8	33	10	26	36
	Mental Health	720	10.000 ksf	[h]	[h]	78%	22%	[h]	28%	72%	297	23	6	29	10	26	36
	Crisis Residential Housing	[m]	80 Units								306	74	20	94	0	74	74
	Recuperative Housing	[m]	48 Units								48	12	0	12	0	12	12
	Project Site Subtotal										**12,500**	**911**	**359**	**1,270**	**376**	**949**	**1,325**
	Internal Capture (10%) [j]										*-1,215*	*-82*	*-34*	*-116*	*-38*	*-86*	*-124*
	Transit/Walk/Bike Credit (2%) [k]										*-219*	*-15*	*-6*	*-21*	*-7*	*-15*	*-22*
	Carpool (10%) [l]										*-1,093*	*-74*	*-31*	*-105*	*-34*	*-78*	*-112*
	Total Proposed Trips										**9,973**	**740**	**288**	**1,028**	**297**	**770**	**1,067**
Net Change	**Net New Project**										**3,841**	**288**	**105**	**393**	**101**	**300**	**401**

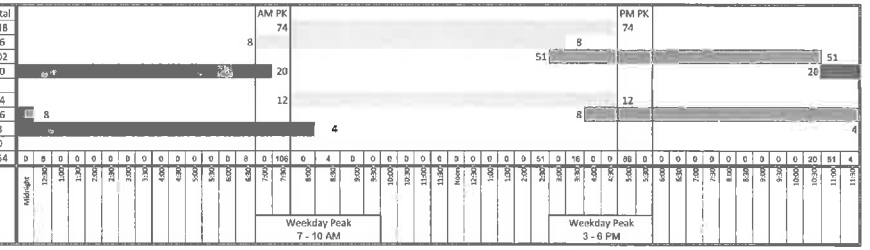
a. Size in thousand square feet (ksf) unless otherwise noted.
b. Source: Institute of Transportation Engineers (ITE), *Trip Generation, 10th Edition*, 2018, and *Trip Generation Handbook* (3rd Edition).
c. ITE administrative office trip generation equations used rather than linear trip generation rate:
   Daily: Ln(T) = 0.97 * Ln(A) + 2.50, where T = trips, A = area in ksf
   AM Peak Hour: T = 0.94(A) + 26.49, where T = trips, A = area in ksf
   PM Peak Hour: Ln(T) = 0.95 * Ln(A) + 0.36, where T = trips, A = area in ksf
d. ITE day care center trip generation equation used rather than linear trip generation rate for AM and PM periods:
   AM Peak Hour: T = 0.66(X) + 8.42, where T = trips, X = number of students
   PM Peak Hour: Ln(T) = 0.87 * Ln(X) + 0.29, where T = trips, X = number of students
e. ITE Code 120 not included in 10th Edition "Trip Generation." Rates and directional distribution taken from ITE 9th Edition code 120, General Heavy Industrial.
f. ITE hospital trip generation equation used rather than linear trip generation rate for AM and PM periods:
   AM Peak Hour: T = 0.74(A) + 126.36, where T = trips, A = area in ksf
   PM Peak Hour: T = 0.84(A) + 100.56, where T = trips, A = area in ksf
g. ITE warehousing trip generation equation used rather than linear trip generation rate:
   Daily: T = 1.58(A) + 45.54, where T = trips, A = area in ksf
   AM Peak Hour: T = 0.12(A) + 25.32, where T = trips, A = area in ksf
   PM Peak Hour: T = 0.12(A) + 27.82, where T = trips, A = area in ksf
h. ITE medical-dental office building trip generation equation used rather than linear trip generation rate:
   Daily: T = 36.42(A) - 87.62, where T = trips, A = area in ksf
   AM Peak Hour: Ln(T) = 0.85 * Ln(A) + 1.31, where T = trips, A = area in ksf
   PM Peak Hour: T = 3.39(A) + 2.02, where T = trips, A = area in ksf
i. ITE Recreational Community Center trip generation equations used rather than linear trip generation rate:
   AM Peak Hour: Ln(T) = 0.54 * Ln(A) + 2.73, where T = trips, A = area in ksf
   PM Peak Hour: Ln(T) = 0.76 * Ln(A) + 2.00, where T = trips, A = area in ksf
j. Internal capture represents the percentage of trips between land uses that occur within the site.
k. Transit/Walk/Bike Credit informed by data from the 2016 AQMD survey
l. Carpool Credit informed by data from the 2016 AQMD survey.
m. See Exhibit B for detailed trip generation estimates for this project element.

Exhibit B
Estimated Weekday Trip Generation of Special Needs Housing
AVR = 1.22

	in	out	total
AM Pk Hr	86	20	106
PM Pk Hr	0	86	86

Day shift
Swing shift
Graveyard shift

	Staff	In	Out	Total
Crisis Res - Clinical	90	74	74	148
Crisis Res - Resid Care	10	8	8	16
Crisis Residential	62	51	51	102
Crisis Residential	26	20	20	40
Recuperative Care	15	12	12	24
Recuperative Care	10	8	8	16
Recuperative Care	5	4	4	8
				0
Total Trips		177	177	354



Time Beginning

Appendix K

Utilities/Water Supply Assessment

Olive View UCLA Medical Center
Tier 1 Calculated Total Additional Water Demand

Demand Type	Quantity	Unit	Standard Water Use Factor [a,b] (gpd/unit)	Conservation Water Use Factor[c]	Water Use (gpd)	afy	% of Total
Existing Conditions							
Existing Conditions Indoor Water Demand							
Inpatient Hospital	355	beds	70.00	n/a	24,850	27.84	23.3%
Community Center--daycare	186	children	9.00	n/a	1,674	1.88	1.6%
Administrative Offices	108,000	sq ft	0.12	n/a	12,960	14.52	12.1%
Mental Health (Outpatient)	11,000	sq ft	0.25	n/a	2,750	3.08	2.6%
Materials Management	32,500	sq ft	0.03	n/a	975	1.09	0.9%
Central Utility Plant	51,000	sq ft	0.05	n/a	2,550	2.86	2.4%
Support Services Buildings	16,800	sq ft	0.12	n/a	2,016	2.26	1.9%
Storage Trailers	61,000	sq ft	0.03	n/a	1,830	2.05	1.7%
Parking Facilities	1,090,000	sq ft	0.02	n/a	21,800	24.42	20.4%
Total Indoor Water Demand	-	-	-	-	71,405	79.98	66.8%
Existing Conditions Landscape Irrigation[d,e]							
Hydrozone 1	13,550	sq ft	-	-	1,276	1.43	1.2%
Hydrozone 2	580,555	sq ft	-	-	34,163	38.27	32.0%
Total Landscape Irrigation	594,106	sq ft	-	-	35,439	39.70	33.2%
Existing Conditions Water Demand					**106,844**	**119.68**	100.0%
Proposed Conditions[f]							
Proposed Conditions Indoor Water Demand							
Inpatient Hospital	355	beds	70.00	45.50	16,153	18.09	10.4%
Ambulatory Care Center	296,000	sq ft	0.25	0.16	48,100	53.88	30.9%
Community Center--daycare	186	children	9.00	5.85	1,088	1.22	0.7%
Community Center	600	occupants	3.00	1.95	1,170	1.31	0.8%
Administrative Offices	151,700	sq ft	0.12	0.08	11,833	13.25	7.6%
Mental Health (Outpatient)	11,000	sq ft	0.25	0.16	1,788	2.00	1.1%
Materials Management	30,500	sq ft	0.03	0.02	595	0.67	0.4%
Central Utility Plant	52,000	sq ft	0.05	0.03	1,690	1.89	1.1%
Central Utility Plant Offices	25,000	sq ft	0.12	0.08	1,950	2.18	1.3%
Support Services Building	16,800	sq ft	0.12	0.08	1,310	1.47	0.8%
Storage Trailers	61,000	sq ft	0.03	0.02	1,190	1.33	0.8%
Parking Facilities	894,000	sq ft	0.02	0.01	11,622	13.02	7.5%
Total Indoor Water Demand	-	-	-	-	98,487	110.32	63.4%
Proposed Conditions Landscape Irrigation[d,e]							
Hydrozone 1	103,431	sq ft	-	-	9,017	10.10	5.8%
Hydrozone 2	197,914	sq ft	-	-	10,784	12.08	6.9%
Hydrozone 3	428,778	sq ft	-	-	18,690	20.94	12.0%
Hydrozone 4	237,806	sq ft	-	-	7,774	8.71	5.0%
Hydrozone 5	490,474	sq ft	-	-	10,690	11.97	6.9%
Total Landscape Irrigation	1,354,972	sq ft	-	-	56,955	63.80	36.6%
Proposed Conditions Water Demand					**155,442**	**174.12**	100.0%
Total Net Potable Water Demand[g]					**48,598**	**54.44**	45.5%

a) Bureau of Sanitation. Sewerage Facilities Charge, Sewage Generation Factors for Residential and Commercial Categories. Effective April 6, 2012.

b) Input on sewage generation factors was provided by LA County staff for all facility categories except Inpatient Hospital and Parking Facilities.

c) Standard multiplied by (1-conservation reduction, or 65%) for Proposed Conditions only. Minimum conservation reduction required in Master Plan is 35%.

d) Hydrozone 1 is high water use plants (e.g. turf), Hydrozone 2 is medium water use plants (e.g. trees), Hydrozone 3 is medium-low water use plants (e.g. bioretention plants), Hydrozone 4 is low water use plants (e.g. drought-tolerant), and Hydrozone 5 is areas with initially high water use to establish plants and then little to no irrigation required (e.g. native woodland rehabilitaiton).

e) Irrigation water use was calculated using the Estimated Total Water Use (ETWU) as required by the California Department of Water Resources Code of Regulations Title 23, Division 2, Chapter 2. Model Water Efficient Landscape Ordinance.

f) Proposed conditions include Tier 1 new development and existing conditions that will remain in place after Tier 1 completion.

g) Net potable water demand determined by subtracting Existing Conditions Water Demand from Proposed Conditions Water Demand. Net increase is 45.5%

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

GAIL FARBER, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

April 24, 2019

IN REPLY PLEASE
REFER TO FILE: PJ-2

Richard F. Harasick
Senior Assistant General Manager – Water Systems
City of Los Angeles
Department of Water and Power
111 North Hope Street, Room 1455
Los Angeles, CA 90012-5701

Attention Ms. Jin Hwang

Dear Mr. Harasick:

OLIVE VIEW-UCLA MEDICAL CENTER CAMPUS MASTER PLAN PROJECT WATER CONSERVATION COMMITMENTS

The County of Los Angeles (County) proposes to develop the Olive View-UCLA Medical Center Campus Master Plan Project (Proposed Project). The campus sits on 230 acres and currently consists of 804,200 square feet of developed area. The Proposed Project is divided into two tiers, Tier 1, which is anticipated to be completed by 2035, and Tier 2, which would only be implemented if needed after 2035, with an anticipated completion in 2050.

The Proposed Project when completed will develop approximately 40,000 square feet of retail space; 600,000 square feet of hospital space; 296,000 square feet of ambulatory care center; 120,000 square feet of research and development facilities; a 20,000-square-foot community center; approximately 96,000 square feet of administrative offices; an 83,000-square foot Restorative Care Village (including recuperative care center, residential treatment program facility, psychiatric urgent care, and mental health wellness center); 68,000 square feet of materials management facilities; a 154,000-square-foot central utility plant; and over 2,000,000 square feet of landscaped and rehabilitated outdoor courtyards and gathering spaces. The Proposed Project would also include 132,000 square feet of new/replacement surface parking and a 380,000-square-foot parking structure. As part of the Proposed Project, existing facilities that collectively comprise approximately 285,000 square feet of floor area on-site would be removed. The Proposed Project new landscaping would cover approximately 1,610,000 square feet, or approximately 37 acres.

The County has committed to comply with the City of Los Angeles Low Impact Development Ordinances (City Ordinance No. 181899 and No. 183833) and to implement

Best Management Practices that have stormwater recharge or reuse benefits for the Proposed Project as applicable:

- Bioretention – captures first-flush storm water, removes pollutants through a variety of physical, biological, and chemical treatment processes, and contributes towards recharging groundwater.
- Dry Wells (alternative to bioretention in parking lots) – captures and infiltrates storm water (similar to pervious pavements) and allows storm water to infiltrate into the groundwater basin.
- Pervious pavements – captures runoff by allowing storm water to pass through the pavement surface and then infiltrate into the groundwater basin.
- Catch basin screens.

The County understands the City of Los Angeles policy that future water needs shall be met by expanding water recycling and conservation. The County has committed to implementing the following water conservation measures, which are in addition to those required by codes and ordinances for the entire Proposed Project:

- Drip/ Subsurface Irrigation (Micro-Irrigation)
- Proper Hydro-zoning/ Zoned Irrigation (groups plants with similar water requirements together)
- Landscaping Contouring to minimize precipitation runoff
- Drought Tolerant Plants – 77% of total new landscaping (approximately 1,245,000 square feet or 28.6 acres)
- Water Conserving turf – 100% of new turf added to landscaping (approximately 119,800 square feet or 2.8 acres)
- Remaining Proposed Project landscaping (242,000 square feet or 5.6 acres) be medium water use plants with a maximum average plant factor of 0.50
- Average total Proposed Project landscaping plant factor will be 0.42 or less (calculated required maximum plant factor is 0.45)

The following is the information on estimated plumbing fixture and appliance counts. Table 1 provides the estimated fixture and appliance counts for the buildings that will be removed in Tier 1 and in Tier 2. Table 2 provides the estimated fixture and appliance counts for the proposed new buildings in Tier 1 and Tier 2. Table 3 provides the net increase in fixtures and appliances as a result of Tier 1 and Tier 2 demolition and construction. The total estimates include Tier 1 and Tier 2 and reflect the net increase after the entire project proposed demolition and development is completed. Table 3 is based on the difference between the values in Table 1 and the values in Table 2. Occupancy load factors and minimum required fixture estimates were derived from the 2013 California Plumbing Code, Chapter 4, Section 422. Some of the plumbing fixture and appliance counts were increased from the minimum required values.

TABLE 1: EXISTING FIXTURE AND APPLIANCE COUNTS TO BE REMOVED

Existing Use to be Removed	Toilets	Urinals	Bath Faucets	Kitchen Faucets	Commercial Kitchen Pre-Rinse Spray Faucets	Showerheads	Clothes washer (Commercial)	Dishwasher (Commercial)	Clothes washer (Residentiall)	Dishwasher (Residential)
Tier I										
Inpatient Hospital: Clinical & General Support[1]	2	1	2	1	0	0	0	0	0	0
Administration Office[1]	12	3	6	1	0	0	0	0	0	0
Materials Management[1]	6	2	4	1	0	0	0	0	0	0
Central Utility Plant Maintenance[3]	2	0	2	1	0	2	0	0	0	0
Central Utility Plant Office[1]	4	1	2	1	0	0	0	0	0	0
Support Services Building[1]	4	1	2	1	0	0	0	0	0	0
Tier II										
Inpatient Hospital: Clinical & General Support (includes 5,000 sq ft/150 seat cafeteria)[1]	12	4	7	2	2	0	0	2	0	0
Inpatient Hospital: Inpatient Care (355 beds)[8]	178	0	178	0	0	178	0	0	0	0
Inpatient Hospital: Diagnostic & Treatment[1]	16	4	12	1	0	0	0	0	0	0
Inpatient Hospital: Administrative Services[1]	12	4	8	1	0	0	0	0	0	0
Inpatient Hospital: Department Office[1]	6	2	4	1	0	0	0	0	0	0
Inpatient Hospital: Hospital/Campus Support[1]	16	4	10	1	0	0	5	4	0	0
Inpatient Hospital: Vacant Buildings[1]	6	2	4	1	0	0	0	0	0	0
Community Center Child Care[2]	12	2	5	1	0	0	0	0	0	0
Administration Office[1]	12	2	5	1	0	0	0	0	0	0
Mental Health Office[1]	4	1	2	1	0	0	0	0	0	0
Storage Trailers[4]	2	0	2	1	0	0	0	0	0	0

[1]Occupancy load to determine minimum fixtures was 200 square feet per person
[2]Occupancy load was 186 children for child care and 600 occupants/20,000 square feet for community center (600 occupants Tier 1 and 921 occupants Tier 2)
[3]Occupancy load to determine minimum fixtures was 2,000 square feet per person
[4]Occupancy load to determine minimum fixtures was 5,000 square feet per person
[5]Based on building square foot and occupancy load of 200 square feet per person with a minimum number of toilets, bath faucets, and showerheads based on 24 rooms.
[6]Based on building square foot and occupancy load of 200 square feet per person with a minimum number of toilets, bath faucets, and showerheads based on 40 rooms.
[7]Based on building square foot and occupancy load of 200 square feet per person with a minimum number of toilets, bath faucets, and showerheads based on 8 rooms.
[8]Based on 355 beds and double occupancy with one fixture (toilet, bath faucet, and shower) per room.
[9]Based on 120 studios and 60 rooms with toilets, bath faucets, showerheads, and residential kitchens based on number of studios or rooms.

TABLE 2: PROPOSED FIXTURE AND APPLIANCE COUNTS TO BE ADDED

Proposed Use	Toilets	Urinals	Bath Faucets	Kitchen Faucets	Commercial Kitchen Pre-Rinse Spray Faucets	Showerheads	Clothes washer (Commercial)	Dishwasher (Commercial)	Clothes washer (Residentiall)	Dishwasher (Residential)
Tier I										
Ambulatory Care Center Outpatient Facility[1]	25	5	15	1	0	0	0	0	0	0
Community Center[2]	17	2	7	1	1	0	0	1	0	0
Recuperative Care Center[5]	28	1	30	1	1	24	1	1	0	0
Residential Treatment Program Facility[6]	51	2	55	2	1	40	1	1	0	0
Psychiatric Urgent Care[7]	11	1	10	1	1	8	1	1	0	0
Mental Health Wellness Center[1]	3	1	2	1	0	0	0	0	0	0
Administration Office[1]	16	6	10	1	0	0	0	0	0	0
Materials Management[1]	13	5	9	3	0	1	0	0	0	0
Central Utility Plant Maintenance[3]	2	0	2	2	0	3	0	0	0	0
Central Utility Plant Office[1]	6	2	4	1	0	0	0	0	0	0
Tier II										
Repurposed Inpatient Hospital: Medical Office[1]	32	10	20	1	0	0	0	0	0	0
New Inpatient Hospital: Inpatient Care (355 beds)[8]	178	0	178	0	0	178	5	4	0	0
New Inpatient Hospital: Diagnostic & Treatment[1]	16	4	10	1	0	0	0	0	0	0
New Inpatient Hospital: Clinical & General Support (includes 5,000 sq ft/150 seat cafeteria)[1]	12	3	6	4	2	0	0	2	0	0
New Inpatient Hospital: Administration Office[1]	6	2	4	1	0	0	0	0	0	0
New Inpatient Hospital: Department Office[1]	18	6	14	1	0	0	0	0	0	0
Research and Development[1]	16	4	10	8	0	0	0	0	0	0
Community Center Child Care[2]	9	0	6	2	0	0	1	1	0	0
Community Center[2]	7	2	4	1	1	0	0	1	0	0
Retail[1]	4	2	2	0	0	0	0	0	0	0
Central Utility Plant Maintenance[3]	2	0	2	2	0	3	0	0	0	0
Central Utility Plant Office[1]	6	2	4	1	0	0	0	0	0	0
Long-Term Care Residential with Kitchen (studio)[9]	120	0	120	120	4	120	4	4	120	120
Long-Term Care Residential with Kitchen (room)[9]	60	0	60	60	2	60	2	2	60	60

[1]Occupancy load to determine minimum fixtures was 200 square feet per person
[2]Occupancy load was 186 children for child care and 600 occupants/20,000 square feet for community center (600 occupants Tier 1 and 921 occupants Tier 2)
[3]Occupancy load to determine minimum fixtures was 2,000 square feet per person
[4]Occupancy load to determine minimum fixtures was 5,000 square feet per person
[5]Based on building square foot and occupancy load of 200 square feet per person with a minimum number of toilets, bath faucets, and showerheads based on 24 rooms.
[6]Based on building square foot and occupancy load of 200 square feet per person with a minimum number of toilets, bath faucets, and showerheads based on 40 rooms.
[7]Based on building square foot and occupancy load of 200 square feet per person with a minimum number of toilets, bath faucets, and showerheads based on 8 rooms.
[8]Based on 355 beds and double occupancy with one fixture (toilet, bath faucet, and shower) per room.
[9]Based on 120 studios and 60 rooms with toilets, bath faucets, showerheads, and residential kitchens based on number of studios or rooms.

TABLE 3: NET INCREASE IN FIXTURE AND APPLIANCE COUNTS

Project Phase	Toilets	Urinals	Bath Faucets	Kitchen Faucets	Commercial Kitchen Pre-Rinse Spray Faucets	Showerheads	Clothes washer (Commercial)	Dishwasher (Commercial)	Clothes washer (Residentiall)	Dishwasher (Residential)
Tier 1[1]	142	17	126	8	4	74	3	4	0	0
Tier 2[2]	210	10	203	191	7	183	7	8	180	180
TOTAL[3]	352	27	329	199	11	257	10	12	180	180

[1]The Tier 1 values were determined by adding up the total counts for Tier 1 for each fixture and appliance in Tier 1 that will be removed due to demolition (Table 1) and subtracting it from the total counts for Tier 1 for each fixture and appliance that will be added due to new development (Table 2).
[2]The Tier 2 values were determined by adding up the total counts for Tier 2 for each fixture and appliance in that will be removed due to demolition (Table 1) and subtracting it from the total counts for Tier 2 for each fixture and appliance that will be added due to new development (Table 2).
[3]The total fixture and appliance counts are the sum of Tier 1 and Tier 2 and represent the total net increase in fixture and appliance counts due to demolition and new development.

Please note that since the proposed project is a master plan, detailed designs of future campus facilities have not yet been completed. As such, the information presented above is preliminary and may change as the project moves into detailed design phases.

If you have any questions, please contact Ms. Clarice Nash of my staff at (626) 300-2363 or at cnash@dpw.lacounty.gov.

Very truly yours,

GAIL FARBER
Director of Public Works

ANDREW K. MOEY
Assistant Deputy Director
Project Management Division I

CN:ms
U:\pmdI\health\OV-UCLA MP\Admin\Corres\Letter\DWP
cc: Chief Executive Office (Arena Turner)
ICF International (Lee Lisecki)
bc: Project Management I (Nash, McGauhey)

Appendix L

Fire Response, OVMC Fire Manual, and OVMC Safety Plan

To: LAFDrequest@lacity.org; lafd.valleybureau@lacity.org

From: Tanya Jones, ICF International

Date: 7/6/2016

Re: Data Request for the Olive View-UCLA Medical Center Master Plan Environmental Impact Report (EIR)

The proposed Olive View-UCLA Medical Center Campus Master Plan (proposed project) is intended to guide development of the campus over time and the delivery of health care services and health related community programs. In the near-term (through year 2035), development under the Master Plan would include construction of an Ambulatory Care Center, research and development buildings, a Community Center, improvements to the existing hospital, new parking facilities, and other campus improvements. Beyond 2035, development could include the construction of a new inpatient hospital, support services building, mental health outpatient care facility, long-term care and recuperative housing, retail space, and County department buildings, and the renovation and reuse of the existing inpatient hospital for other purposes. Full build out of the Master Plan could result in a total of approximately 1,900,000 square feet of development throughout the campus.

An aerial map delineating the specific site location and study area at 14445 Olive View Drive, Sylmar, CA can be seen in *Figure 1.* The purpose of the environmental review is to determine whether or not these developments would have a significant impact on the ability to deliver public services to the project site and surrounding area.

Figure 1.


Mint Canyon
Lang
Santa Clara Creek
Vasquez Canyon Creek
Honby
Canyon Country
Pardee
126
Los Angeles Aqueduct
South Fork Santa Clara River
Humphreys
Pole Canyon Creek
Oak Spring Canyon Creek
14
Sand Canyon Creek
Iron Canyon Creek
Placerita Creek
Newhall
126
Bear Canyon Creek
Angeles National Forest
Olive View
Wash
5
O'Melveny Park
Wilson Cyn Channel
Kagel Canyon
Sylmar
210
San Fernando
East Canyon Channel
Canyon-Wash
Aliso
East Wash
118
Hansen
Pacoima Wash
Granada Hills
Wilbur Wash
Granada Channel
Bull Creek
405
Mission Hills
Pacoima
Whitema Airport
Pacoima Diversion Channel
5
Bradford
North Hills
Panorama City
an Nuys Airport
N
0 0.5 1 2
Miles
Source: ESRI StreetMap North America (2010)
Kern
San Bernardino
Los Angeles
Orange
Riverside
Pacific Ocean
San Diego
USA
MEXICO

1. *Please confirm the following information. If anything is incorrect, please include a correction.*

City of Los Angeles Fire Department Station Number 91, located at 14430 Polk Street is the primary response station for the study area. According to FireStatLA, Station 91's response metrics from January to May 2016 were an average of one minute and seven seconds for turnout and five minutes and 22 seconds for travel time for 2,326 EMS incidents. Non-EMS response metrics were one minute and six seconds for turnout and five minutes 22 seconds for travel time for 331 incidents. The National Fire Protection Agency maintains the Response Time Standard for First Fire Resources at 5 minutes and 20 seconds. The next nearest fire stations to the project site are Stations 18 and 75.

2. *Please provide the current information available regarding the resources at the primary response station in the below table.*

Data Need	***Response***
Number of engines	1
Number of trucks	0
Number of ambulances	1
Other equipment at the station (For example, Hazardous Materials Unit)	0
Total number of personnel (Number of Captains, Engineers, Firefighters, Paramedic Firefighters, and other relevant personnel designations)	4 enginge memebers 2 on Rescue Ambulance
Number of personnel per engine	4
Number of personnel per truck	N/A
Number of personnel per ambulance	2

3. *Since the project site is located within the City of Los Angeles, but on County of Los Angeles land, who/what entity would be responsible for reviewing project plans? The LA CO FD*

4. *Is it true that although LAFD is the primary emergency responder to the project site, plan check reviews would be completed by the County of Los Angeles Fire Department's Engineering Section?yes that is true*

5. *Are there any plans to construct, or are any additional stations being constructed? If yes, what is the timeline of these projects and where will they be located?*

A station is to be constructed but not in the immediate futre.

6. *Would your department require new hires or expansion of existing facilities or construction of new facilities to adequately serve the project? Not at this time.*

7. *Would operation of the proposed project result in an increase in average emergency response times, and would LAFD be able to accommodate proposed project-related fire protection demands?* Yes, there will be an increase fire and EMS response times.

8. *Please provide any additional information you believe would be pertinent to evaluating the impacts the proposed development might have on the provision of fire services within the area.*



Olive View-UCLA
MEDICAL CENTER

FIRE MANUAL

County of Los Angeles
Department of Health Services
Olive View-UCLA Medical Center
14445 Olive View Drive
Sylmar, CA 91342
(747) 210-3000

WARNING

This fire manual is certified by the Los Angele City Fire Department.

DO NOT EDIT OR MAKE ANY CHANGES TO THE CONTENTS OF THIS MANUAL.

For replacement pages or extra copy, please contact the Office of Environmental Health & Safety at ext. 73405



Produced by Olive View-UCLA Medical Center
Office of Environmental Health & Safety

Safety Officer
Frank Colbert

(747) 210-3405
fcolbert@dhs.lacounty.gov

Table of Contents

FIRE SAFETY PROGRAM 3
ASSIGNMENT AND RESPONSIBILITY 4
GENERAL FIRE PROCEDURE 5
FACILITY CENTRAL REPORTING STATIONS 6
BEAS Room Operator 6
Hospital Operator 8
EMERGENCY FIRE PROCEDURES – HOSPITAL 1ST FLOOR 10
Central Services 10
Chaplain/Pastoral Services 11
Clinical Social Work 12
Communications 13
Environmental Services 14
Facilities Management 15
Food & Nutrition 16
Health Information Management 17
Information Technology 18
Inpatient Financial Services 19
Linen Services 20
Office Services 21
Pathology 22
Patient Access 23
Patient Lift & Transport 24
Pharmacy (Inpatient) 25
Radiology (Mammography, Ultrasound) 26
Rehabilitation Services 27
Volunteer Services 28
EMERGENCY FIRE PROCEDURES – HOSPITAL 2ND FLOOR 29
Acute Care Unit (TB Unit) 29
Anticoagulation Clinic 30
Cardiology 31
Cashier 32
Clinic A 33
Clinic B 34
Clinic C 35
Clinic D 36
Clinic E 37
clinic M 38
Clinic P 39
Department of Medicine 40
Emergency Room 41
ENT/Eye Clinic 42
GI Lab 43
Health Sciences Library 44
Hospital Administration 45
Medical Administration 46
Neurology 47
Nursing Administration 48
Outpatient Special Procedure Area (OSPA) 49
Outpatient Financial Services 50
Patient Inquiry 51
Pediatric Clinic 52

Pharmacy (Outpatient) 53
Psychiatric Emergency Room 54
Radiology (Diagnostic, CT, Special Procedures, Nuclear Medicine) 55
Special Treatment Center 56
Urgent Care 57
EMERGENCY FIRE PROCEDURES – HOSPITAL 3RD FLOOR 58
Anesthesiology – 3A 58
Fetal Assessment – 3D 59
Labor & Delivery – 3C 60
Laboratory – 3B 61
Neonatal Intensive Care Unit – 3C 62
Operating Rooms – 3B 63
Post Anesthesia Care Unit – 3A 64
Post Partum – 3D 65
Same Day Surgery – 3A 66
EMERGENCY FIRE PROCEDURES – HOSPITAL 4TH FLOOR 67
Medical/Surgical Unit – 4D 67
Medical/Surgical StepDown Unit – 4BN 68
Physical Therapy – 4B 69
Pediatric Inpatient Unit – 4C 70
Surgical Inpatient Unit – 4A 71
Surgical StepDown Unit – 4BS 72
EMERGENCY FIRE PROCEDURES – HOSPITAL 5TH FLOOR 73
Critical Care Coorinator – 5B 73
Intensive Care Unit – 5BN 74
Intensive Care Unit – 5BS 75
Medical Inpatient Unit – 5A 76
Medical Inpatient Unit (TELE) – 5C 77
Medicine On-Call Rooms – 5D 78
Observation – 5D 79
Physical Therapy – 5B 80
EMERGENCY FIRE PROCEDURES – HOSPITAL 6TH FLOOR 81
On-Call Rooms – 6B 81
Physician Offices – 6D 82
Psychiatric Inpatient Unit – 6A 83
Psychiatric Inpatient Unit – 6C 84
Psychiatry Offices – 6B 85
Respiratory Care – 6B 86
EMERGENCY FIRE PROCEDURES – NURSE STATIONS 87
EMERGENCY FIRE PROCEDURES – CAMPUS BUILDINGS, MOBILE UNITS 89
Avon 89
Campus Buildings 90
Education Building 91
MRI 92
Mobile PET/CT Scanner 93
EVACUATION 94
EVACUATION MAPS 98
FIRE PROTECTION AND FIRE FIGHTING EQUIPMENT 104
FIRE DRILLS 115

Olive View-UCLA MEDICAL CENTER



FIRE SAFETY PROGRAM

INTRODUCTION

The Fire Safety Protection and Prevention Program provides for the safety and protection of patients, employees, and visitors at the hospital in the event of an internal disaster resulting from a fire.

TRAINING COURSE

All employees are required to attend a Certified Fire & Life Safety Training course every four (4) years. This course is given at Olive View – UCLA Medical Center. It is designed to educate all employees on different types of fires, the correct usage of firefighting equipment, and correct evacuation procedures.

FIRE DRILLS

Fire Drills are required by the California Code of Regulations for Health Care Facilities. Hospital fire drills will be conducted once per shift every three months; in order to train/test all employees on the correct procedures to be followed in the event of a fire.

FIRE SAFETY

Fire Safety is a very important aspect of safety in the hospital. In the event of a fire, the hospital fire alarm system and fire emergency procedures will be activated. When a fire is reported in the hospital, you will hear a chime through the public-address system; followed by a verbal announcement of **"CODE RED"** with the fire location by room number and area description repeated three times.

FIRE PROCEDURE

Upon hearing a **"CODE RED"** announcement or a fire alarm, all affected employees will follow the emergency fire procedure. Non-affected/designated employees will respond to the fire location with a fire extinguisher to assist. Assistance should be offered to anyone in need and the area should be evacuated as quickly as possible. When the fire emergency is over, an **"ALL CLEAR – CODE RED"** will be announced over the public-address system.

INTERIM LIFE SAFETY MEASURES

When requirements for fire protection or environmental safety are affected by equipment failure or construction activities, the hospital will institute and document interim life safety measures to temporarily compensate for the hazard that is posed by the existing life safety deficiency.

ASSIGNMENT AND RESPONSIBILITY

LOS ANGELES COUNTY SHERIFF DEPUTIES

1. Report to the scene of the disaster with available fire extinguishers;
2. Designate someone to meet the Fire Department and direct them to the area of the fire or explosion;
3. Establish control of area including exits;
4. Report status to the B.E.A.S. Room and Hospital Operators.

FACILITIES MANAGEMENT PERSONNEL

1. Report to the scene of the disaster;
2. Bring extinguishers and tools to shut off any utilities or equipment, if necessary.

ADMINISTRATOR OR ADMINISTRATOR ON DUTY (AOD)

1. Contact the B.E.A.S. Room (Room 2B130) at ext. 74100
2. Determine the extent of the disaster.
3. Assume the role as Incident Commander (IC)
4. If necessary, activate the Hospital Command Center
5. Determine which nursing units should be evacuated.
6. If disaster is extensive, the IC will work with the Medical Director and the Nurse Administrator to perform the following functions:
    a. Determine if the patients should be transferred to other facilities.
    b. If so, coordinate the transfer.
    c. Call on other County agencies and Law enforcement agencies if assistance is needed.
    d. Determine the optimal allocation of manpower and assign employees as needed.
    e. Release of information to the public and the communication media.
7. If additional assistance is needed the IC will instruct the hospital operator to notify off-duty personnel as necessary.

ADMINISTRATIVE NURSING OFFICER (ANO)

1. If the Administrator or AOD is not on the premises, the ANO will assume the role as Incident Commander and follow the steps as outline above until the assigned AOD arrives at the facility.
2. Prepare to give an incident briefing to the AOD when he or she arrives.

GENERAL FIRE PROCEDURE

HOSPITAL
GENERAL FIRE PROCEDURE

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and report the fire by dialing **113**; give the operator your name, location of fire, and type of fire. (Example: trash can, microwave, etc.)
   - Relay location of fire and type of fire to other employees in the area.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with proper extinguisher – Use fire extinguisher, if possible and practical, until the arrival of the Fire Department.

4. **RELOCATE / EVACUATE**
   - Remove all items in the corridor to the nearest empty room or nurse's station.
   - Remove patients and visitors from the adjoining area – Make sure that all Fire Doors and doors to patient rooms remain closed until their turn to be moved or rescued.
   - Unite children with their parents before evacuation, if possible.

OTHER CONSIDERATIONS:

- Turn off all unnecessary electrical equipment, if safe to do so.
- If safe to do so, nursing personnel will shut off oxygen at the individual patient beds in the room in which the fire is located by removing the regulator (flow meter). **NOTE:** This is not a high priority.
- Oxygen zones are to be shut off by Respiratory Therapy personnel only under the direction of nursing personnel in charge of the affected area.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT FURTHER INSTRUCTIONS.

FACILITY CENTRAL REPORTING STATIONS

BEAS ROOM OPERATOR

B.E.A.S. ROOM OPERATOR
(BUILDING ENVIRONMENTAL AUTOMATED SYSTEMS)

I. A. If the B.E.A.S. panels indicate a fire and/or a fire is reported to the B.E.A.S. Room by telephone or in person other than the hospital operator, the B.E.A.S. Room Operator shall immediately:

1. Obtain the location of the fire – floor, area, and the room number. If reported by phone or in person, request the name of the person reporting the fire.

2. Notify the Fire Department by dialing **911**; **or**, if there is difficulty in getting through, **call the Local Fire Department** by dialing **(213) 485-6180** and state the following:

   "I want to report a fire at Olive View – UCLA Medical Center…
   The address is 14445 Olive View Drive in the city of Sylmar."

   Relay exact location of the fire and answer any questions asked by the Fire Dept. Dispatcher.

3. Contact the Hospital Operator by picking up the phone and notify him/her of the fire and its location. The Hospital Operator is to overhead page "CODE RED."

4. Contact on-duty Facilities personnel notifying them of the "CODE RED" and its location.

5. If Facilities staff or Sheriff Deputies cannot find evidence of the fire, the B.E.A.S. operator will use the graphic board to help locate the fire.

6. Unlock the Fire Communications System handsets – located directly outside the B.E.A.S. Room in the Urgent Care corridor.

7. Assist the Fire captain with locating the fire on the fire control panel.

8. Verify fans servicing alarm area are in **OFF** position.

9. Verify that stairwell #4 fans are in **ON** position.

10. Upon contact from Facilities staff or Sheriff Deputies that the area is clear with no smoke or fire, reset alarm.

B. If notified by the hospital telephone operator, the B.E.A.S. Room operator shall:

1. Receive confirmation that 911 emergency has been notified.
2. Proceed with Steps 4 through 10 listed above.

II. Upon return to normal of the fire condition, the B.E.A.S. Room operator will:

1. Call the Hospital Operator to notify him/her that the fire is **"ALL CLEAR."**
2. Verify that all fans in the fire area have returned to normal operating mode.
3. Verify that smoke dampers in the fire area are open.
4. Verify that stairwell fans have returned to **"OFF"** mode.

III. Additional information – Upon a fire alarm condition in any of the psychiatric wards:

1. A fire alarm in any of the psychiatric wards will cause the fire/security doors to unlock where the alarm is located.
2. Immediate verification of the fire may be obtained by contacting the affected ward.

HOSPITAL OPERATOR

I. RECEIVING A CALL REPORTING A FIRE INSIDE THE HOSPITAL BUILDING:

1. a. Ask where the fire is located in the hospital (floor, room number, etc.);
   b. Request the name of the caller;
   c. Note caller's extension on the display screen in case you have to call back.

2. Overhead Page 3 Times: Announcing: **"CODE RED"** and LOCATION of the fire.

3. Notify the Fire Department by dialing **911**; **or**, if there is difficulty in getting through, **call the Local Fire Department** by dialing **(213) 485-6180** and state the following:

   "I want to report a fire at Olive View – UCLA Medical Center…
   The address is 14445 Olive View Drive in the city of Sylmar."

   Relay exact location of the fire and answer any questions asked by the Fire Dept. Dispatcher.

4. Make the following notifications:
   - ✓ BEAS Room Operator at **ext. 74100**
   - ✓ L.A. County Sheriff Department at **ext. 73409**
   - ✓ Administration at **ext. 73001**
   - ✓ After hours - call the Administrative Nursing Office (ANO) at **ext. 73170**

5. Limit all incoming and outgoing calls:
   - ✓ Place no unnecessary calls until the **"ALL CLEAR"** is given;
   - ✓ Note the time of the initial call and **"ALL CLEAR"** are received, the name and extension of the caller;
   - ✓ Log in all information step by step in the log book.

II. RECEIVING A CALL REPORTING A FIRE ON THE CAMPUS:

1. a. Ask where the fire is located (building, room number, etc.);
   b. Request the name of the caller;
   c. Note caller's extension in case you must call back.

2. **DO NOT** overhead page "CODE RED" inside the hospital, except if the fire is reported at the following campus buildings/mobile units:
   - AVON
   - MRI Building

- Mobile PET/CT Scanner

3. Notify the Fire Department by dialing **911**; **or**, if there is difficulty in getting through, **call the Local Fire Department** by dialing **(213) 485-6180** and state the following:

   "I want to report a fire at Olive View – UCLA Medical Center…
   The address is 14445 Olive View Drive in the city of Sylmar."

   Relay exact location of the fire and answer any questions asked by the Fire Dept. Dispatcher.

4. Make the following notifications:
   - ✓ Sheriff Department at **ext. 73409**
   - ✓ BEAS Room at **ext. 74100**
   - ✓ Facilities at **ext. 73325**
   - ✓ Administrative Nursing Office (ANO) at **ext. 73170**
   - ✓ Administration at **ext. 73001**

5. Limit all incoming and outgoing calls:
   - ✓ Place no unnecessary calls until the **"ALL CLEAR"** is given. Note the time of the initial call and **"ALL CLEAR"** are received, the name and extension of the caller. Log in all information step by step in the log book and/or SPOKE system.

OTHER CONSIDERATIONS:
When receiving an "ALL CLEAR" from the B.E.A.S. Operator, relay the "ALL CLEAR - CODE RED" to the L.A. County Sheriff Department at **ext. 73409,** and announce "ALL CLEAR - CODE RED."

If, after calling the Fire Department, and the "ALL CLEAR" is given, attempt to reach the Fire Department to cancel the 911 call. This applies to the hospital and the grounds buildings.

FIRE DRILLS: Follow all of the above emergency procedures with the exception of calling the Fire Department. **DO NOT CALL THE FIRE DEPARTMENT DURING A FIRE DRILL**.

EMERGENCY FIRE PROCEDURES – HOSPITAL 1ST FLOOR

CENTRAL SERVICES

EMERGENCY FIRE PROCEDURE
CENTRAL SERVICES

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Shut off all steam and gas equipment.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CHAPLAIN/PASTORAL SERVICES

EMERGENCY FIRE PROCEDURE
CHAPLAIN / PASTORAL SERVICES

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CLINICAL SOCIAL WORK

EMERGENCY FIRE PROCEDURE
CLINICAL SOCIAL WORK

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

COMMUNICATIONS

EMERGENCY FIRE PROCEDURE
COMMUNICATIONS

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.
   - IMPORTANT – If unsafe to perform operator procedures, use a designated or alternate area to complete operator tasks.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important phone directories.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

ENVIRONMENTAL SERVICES

EMERGENCY FIRE PROCEDURE
ENVIRONMENTAL SERVICES

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

FACILITIES MANAGEMENT

EMERGENCY FIRE PROCEDURE
FACILITIES MANAGEMENT

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- Shut off steam and gas equipment in the area.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

FOOD & NUTRITION

EMERGENCY FIRE PROCEDURE
FOOD AND NUTRITION

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Grill fires – Pull handle on the Ansel fire extinguishing system (dry chemical).
- Shut off all gas equipment.
- Shut off steam to all equipment.
- Turn off fans and blowers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

HEALTH INFORMATION MANAGEMENT

EMERGENCY FIRE PROCEDURE
HEALTH INFORMATION MANAGEMENT

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

INFORMATION TECHNOLOGY

EMERGENCY FIRE PROCEDURE
INFORMATION TECHNOLOGY

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Shut off main power supply.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

INPATIENT FINANCIAL SERVICES

EMERGENCY FIRE PROCEDURE
INPATIENT FINANCIAL SERVICES

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

LINEN SERVICES

EMERGENCY FIRE PROCEDURE
LINEN SERVICES

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

OFFICE SERVICES

EMERGENCY FIRE PROCEDURE
OFFICE SERVICES

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PATHOLOGY

EMERGENCY FIRE PROCEDURE
PATHOLOGY

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.
   - The laboratory supervisor will direct the activities of the of the staff members.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients/staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Shut off all gas equipment.
- Turn off all fans and blowers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PATIENT ACCESS

EMERGENCY FIRE PROCEDURE
PATIENT ACCESS

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PATIENT LIFT & TRANSPORT

EMERGENCY FIRE PROCEDURE
PATIENT LIFT & TRANSPORT

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PHARMACY (INPATIENT)

EMERGENCY FIRE PROCEDURE
INPATIENT PHARMACY

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

RADIOLOGY (MAMMOGRAPHY, ULTRASOUND)

EMERGENCY FIRE PROCEDURE
RADIOLOGY (MAMMOGRAPHY, ULTRASOUND)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Shut off all gas equipment.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

REHABILITATION SERVICES

EMERGENCY FIRE PROCEDURE
REHABILITATION SERVICES (PT/OT)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Shut off all gas equipment.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

VOLUNTEER SERVICES

EMERGENCY FIRE PROCEDURE
VOLUNTEER SERVICES

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

EMERGENCY FIRE PROCEDURES – HOSPITAL 2ND FLOOR

ACUTE CARE UNIT (TB UNIT)

EMERGENCY FIRE PROCEDURE
ACUTE CARE UNIT

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

ANTICOAGULATION CLINIC

EMERGENCY FIRE PROCEDURE
ANTICOAGULATION CLINIC

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CARDIOLOGY

EMERGENCY FIRE PROCEDURE
CARDIOLOGY

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CASHIER

EMERGENCY FIRE PROCEDURE
CASHIER

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CLINIC A

EMERGENCY FIRE PROCEDURE
CLINIC A

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CLINIC B

EMERGENCY FIRE PROCEDURE
CLINIC B

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CLINIC C

EMERGENCY FIRE PROCEDURE
CLINIC C

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CLINIC D

EMERGENCY FIRE PROCEDURE
CLINIC D

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CLINIC E

EMERGENCY FIRE PROCEDURE
CLINIC E

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CLINIC M

EMERGENCY FIRE PROCEDURE
CLINIC M

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

CLINIC P

EMERGENCY FIRE PROCEDURE
CLINIC P

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

DEPARTMENT OF MEDICINE

EMERGENCY FIRE PROCEDURE
DEPARTMENT OF MEDICINE

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

EMERGENCY ROOM

EMERGENCY FIRE PROCEDURE
EMERGENCY ROOM

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients/visitors from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

ENT/EYE CLINIC

EMERGENCY FIRE PROCEDURE
ENT/EYE CLINIC

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

GI LAB

EMERGENCY FIRE PROCEDURE
GI LAB

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Shut off all gas equipment.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

HEALTH SCIENCES LIBRARY

EMERGENCY FIRE PROCEDURE
HEALTH SCIENCES LIBRARY

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

HOSPITAL ADMINISTRATION

EMERGENCY FIRE PROCEDURE
HOSPITAL ADMINISTRATION

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

MEDICAL ADMINISTRATION

EMERGENCY FIRE PROCEDURE
MEDICAL ADMINISTRATION

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

NEUROLOGY

EMERGENCY FIRE PROCEDURE
NEUROLOGY

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

NURSING ADMINISTRATION

EMERGENCY FIRE PROCEDURE
NURSING ADMINISTRATION

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

OUTPATIENT SPECIAL PROCEDURE AREA (OSPA)

EMERGENCY FIRE PROCEDURE
OUTPATIENT SPECIAL PROCEDURE AREA

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

OUTPATIENT FINANCIAL SERVICES

EMERGENCY FIRE PROCEDURE
OUTPATIENT FINANCIAL SERVICES

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PATIENT INQUIRY

EMERGENCY FIRE PROCEDURE
PATIENT INQUIRY

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PEDIATRIC CLINIC

EMERGENCY FIRE PROCEDURE
PEDIATRIC CLINIC

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PHARMACY (OUTPATIENT)

EMERGENCY FIRE PROCEDURE
OUTPATIENT PHARMACY

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PSYCHIATRIC EMERGENCY ROOM

EMERGENCY FIRE PROCEDURE
PSYCHIATRIC EMERGENCY ROOM

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Patients in bed or leg restraints shall be replaced with wrist or belt restraints.
   - Patients shall line-up and join hands and follow the lead nurse to a safe and secure area.
   - Perform frequent head counts.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

RADIOLOGY (DIAGNOSTIC, CT, SPECIAL PROCEDURES, NUCLEAR MEDICINE)

EMERGENCY FIRE PROCEDURE
RADIOLOGY (DIAGNOSTIC, CT, SPECIAL PROCEDURES, NUCLEAR MEDICINE)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Shut off all gas equipment.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

SPECIAL TREATMENT CENTER

EMERGENCY FIRE PROCEDURE
SPECIAL TREATMENT CENTER

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

URGENT CARE

EMERGENCY FIRE PROCEDURE
URGENT CARE

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

EMERGENCY FIRE PROCEDURES – HOSPITAL 3RD FLOOR

ANESTHESIOLOGY – 3A

EMERGENCY FIRE PROCEDURE
ANESTHESIOLOGY (3A)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

FETAL ASSESSMENT – 3D

EMERGENCY FIRE PROCEDURE
FETAL ASSESSMENT (3D)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

LABOR & DELIVERY – 3C

EMERGENCY FIRE PROCEDURE
LABOR AND DELIVERY (3C)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.
   - Maintain life support measures while evacuating patients to another safe area.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

LABORATORY – 3B

EMERGENCY FIRE PROCEDURE
LABORATORY (3B)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Shut off all gas equipment.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

NEONATAL INTENSIVE CARE UNIT – 3C

EMERGENCY FIRE PROCEDURE
NEONATAL INTENSIVE CARE UNIT (3C)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.
   - Maintain life support measures while evacuating patients to another safe area.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

OPERATING ROOMS – 3B

EMERGENCY FIRE PROCEDURE
OPERATING ROOMS (3B)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.
   - Notify Anesthesia, Central Supply, and PACU.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - The charge nurse will make immediate determination regarding evacuation of patients.
   - The surgeon in charge of each operating room will be responsible for the safety of the patient. The surgical team shall remain under the control of the surgeon.
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients quickly, quietly, and efficiently. Ensure patients chart is with the patient.
   - Maintain life support measures while evacuating patients to another safe area.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Shut off all gas equipment.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

POST ANESTHESIA CARE UNIT – 3A

EMERGENCY FIRE PROCEDURE
POST ANESTHESIA CARE UNIT (3A)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.
   - Notify the Operating Room of the fire.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.
   - Maintain life support measures while evacuating patients to another safe area.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Shut off all gas equipment.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

POST PARTUM – 3D

EMERGENCY FIRE PROCEDURE
POST PARTUM (3D)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

SAME DAY SURGERY – 3A

EMERGENCY FIRE PROCEDURE
SAME DAY SURGERY (3A)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.
   - Maintain life support measures while evacuating patients to another safe area.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

EMERGENCY FIRE PROCEDURES – HOSPITAL 4TH FLOOR

MEDICAL/SURGICAL UNIT – 4D

EMERGENCY FIRE PROCEDURE
MEDICAL/SURGICAL UNIT (4D)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

MEDICAL/SURGICAL STEPDOWN UNIT – 4BN

EMERGENCY FIRE PROCEDURE
MEDICAL/SURGICAL STEPDOWN UNIT (4BN)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PHYSICAL THERAPY – 4B

EMERGENCY FIRE PROCEDURE
PHYSICAL THERAPY (4B)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PEDIATRIC INPATIENT UNIT – 4C

EMERGENCY FIRE PROCEDURE
PEDIATRIC INPATIENT UNIT (4C)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

SURGICAL INPATIENT UNIT – 4A

EMERGENCY FIRE PROCEDURE
SURGICAL INPATIENT UNIT (4A)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

SURGICAL STEPDOWN UNIT – 4BS

EMERGENCY FIRE PROCEDURE
SURGICAL STEPDOWN UNIT (4BS)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.
   - Maintain life support measures while evacuating patients to another safe area.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

EMERGENCY FIRE PROCEDURES – HOSPITAL 5TH FLOOR

CRITICAL CARE COORINATOR – 5B

EMERGENCY FIRE PROCEDURE
CRITICAL CARE COORDINATOR (5B)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

INTENSIVE CARE UNIT – 5BN

EMERGENCY FIRE PROCEDURE
INTENSIVE CARE UNIT (5BN)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.
   - Maintain life support measures while evacuating patients to another safe area.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

INTENSIVE CARE UNIT – 5BS

EMERGENCY FIRE PROCEDURE
INTENSIVE CARE UNIT (5BS)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.
   - Maintain life support measures while evacuating patients to another safe area.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

MEDICAL INPATIENT UNIT – 5A

EMERGENCY FIRE PROCEDURE
MEDICAL INPATIENT UNIT (5A)

When fire or smoke is discovered in your area:

5. SAFETY OF LIFE

- Remove all people in the immediate fire area and close the door to the room to contain the fire.

6. NOTIFICATION

- Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
- Relay location and type of fire to other staff within the unit.

7. EXTINGUISH THE FIRE

- Close doors to all other areas – adjacent rooms and fire doors.
- Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

8. RELOCATE / EVACUATE

- Remove all items from the corridor to the nearest empty or unoccupied room.
- Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

MEDICAL INPATIENT UNIT (TELE) – 5C

EMERGENCY FIRE PROCEDURE
MEDICAL INPATIENT UNIT (5C)

When fire or smoke is discovered in your area:

9. SAFETY OF LIFE

- Remove all people in the immediate fire area and close the door to the room to contain the fire.

10. NOTIFICATION

- Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
- Relay location and type of fire to other staff within the unit.

11. EXTINGUISH THE FIRE

- Close doors to all other areas – adjacent rooms and fire doors.
- Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

12. RELOCATE / EVACUATE

- Remove all items from the corridor to the nearest empty or unoccupied room.
- Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

MEDICINE ON-CALL ROOMS – 5D

EMERGENCY FIRE PROCEDURE
MEDCINE 0N-CALL ROOMS (5D)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

OBSERVATION – 5D

EMERGENCY FIRE PROCEDURE
OBSERVATION (5D)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Oxygen zone valves are to be shut off by Respiratory Therapy personnel under the direction of Nursing personnel in charge of the affected area.
- Nursing personnel shall remove the oxygen regulator (flow meter) in the patient's room where the fire is located.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PHYSICAL THERAPY – 5B

EMERGENCY FIRE PROCEDURE
PHYSICAL THERAPY (5B)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

EMERGENCY FIRE PROCEDURES – HOSPITAL 6TH FLOOR

ON-CALL ROOMS – 6B

EMERGENCY FIRE PROCEDURE
ON-CALL ROOMS (6B)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PHYSICIAN OFFICES – 6D

EMERGENCY FIRE PROCEDURE
PHYSICIAN OFFICES (6D)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PSYCHIATRIC INPATIENT UNIT – 6A

EMERGENCY FIRE PROCEDURE
PSYCHIATRIC INPATIENT UNIT (6A)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Patients in bed or leg restraints shall be replaced with wrist or belt restraints.
   - Patients shall line-up and join hands and follow the lead nurse to a safe and secure area.
   - Perform frequent head counts.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PSYCHIATRIC INPATIENT UNIT – 6C

EMERGENCY FIRE PROCEDURE
PSYCHIATRIC INPATIENT UNIT (6C)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Patients in bed or leg restraints shall be replaced with wrist or belt restraints.
   - Patients shall line-up and join hands and follow the lead nurse to a safe and secure area.
   - Perform frequent head counts.
   - Remove patients from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

PSYCHIATRY OFFICES – 6B

EMERGENCY FIRE PROCEDURE
PSYCHIATRY OFFICES (6B)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the corridor to the nearest empty or unoccupied room.
   - Remove staff from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Retrieve and remove important records and ledgers.
- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

RESPIRATORY CARE – 6B

EMERGENCY FIRE PROCEDURE
RESPIRATORY CARE (6B)

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the aisles/corridor to the nearest empty or unoccupied room.
   - Remove patients and visitors from the adjoining area and exit the unit.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- LEAVE LIGHTS ON!!

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND WAIT FURTHER INSTRUCTIONS:

- If fire occurs in any ICU Area where mechanical ventilators are in use, all available RCP's will respond with manual and portable ventilators. Patients are to be transported to a secure location, airway and ventilation are to be maintained until oxygen and ventilators can be set up.
- Be prepared to mobilize portable "E" cylinders, manual and portable respirators for use on oxygen dependent patients in the affected area.

EMERGENCY FIRE PROCEDURES – NURSE STATIONS

EMERGENCY FIRE PROCEDURE
NURSE STATIONS

WHEN FIRE OR SMOKE IS DISCOVERED IN YOUR AREA:

1. **SAFETY OF LIFE**
   - ✓ Remove all people in the immediate fire area and close the door to the room.

2. **NOTIFICATION**
   - ✓ Pull the nearest fire alarm and report the fire by dialing **x113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - ✓ Relay location and type of fire to other staff members in the unit.

3. **EXTINGUISH THE FIRE**
   - ✓ Close doors to all other areas, adjacent rooms and fire doors.
   - ✓ Return to the fire with the proper fire extinguisher and use if possible and practical, until the arrival of the Fire Department.

4. **RELOCATE / EVACUATE**
   - ✓ Remove all items from the corridor to the nearest empty or unoccupied room.
   - ✓ Remove patients and visitors from the adjoining area. Keep all fire doors and doors to patient rooms closed until they can be moved or rescued.
   - ✓ Unite children with their parents before evacuation, if possible.

OTHER CONSIDERATIONS:

If safe to do so,

- ✓ Turn off all unnecessary electrical equipment, if safe to do so;
- ✓ If safe to do so, nursing personnel will shut off oxygen at the individual patient beds in the room in which the fire is located by removing the regulator (flow meter). **NOTE:** This is not a high priority;
- ✓ Oxygen zones are to be shut off by Respiratory Therapy personnel only under the direction of nursing personnel in charge of the affected area.
- ✓ LEAVE LIGHTS ON!!

Note: Nursing staff members that work in the affected station/area or those who are sent from a support unit shall report to the area supervisor for instructions.

ASSIGNED DUTIES MAY INCLUDE:

- ✓ Closing all doors in the affected area.
- ✓ Shut off oxygen gas outlets and unnecessary equipment.
- ✓ Helping to fight the fire with extinguishers.
- ✓ Evacuating patients as necessary due to the spread of smoke or fire. Patients are to be given first priority, and moved in the following order:
    1. Patients in immediate danger
    2. Ambulatory Patients
    3. Wheelchair Patients
    4. Bed Patients
- ✓ Standing by and controlling fire doors.
- ✓ Informing and reassuring patients and visitors; making a periodic check of your area for patients' safety and mental attitude.

NOTE: Nursing staff shall, upon hearing "CODE RED" for another area, report to their area supervisor for instructions.

IF THE FIRE IS NOT IN YOUR AREA, BE ALERT AND AWAIT INSTRUCTIONS.

EMERGENCY FIRE PROCEDURES – CAMPUS BUILDINGS, MOBILE UNITS

AVON

EMERGENCY FIRE PROCEDURE
AVON BUILDING

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff in the area.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the arrival of the Fire Department.

4. **RELOCATE / EVACUATE**
   - Remove all occupants out of the building away from the fire.
   - Check rooms for remaining occupants.

OTHER CONSIDERATIONS:

- Turn off all unnecessary electrical equipment (if safe to do so).
- LEAVE LIGHTS ON!!

CAMPUS BUILDINGS

EMERGENCY FIRE PROCEDURE
CAMPUS BUILDINGS

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff in the area.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the arrival of the Fire Department.

4. **RELOCATE / EVACUATE**
   - Remove all occupants out of the building away from the fire.
   - Check rooms for remaining occupants.

OTHER CONSIDERATIONS:

- Turn off all unnecessary electrical equipment (if safe to do so).
- LEAVE LIGHTS ON!!

EDUCATION BUILDING

EMERGENCY FIRE PROCEDURE
EDUCATION BUILDING

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - ✓ Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - ✓ Pull the nearest fire alarm and notify the operator dialing **x113; g**ive the operator your name, location of fire, and type of fire.
   - ✓ Relay location and type of fire to other staff in the building.

3. **EXTINGUISH THE FIRE**
   - ➢ Close doors to all other areas – adjacent rooms and fire doors.
   - ➢ Return to the fire with the proper fire extinguisher and use if possible and practical, until the arrival of the Fire Department.

4. **RELOCATE / EVACUATE**
   - ➢ Remove all occupants out of the building away from the fire.
   - ➢ Check rooms for remaining occupants.

OTHER CONSIDERATIONS:

If safe to do so,

- ➢ Turn off all unnecessary electrical equipment.
- ➢ LEAVE LIGHTS ON!!

MRI

EMERGENCY FIRE PROCEDURE
MRI BUILDING

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the building.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items from the aisles/corridor.
   - Remove patients and visitors from the adjoining area and exit the building.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- Turn off and remove portable oxygen cylinders.
- LEAVE LIGHTS ON!!

MOBILE PET/CT SCANNER

EMERGENCY FIRE PROCEDURE
MOBILE PET/CT SCANNER

When fire or smoke is discovered in your area:

1. **SAFETY OF LIFE**
   - Remove all people in the immediate fire area and close the door to the room to contain the fire.

2. **NOTIFICATION**
   - Pull the nearest fire alarm and notify the operator by dialing **113**; give the operator your name, location of fire, and type of fire (e.g. trash can, microwave, etc.).
   - Relay location and type of fire to other staff within the unit.

3. **EXTINGUISH THE FIRE**
   - Close doors to all other areas – adjacent rooms and fire doors.
   - Return to fire with the proper fire extinguisher and use if possible and practical, until the Fire Department arrives.

4. **RELOCATE / EVACUATE**
   - Remove all items in the aisle/hallway.
   - Remove any patients from the adjoining area and exit the unit...
   - If the patient is in the hot lab and they can walk escort them out the front door by the hot lab. If they are unable to walk, use the Paraslyde evacuation device to evacuate the patient through the lift gate or front exit door.
   - If the fire is in the scan room and you have a patient on the table, remove patient to the control room and close the door, and exit the unit through the lift gate or front exit door. If the patient is non-ambulatory, use the Paraslyde evacuation device to evacuate the patient through the lift gate or front exit door.
   - If the fire is in the control room and you have a patient on the table, go into the exam room and close the door, remove the patient from the table and exit through the rear escape hatch located on the driver's side of the unit. If the patient is non-ambulatory and unable to use the exit hatch, use the Paraslyde evacuation device to evacuate the patient through the rear escape hatch.

OTHER CONSIDERATIONS:

If safe to do so,

- Turn off all unnecessary electrical equipment.
- Turn off and remove portable oxygen cylinder.
- LEAVE LIGHTS ON!!

EVACUATION

EVACUATION PROCEDURE

1. All evacuation routes are posted in the corridors of Olive View – UCLA Medical Center.

2. At the first sign of fire, or smoke, anyone in immediate danger should be evacuated by the person discovering the fire.

3. The second and third persons arriving at the fire should assist in removing any other person(s) from danger.

4. Priorities for moving patients:
    1. Patients in immediate danger
    2. Ambulatory patients
    3. Wheelchair patients
    4. Bed patients

EVACUATION PLAN

When evacuation is necessary, remove all items in the corridor to the nearest empty room or nursing station. Think first of moving patients horizontally from an unsafe area to a safe area on the same floor. Patients should not be moved to a different floor unless the entire building is being evacuated. The order to evacuate shall be initiated by the Incident Commander, Safety Officer, or Fire Captain.

Ambulatory patients should be pre-instructed to line up outside their rooms, join a chain by holding hands, and follow the Charge Nurse to a safe area.

Non-ambulatory patients who cannot sit up shall be moved by the blanket drag technique.

Patients whose condition might be aggravated by being moved from their bed should be moved in their bed. All equipment such as orthopedic traction equipment that can hinder free movement through doorways should be removed prior to evacuation.

If possible, unite children with their parents before evacuation.

Evacuation routes are posted in the center of each corridor of the hospital. These evacuation plans which are posted at eye level show your present location in relation to all evacuation routes for that floor.

All outlying buildings are provided with evacuation directories. These directories are located in two areas of each building at eye level. Each supervisor should orientate their employees to the location of these directories.

Employees in the outlaying buildings should evacuate and assemble at least 50 feet from the building but not in a roadway.

ELEVATORS

In the case of a fire alarm, all elevators will return to the second floor, park, and the doors will open. When the Fire Department arrives, then and only then, will the elevators be used for evacuation. This will be accomplished under the supervision of the Fire Chief.

EVACUATIONS

Basically, evacuation is movement, either horizontally or vertically, from a dangerous or potentially dangerous area to one of comparative safety. These areas are separated by fire walls, fire doors or smoke barriers, and all vertical evacuation routes (stairwells and elevators) are properly enclosed.

In preparing or activating the evacuation plan, there are four types of evacuations to be considered:

1. Partial (remove anyone in immediate danger)
2. Horizontal
3. Vertical
4. Complete

Partial Evacuation

This is the removal of people who are in immediate danger to an area of relative safety. This is usually accomplished by a single rescuer. When assistance becomes available, the people can be relocated to an area farther from the fire.

Horizontal Evacuation

This type of evacuation takes place when fire or heavy smoke from a single room threatens to spread to adjoining areas. All patients, personnel and visitors in the affected area should be moved laterally to the nearest area that is protected by fire doors and is adjacent to the exterior exit way (which include enclosed stairwells).

It is preferable not to move patients in their beds. The utilization of gurneys, wheelchairs, stretchers, paraslydes or blankets to relocate the non-ambulatory creates the least congestion in the hallways and assembly areas.

The first to be moved are the ambulatory, then the non-ambulatory. The ambulatory can be taken out in groups. By reducing congestion and moving the greatest number of people first, there is a better utilization of manpower, ease of control, and ultimately, a reduction of the possibility of panic. The rooms vacated should be checked for stragglers and all doors closed.

Vertical Evacuation

If the fire is threatening the floor or smoke makes the floor untenable, vertical movement becomes necessary. Refuge can usually be found on a lower floor. If possible, two floors lower is recommended. Ambulatory patients should be grouped and taken down stairs. Elevators for non-ambulatory patients can be used only if the elevators have been deemed safe by the Fire Captain or the Fire Department Officer in Charge.

Complete Evacuation

In the event of a complete hospital evacuation, an evacuation notice will be announced over the public-address system. All elevators will be returned to the second floor and locked by assigned personnel until the Fire Department arrives, elevators will then be used for evacuation purposes under the supervision of the Fire Chief.

A complete evacuation of the hospital can only be authorized by the following persons and in the following order:

1. Administrator or AOD
2. Medical Director
3. Safety Officer
4. Administrative Nurse in Charge

EMERGENCY TRANSPORT (CARRIES)

When fire or another emergency dictates quick removal of patients, and they can't be transported via their bed, stretcher, or the OR table, the appropriate carry or support technique will save them and you unnecessary injury. Although you may need assistance the "Swing" or "Extremity" carries can then be used. It's conceivable that you might have to use one of the three one-person carries for non-ambulatory patients, as illustrated below.

EMERGENCY TRANSPORT-SAFELY

When fire or another emergency dictates quick removal of patients, and they can't be transported via their beds, stretchers, or the OR table, the appropriate carry or support technique will save them, and you, unnecessary injury.

Although you may assistance (the "Swing" and "Extremity" carries can then be used), it's conceivable that you might have to use one of the three one-person carries for non-ambulatory patients, as illustrated below.

ONE-PERSON CARRIES

HIP CARRY



1. Put patient's arm over your back and slide your arm under patient's back



2. Lean backward, into patient's abdomen, and grip patient behind his knees.



3. Hold patient snugly against your back, then lean forward to carry.



4. Lean patient against wall, and slide to floor as you drop to one knee.

PACK STRAP CARRY



1. Cross patient's arms and grab both wrists.



2. Pull up as you turn to step under patient's arms, cross his arms in front.



3. Lean forward, and step to the head of the bed, patient will roll out, onto your back.



4. Lean patient against wall and slide to floor as you drop to one knee.

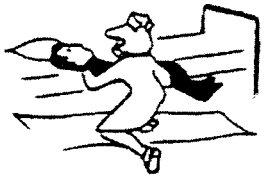
CRADLE DROP



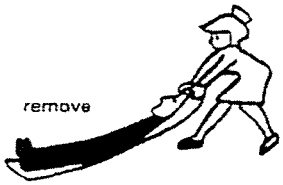
1. Place blanket on floor next to bed, then grip patient under shoulders and knees.



2. Slide patient to edge of bed



3. On one knee, lower his legs then his body, to blanket, or on both knees, slide patient down your chest to blanket.



4. Pull patient out, head first, on blanket.

TWO-PERSON CARRIES

SWING



1. Each nurse grasps the other's shoulder with one hand, as patient places his arms around both of their shoulders.

2. Reaching under patient, each nurse grasps the other's wrists.

EXTREMITY

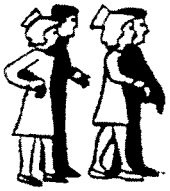


1. Patient must be sitting on the edge of the bed.

2. One nurse hugs patient from behind, grasping her own wrist.

3. The other nurse stands between patient's legs, and lifts him from behind his knees.

SEMI-AMBULATORY



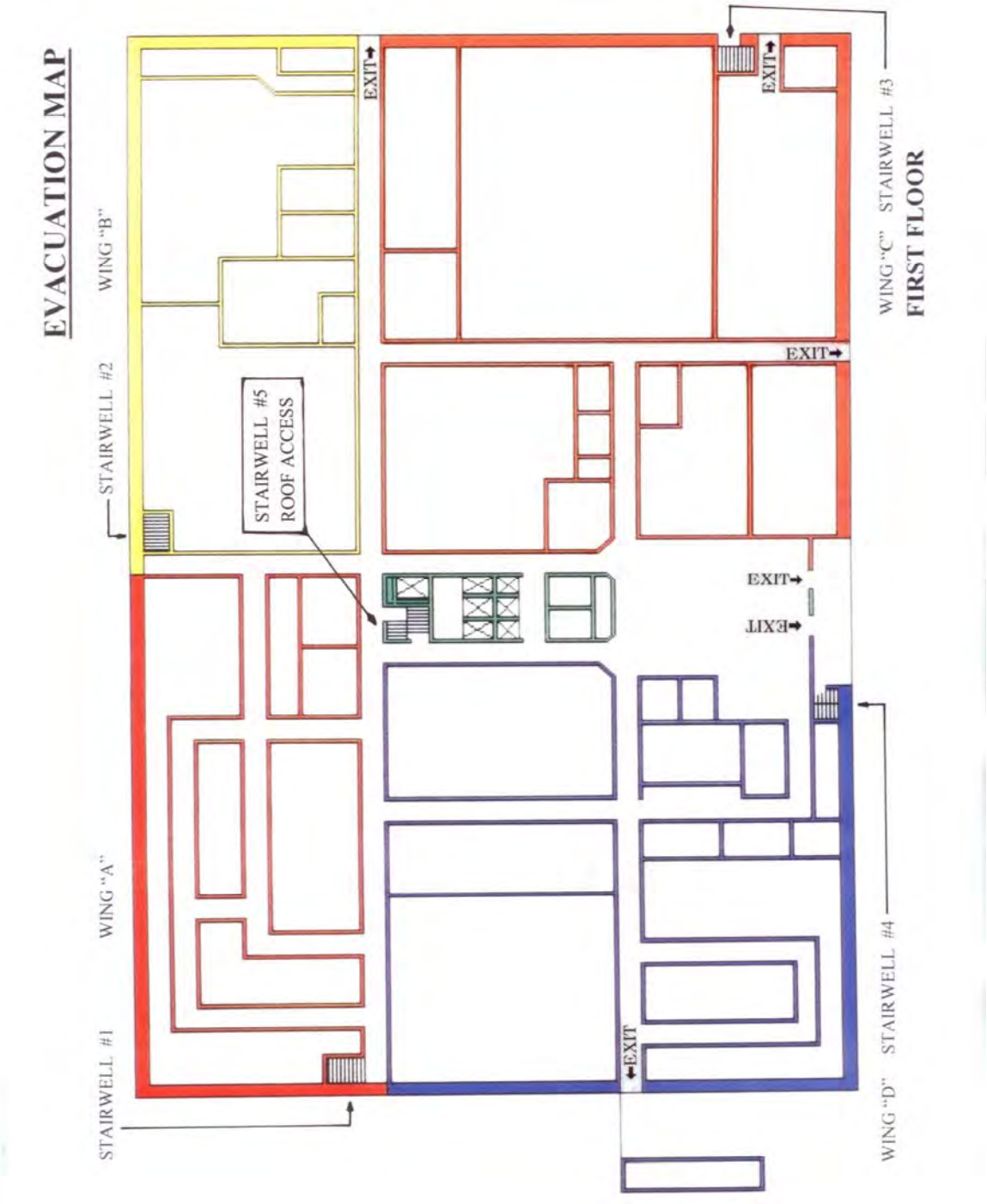
1. Stand next to patient, and place one of his arms around your waist.

2. Reach behind and around patient's waist and grasp his other arm.

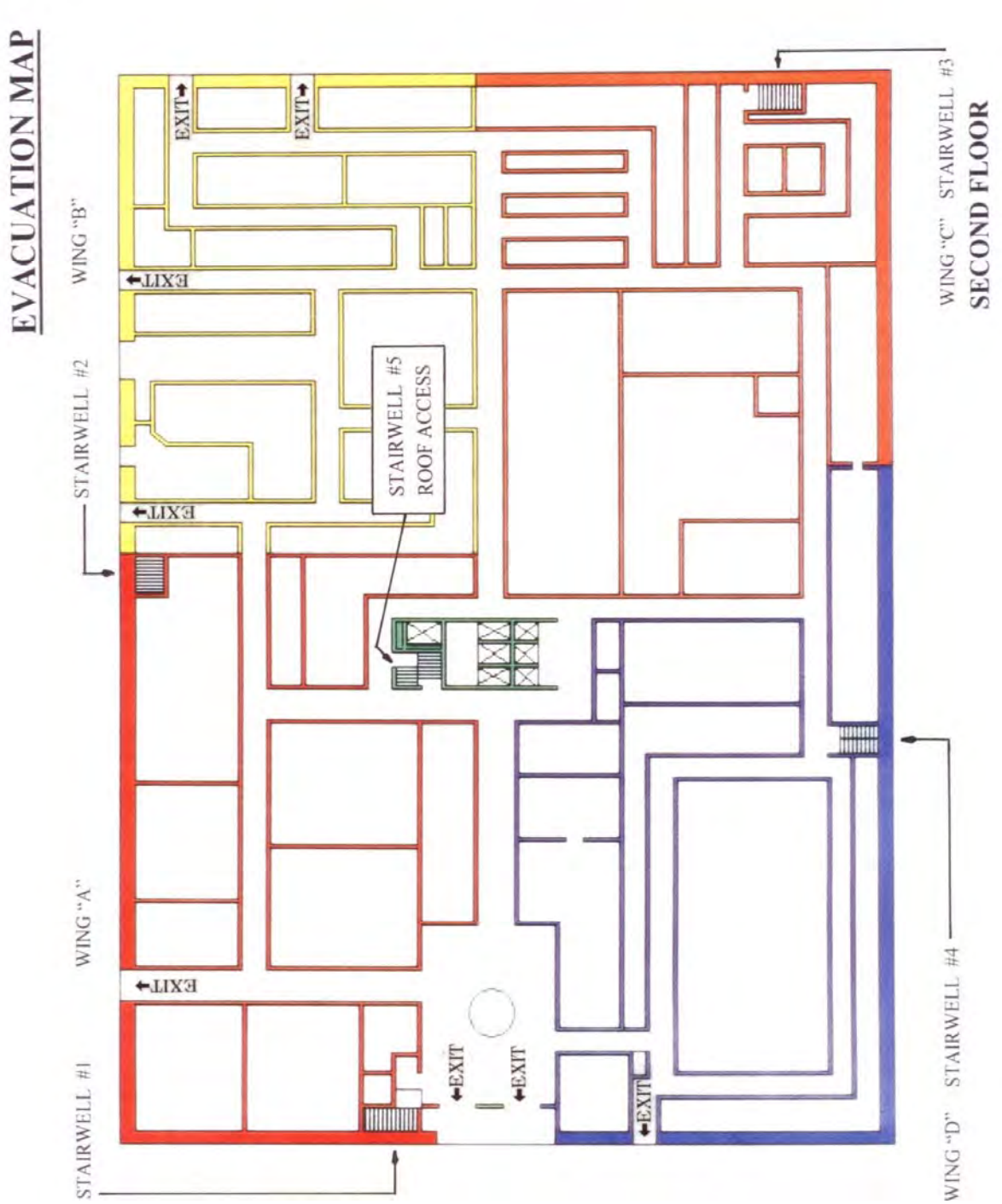
3. "Hug from behind" and walk in step, grasping your wrist.

EVACUATION MAPS

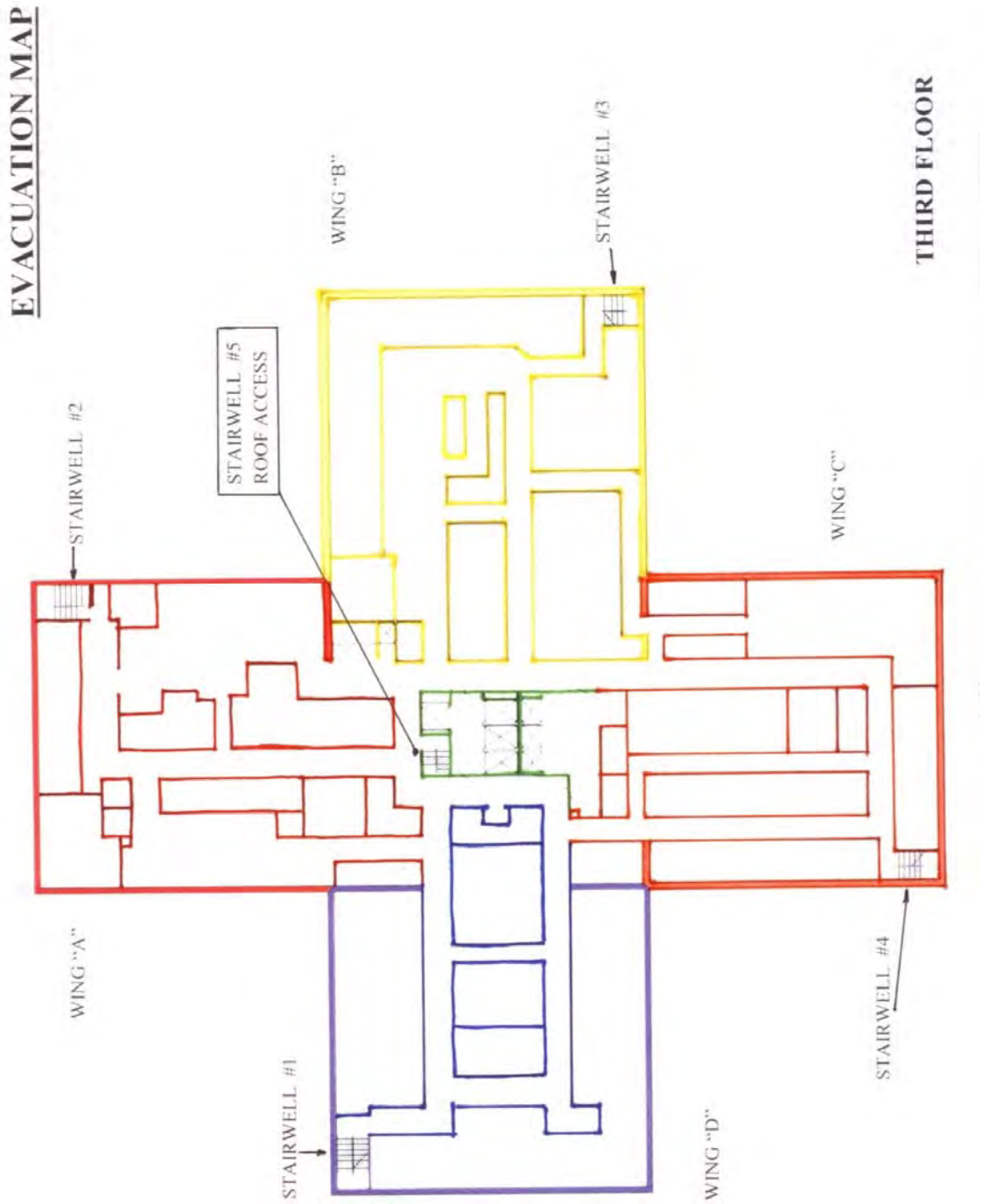
HOSPITAL 1ST FLOOR



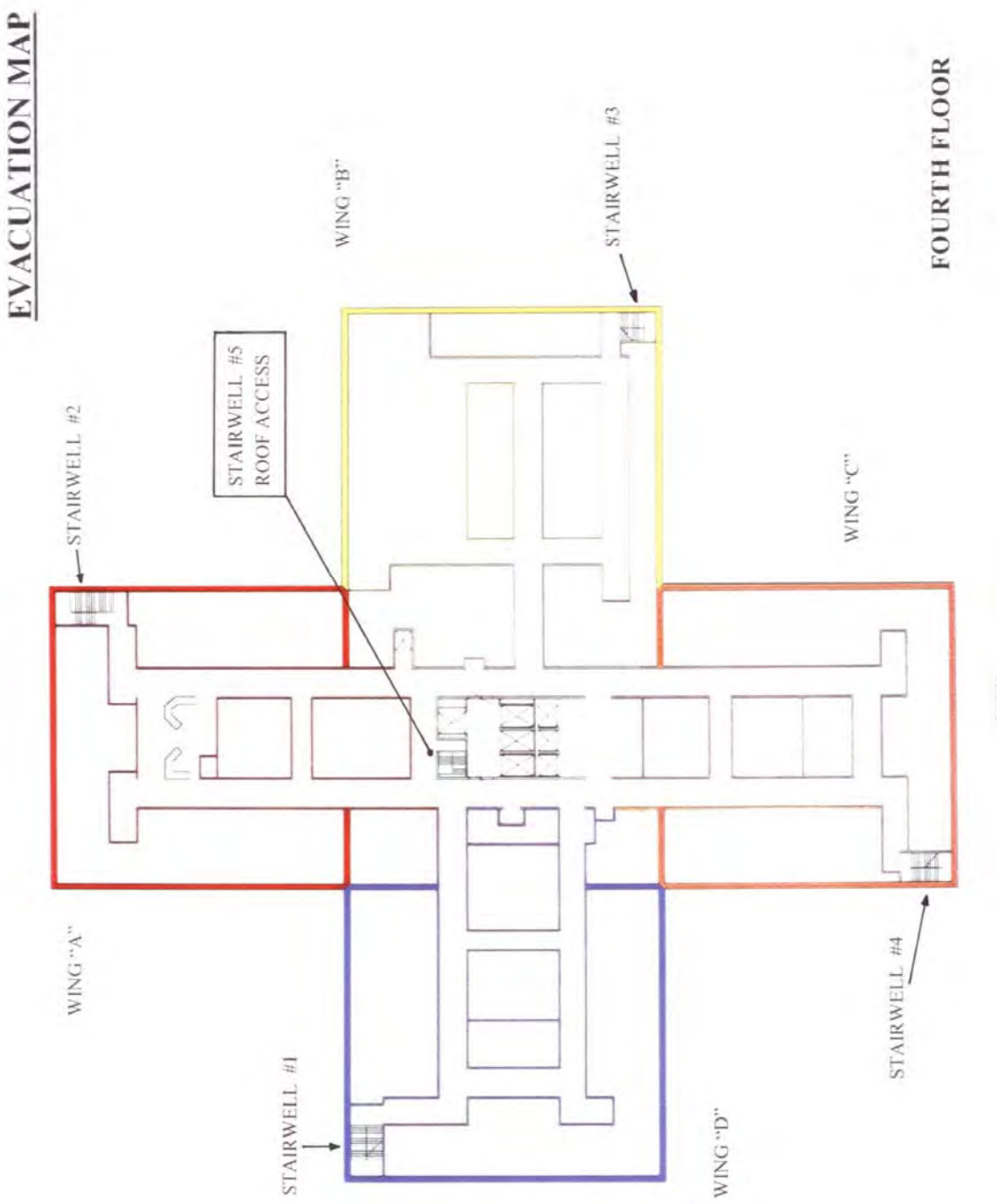
HOSPITAL 2ND FLOOR



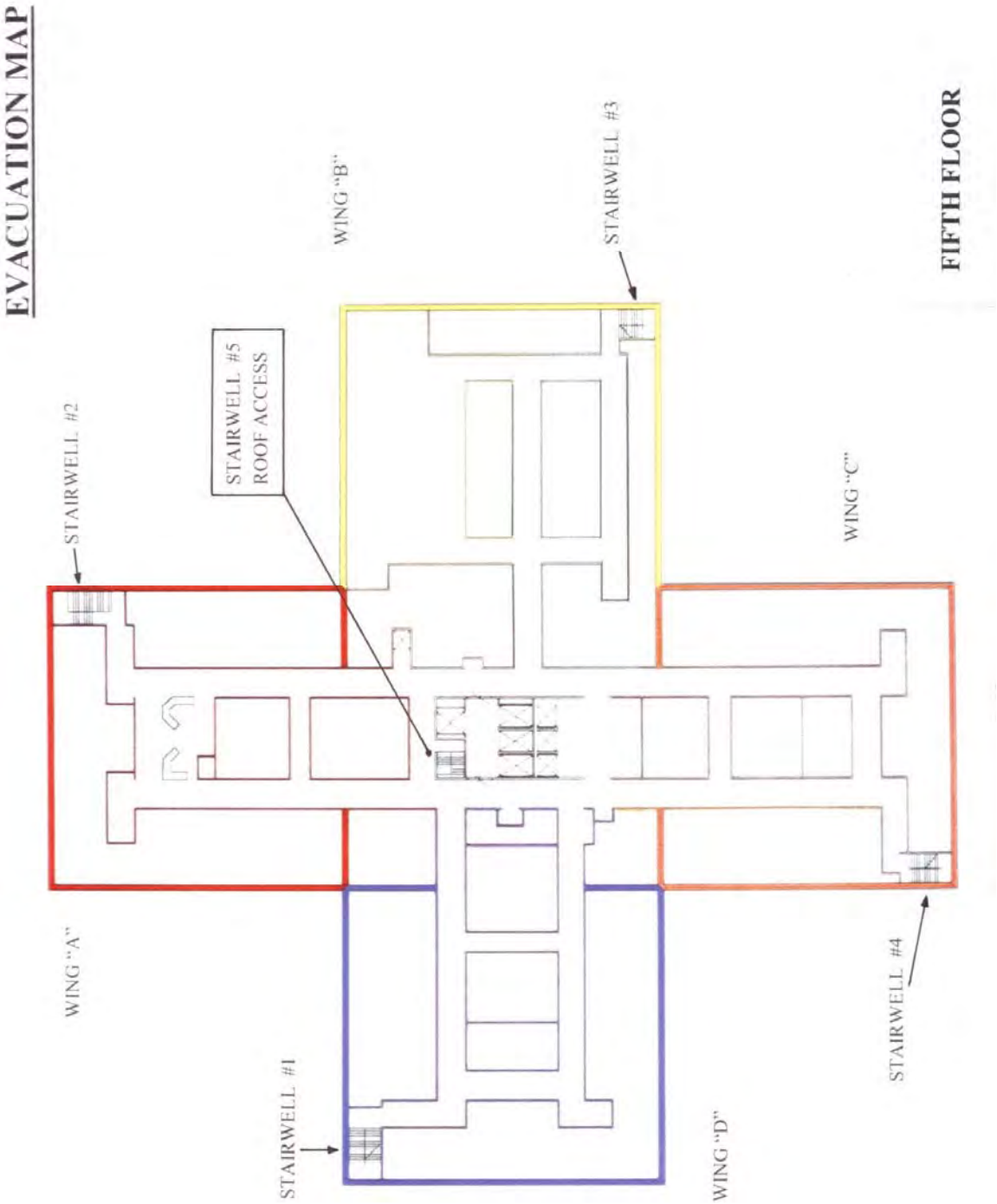
HOSPITAL 3RD FLOOR



HOSPITAL 4TH FLOOR



HOSPITAL 5TH FLOOR



HOSPITAL 6TH FLOOR



FIRE PROTECTION AND FIRE FIGHTING EQUIPMENT

TYPES OF FIRES

There are four classes of fires:



- **Class A** – fires involving ordinary combustibles (wood, paper, cloth, etc.).
- **Class B** – fires involving flammable liquids (oil, gasoline, and grease)**.**
- **Class C** – fires involving electrical equipment and appliances.
- **Class D** – fires involving combustible metals.
- **Class K** – fires involving hot grease, cooking oil, and fat.

TYPES OF FIRE EXTINGUISHERS

Extinguishers at this facility are classified as A, B/C, ABC, and K (kitchen).



- **Class A** extinguishers include:
    1. Water tank type
    2. Hose lines (located in outlying buildings only).

  These extinguishers should be used on type **A fires.**

- **Class B/C** extinguishers include:
    1. CO2
    2. Dry Chemical

  These extinguishers should be used on type **B fires** and type **C fires**.

- **Class ABC** (multipurpose) extinguishers include:
    1. Dry Chemical

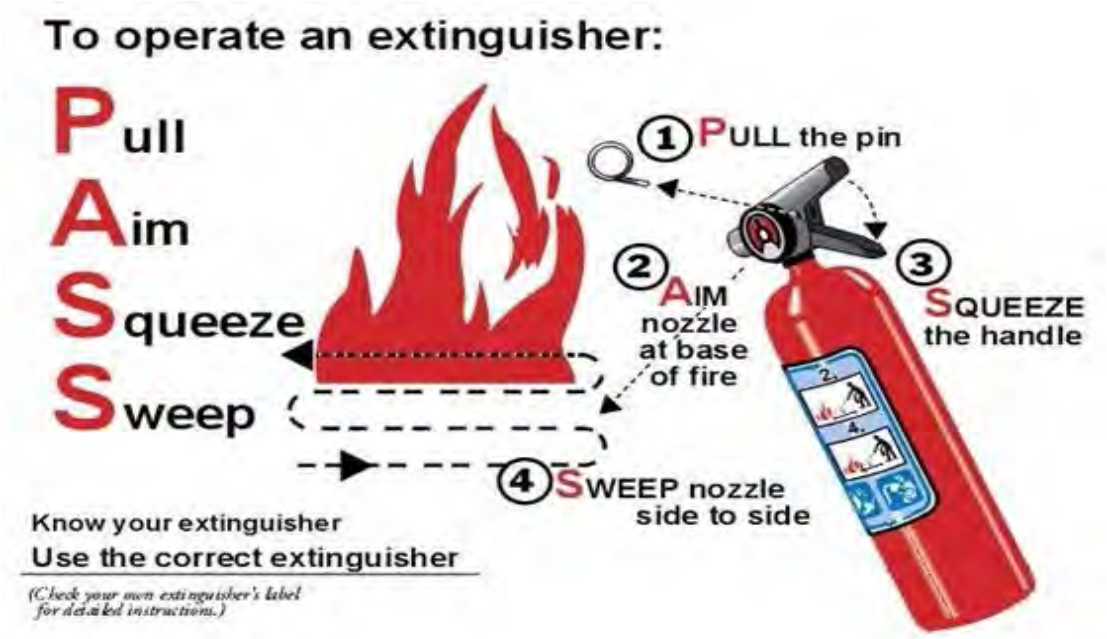
  This extinguisher should be used on type **A, B,** or **C fires**.

- **Class K** (kitchen) extinguishers include:
    1. Liquid Fire Suppressant

  These extinguishers should be used on type **K fires**.

USING A FIRE EXTINGUISHER

1. **Pull** the ring pin (hold extinguisher in an upright position)
2. **Aim** extinguisher at base of fire
3. **Squeeze** the handle
4. **Sweep** nozzle side to side



SMOTHERING FIRES

A blanket from a patient's bed is useful for smothering fires in bedding or on a person's clothing. In a similar way, you can smother a fire in a wastebasket by covering the top of the basket, or by placing another wastebasket inside of it.

FIRE EXTINGUISHER LABELS

- **Old Labeling System:** used simple icons with an A, B or C designation to show which class or classes of fire it is safe to use a given extinguisher to fight.



- **New Labeling System:** uses standard pictorial symbols which show the class or classes of fire for which the extinguisher is suited. The symbols identify the type of fire the extinguisher can be used for.



- Multi-Class Rating: extinguisher can be used on different types of fires and will be labeled with more than one designator (e.g. A-B, B-C, or A-B-C). Make sure that if you have a multi-purpose extinguisher that it is properly labeled.



- **Unsafe to Use:** a red slash through any of the fire classification symbols means it is unsafe to use that extinguisher on that class of fire. For example, a water-filled extinguisher would show the symbols for Class B and C fires slashed through, as water should never be used to extinguish a flammable liquid or an electrical fire.



If a symbol is not shown on the extinguisher's label, it simply means the extinguisher was not tested for that class of fire.

FIRE FIGHTING EQUIPMENT SYMBOLS – INTERIOR

FIRE EXTINGUISHERS



This symbol with a letter next to it classifies the Class of Fire



Fire Alarm Pull Station



Medical Gas Shut-off



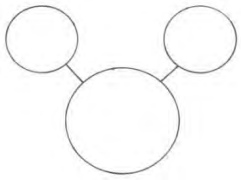
Fire Hose Connection (Fire Department use only)



Hazardous Materials Storage Area



FIRE FIGHTING EQUIPMENT SYMBOLS – EXTERIOR



Fire Department Connection (Siamese Connection)
All Sprinklers & Standpipes
Total Structure
*Fire Department Use Only



Fire Sprinkler Control Valve
This valve controls the water supply to combined standpipes in the stairwell.
*Fire Department Use Only

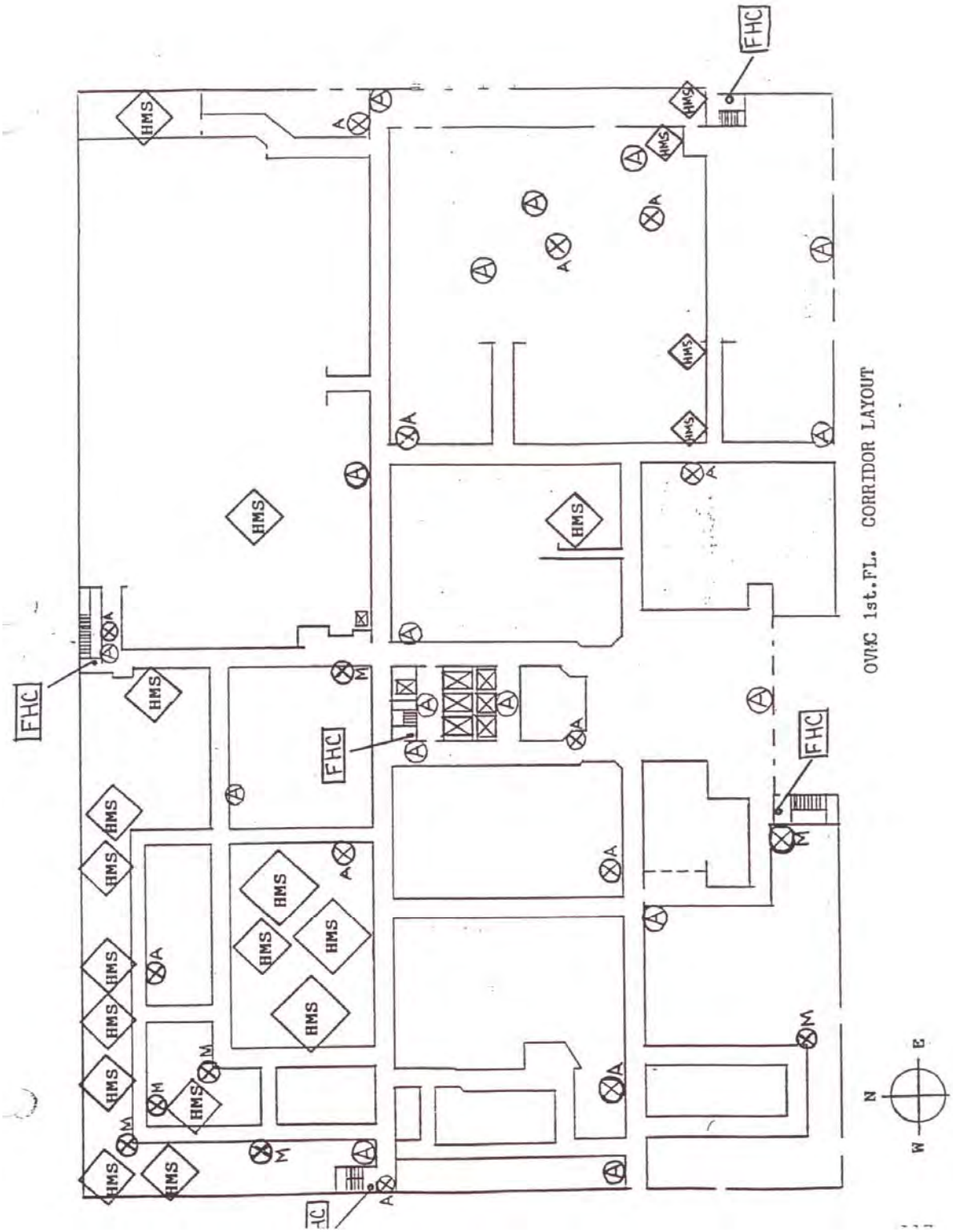


Fire Pump Test Header
*Fire Department Use Only

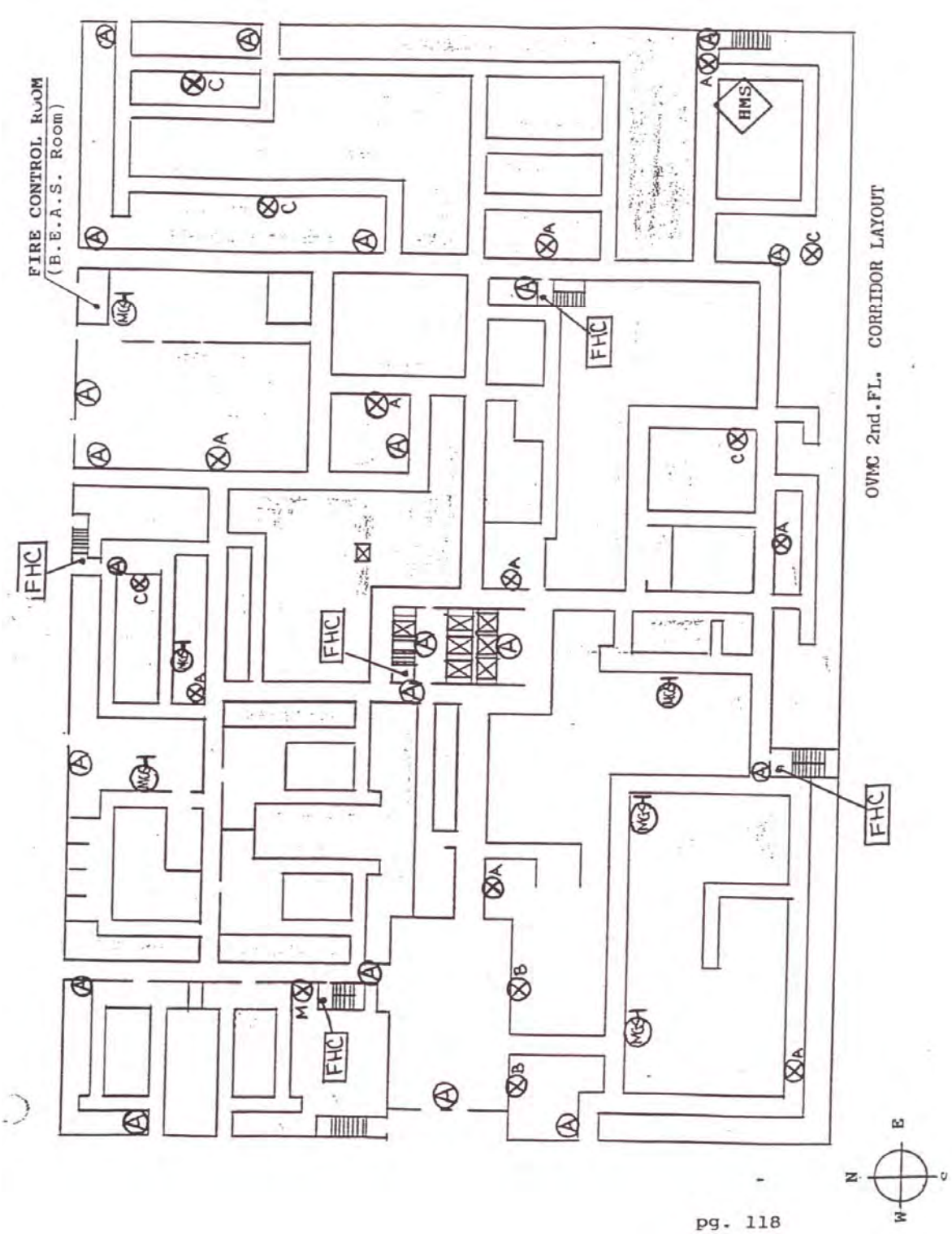
Hazardous Materials Storage Area



HOSPITAL 1ST FLOOR

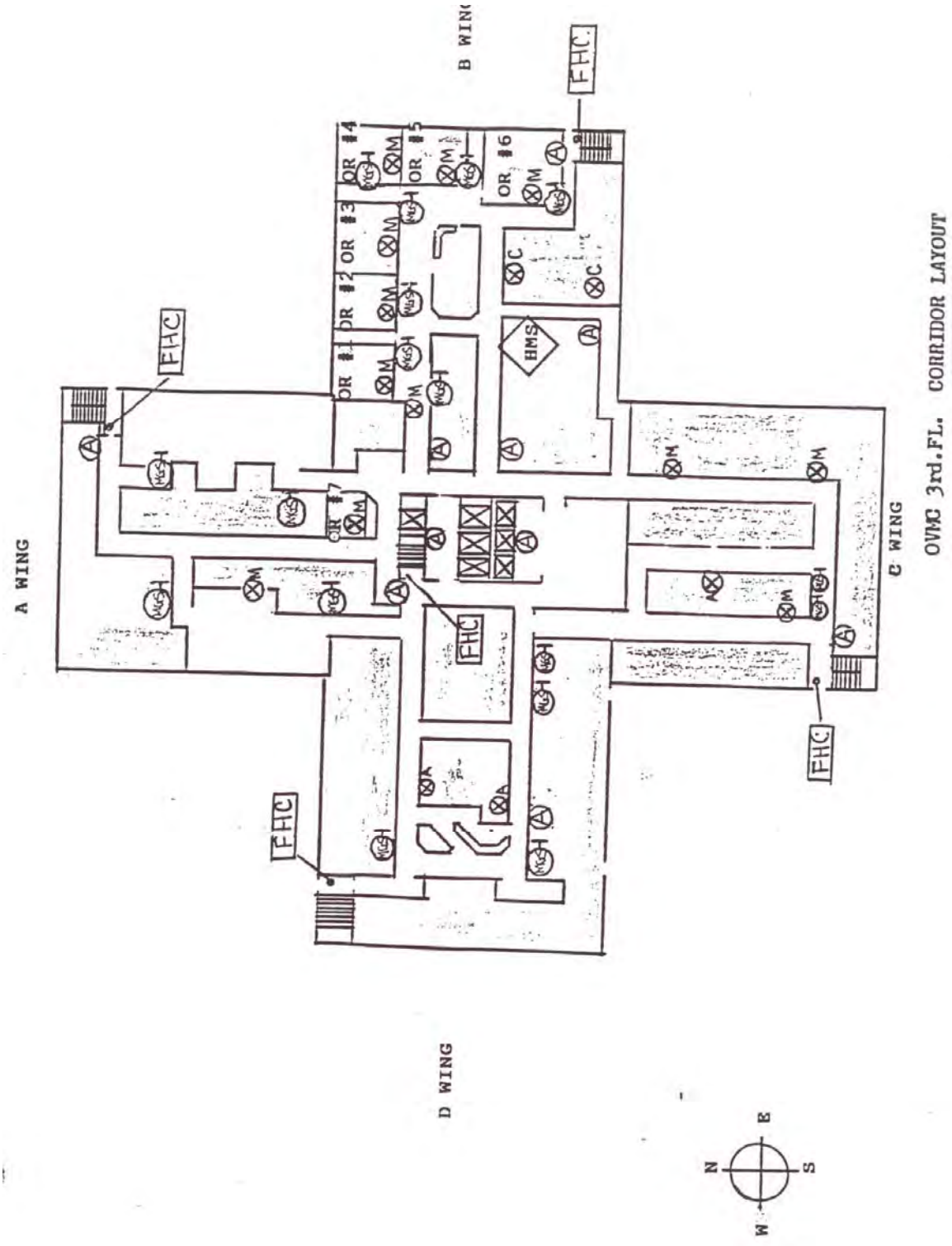


HOSPITAL 2nd FLOOR

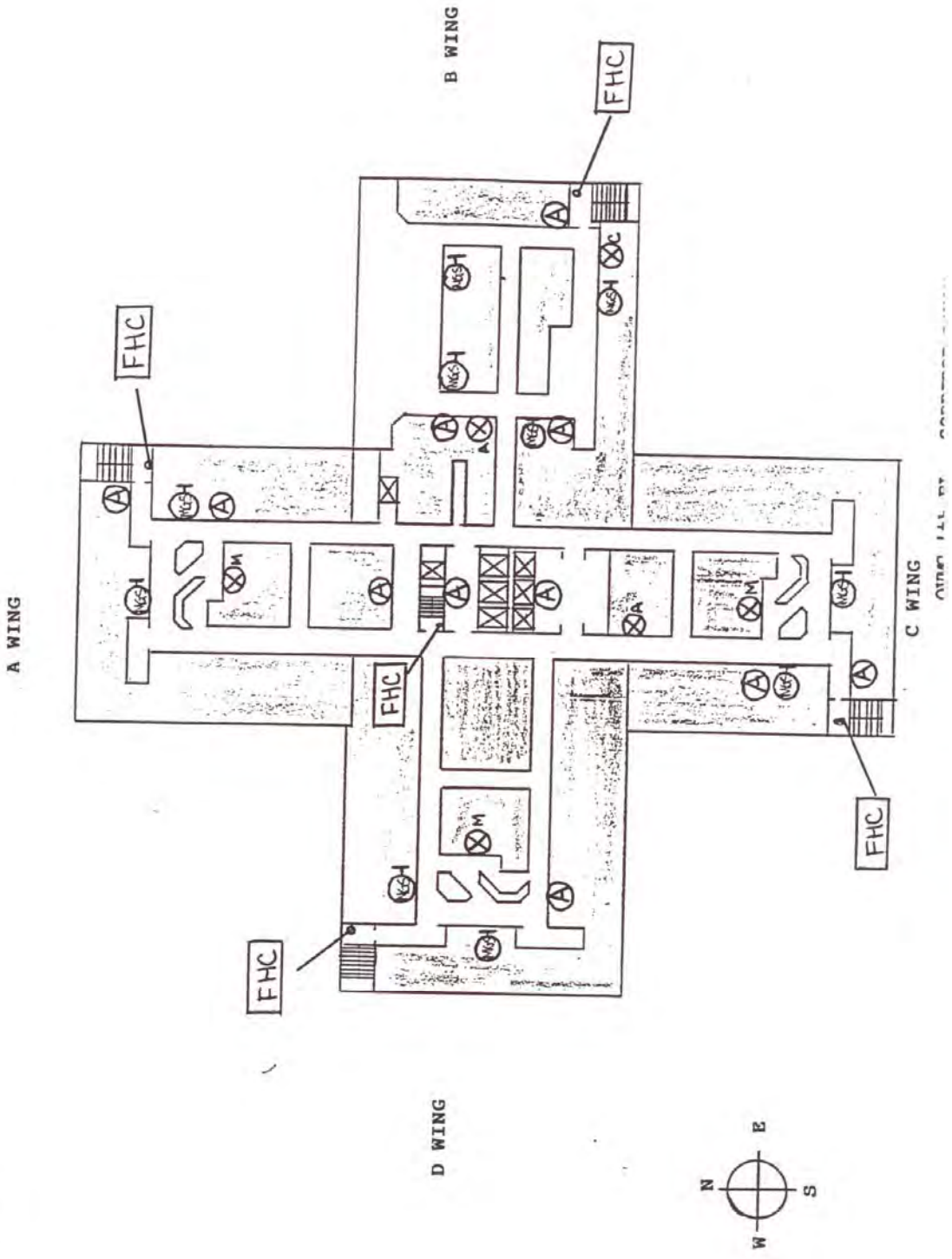


pg. 118

HOSPITAL 3rd FLOOR

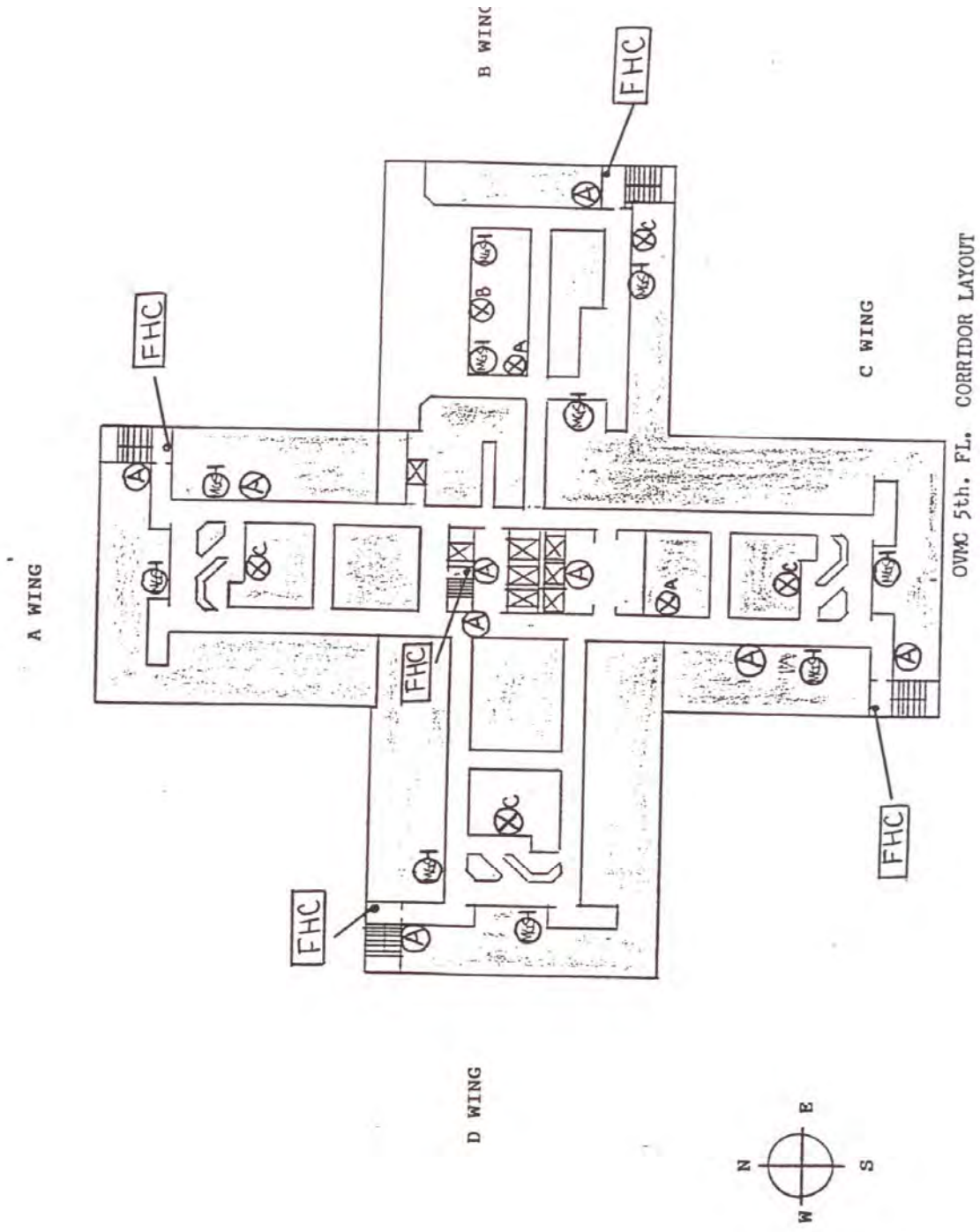


HOSPITAL 4th FLOOR



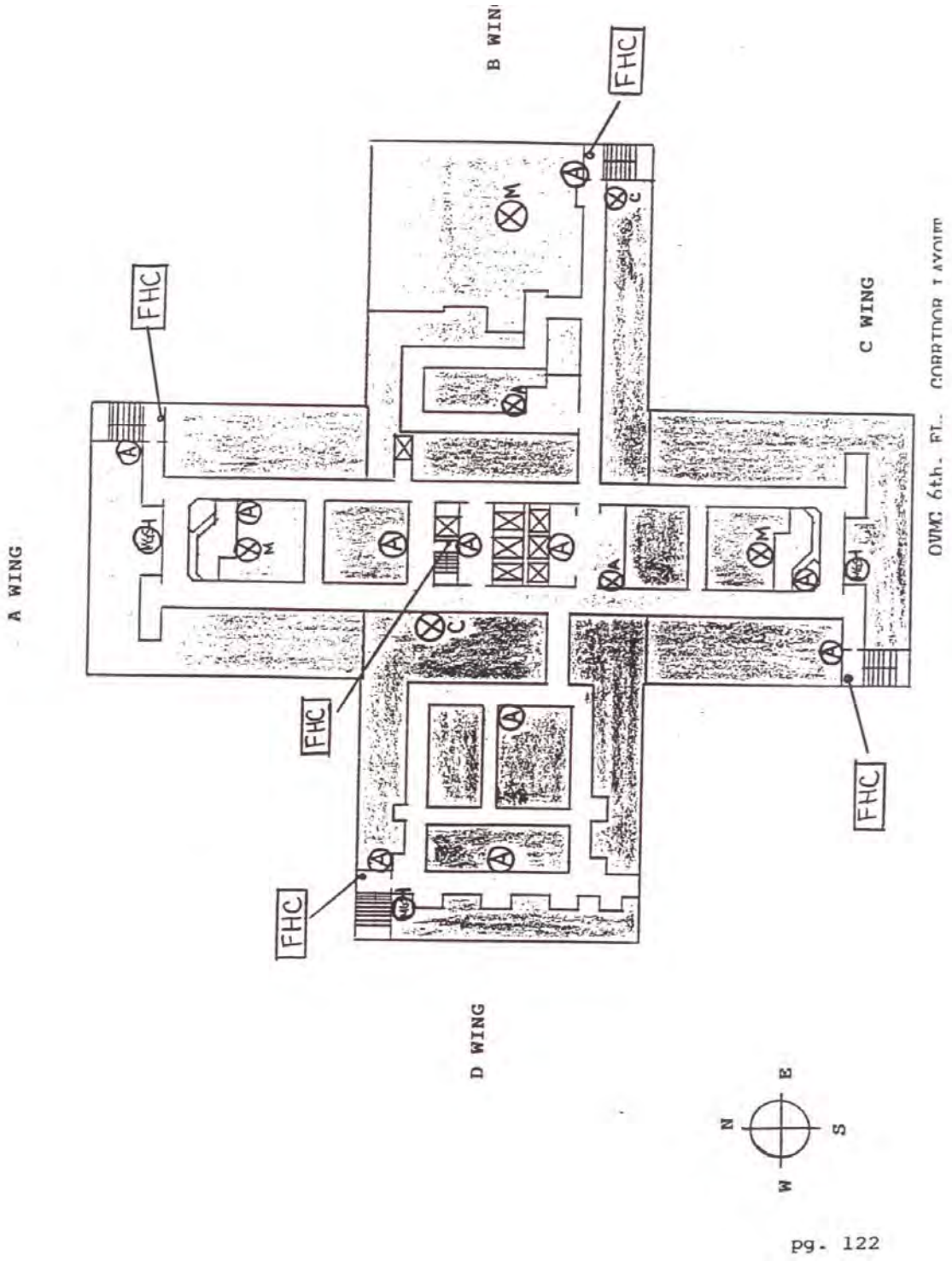
pg. 120

HOSPITAL 5th FLOOR

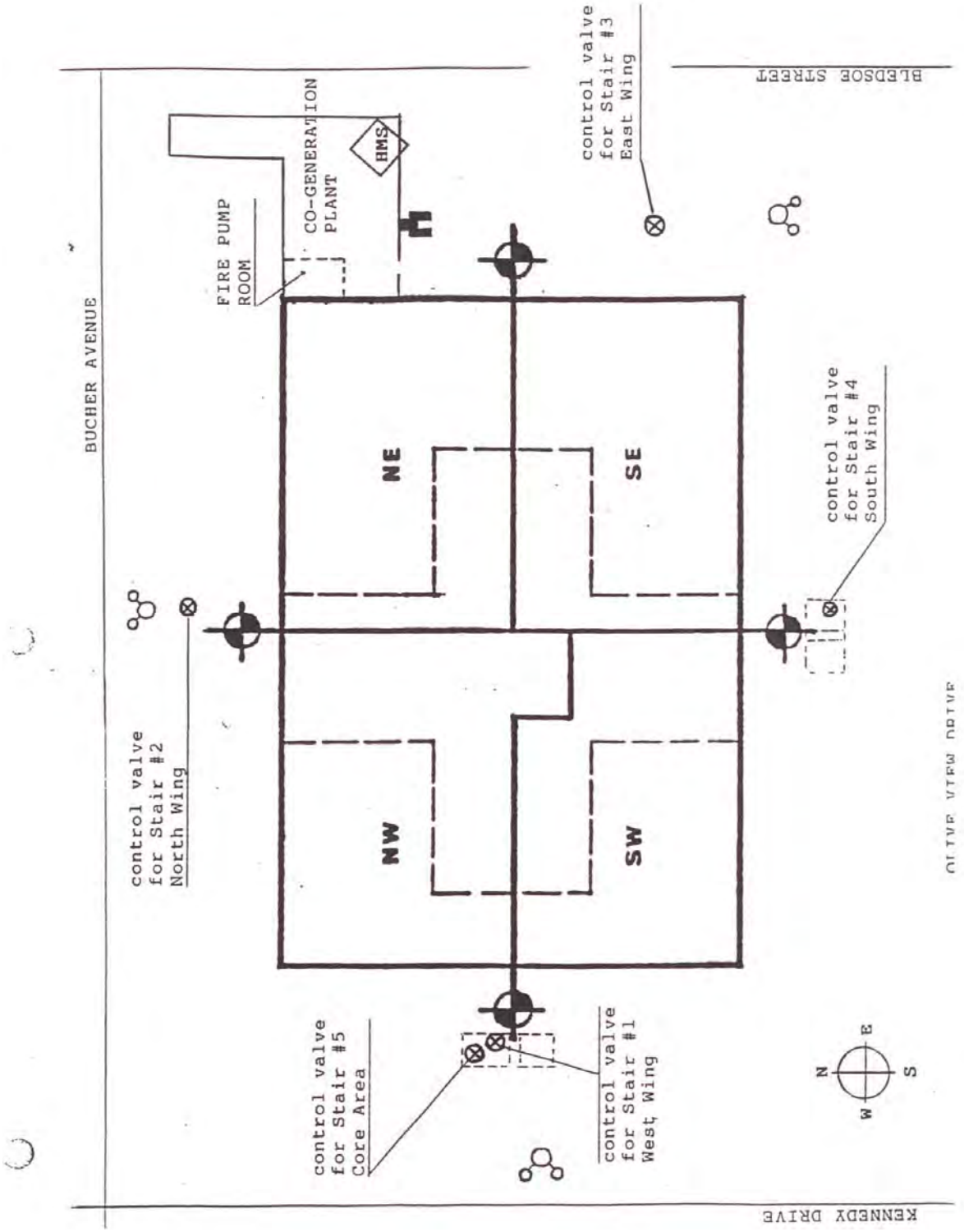


pg. 121

HOSPITAL 6th FLOOR



HOSPITAL EXTERIOR



FIRE DRILLS

PURPOSE

Drills are held to train all personal in the proper procedures to be followed in the event of a fire, and to ensure the safety of all patients, visitors, and hospital staff.

GENERAL INFORMATION

Employees of all shifts in all areas of the hospital are required to participate in a fire drill each quarter. Hospital-Wide fire drills are conducted regularly by the division of Environmental Health & Safety to ensure compliance.

DRILL PROCEDURE

A. Drill Participants

1. All employees are participants in a hospital-wide fire drill.
2. For employees in the fire location, the emergency fire procedure for their area should be followed.
3. For employees in other areas, they should be alerted when the “CODE RED” is announced and note the fire location. It is very important that at least one employee from each area (especially for areas on the same floor, a floor above or below the fire location) respond to the fire location with a fire extinguisher. Other employees should await further instructions until “ALL CLEAR” is announced.

B. Drill Observers

1. When selected by the Drill Conductor, each Drill Observer is responsible to observe a pre-determined area during the fire drill.
2. Note whether the announcements of “CODE RED” and “ALL CLEAR” can be heard clearly in the area.
3. Note whether all staff members in the area are aware of the “CODE RED” and observe to see if proper procedures are followed.
4. Immediately after the “ALL CLEAR” is announced, complete the fire drill observer report and return it to the Drill Conductor.

C. Drill Conductor

1. Wear an identification tag/badge while conducting the drill.
2. Determine the exact location for the simulated fire.
3. Select observers to observe various areas in the hospital. A minimum of 6 observers should be chosen for the day shift. A minimum of 4 observers should be chosen for the evening and night shifts.
4. Notify the telephone operator, BEAS room operator, and Sheriff Dispatcher of the location and approximate time prior to holding the drill.
5. Approach an employee working in the pre-determined area, describe the scenario, and instruct the employee to proceed as if there were an actual fire.

6. Observe the employee(s) to see if the proper procedures are followed, noting the time the drill began and the time various departments/areas responded.
7. Inform the telephone operator to announce the “ALL CLEAR” when the drill is complete.
8. Critique: After the “ALL CLEAR” has been given, the Drill Conductor will meet with drill participants to discuss the drill. To be considered are:
    a. Did any problems develop while the drill was proceeding?
    b. Were there any deficiencies in their procedures?
    c. Were there any unique situations in the area having the drill, and were they acted upon during the drill?
    d. Were the “CODE RED” and “ALL CLEAR” announcements heard clearly in the area?
9. Immediately following the critique, the Drill Conductor will collect all fire drill observer reports and complete the hospital fire drill report. The results of the drill and specifically any problems encountered should be addressed in the report. A copy of the report shall be sent to the Division Head/Nurse Manager where the drill was given. A written response from the Division Head/Nurse Manager on identified problems is required. The results of the drill will be discussed in the Environment of Care Committee.

Security Management Plan
2019

I. SCOPE

The Security Management Plan describes the methods of providing security for people, equipment and other material through risk assessment and management for Olive View-UCLA Medical Center. Security incidents are often intentional. Security protects individuals and property against harm or loss, including workplace violence, theft, infant abduction, and unrestricted access to medications.

The program is applied to: Olive View-UCLA Medical Center.

II. FUNDAMENTALS

A. A visible security presence in the hospital helps reduce crime and increase feelings of security by patients, visitors, and staff.

B. The assessment of risks to identify potential problems is central to reducing crime, injury, and other incidents.

C. Analysis of security incidents provides information to predict and prevent crime, injury, and other incidents.

D. Training hospital staff is critical to ensuring their performance. Staff is trained to recognize and report either potential or actual incidents to ensure a timely response.

E. Staff in sensitive areas is trained about the protective measures designed for those areas and their responsibilities to assist in protection of patients, visitors, staff and property.

F. Violence in the workplace is a growing problem in healthcare. It is necessary to develop a program to address workplace violence.

III. OBJECTIVES

The Objectives for the Security Program are developed from information gathered during routine and special risk assessment activities, annual evaluation of the previous year's program activities, performance measures, incident and injury reports and environmental tours. The Objectives for this Plan are as follows:

- The hospital buildings and property are patrolled on a scheduled basis, to identify and document potential or actual problems.
- Appropriate and timely action is taken to prevent crime, injury, or property loss.
- Security policies and procedures are established and maintained to direct staff performance when responding to security incidents. Security policies are reviewed at least every three years.

- Response is provided for emergencies and requests for assistance in a timely fashion.
- Crime, fire, injury, or other incidents are reported and documented. Communication is maintained externally with local, state, or federal law enforcement and other civil authorities. Internal communications are provided as needed.
- Vehicle movement on hospital grounds is controlled, including control of parking and access to the Emergency Department.
- Timely response to reports of violent activity or requests for assistance is provided for restraining violent or aggressive patients or visitors.
- Access to the grounds, buildings, and sensitive areas is limited by enforcement of security and police personnel, and by participating in the design of processes to minimize unauthorized access.
- Timely response to requests for escort, keys and door access, or other routine requests for assistance is provided.
- All new employees are trained about the Security Program, including what types of incidents the County Sheriff can/will respond to, how to report incidents and obtain assistance in an emergency and training for staff in designated sensitive areas.
- The documentation system for security incidents is managed and used to provide appropriate reports to leadership and the Environment of Care (EOC) Committee.
- County Sheriff activity, including investigations, routine patrol activity, special and routine requests for assistance, and other activities are appropriately documented.
- Identification of problems, failures, and user errors that require attention and action are reported to the EOC Committee at least quarterly.
- Performance improvement opportunities are documented and forwarded to appropriate individuals.
- An annual evaluation of the scope, objectives, performance, and effectiveness of the program is conducted and documented.
- The potential for workplace violence is evaluated as part of risk assessment, and programs are developed to manage it.

IV. ORGANIZATION & RESPONSIBILITY

A. The Executive Leadership receives regular reports of the activities of the Security Program from the multidisciplinary improvement team, the Environment of Care Committee, which is responsible for the Physical Environment issues. They review reports and, as appropriate, communicate concerns about identified issues and regulatory compliance. They also provide financial and administrative support to facilitate the ongoing activities of the Security Management Program.

B. The Chief Executive Officer (CEO), or other designated leader, collaborates with the Safety Officer to establish operating, and capital budgets for the Security Management Program.

C. The Safety Officer, in collaboration with the committee, is responsible for monitoring all aspects of the Security Program. The Safety Officer advises the EOC Committee, regarding security issues which may necessitate changes to policies and procedures, orientation or education, or expenditure of funds.

D. Department heads are responsible for orienting new staff members to the department and, as appropriate, to job and task specific security procedures. They are also responsible for the investigation of incidents occurring in their departments. When necessary, the Safety Officer provides department heads with assistance in developing department security programs or policies.

E. Individual staff members are responsible for learning and following job and task-specific procedures for secure operations.

V. PERFORMANCE ACTIVITIES

The performance measurement process is one part of the evaluation of the effectiveness of the Security program. Performance measures have been established to measure at least one important aspect of the Security program.

The performance measure for the security program is:

- Staff Knowledge – knowledge of security procedures exceeds 90% threshold.

VI. PROCESSES FOR MANAGING SECURITY RISKS - EC.02.01.01

Management Plan - EC.01.01.01 EP5

The Safety Officer develops and maintains the Security Management Plan that describes the processes implemented to effectively manage the security of staff, patients, and visitors.

Security Risk Assessment - EC.02.01.01 EP1

The Safety Officer manages the security risk assessment process for the organization, hospital and offsite facilities. This individual is designated to manage risk, coordinate risk reduction activities in the physical environment, collect deficiency information, and disseminate summaries of actions and results. The Safety Officer assures that compliance with applicable codes and regulations.

This assessment implements its process to identify security risks associated with the environment of care. Risks are identified from internal sources such as ongoing monitoring of the environment, results of root cause analyses, results of annual proactive risk assessment of high-risk processes (LD.04.04.05 EP10), and from credible external sources such as Sentinel Event Alerts.

The risk assessment is used to evaluate the impact of the environment of care on the ability of the hospital to perform clinical and business activities. The impact may include disruption of normal functions or injury to individuals. The assessment will evaluate the risk from a variety of functions, including structure of the environment, the performance of everyday tasks, workplace violence, theft, infant abduction, and unrestricted access to medications.

Use of Risk Assessment Results - EC.02.01.01 EP3

A risk assessment is used to evaluate the impact of the environment of care on the ability of the hospital to perform clinical and business activities. Where risks are identified, the current programs and processes to manage those risks are compared to the risks that have been identified. Where the identified risks are not appropriately handled, action must be taken to eliminate or minimize the risk. The actions may include creating new programs, processes, procedures, training programs. Monitoring programs may be developed to assure the risks have been controlled to achieve the lowest potential for adverse impact on the security of staff, patients, and visitors.

Identification Program - EC.02.01.01 EP7

The Human Resources Manager coordinates the employee identification program. The Human Resources Department and all supervisory personnel manage enforcement of the employee identification program.

All employees are required to display an identification badge on their upper body while on duty. Identification badges are to be displayed on the individual with the picture showing. Employees who fail to properly display their identification badge are counseled individually by their department manager. Identification badges are retrieved from employees upon termination.

Administration maintains policies for identification of patients, staff, visitors, and vendors. Visitors and patients are not normally expected to have identification. Visitors to some specific units are requested to have identification, or to be recognized by staff, e.g., Labor & Delivery, Newborn Nursery, Neonatal Intensive Care Unit, Psychiatry, etc. After the normal business hours of 7 A.M. to 8 P.M., all visitors (e.g., patient visitors or vendors) are required to check in with the Security Guard on duty to obtain visitor clearance. The Sheriff Deputies and Security staff assists in enforcement of visitor identification policies.

Where required, patient identification is provided at the nursing unit where patients are first admitted. If a patient wristband is damaged, it is replaced by the nursing staff. Patient identification is not removed upon discharge. Patients are instructed to remove the identification band at home.

Supply Chain Operations provides vendor and contractor identification. Identification badges are controlled and stored in a secure area.

Sensitive Areas - EC.02.01.01 EP8

The Safety Officer and Sheriff Sergeant works with leadership to identify security sensitive areas by utilizing risk assessments and analysis of incident reports.

The following areas are currently designated as security sensitive areas:

- Administration
- Cashier
- Emergency Room
- Hospital Loading Dock

- Human Resources
- Information Systems
- Medical Records
- Mental Health Wards
- Nursery, Labor & Delivery
- Parking Lots
- Pediatrics
- Pharmacies
- Psychiatric Emergency Room
- Supply Chain Warehouse and Receiving

Staff are reminded during their annual in-service about those areas of the facility that have been designated as sensitive. Staff assigned to work in sensitive areas receive department level continuing education on an annual basis that focuses on special precautions or responses that pertain to their area.

Security Incident Procedures - EC.02.01.01 EP9

The Safety Officer coordinates the development of hospital-wide written security policies and procedures; and provides assistance to department heads in development of departmental security procedures, as requested. These policies and procedures include infant and pediatric abduction, workplace violence, and other events that are caused by individuals from either inside or outside the hospital.

Individual department heads assist in the development of department-specific security policies and procedures for risks unique to their area of responsibility. The Safety Officer also assists department heads in the development of new department security procedures. Hospital-wide security policies and procedures are distributed to all departments. Department heads are responsible for distribution of department level policies and procedures to their staff and for ensuring enforcement of security policies and procedures. Each staff member is responsible for following security policies and procedures.

Organization-wide security policies and procedures are reviewed at least every three years. Additional interim reviews may be performed on an as needed basis. The Safety Officer coordinates the triennial and interim reviews with department managers and other appropriate staff; and works with department managers to develop/review departmental security policies and procedures.

Security Incident Response - EC.02.01.01 EP10

Upon notification of a security incident, the Sheriff Deputies will assess the situation and implement the appropriate response procedures. The Sheriff Deputy will notify Hospital Administration of any significant security incident. Security incidents that occur in the Emergency Department will be managed initially by the Security staff by following the appropriate policies and procedures for that area. The Sheriff Deputy will be notified about the incident as soon as possible.

Security incidents that occur in the departments will be managed according to the departmental or hospital-wide policy. The department manager or supervisor will be notified about any incident that occurs in a department as soon as possible. Additional support will be provided from the Security staff upon request.

In the event of an infant or child reported missing, a Code Pink or Code Purple is announced over the internal page system, as well to all Sheriff and Security staff radios. Designated staff responds to doors and specified areas to observe for persons with children or packages, and call Security if such cases occur. Other staff checks designated areas, and respond to the unit involved to document information, and provide support to the parents.

The plan is tested at least once a year, and the responses documented, evaluated, critiqued, and as appropriate corrective activity, additional training, or program improvements are made.

Following any security incident, a written "Security Incident Report" will be filed by the Sheriff Deputy managing the incident. The report will be reviewed by the Safety Officer if necessary. Any deficiencies identified in the report will be corrected. A summary of these reports will be submitted to the Environment of Care Committee on a regular basis.

Evaluating the Management Plan- EC.04.01.01 EP15

On an annual basis, the Safety Officer evaluates the scope, objectives, performance, and effectiveness of the Plan to manage the security risks to staff, patients, and visitors.